Vending Machine at Developing Country

～Boost Sightseeing Industry～

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Abstract

1 Introduction

  In recent years, many countries have been putting an effort into the tourism industry which is a major financial resource among developing countries. Certainly, there are many cases that the wonderful tourism resources that are still unseen are sleeping in developing countries, but there are also many major problems. For example, the lack of money and the lack of facilities to accommodate tourists, poor security due to the effects of conflicts, the harsh natural environment, etc. are all problems in developing countries. Therefore, as part of support for tourism industry development, I came up with an idea of using Japanese vending machine those have many advantages such as labor cost reduction, simplification of communication. The purpose of my research is to install Japanese vending machines in each tourist area, to prepare safe and comfortable facilities, develop the tourism industry, bring economic development to the country, and raise the standard of living.

2 Discussion and implications

Research background

≪Current state of tourism industry in developing countries≫

  Many countries that are making efforts, but there are problems such as lack of capital and inability to prepare facilities to accept tourists, poor security due to conflicts, and harsh natural environments.

≪Effect of tourism industry≫

  Since you can drop a lot of foreign currency (money from other areas), it is an economic benefit, and it also provides an opportunity for tourists to see valuable tourism resources, as well as entertainment and healing effects.

Research value

  The tourism industry is economically positive because it allows traveler to drop a lot of foreign currency, leading to the economic development of the country. Travel facilities and infrastructure can also be used by locals for non-tourist purposes. In addition, it provides tourists with opportunities to see valuable tourism resources, entertainment, and healing.

≪Advantages and disadvantages of vending machines≫
Merit
・ It can make money just by leaving it. (If it costs 150 yen per bottle, it will make about 30-40 yen)
・ Labor costs will be reduced.
・ Because it is bright at night, it becomes crime prevention in areas with poor security.
・ Models that supply power due to aircraft conditions can provide a safe stay because they can supply power during a disaster.
・ Various kinds of goods can be sold, and it becomes a welfare for local residents.
-Effective use of narrow spaces.
・ If there is a store, it will attract customers.
・ Easy installation and no major construction required.

Demerit
・ Electricity costs (who in developing countries pays out)
・ We have to replenish
・ It is damaged (especially in foreign countries)
・ Processing of unsold goods

≪Precautions for installation≫
  Since vending machines are man-made objects, change the colors and shapes not to destroy the scenery of each sightseeing spot. Also consider the installation location to match the culture and religion of the country. If security is the worst factor of concern, make the vending machine physically stronger (cellulose nanofiber) or lower (CNF)

* Cellulose nanofiber
  All plant cell wall skeletal components can be obtained by finely loosening plant fibers to Nano size. Features are light and strong (1/5 lighter than steel, more than 5 times stronger) ・ Large specific surface area (250m2 / gm or more) ・ Small deformation due to heat (about 1/50 of glass) ・ Plant derived ⇒ Sustainable resources, low environmental impact, Etc.

≪Advantages of Japanese vending machines≫
  Not only is it safe and secure, but it can handle not only soft drinks, but also various items (confectionery, ice, cigarettes, accessories) and more.

≪What to sell≫

・ Practical products necessary for sightseeing such as maps and towels ← Labor costs can be reduced

・ A familiar soft drink

・ Souvenir ← Easy to get

・ Strict environmental measures (cold weather, heat measures, etc.) ← Ensuring the safety of travelers (this can be distributed for free)

≪On the use of disposal vending machine≫

Approx. 350,000 vending machines are discarded in Japan. Vending machines that have been used will be properly disposed of as industrial waste by complying with the "Waste Disposal and Cleaning Law" by the owner of the contents manufacturer or operator who is the owner.

Although high functionality cannot be expected when using a disposal vending machine, if some modifications and improvements are made (such as installing ＣNF), it will be possible to operate at a certain level of functionality and at a low cost. Can be expected. (The price of a used vending machine is 100,000 yen per unit, and a new unit is about 500 to 600,000 yen per unit)

≪Other functions≫

Wi-Fi built-in type

Translation functions

These functions are worn when the basic functions of the vending machine are fully satisfied.

3 Conclusion

Problem Solving

The problem of being broken in poor security uses CNF to increase physical strength. Managers hire local residents to create jobs, and electricity costs are generated by renewable energy generation (according to the geography of the region, mainly hydropower, wind power, and biomass). Donate unsold items to local residents.

The following vending machines are proposed for the development of the tourism industry in developing countries, which is my final goal.

≪Efficient vending machines for the tourism industry≫

Material　　Light, strong and cheap, use CNF

Appearance　　Change the color and shape so as not to destroy the scenery of each tourist
　　　　　　　destination

For sale　　Soft drinks, souvenirs, food and tourism goods

Electric bill　　Cover with geothermal renewable energy

Profit　　Profit of 50 yen per bottle of water, considering prices and labor costs

≪Precautions for installation≫

Place a place that does not break the landscape of a tourist destination and does not become
　　　a cultural or religious taboo

Unsold Donation to local residents (fairly)

Management Job creation for unemployed local residents

　If these are spread, a lot of foreign currency is dropped, which is economically positive and leads to the development of the country. In addition, travel facilities and infrastructure can be used by local residents for non-tourist purposes, leading to benefits.

In addition, tourists can expect positive impacts on the country, such as opportunities to see valuable tourism resources, entertainment, and soothing.

Summary

　This study started when I was thinking about how to improve poverty and economic conditions in developing countries, and heard that the tourism industry is effective in getting a lot of foreign currency dropped. It was. As I said earlier, the current situation in developing countries was harsh and difficult because it was impossible to build large-scale infrastructure, but I came up with the idea that a vending machine could be installed more easily. The vending machines that I propose are beneficial not only for tourists but also for local people, so I would like to see the development of the economy by installing them in many developing countries.

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Fascinating Management

～from Disney~

5102   Shinozaki Akito

○ Research Overview

At Disneyland, high-level theme shows, lovable characters, attractions that pursued reality, and particularly adorable casts. In addition, there is no detailed manual in the cast education, each of them is dealing with the case. And Disney has a corporate philosophy that is different from other companies, and with reference to these distinctive management policies of Disney, after understanding the backup and specific order for entrepreneurs regardless of Japan ,suggest.

○ Research methods

I mainly refer to the Internet and the impressions that I felt through direct visits. And the research order is as follows.

1. Differences between Tokyo Disney Resort and other companies

2. Specific management philosophy

3. Development into current issues

○ Research results

1. Disney Casting

Let's start with the familiar Tokyo Disney Resort. One of the major differences compared to general companies is the "manual". Since general companies are serving customers manually, they will proceed according to the manual, even though they may have thoughts and priorities when dealing with customers normally. Then, the serviced side sometimes feels uncomfortable. However, Disney has few manuals. In fact, according to what Disney has announced, most of the customer service of the cast is left here. It can also be seen that the service is devoted to pleasing guests (customers). Therefore, the purpose is clarified by serving customers according to the manual given by the former, and it takes away self-solving ability and judgment for things. Therefore, "manual abstraction" is the point. In other words, there is no manual at all, and In addition, as for the manual, the philosophy of the company is such that it is said that "the philosophy is existence significance, and most companies should have a management philosophy. The manual should be created based on that philosophy." Since it appears clearly, there is no direct denial about the existence of the manual. Also, referring to a book written by a former Disney cast, Disney is greatly influenced by the

manager's (boss) leadership. Also, famously, about 20,000 Disney casts are part-time workers and most are non-regular employees. Therefore, high-level manager guidance can provide high-level customer service, shows, and on-stage while employment is changing rapidly.

2. Disney basic concept

Safety ... Safety The premise is that it is a safe place for casts and guests. A major premise for hosting guests on an accident-free day. Invisible "safety" must be given priority. By ensuring that the cast always pays attention to the guest's behavior and prioritizes safety, the safety of the entire park can be improved. You may have seen it once, but none of the casts that keep the park clean are squatting and cleaning. This is a consideration given the risk of a small child colliding with a cast and falling. In addition, having a guest's eyes and working with peace of mind is also an important consideration for the management who oversees the cast. Courtesy ... politeness The original meaning of Courtesy means "care for others" and "consider". The basic idea is to provide each guest with a high level of service as an important customer (VIP), and the politeness of the casts expresses a "natural attitude born from the desire to" entertain "that person" . The cast is eager to observe what the guest wants now and to "act as an opponent". ① greeting as a point (Good morning, hello) guest by applying the word voice, etc. to help take the easier to answer communication. ② Make a smile and make a "natural smile" instead of a smile. ③ Talk to the other person so that they can easily communicate with the other person by judging their age and situation. ④ Speak with the other person through eye contact. There are four points, and this is done as usual. Show ... Shows what guests see and experience as part of the show are part of the show, and dancers appearing in entertainment shows, as well as casts that work in merchandise stores and restaurants are part of the important show is there. So I wear a costume that suits my role, I am dressed up and perform a show according to the theme of each stage. Products are created according to the theme of each place, creating an atmosphere. Efficiency ... Efficiency here does not waste guests' precious time and allows them to experience many shows. For this reason, Cast believes that working well with teamwork will reduce waste and increase efficiency. There are two types of cast roles: roles that directly contact guests and roles that do not. Remember that both casts are a part of the team and they are all welcomed by guests. For example, the waiting time that occurs is made to prevent the waiting time from being felt by the cast actively speaking. There are the above four behavior standards, the order of which has an important meaning, and they are arranged in order of priority. This code of conduct is called four keys, and the acronym is called "SCSE". As described above, it can be said that the management of Tokyo Disney Resort has created a better community place by giving priority to customers, not corporate profits. In my opinion, the park is a theme park that Disney has partnered with,

but it is also a public where the cast and guests create a comfortable environment. In addition, Disney's basic philosophy is "interactive management". In this way, we have created an environment where it is easy to work by making active conversations within the cast and conversations within the supervisor. Also, there are a large number of guests coming in, and creating an environment where people can talk to the cast casually is also an attraction of Disney, which is the best environment for both the cast and the guests.

3. Decrease in community

Although the topic changes, I think that the social issue that has recently been a concern in Japan is the declining birthrate and aging population. In addition, there are more disasters in Japan than in other countries, and secondary disasters can occur due to the declining birthrate and aging population. In addition, elderly people live longer due to the development of medical care, and the number of children who are in a position to support elderly people decreases, so the ratio of the working population becomes lower and the burden becomes larger, and eventually the burden on elderly people will also be affected. For example, as the workforce declines, the total income will decrease, so the burden of consumption tax will increase and it will not be possible to use social security, so the security system for the elderly will not be established, and the national power will also decline, creating a vicious circle. End up. The human value is a concern as AI moves into the market, as if it is going to be overtaken. AI is much faster in processing knowledge and information than humans. Then, AI can process what 10 people have done in an instant. Also, the advancement of AI will eliminate the need for communities (environments where people can interact with each other). For example, when I didn't know the way, I visited people and police boxes before and asked people about the way. But now, if you don't know the way, you can use AI functions to solve it in an instant. Certainly, the latter is a more appropriate judgment and can be said to be more efficient than the former. However, it can be said that the place for people and their communities has been lost. In fact, I also apply. It is a fact that it is inevitable that people tend to rely on civilian equipment. However, with the advance of AI, social problems will become more serious.

4. Create a community place

As an aside, according to a report issued by Walt Disney, Disney has various social responsibilities. According to the report, "Disney is not a company that is satisfied with past performance. We are always looking for ways to secure positive influence and change habitual practices when necessary. Efforts are more widely established in social and environmental situations, for example, we recognize the importance of the United Nations Sustainable

Development Goals (SDGs) to society around the world, For reference, we provide information about our policies, practices, and engagement. " From the above text, what should be paid more attention is that the policy is decided with reference to the sustainable development goals. Therefore, it can be seen that making a large profit in the business is not a success of management. It can be said that one of management is to create an environment that gives the best return on the social environment, with an environmental perspective. In addition, by creating a community place for children who are in an unfavorable environment or who have a physical barrier, they can actively participate in the business, and equal and best management involving all people. Can be created. Therefore, when applied to Japan, it turns out that it is important to first look at the social environment including the company in order to solve the social problems that Japan faces.

○ Development

Disney management + community problem solving = beneficial for the future → creating the best environment

Compared to overseas management policies, I think Japan lacks creativity due to its foundation. Global managers also mention Japan's management system. In addition, Disney recommends that acting according to the manual is not always great. In my opinion, by accepting what is said to be superior by the Japanese personality, I cannot express my opinion and limit my identity. Moreover, a vicious circle is born by repeating beyond generations. Also, from the current situation in Japan, GDP and GNP have been overtaken by other countries, and since there has been no significant economic growth since the high economic growth, I think that creative management is necessary for the future development of Japan. To that end, I suggest that it is necessary for people to manage this convenient AI well and to create a community place where humans face each other.

* Source

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Pros and cons of customer service manual

Growth strategies in Asia and Africa

～The end of the Western power～

5103　Riku SUTO

○ Summary of research

Previous research

Problems in Africa

Differences in culture and religion can be cited as the basis of various problems in Asia and Africa. For example, the massacre that occurred in 1994 in Rwanda. Tribal conflict is one of the most common causes. It is a conflict between the Futu and the Tuchi. Two tribes that originally had the same origin, but it is known that they were clearly divided during the colonial period in Belgium. It is said that the relationship between the tribes gradually deteriorated as the Rwanda administration took a policy that neglected one tribe. In addition, the negative attitudes of the United Nations and Western countries and the failure of situation analysis are known. Starting from the assassination of Rwanda's President Habyarimana on April 6, 1994 and Burundi's President Nttalyamira, only about three months until the Rwandan Patriotic Front ruled Rwanda Futsu moderates were slaughtered. The ethnic ratio in Rwanda is about 85% for Futu, about 15% for Tutsi and about 1% for Tuwa. It is said that about 1 million people were killed in this slaughter. As many as seven people were killed per minute.

Economic value in Africa

In Africa, in addition to the lack of clothing, food and amusement, entertainment, etc., which seem to be a developed country, it seems that economic development will not be

possible because infrastructure is not in place. In reality, however, the African market is the blue ocean itself. Blue Ocean is an undeveloped market with no competition. Currently, the world trend is the Asian market centered around China Money, but the biggest growth will surely be in Africa. Those who have detected the loophole are trying to ride the wave as soon as possible. So, China's insight into the early stage of entering Africa is tremendous. However, Japan has not lost. Takuma Kaneshiro started a used car sales business in Africa in 2003, and has sold 30 billion yen in annual sales from 1 million yen capital, and has expanded to nine countries. In addition, major automobile companies in Japan are also strengthening the negotiations in the local area of Africa.

China cannot invest huge amounts of money, but there is a chance to innovate as much as possible in a gap where infrastructure is not well established.

Problems in Asia

Needless to say, China's internal interference will not stop.

Since then, this is the opinion of the Japan Research Institute.

When Chinese manufacturing 2025 was launched, the central government implemented preferential policies such as tax cuts, subsidies and low-interest loans in 10 priority areas. The competition for attracting companies between regions has become extremely fierce, and exceptional conditions for attracting companies have been presented. In addition, huge funds were provided through government funds. As a result, growth in capital investment by private companies has accelerated since the second half of 2016, centering on computerization and manufacturing process automation. A symbolic move is the rapid increase in machine tool imports. The economic measures of 4 trillion yuan after the Lehman shock were at an expansion pace comparable to 2009-10 when capital investment increased significantly. However, imports of machine tools have started to decline here. In

August 2018, the number of machine tool imports halved in just five months from March, the most recent peak. A machine tool is a machine for making a machine, and is a leading indicator of capital investment. The decline in machine tool imports suggests that the capital investment boom triggered by Chinese manufacturing 2025 is about to end.

Africa

In this way, in Africa, there are considerable gaps and conflicts that still exist depending on religion, race, and tribe, so there are still more organizations such as the Union that brings together many countries like today. It is thought that confusion and confrontation will be born. Therefore, my opinion is not an organization like the EU, but I would like to propose a system that can develop transactions and businesses between individuals in a smaller unit than the country.

1. Purpose of research

Based on the question of how to make a successful cooperation mechanism in resource-rich regions such as Asia and Africa, I would like to study how to solve the problems that hinder them.

2 Research methods

 Information gathering and research progress are conducted on a PC.

3 Research results and issues

Create an international organization as a pipeline. In addition to diplomacy, we present each other's problems that we want to solve, and only countries that can solve these problems can visualize the problems and work together accordingly.

(Since it is fine, it cannot be said that it is a true research without an unprecedented "new proposal")

4 Literature

Japan Research Institute (China) 2050

Change of research theme

Initially, I was studying the possibility of learning support for Japanese children using AI and deep learning, but as I researched, I became interested in education for children in Asia and Africa, especially in recent years. I felt deeply angry about the localism of the United States and Europe, and thoughts that gave priority to my own country.

Bring waterless bath to Africa
～Achieve a sustainable society with Biomimetics～

5104 Haru Takahashi

Abstract

This theme is a continuation of research conducted last year. Last year I tried to think about an example of biomimetic, but because it was difficult, this year's research focused on spreading existing biomimetic technology to the world. At that time, we were considering integration with a sustainable society. Biomimetic uses natural ideas, so there is almost no burden on the earth. Therefore, we thought that biomimicry would approach the realization of a sustainable society if it spreads to the world. The technology we want to spread to the world is "waterless bath". Hideki Ishida, a former professor at Tohoku University, is conducting research, but if this technology is used, we expect that fewer people will be ill due to unsanitary conditions in developing countries. The NPO Japan Uganda Friendship Association is seeking cooperation to disseminate this technology. We believe that with this organization's cooperation and funding, it is possible to achieve a sustainable society with Biomimetic, the ultimate goal of this research.

1 Introduction

This year, there was a big theme of "world exploration", but what I came up with most was "sustainable society". Last year, I was studying biomimetic, so I wanted to continue this year. At that time, I read an article about Hideki Ishida.

What do you make a company for? It is said that companies must have a social, cultural foundation and economic system. Finally there are parts. As a result of considering what human desire is compatible with reducing the impact on the environment, "natural technology" has emerged.
(Hideki Ishida, the advice of a smart way of life (https://www.nttcom.co.jp))

Ishida says "Nature Technology", which is similar to "Biomimicry".
I thought it was just this. Activities that focus on WWF are still ongoing to realize a sustainable society, but if the activities and biomimetic is well integrated, the realization of a sustainable society will become more realistic. Therefore, the purpose of this research is to promote the realization of a sustainable society by utilizing biomimetic technology in developing countries.

2 Discussion and implications

Examples of biomimetic in Japan are as follows.
Exterior wall tile oil-repellent snail shell retains moisture and rain removes dirt.
Why are snails always dirty and why are shellfish not dirty? Lixil's self-cleaning exterior tiles are the result of such simple questions from researchers.Snail shells are a complex of aragonite and protein, the same ingredients as marble, and protein tends to cause oil stains. However, the shell has the property of repelling as soon as oil drops fall. However, when experimenting with the same calcium carbonate as the shell, the calcite remains attached without repelling the oil. Next, analyzing the surface structure of the shell, it was found that the ridge was made up of a wide range of layers from hundreds of nanometers to millimeters. In other words, a very small groove extends across the surface of the shell and water is always stored in the groove. Even if oil that causes dirt adheres, it floats on the water surface of the groove and flows down with rain.

In order to apply this mechanism to the outer wall material, it was only necessary to adsorb moisture in the air and form a nano-level thin water molecule film on the surface of the outer wall. As a result of repeated trial and error, we have reached the method of applying a silica component to the surface of the outer wall material. The silica component is strongly bound to moisture in the air and is retained, creating the same mechanism for storing water in the shell groove.

4% reduction in fuel efficiency of marine paints due to mucosal effect in relation to the skin of tuna swimming at high speed

Tuna that travel around the Pacific swim for a long time at high speed. Its speed exceeds 100 km / h and is one of the best fish. The reason why high-speed movement is possible is that the body fluid secreted from the skin surface has the characteristic of reducing frictional resistance with seawater.

Nippon Paint Marine has developed a marine paint "LF-Sea" that focuses on tuna skin. Ship paints need antifouling functions that make it difficult for shellfish and seaweed to adhere to the bottom of the ship, and improve fuel efficiency by reducing water resistance. It was. The company then saw skin covered with tuna mucous membranes. Similarly, it was thought that frictional resistance could be reduced by adding a mucosal function to the surface of the marine coating.

In search of substances that achieve mucosal function, we reached hydrogel with tips of comb slime. Combining this with paint took about 7 years from basic research to commercialization, and finally it was sold in earnest after joint research and monitoring with Osaka University and Kobe University.

The effect is about 4% reduction in fuel consumption compared to conventional self-polishing antifouling paints, and we won the Eco Products Grand Prize as an energy-saving product over 10 years. As of the end of November 2012, more than 700 ships have been painted so far. In April, the next-generation product "A-LF-Sea", which was developed through joint research with the Japan Maritime Association and a joint project with MOL, aimed at reducing fuel consumption by 10% will be released. . It is planned.

Colored fiber morpho butterfly wings are used as a hint, without the use of light refraction and dye

Morpho butterfly wings inhabit the Amazon River basin in South America are called "the most beautiful butterflies in the world" because of their clear blue color and cobalt blue metallic luster. However, the butterfly wing has no blue color. The complex structure of feather scales leads to a mysterious color.

Teijin's fiber "Morphotex" was developed with this wing as a hint. Morpho butterfly wings have a structure in which the protein layer and the air layer overlap. When natural light is inserted, specific colors are reflected due to the difference in the spacing and refractive index between the layers, creating a shade.

Looking at this colored structure, 61 layers of polyester and nylon with different refractive indices are stacked alternately, causing interference and scattering of light, and appearing to be

colored.

The layer is 70-100 nanometers thick and has a double structure covered with polyester to protect the laminate. When exposed to light, it goes to the first layer of nylon and the second layer of polyester, and eventually exits on the other side, but some of the light is reflected at the interface where the material switches. Four colors: crimson, green, blue and purple. Colors are generated only by light interference, so no dyes or pigments are required, and transparent beauty can be created without a dyeing process. In addition to being used for high-quality clothing, we are also developing paint applications by making it into powder form.

In 2001, he won the Fiber Association Award for expanding the new possibilities of fiber.

The above is an example of biomimetic

The following biomimetics can be used to realize a sustainable society.

Bath without water

Aphid larva sucks and nourishes plant juice. Excess water contained in the juice is excreted, but it is excreted as liquid soap by dissolving the secreted organic matter. And it exhales as a bubble with the air taken from the stomach of the stomach. This bubble is the true identity of a nest of nest. Insulation and foam elasticity make the larvae comfortable.

Bubble bath uses this mechanism. You can warm your body with an insulating foam and remove the dirt with the ultrasound generated when the foam collapses. The foam does not apply water pressure and does not need to be completely sealed, so it is possible to provide not only wheelchair bathing but also new bathing styles for the elderly and disabled.

A large amount of water is not required. For traditional baths, the amount of water required at 200-300 L can be reduced to 6-8 L, less than 1/10.

It was Uganda that realized when sending this technology to the world.

Uganda is a country in East Africa with an area of about 24 km (almost Honshu University) and a population of about 43 million. The capital is Kampala and the languages are English and Swahili.

I noticed Uganda because it was a peaceful country in Africa. A calm country is a country where infrastructure is in place and people's lives are stable. In fact, Uganda is easy to spend at an average of 22 degrees Celsius annually, and the market has a lot of different vegetables and fruits throughout the year, and few people have trouble eating. There is also a wealth of tourism resources and benefits from tourists. In this country, it was expected that there would be almost no obstacle to the spread of the "waterless bath" mentioned above. Therefore, I chose Uganda this time. The main point is that English is the official language.

First, I will explain the bathing situation in Uganda. In the first place, like Japan, Uganda has no bathing culture, and the body is kept as clean as bathing. Among them, there are houses that have water but showers, houses that have showers but only things, houses that have only sewage, and houses that only have a bathroom outside. There is not much water that can be used in the bath, only 10L or less can be used. Water must be pumped in a kerosene can container called a jerrycan. In many cases, you get water from a rainwater tank next to your house, or often stop and pump it to a school well or water supply. This is a tough job and it is not uncommon for

women to spend most of their day drawing water. I'm going to wash my whole body when the water is ready, but even if I wash it, I can't wash my toes like a shower like in Japan. Since only 10L of water can be used, the whole body cannot be washed without considering the distribution. The washed water is reused without being discarded. By the way, there are many people who use water at this point, such as those who use only water, those who heat water with sunlight, and people who use hot water with electric kettle.

As you can see, people living in Uganda who can't wash their whole body as much as they like every day accept a bath without water.

In order to convey this technology to Uganda, I would like to seek the cooperation of the NPO Japan Uganda Friendship Association in Fukui Prefecture. The organization was founded in 1998 and provides local medical and educational support and afforestation projects. In 2002, a clinic was built in the local village of Niyachika. My idea is that you should start by communicating this technique to the patients coming to this clinic. Therefore, if it is popular, it can be spread more widely. Since it is still under study, it is not clear how much the price will be when using a bath without water. Funds will be collected from the Uganda Friendship Association and new windows collected so far. We are also considering using a crowdfunding site called CAMPFIRE. Since this is an unprecedented business, many people are interested.

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"CAMPFIRE"＜https://camp-fire.jp/＞

Toward the Tokyo Olympics

～To realize the Olympics without cigarettes and reduce smokers～

5105　Manato Nakabayashi

○ Summary of research

I was investigating the Tokyo Olympics and found the term "Olympic without cigarettes". When I first saw this word, I think that the Olympics without cigarettes can really be realized, and I would like to suggest what efforts should be made to reduce the number of Japanese smokers after the Tokyo Olympics. According to the IOC = International Olympic Committee, the tobacco-free Olympics are calling for the "Olympic without cigarettes" as the host country, including China in 2008, England in 2012, and Brazil in 2016. We carry out tobacco control with penal regulations. "Passive smoking measures" to smoke from other people's cigarettes. According to WHO = World Health Organization survey, Japan is classified as the lowest in the world among 186 countries. WHO requested that Japan implement a complete smoking cessation indoors where people gather to realize the "Olympic Games without cigarettes".

My suggestion is to completely smoke-free indoors to achieve the Olympics without cigarettes, raise the price of cigarettes, and publish package photos. But Japan has not done these yet. So why can't you do these things? I would like to study this as a problem.

1. Research background

According to the tobacco industry's 2018 National Tobacco Smoker Survey, the average smoking rate for adult men was 27.8%. This is a 56% decrease in about 50 years compared to 83.7% at the peak after 1965 (Showa 41). Looking at each age group, 21.3% were over 60 years old, showing a sharp decline in smoking rates, but still around 35% in their 30s to 50s, with the highest age in the 40s. It was 35.5%. The number of Japanese smokers is decreasing, but the number of smokers is large from the world. Also, when I was investigating the Tokyo Olympics, I found the term "Olympic without cigarettes". People from all over the world gather for the Olympics, so I want to study if it is feasible.

2. Purpose of research

I was investigating the Tokyo Olympics and found the term "Olympic without cigarettes". When I first saw this word, I thought that the Olympics without cigarettes could really be realized, so I started this study. I would also like to suggest what efforts are needed to reduce the number of Japanese smokers after the Tokyo Olympics.

3 Research methods and procedures

First, check the current tobacco regulations in Japan. Next, we will examine the situation in countries with the strictest tobacco regulations overseas, and consider how to apply them to Japan. Since the Internet is only one site, the credibility is low, so use multiple sites.]

According to the IOC = International Olympic Committee, Olympics **without cigarettes** are calling for the "Olympic **without cigarettes**" as the host country, including China in 2008, England in 2012, and Brazil in 2016. We carry out tobacco control with penal regulations. "Passive smoking measures" to smoke from other people's cigarettes. According to WHO = World Health Organization survey, Japan is classified as the lowest in the world among 186 countries. WHO requested that Japan implement a complete smoking cessation indoors where people gather to realize the "Olympic **without cigarettes**".What about current Japanese regulations? There are about eight.

1.Prohibition of walking tobacco

In addition to preventing passive smoking, this was done in the hope that no cigarette burns would occur when passing each other. By the way, you need to pay a fine if you violate. As a result, the number of people walking and smoking today has decreased significantly.

2. Outdoor ashtray removal

Some locations, such as convenience stores, have outdoor ashtrays that have been removed. Some shop assistants seem to dislike the neighborhood of the store being smeared with tobacco ash. Some people remove ashtrays from convenience stores because there is a risk of passive smoking if there are smoking areas in crowded areas.

3. Smoke separation and non-smoking restaurant

Some stores use different times depending on the time of day or Wednesday, while others have non-smoking seats every day. Currently, the number of restaurants that allow smoking is decreasing.

4. Preparation of smoking cessation manual by Ministry of Health, Labor and Welfare

The Ministry of Health, Labor and Welfare has prepared a manual for smoking cessation. For example, what is important when you quit smoking? What are the benefits of quitting smoking? Information to help you quit smoking is included in the manual.

There is also a DVD that you can learn on your computer.

5. Increasing tobacco prices

To reduce the number of smokers, tobacco prices have also been raised. Some brands have products that are nearly five times the original price. Currently, more than half of tobacco prices are tax (a combination of tobacco tax and consumption tax), and tobacco prices continue to rise.

6. Preferential treatment for non-smokers

Some are preferred by non-smokers. For example, some companies benefit people who don't smoke or are trying to quit smoking. Also, in some life insurance companies, non-smokers are often given preferential treatment that non-smokers have a lower premium than smokers.

7. Development of non-smoking items

There are various easy-to-use non-smoking items such as nicotine patch gum and electronic cigarettes. Non-smoking items have also been actively developed in recent years.

The Japanese Society for Smoking seems to play a central role in promoting smoking cessation.

8. Holding a non-smoking seminar

Non-smoking seminars may be held at workplaces, hospitals, health centers, etc. Some people use smoking cessation counseling effectively, while others quit smoking successfully.

These are Japanese regulations and regulations, but how about overseas? The following are Australia's strictest regulations for Australian smokers.

In short, Melbourne's tobacco situation is "very severe for smokers". Smoking is prohibited in buildings other than homes, public transport such as trains, trams and buses, restaurants in the hotel, all rooms, restaurants and bars. The food stalls at festivals are within 10 meters from the food stall. More detailed places are educational institutions such as schools, medical institutions such as hospitals, kindergartens within 4 meters near the entrance of government agencies, elementary and junior high school gardens, and beaches with public pool watchers. It is a venue for events of minors, stations, trams, buses and other public transport stations and stops. In addition, the government will set up an organization called "no smoking" and will conduct campaigns on television and radio to stop cigarettes and actively open smoking classes so that more people can quit smoking. I recommend. As a result, according to Quit's survey, the percentage of smokers fell from 36% in 1980 to 23% in 2001 and 13% in 2013.

Australian tobacco prices are the highest in the world. In fact, tobacco prices have risen nearly 3.5 times over the past 20 years. Of course, this is due to the rising tobacco tax, but when you look at it, you can feel how strong the government's attitude towards smoking is. For these reasons, Australia took a national approach and managed well.

Japan is said to be friendly to smokers around the world. In most developed countries except Japan, smoking is prohibited in restaurants, cafes, bars, clubs and other restaurants, and smokers go outside and smoke outside. For example, New York and San Francisco are required to quit indoors, including office buildings and other workplaces. In recent years, the number of non-smoking hotels and apartments in the United States has also increased, and in the global smoke-free boom, smokers are smoking right next to non-smokers eating in Japanese restaurants. Scenes from other countries are not considered. The ability to smoke alcohol at bars and clubs is a very friendly country for smokers of foreign tourists. However, this situation is not favorable for foreign non-smokers visiting Japan. Given the boom in smoking cessation overseas, the possibility of establishing smoking cessation in Tokyo restaurants before the 2020 Tokyo Olympics is increasing. Japanese cigarettes are cheaper and much cheaper than foreign cigarettes. As of 2017, Australia was about $ 28 per box (about 2,300 yen), and the Australian government increased 12.5% of tobacco every year for four years from 2017, and about AUD40 (about 3,200) in 2020. Announcing. (Yen) will rise. Many other developed countries, such as New Zealand, Norway, United Kingdom, France, Iceland, Canada, France, Switzerland, Sweden, and some states in the United States, have already exceeded 1000 yen per box and continue to rise . There is a tendency to go. In addition to abundant flavored cigarettes in Japan, there are a lot of cute packaged cigarettes designed for women, all of which should be bad for the body, but attractive. Also, the percentage of package warnings that tell people about the dangers of health problems, such as bad tobacco, is about 30% for Japanese tobacco, and there are no pictures or illustrations showing the negative effects of smoking. On the other hand, warnings with images that show adverse effects at a glance are the mainstream overseas. Especially in Australia, the package itself is standardized in the country and the brand cannot stand out. The warning rate is over 80% in Thailand, Australia and Uruguay, and over 75% in Brunei, Canada and Nepal. All of the4 referencesse come with images that have a strong impact. It is almost impossible to sell in a stylish package. When health warnings appear in both photos and text, they are said to be more effective than text alone. (1) Pay

more attention (2) Greater impact on smokers (3) Long-term effects (4) More clearly communicate the dangers of health damage from tobacco use (5) Recognition of health damage from tobacco Deepen motivation to quit, 6) Increase motivation and ability to quit smoking (7) Increase the number of attempts to quit smoking Health warnings and messages related to tobacco product packaging and labels require that illustrations and photos be used for the display, and if the health warning includes an image in addition to text, only the text is more than the case. It is much more effective. In 2018, the Ministry of Finance announced that the proportion of front and back areas will increase from "more than 30%" to "more than 50%" due to a health hazard warning on the cigarette package.

These facts indicate that in Japan, tobacco prices are cheap and packages are too fashionable. So we propose to smoke completely indoors to achieve the Olympics without cigarettes, raise the price of cigarettes, and skeptically appeal the package photos. But Japan has not done these yet. So why can't you do these things? I want to study this as a problem.

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Economic effects of casino legalization

~ Compare with　foreign casino ~

5106　Fukuda　Tomoya

1. Research motivation

On December 15, 2016, the casino bill was legalized by the passage of the casino bill, and the construction of the casino facility in Japan was almost certain. Along with this, various economic effects associated with the ban on casinos have been estimated. However, at the same time, I learned that various adverse effects are expected to occur. So I wanted to think about the advantages and disadvantages that the casino brings.

2.Research purpose

Consider measures to eliminate the disadvantages in order to make the most of the benefits such as economic effects brought about by casino facilities. At that time, search for information that can be used in Japan from data such as the economic effects of casinos, casino problems listed in that country, and solutions to the problem by comparing with other countries with casino facilities. Use as a reference when standing.

3. Research method

Use the Internet. I would like to see the homepage of the House of Representatives to see the details of the specific casino bill and what measures Japan has in place. In addition, as for information on other countries, use information from institutions that are considered to be relatively reliable.

4.Research results

there are disadvantages. I want to raise three of them.

① 　Deterioration of security

There is concern that anti-social forces may flow in from overseas with the establishment of casino facilities, leading to worsening security. However, in Las Vegas, where casino facilities are located, the crime clearance rate is rather high due to its high security, and I feel that the same can be said by taking good measures in Japan.

② 　Increase in gambling patients

It is also expected that the number of people with gambling addiction will increase. The Ministry of Health, Labor and Welfare's research team (Representative, Susumu Higuchi / Director, National Hospital Organization Kurihama Medical Center) has announced that there are 5.36 million people in Japan who are suspected of "gambling addiction" who cannot stop pachinko and horse racing. . The total number of adults is 4.8%, with 4.38 million men (8.7%) and 980,000 women (1.8%). It is a

remarkably high number compared to the world. On the other hand, in the incidental resolution (December 13, 2016) of the Council of Councilors Committee on IR Promotion Bill, a system and system for comprehensively dealing with addiction such as gambling were established, and related ministries and agencies were fully cooperating with each other. It was decided to build and strengthen a comprehensive approach. Based on these incidental resolutions and deliberations at the Diet, the government established the "Ministerial Council for Promotion of Measures against Addiction to Gambling" in order to promote comprehensive measures in which related ministries and agencies are united. A "gambling addiction countermeasures promotion team" was established to conduct practical studies.

③　Use for money laundering

There is also a risk of being used for money laundering. Money laundering makes it difficult to understand the source of funds by repeatedly transferring unclean funds from drug transactions, tax evasion, etc. between various financial institutions and making large investments in stocks and bonds. It is an act of escaping from seizure and foreclosure by investigation agencies by pretending to be clean money. Japan is said to have insufficient measures to deal with this problem, and measures are urgently needed.

However, there are many benefits that a casino can bring.

①　Great economic effect

If casino facilities can be established in Japan, many casino users not only from Japan but also from overseas will be able to visit Japan and acquire foreign currency.

②　Revitalize the surrounding area

It is thought that casino users who came from overseas stay and sightseeing as they are, the economic effect will not only occur in the casino facilities but also in the surrounding area, and local revitalization is also expected .

③　Promotion of infrastructure development

With the establishment of casino facilities, positive impacts are also expected in terms of infrastructure development such as expressways and bullet trains.

In light of these circumstances, I would like to propose that the casino facility itself be constructed at a location away from the mainland. For example, a remote island. The infrastructure will be improved and access to remote islands will be made possible so that the island and the mainland will be able to pass. The reason why such a proposal is made is that it was thought that the influence on the mainland could be reduced as much as possible when the feared deterioration of security occurred by moving away from the place of residence. In addition, by reducing the inconvenience to the extent that there is no inconvenience in convenience, the willingness of people who go to the casino is reduced, and the increase in the number of people who are addicted to gambling is suppressed. However, honestly, this method has the risk of ruining casino facilities to improve

economic effects. Moving away from the mainland will dilute the economic effect on the surrounding area, and may also incur extra costs for infrastructure development. Nonetheless, it is useful for the first test operation. This is because, by conducting a trial operation in an area where there is little influence, it may be possible to dismiss the objection by leaving an interval before building on the mainland.

Next is the result of comparison with foreign countries.

① Singapore

After the Lehman shock in 2008, the real GDP growth rate in 2009 was minus 0.8% due to the impact of the global financial crisis. After that, in 2010, the manufacturing industry centered on electronics and pharmaceuticals recovered rapidly against the backdrop of strong overseas demand, and the expansion of tourism-related industries due to the opening of integrated resort facilities such as casinos. A growth rate of 14.5% was recorded. In 2011, the growth rate was 4.8% (preliminary).

② Macau

In Macau, the casino will continue to operate and survive after the return. In February 2002, the Macau SAR government announced the results of international tendering of casino management rights, and in addition to Macao Travel & Entertainment Co., Ltd., which previously had exclusive management rights, two new companies Galaxy and Win Yongli.　Acquired the same management rights. Sands, which received a partial loan of management rights from Galaxy and the company, began casino operations in May 2004 and Wynn in September 2006. Venetian started operations in August 2007 and MGM started operations in December of the same year. As of 2012, there are 35 casinos operating in Macau, and competition among casino companies is intensifying. In 2012, the casino industry as a whole reached approximately 305.2 billion Pataca (about US $ 37.5 billion), growing four times as much as Las Vegas.

The casino bill contains the measures that the government assumes.

Among these are admission fees and limits on the number of admissions per month. Some people have admission restrictions, and there are measures to keep the casino facilities safe.

5. Research subject

In this study, we could not find a countermeasure against money laundering. Money laundering cannot be taken even with the measures I thought of myself, so I would like to investigate this point.

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Board game copyright

～To protect copyright～

5107 Tomonari Yokote

○ Motivation for research

My hobby is board games,but I often hear that there are no copyrights in board game rules. In fact, Reiner Knizia, a famous board game designer, bring a lawsuit that the board game "三国殺" announced by Yoka Games is very similar to "Bang!". However, the "三国殺" side won the case based on the lack of copyright in the rule itself. If the rules do not generate copyright and the designer's rights are not protected, the pirated version cannot be controlled. So I decided to study how to protect the rights of designers.

○ Purpose of research

Research how to protect the rights of designers.

○ Research results

(1) Copyright in Japan

There is a description in the Copyright Act, Article 2, Paragraph 1 that the work is a creative expression of thought or emotion and belongs to the scope of literary, academic, art or music. The rules themselves are only "ideas themselves" and are not considered "creative expressions of ideas". Therefore, although the copyright is generated on the text of the manual describing the rule, the copyright is not generated on the rule of the board game itself. Also, copyright is generated for illustrations of components (cards, boards, etc.). Therefore, under this copyright law, if you change only the way of writing the manual and the design of the component, even if the rules are exactly the same, there is no problem in the law. For example, if a board game with a fantasy theme is replaced by a board game with the same rules and SF theme, there is no legal problem.

(2) Patent law in Japan

There is a patent law as a law to protect the idea itself, but there is a description that the invention must be "creation of a technical idea using the laws of nature (of which advanced)" in Patent Law Article 2.1. The game rule itself is not an idea that uses the laws of nature, so it cannot be patented. Develop components made with special manufacturing methods (for example, a piece that changes color by detecting the temperature of a person), and if you make a board game with rules that you can only use it, get patents and rules. However, this patent law forces designers to create special components. Because of this,It cannot protect the rights of designers.

(3) Issues when generating copyright in rules

Nonetheless, protecting the board game rules with copyright law has the problem that it is difficult to define where the plagiarism is from because the rules themselves are invisible. It can be seen that a completely identical rule is a plagiarism, but only a part is changed, and the other part becomes a "gray zone" that is difficult to judge if the rule is the same. For example, it's not easy to tell if a game that has the same basic rules but only different card effects is plagiarism.

(4) Establishment of association

So I propose to establish an association. If a designer complains to the association that a game is a copy game, the association will consider whether it is a copy game. If it is determined that the game is a copy game, the association requests that the game be discontinued. The question is whether or not the game is a copy game, but it should be clarified as much as possible. The association discusses experts such as board game designers and board game store managers.

(5) Summary

The current board game industry is based on the manners of designers who have no copyright in game rules but do not plagiarize. However, in the board game industry, there are many problems related to plagiarism, and whenever you hear such problems, you feel the instability. In this industry, copyright maintenance is too inferior to that of buying or music. There is no big organization in the board game industry now, but such an organization is absolutely necessary for future development.

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Japanese vegan problems
〜What Japan can do for vegan〜

5108　Eisuke　Watanabe

1 Introduction

I got to know about Vegan last year because a foreign wrestler came to Japan and participated in a tour, and he tweeted on SNS that there were few restaurants for vegan in Japan. Since there will be an Olympic next year in Tokyo, many foreigners will come to Japan. Therefore, I thought about what Japan can do.
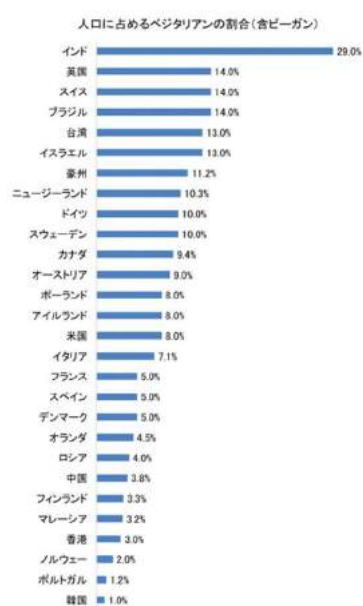
2 Discussion and Implications

First, I found a Tweet.

I didn't know anything about vegan until then. Zack Saber Jr is a vegan foreign wrestler. When he came to Japan, he lamented a lack of restaurants for vegans.

In the first place, vegan is a principle that humans should live without exploiting animals, and

it is called Kanzensaisyokusyugi in Japanese. According to the definition of the British Vegan Society, "Vegan is a way of life that avoids cruelty and exploitation of all forms of animals for food, clothing and other purposes whenever possible." In this way, some people do vegan for health in addition to those for animal welfare.

The merits of Vegan's diet include the following: First, in the study of Loma Linda University in the United States, an average of 5.79 years of follow-up survey was conducted on 73,308 men and women recruited from 2002 to 2007 (2570 people died during that time). As a result, vegetarians overall had a 12% lower risk of dying during the study period than non-vegetarians. According to a study published by the University of Oxford in January 2013, a survey of 45,000 men and women in the UK (34% of the subjects were vegetarians) found that vegetarians was less a 32% heart risk than non-vegetarians. The results also showed that vegetarians had lower BMI (body mass index) and fewer people suffered from diabetes. Therefore vegan is healthy. However, proteins, vitamins, and energy that are difficult to ingest from plant foods are insufficient, so it is necessary to take them with supplements. From the above, it is known that vegan has a positive effect on health, but Japanese vegan tends to be less than in other countries.

人口に占めるベジタリアンの割合（含ビーガン）

国	割合
インド	29.0%
英国	14.0%
スイス	14.0%
ブラジル	14.0%
台湾	13.0%
イスラエル	13.0%
豪州	11.2%
ニュージーランド	10.3%
ドイツ	10.0%
スウェーデン	10.0%
カナダ	9.4%
オーストリア	9.0%
ポーランド	8.0%
アイルランド	8.0%
米国	8.0%
イタリア	7.1%
フランス	5.0%
スペイン	5.0%
デンマーク	5.0%
オランダ	4.5%
ロシア	4.0%
中国	3.8%
フィンランド	3.3%
マレーシア	3.2%
香港	3.0%
ノルウェー	2.0%
ポルトガル	1.2%
韓国	1.0%

There is data that 8 % of the population in the United States, 10% in Germany, 14% in Switzerland, and 11% in Australia are vegan, but Japan has only 2.7% of the vegan population and well below other countries. The reasons why vegan is not spreading in Japan are as follows. As for Japanese food, fish dishes are indispensable. Because there is a lifestyle that eats fish as raw as sashimi fish or alive, there is no sense that killing fish is bad.

3 Conclusion

In this way, because there are few vegan people in Japan, there are not many restaurants that support vegan. Vegan foreigners visiting Japan will have trouble eating every time. Certainly, there are restaurants for vegans in urban hotels, airports, and stations, but when vegan people were not in those places, I felt that they could eat only convenience store rice balls and salads. I propose to instill Mexican food in Japan, because many Mexican foods use a lot of beans, wheat and other vegetables.

Vegan may also want to use a site called Vegewel to find vegan restaurants in Japan. However, since it is a Japanese site, it is necessary to create an English site.

Responding to the diversifying "food" of foreign visitors to Japan may lead to business opportunities for restaurants. I felt that it was necessary to consider this aspect as inbound countermeasure against tourists and restaurants that are increasing year by year. With the Tokyo Olympics, the number of shops for vegans increased and I felt that there was a good chance that vegans would spread in Japan.

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Expand use of FEED RICE
~Food support utilizing high yield and high nutritional value~

5109 Mahiro Abe

〈Abstract〉

Japan's food self-sufficiency rate is the lowest among the developed countries in the world. Above all, the self-sufficiency rate of grains is extremely low, and most of the feed for livestock relies on imports, but the self-sufficiency rate of rice is almost 100%. However, since the consumption of rice has been reduced due to the westernization of Japanese food, the government has implemented a policy to reduce the consumption.

I think the current situation is a waste, and as a result of searching for countermeasures, I found the "Forage Rice Project". This is to feed rice to livestock as a feed. It started in *Yuza* Town in the *Shonai* region of Yamagata Prefecture, and now has subsidies from the country. Feed rice can be made by using machinery and land that are no longer used to make edible rice, and there is no need to prepare new equipment. The rice, whose demand is low, can be used to produce meat with high demand. It also serves as a reserve for disasters and has a significant impact on preventing the decline of traditional culture.

I thought that I could support people suffering from malnutrition by taking advantage of the high yield and nutritional value of feed rice. We propose cookies donated to developing countries using rice for feed.

We thought that it would be possible to increase demand and secure paddy fields by making high-yield, high-nutrient feed rice with high yield and higher nutritional value cookies. However, there are many more things to think about to achieve.

〈Introduction〉

ⅰ. background

In recent years, the decline in food self-sufficiency in Japan has been seen as a problem. In fiscal 2016, the calorie base was 38% (from the Ministry of Agriculture, Forestry and Fisheries), the lowest among the nine developed countries.
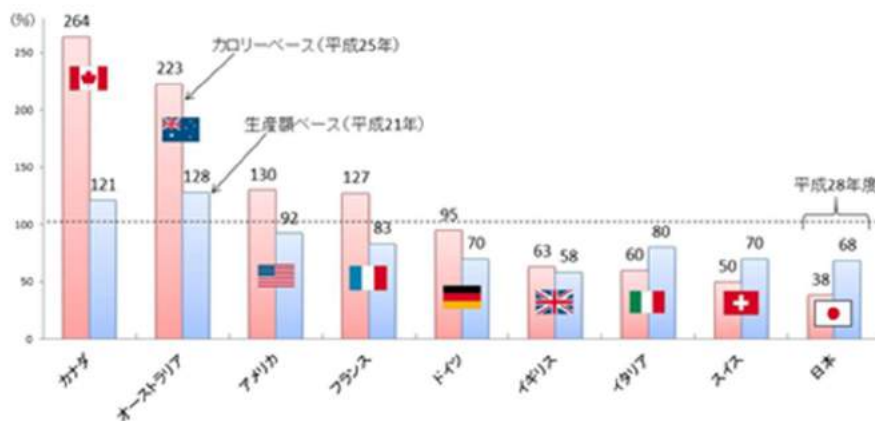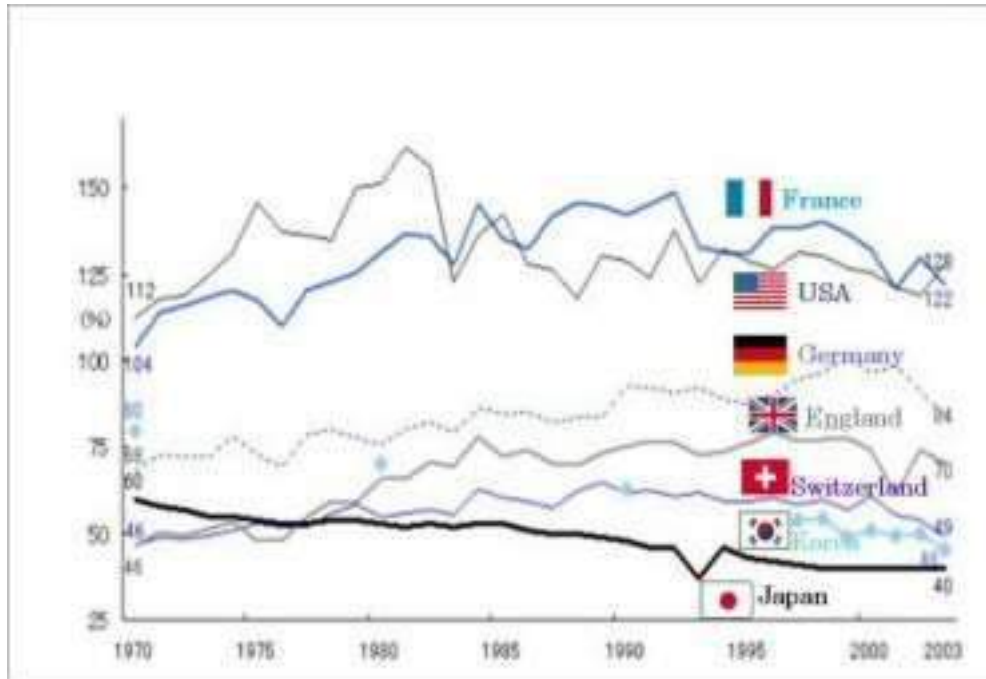
In particular, the domestic production rate of cereals is extremely low. Among them, most of corn relies on imported products. Although corn is not a staple food for Japanese people, it has no image of being eaten too much on a daily basis, but since it is used as feed for livestock such as pigs, a large amount is actually imported. For this reason, many livestock are raised by eating foreign feed, and even though the meat is made from domestic food, it is often not actually produced only in the country.

The proposal was inspired by the story of Mr.Kenro Oshidari, former UN WFP (World Food Program) Asia Director, who was a lecturer at a school lecture.

ⅱ. Purpose and Significance

While Japanese food preference is changing from Japanese food to Western food, feed rice is a rice savior that can be a savior to protect Japanese rice fields and traditions, but the meat raised using it is expensive Investigating when I was a junior high school student, I learned that it would be difficult to expand further.

The purpose is to find new ways to use forage rice and increase or maintain the number of farmers and protect paddy fields.

The significance of this research is that even if the current proposal is not realized, collecting information and trial and error aiming at it will find new ways to use rice in Japan and suppress the decline of agriculture. I think it will be the first step for this.

〈Basics〉

keywords

∘ feed... Items given as food to livestock, poultry, fish farms, etc.

∘ *Shonai...* The coastal area of the Sea of Japan in Yamagata Prefecture, centering on the *Shonai* Plain. *Tsuruoka* City and Sakata City are juxtaposed as two major cities.

∘ Food self-sufficiency rate... An indicator of how much domestic food consumption is covered by domestic production. There are two types of indications: the self-sufficiency rate by item that can be calculated simply by weight, and the total food self-sufficiency rate that is calculated by aligning units with a common "measurement" for the entire food. Of these, the total food self-sufficiency rate has a calorie base converted by calorie and a production value base converted by value, and both indicators have been on a downward trend over the long term.

∘ Rice reduction policy... Agricultural policy to adjust rice production in post-war Japan. Basically, it is a policy to curb rice production. As a concrete method, it requires rice farmers to reduce the acreage. On the other hand, there is a shortage of rice requiring urgent imports and accidental rice.

○ Undernourished population...　　The number of people whose heat intake from food is lower than the standard value calculated for each country and ethnic group, assuming that a certain physique is maintained when engaged in light labor. (FAO; defined by the United Nations Food and Agriculture Organization)

〈Research method〉

First, I collected basic information using books and the Internet.

On the Internet, I made use of official homepages such as the Ministry of Agriculture, Forestry and Fisheries and Hirata Farm and took care of authenticity.

As a field work, when I was in the third year of junior high school, I went to a restaurant directly managed by Hirata Farm at *Shonai* Airport in *Yamagata* Prefecture and interviewed the store clerk. I also received a pamphlet.

After that, as a visit to a research institution at a school event, I visited the Grain Division with the Policy Officer of the Ministry of Agriculture, Forestry and Fisheries, and presented the results of my research up to that point for advice.

〈Discussion and imprication I 〉

Japan's food self-sufficiency rate is extremely low, and the supply and demand of meat and other products whose consumption has increased recently is not consistent in Japan.

However, while it is not uncommon for the self-sufficiency rate to be less than 10%, rice, the traditional staple food of Japanese, is very high at 97.3%. The remaining 0.7% is considered to import indica rice and other types that are not produced in Japan, because it is not suitable for Japonica rice. It is no exaggeration to say that the self-sufficiency rate is 100%.
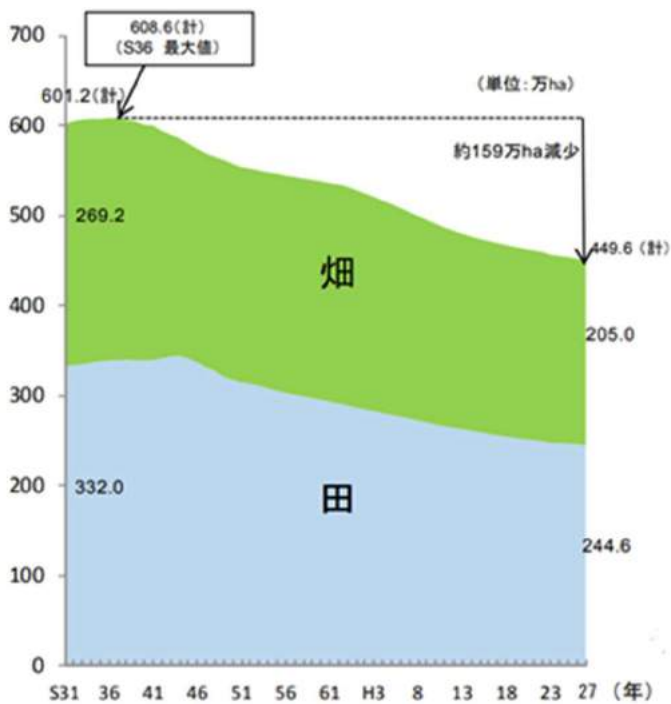
資料：農林水産省「耕地及び作付面積統計」
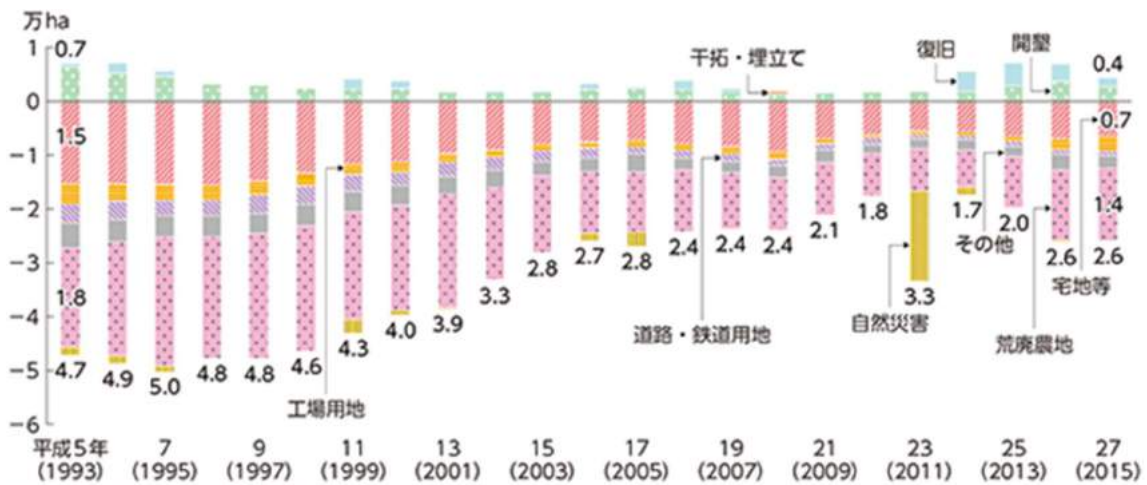
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注：拡張面積及びかい廃面積は、共に田畑転換を除く。

However, although the rice has a high self-sufficiency rate, the government is currently taking a policy to reduce the consumption due to the consumption of Japanese food being westernized. This is because in Japan, rice is sold after the country buys it, so the national budget for the unsold rice is saved.

What does it mean for us Japanese to reduce rice production? According to data from the Ministry of Agriculture, Forestry and Fisheries, Japan's arable land area in 2017 was 4.444 million ha, of which the paddy field area was 241.8 million ha. Paddy fields account for more than half of

Japan's arable land area. Losing this paddy will destroy the part of Japan that can produce food on its own.

In Japan, where rice has been made for thousands of years, rice production was closely related to daily life, so the decline in paddy fields has a great impact on traditional culture.

I thought there was some way to improve this situation, and I found the feed rice project as a result of my research. This is an initiative started in *Yuza* Town in the *Shonai* region of Yamagata Prefecture, where rice is fed to livestock as feed.

我こそは 日本一！ H29年度

飼料用米 多収日本一 コンテストを開催！

飼料用米生産農家の生産技術の向上を目指し、多収を実現している先進的で他の模範となる経営体を表彰し、その成果を広く紹介する**「飼料用米多収日本一」**を開催します。

■ 参加できる方

平成29年産の飼料用米の生産で、次の要件を全て満たす方
・**多収品種（知事特認含む）をおおむね１ｈａ以上**生産する方
・**生産コスト低減等**に取り組む方

■ 開催スケジュール

・29年５月１日　応募開始
・29年６月30日　応募締切
・30年１月末　　収量の報告締切
・30年２月　　　審査委員会
・30年３月　　　表彰式（東京都内）

日本一には
農林水産大臣賞
が授与されます

■ 褒賞

成績優秀者には、以下の賞が授与されます。
・農林水産大臣賞　　　　　　　　・政策統括官賞
・全国農業協同組合中央会会長賞　・全国農業協同組合連合会会長賞
・協同組合日本飼料工業会会長賞　・日本農業新聞賞

■ 応募先及びお問い合せ窓口

各ブロック事務局へ御相談下さい。
（次ページをご覧下さい。）

【主催】（一社）日本飼料用米振興協会、農林水産省
【後援】ＪＡ全中、ＪＡ全農、協同組合日本飼料工業会

It was originally started by the cooperation of farmers in Yusa Town and JA (Agricultural Cooperative) Shonai. Currently, it is recognized by the Ministry of Agriculture, Forestry and Fisheries, and subsidies are issued from the country.

   For making rice for feed, surplus machines and land can be used as they are, and there is no need to prepare new equipment or buy anything.

   In addition, the consumption and demand of rice are decreasing due to the westernization of food, but the consumption of meat is increasing.

   There is no waste because the supply can be routed there. In addition, the taste is improved and the quality of the meat is increased.

   Also, Japan, which has a low food self-sufficiency rate, will run out of food if an incident or accident occurs in the importing country. In addition, it is difficult to return the land that has been used once again to the rice field. Paddy functions not only make rice, but also protect Japan's environment and land, such as air purification, prevention of global warming, securing water resources, and preventing floods and landslides. Reducing paddy fields means losing the functions that are invisible but protecting us, and the impact is not limited to agriculture. These functions can be maintained by planting rice and rice for feed using paddy rice instead of decreasing staple food rice. In addition, the feed self-sufficiency rate can be improved and stable supply of livestock products can be achieved. You can leave the land prepared for the future with rice for feed and save it for emergencies. The significance of trying to leave a paddy field that our ancestors have been protecting for over a thousand years is significant.

   Hirata Farm is one of the facilities that play a central role in the feed rice project. We breed three original pigs and Jinhua pigs that are famous as "Kome breeding pigs". These pork seems to be widely distributed, and I can check the menu using *Sangen* pork at a restaurant in Takasaki city, Gunma prefecture where I live.

   From the websites of many organizations, including Hirata Farm (see the list of references below), it was confirmed that the quality of the meat was definitely improved by feed rice. As an issue, rice was 24 times the price of the current average feed such as wheat and corn, and the cost was high. However, at Hirata Farm, the feed is not completely rice, but it is mixed with ordinary feed by 10-20%. Also, rice is more nutritious than other cereals, so it seems that less is needed. In addition, by breeding, we have created varieties dedicated to feed, such as "*Beko Aoba*" and "*Fukuhikiki*," which are currently limited to six times. There is also a measure to sell at a higher price as a branded product like *Sangen* pork and *kinka* pork.

きたあおば
たちじょうぶ
北瑞穂

夢あおば
ゆめさかり
タカナリ
ホシアオバ
もちだわら
北陸193号
モミロマン
クサホナミ
クサノホシ

みなゆたか

べこごのみ
ふくひびき
べこあおば
いわいだわら

まきみずほ
モグモグあおば
ミズホチカラ
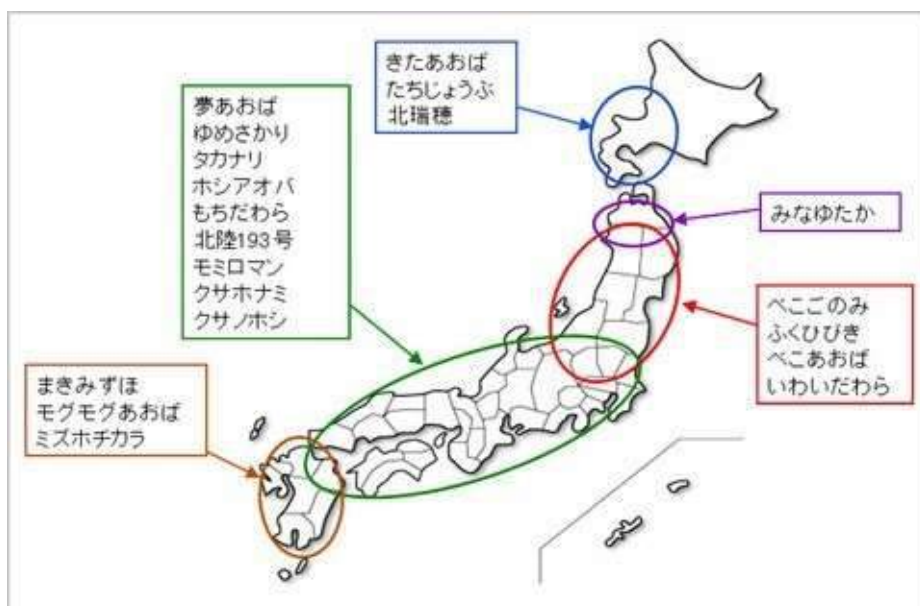
On a summer holiday, I visited a restaurant directly managed by *Hirata* Farm in *Shonai* Airport.

I couldn't give my name because of the person's request, but I asked a sales clerk. According to her story, pigs raised in rice are a little more expensive than regular pork, but they are popular when they are delicious. It is said to be popular with foreigners, especially wealthy Chinese people, because it is low in fat and good for health.

From the JA website, feed rice initiatives are conducted not only in *Shonai* but also in Murakami and *Toyosaka* districts in Niigata Prefecture, Ichihara City, Chiba Prefecture, *Hitachiomiya* City, Ibaraki Prefecture, *Azumino* City, Nagano Prefecture, and Shimanto District in Kochi Prefecture. I found out. It was also found that this is not limited to pork, especially in Kyushu, where chicken and beef production was prosperous. I was glad if I worked in Gunma Prefecture where I live, but in the first place Gunma Prefecture had a dry climate and the amount of rice production itself was not very high, so there were no farmers working on it.

At the end of last year, I visited the Ministry of Agriculture, Forestry and Fisheries Grain Division at a research institution and asked about the progress of the research. In addition, I learned the policy that the Ministry of Agriculture, Forestry and Fisheries is doing to reduce the consumption of rice, and was able to know different options from rice for feed such as rice flour.

In the exchange of e-mail before the visit, Mr.Ito in charge gave me a video introducing the national policy created by the staff of the Ministry of Agriculture, Forestry and Fisheries.

（https://www.youtube.com/watch?v=-Enp5j-DGWQ)

〈Discussion and imprication Ⅱ〉

With the world population exploding, chronic food shortages are occurring mainly in developing and emerging countries. According to statistics from the FAO (United Nations Food and Agriculture Organization), the world's undernourished population was approximately 930 million in 2010. About 1 in 8 people worldwide suffer from undernourishment. Of the undernourished people, about 852 million, or about 92%, are people in developing and emerging countries.

The UN's only food aid agency whose mission is to eliminate hunger and poverty, and the United Nations World Food Program (WFP) are the pillars of its activities, including emergency assistance in times of disaster and conflict, improving nutritional status, and providing school meals. It is said that every year an average of 80 countries provide food assistance to 90 million women and children.   But as mentioned above, if about 900 million people in the world are undernourished, only one-tenth of what is saved.

Nutrition deficiencies and hunger issues are one of the main factors, rather than a lack of food itself, due to bias in food distribution against the background of economic disparities. In fact, half of the world's food is delivered to developed countries, which account for 25% of the world's population, and the other half is 75%.

On the other hand, according to the FAO report, about 1.3 billion tons of food, which is one third of the world's production, is wasted every year. In developed countries, a considerable amount of food loss has occurred at an early stage of the food supply chain from agricultural production to consumption, while in developing countries, very little food is discarded at the consumer level. Japan's food loss is estimated at approximately 6.21 million tons per year. In terms of per capita, it is calculated that one cup of rice bowl is wasted every day.

Japan provides financial support to the United Nations WFP, but I thought it would be reasonable to be able to donate surplus food itself in Japan, which is called a waste powerhouse.

〈My suggesion〉

Based on this information, we will consider whether we can use the high yield and nutritional value of feed rice to support areas with malnourished children.

For example, cookies using rice for feed. It seems that humans can eat even if it is for feed. Unfortunately, I haven't eaten yet, but my grandparents, who had actually sampled feed rice, expressed their impression that they were delicious, although not very much. Also, many cookies using rice flour are already on the market, and I think that it is possible to make them using feed rice.

The best part is that feed rice is higher yielding, nutritious and can be improved. We thought that the demand could be expanded by making cookies that can be mass-produced and have high nutritional value, which could lead to securing paddy fields.

⟨Future prospects⟩

To achieve this, there is no economic benefit if it is used to support developing countries, and because it has been improved to meet the tastes of livestock, it may be opposed to letting people eat it. There are many more things to think about.

However, once paddy has been crushed, it cannot be easily restored. First of all, I think it is important to continue making rice for some purpose and leave the paddy field that our ancestors have inherited to the future.

In Japan, food loss is regarded as a problem, and many people in the world suffer from hunger. I know that there are strict standards by the United Nations, but I think it would be great if Japan could help such people by using crops that it can be proud of, rice.

Although it may still be unrealistic in the middle, I would like to continue my research to realize food support using feed rice as one of the possibilities of Japanese agriculture. First of all, I want to get some feed rice and make cookies.

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〇訪問先
・農林水産省　政策統括官付穀物課
　（東京都千代田区霞が関１‐２‐１）

For all children to celebrate their 5th birthday

～Be aware as mother by using mother and child books～

5110　Haruhi　Ishiguro

1, Introduction

I was very surprised because I loved small children and I saw news targeting infants in developing countries and learned that pneumonia and malaria killed small lives. In Japan, a mother and child handbook was created to help parents become aware of their parents. After that, Indonesia adopted the mother and child notebook system, the second in the world after Japan. As a result, the mother and child notebook is used to the extent that it is said to pride as a mother. Currently, it has been introduced in 30 countries, including countries with unstable circumstances. From this result, I thought that child mortality would be reduced by spread mother-child notebooks in countries where mother-child notebooks have not yet been introduced. Even in a country with a low literacy rate, I think that it can lead to a slight decrease in mortality by showing it in a diagram or picture. Therefore, in order to reduce the mortality rate of infants in developing countries, I propose to distribute or introduce a maternal and child handbook for pregnant women in developing countries and those raising children under 5 years of age.

２, Discussion and Implication

① Purpose of research

Spread mother and child notebooks.

Promote mother and child notebooks to reduce infant mortality.

②Research methods

Collect information through the basic Internet.

1 Collect information about MDGs and SDGs

2 Examine the mortality rate and cause of death in developing countries.

3 Consider the fundamental reason for the cause of death.

4 Collect maternal and child health care currently being conducted in Japan.

5 Collect overseas information.

6 Explain what you think overseas should incorporate, along with the grounds.

② Research achievements and issues

1 Research until last year

I studied SDGs (Sustainable Development Goals) in last year's GS research. So I learned about MDGs (Millennium Development Goals) at the time of the information gathering

class to decide this year's research theme. This plan was mainly for developing countries that I am interested in, so I used it as a reference when assigning research themes.

About SDGs
Sustainable development goals (SDGs) are the Millennium Development Goals (MDGs) established in 2001
As a successor, it is an international goal from 2016 to 2030 described in the "2030 Agenda for Sustainable Development" adopted at the United Nations Summit in September 2015. Consisting of 17 goals and 169 targets to realize a sustainable world, we pledge to leave no one behind. The SDGs are universal, not just developing countries, but also developed countries themselves, and Japan is actively working on them.
 (https://www.mofa.go.jp/mofaj/gaiko/oda/sdgs/about/index.htm)

About MDGs
The Millennium Development Goals (MDGs) are abbreviations for MDGs. The United Nations has set eight goals that it should achieve by 2015, such as the eradication of extreme poverty and hunger. Achieved results by 2015.
Results)
　　・The number of children under 5 years old died 53% from 12.7 million (1990) to 5.9 million (2015)
　　・Maternal deaths decreased from 380 per 100,000 (1990) to 210 (2013) (mortality decreased by 45%)

 2 　Number of deaths and causes of children under 5 years of age worldwide
　9.213.6 million children are gone in the world every year. Also, the highest rate of death is pneumonia. But developing as a reason why children in the country get pneumonia, malnutrition, include air pollution and smoke from smoke.
　(https://www.unicef.or.jp/news/2014/0149.html)

3 　Reason for death
　I focused on malnutrition, one of the reasons cited for pneumonia.
　① 　Damage caused by malnutrition
　・ Delayed body and brain development
　・ Immune system decline
　・ Lack of academic results 　・ Rise of disease risk
　② 　Countermeasures

- Pre-pregnant, pregnant, and postpartum lactating women eat a nutritionally balanced diet
- Support the improvement of water and public health throughout the region
- Children up to 6 months of age are fed with complete breast milk, and after 6 months, provide appropriate baby food with breast milk.
- Tackling the problems behind undernourishment such as poverty and girls' education (https://www.jica.go.jp/publication/mundi)

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A new education plan for global human resources
～Opportunities of international exchange for high school students～

5111 Kotone Ogino

1. Abstract

Recently, more than 70% of domestic companies are aware of the shortage of human resources who can work abroad in quality and quantity. In addition, there are 3 abilities for Japanese people to be global human resources. They are 「ability to communicate with people in foreign languages」, 「understanding for other countries」, 「understanding for their countries」. Therefore, I suggest overseas exchanges to improve these skills for high school students. It may be possible to increase the number of global human resources who can carry out foreign operations and activities to solve international problems. However, many high schools in Japan now are not able to carry out enough overseas exchanges to acquire these 3 global talents. Thus, I propose a class done with a group including foreigners which we conduct research aimed at solving international problem.

2. Discussion and implication

① Purpose

In order to increase global human resources, it is necessary to improve 「ability to communicate with people in foreign languages」,「understanding for other countries」, 「understanding for their countries」 that Japanese people lack. According to G-Lab, they are the ability to adapt the diversity of global human resources, and foreign language communication is global English. I thought that I should try to improve these abilities by increasing the number of people who study abroad in high school and university. However, in studying abroad, each ministry and agency is making efforts to improve problems of studying abroad under the "Young Overseas Study Promotion Plan", and the number of international students is also increasing year by year.

However, the economic burden is always different in each student, so the agencies of the country cannot provide sufficient support to everyone who wants to study abroad. Therefore, I think it is necessary to focus on international exchanges in Japan. There are already many opportunities for international exchanges in Japan, but this research points out the problems of overseas exchange in Japan and proposes new forms of exchange. We will not only cultivate the three skills that Japanese people lack by proposing higher quality overseas exchanges, but finally aim to increase global human resources.

② Introduction

    Internet

③ Research

At present, it is said that there are few human resources who can be entrusted with overseas business. According to Mitsubishi UFJ Research & Consulting, more than 70% of domestic companies are aware of a shortage of human resources in both quality and quantity as global human resources. Based on these results, one of the goals of the "Youth Overseas Study Promotion Plan" is: "By 2020, there will be 60,000 to 120,000 university students and 30,000 high school students. I think it is necessary to achieve "from 60,000 people to people".

When studying abroad, the ministries and agencies are making efforts to solve problems in studying abroad through the "Young Overseas Study Promotion Plan". The number of international students is also increasing year by year. Therefore, the target number of people by 2020 will be reached.

As a problem of studying abroad, according to the statistics of "Global Human Resource Development Strategy-Prime Minister's Official Homepage"

    ① After returning to Japan, there is a high possibility of staying in college in Japan

    ② Economic problems 48.3%

What ministry and agency are doing now is,

    ① Reducing the economic burden of studying abroad

    ② School system development

    ③ Safety management

    ④ Improving language skills

    ⑤ Fostering study abroad opportunities

    ⑥ Response according to the study abroad destination

The big problem that can be seen from this result is that there are many cases of abandonment due to economic problems. However, even if the relevant ministries and agencies are actively implementing the above measures, it is not possible to support the desired amount for all students who want to study abroad with money from the government. In other words, it is necessary to have a system that enables international exchanges with the least possible economic burden to acquire the power of global human resources. It can be seen that measures are being taken.
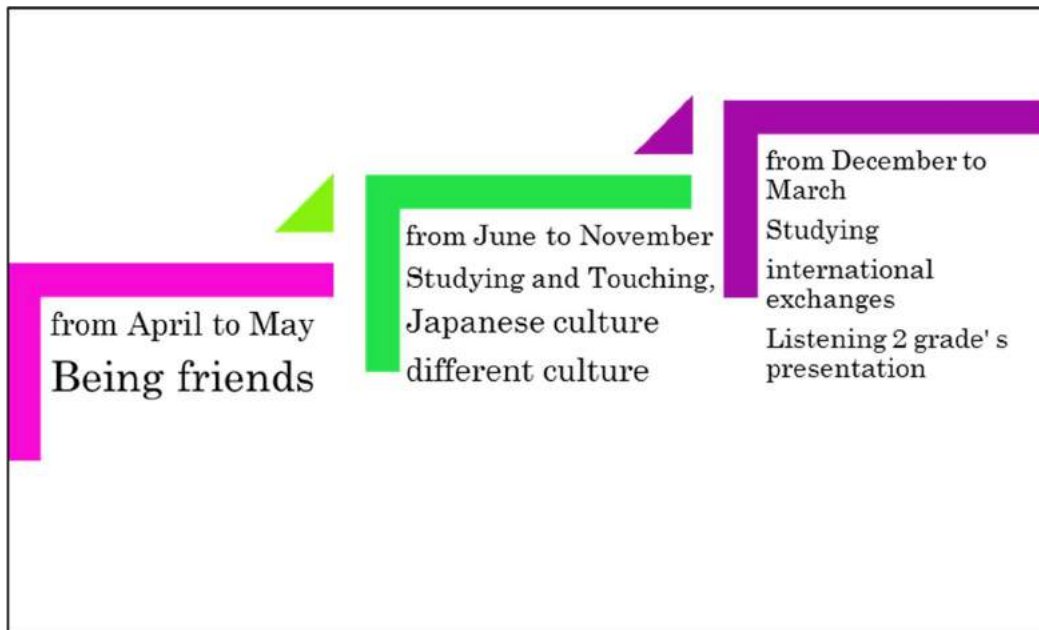
3. Conclusion
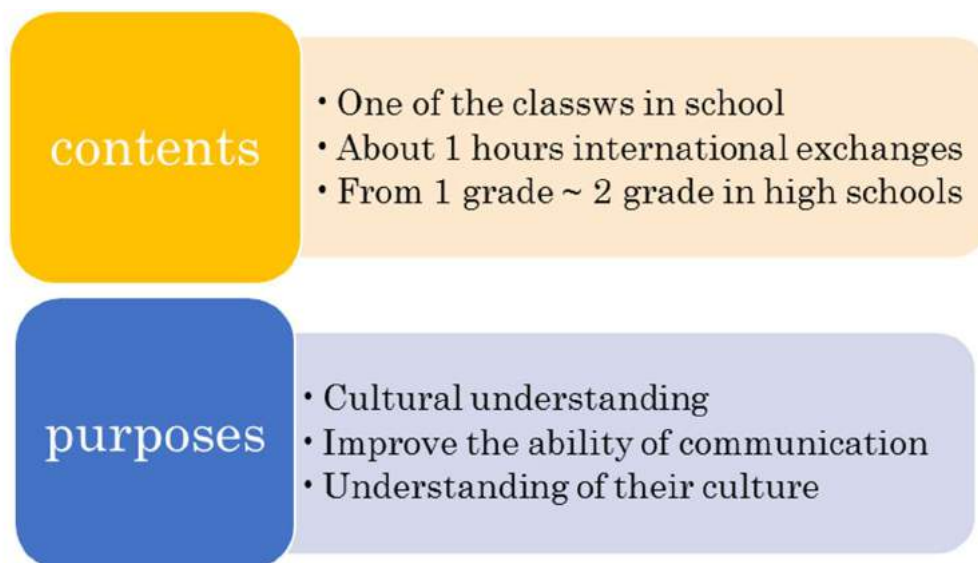
My conclusion is to create opportunities for international exchange within the school. Increase opportunities for overseas exchange in Japan for students who have to give up studying abroad on financial, religious, and other issues. Currently there is a place for foreign exchange for working adults in Japan, but if you can improve the three abilities that are said to have been applied to Japanese among high school students, you can become a working force immediately after becoming a member of society. . Since the university conducts specialized learning, it proposes overseas exchanges in school life for high school students. There are various opportunities for overseas exchange in Japan. However, many of them are aimed at those who wish, and it is difficult to be aware of studying abroad without awareness of overseas. Therefore, you can feel close to studying abroad if you carry out overseas exchanges within the school.

My suggestion is to establish a place to communicate with foreigners as part of the class once a week.

① The first year of high school is an activity with foreigners mainly for the purpose of improving cross-cultural understanding, self-cultural understanding and communication skills. Study in a group with foreigners, not just a Japanese group. (Hereafter, the group consisting of foreigners and Japanese is abbreviated as "group".) At this time, foreign students who are members of this group are requested mainly by foreign students staying in Japan. The goal of first-year high school students is to deepen their friendship with foreigners. Acquire a multifaceted perspective without sticking to Japanese ideas through cross-cultural exchange with foreigners and recreational activities. In addition, many of the conversations will be in English, which will improve foreign language communication skills.

from April to May
Being friends

from June to November
Studying and Touching,
Japanese culture
different culture

from December to March
Studying international exchanges
Listening 2 grade's presentation

② In April and May, face-to-face recreation with foreign students. The content of recreation is decided in advance by Japanese students. As you get more and more, try to get to know traditional games from around the world. I haven't decided on a group yet, but I have different members every week. During this period, foreign students staying in Japan as a high school visit will be sent to deepen their friendship through the international students' play and traditional Japanese play. By giving classes in different groups each time, you can get involved with various people from different lands and cultures. Members who come from abroad can be involved with various people without being collectively regarded as "foreigners", which leads to a multifaceted perspective. In addition, it leads to daily English settlement through recreation. If you don't improve your English to the point where you can speak everyday, I think that it will not lead to the establishment of Global English, which is the ultimate goal.

③ During the period from June to November, "Japanese culture study", "Cultural study" and "Cultural experience" will be held. Learn Japanese culture, food, life, history, etc. The purpose is to deeply study why the culture that has been inherited up to now remains deeply rooted in Japan and what the origin of the culture is. In "Cultural Studies", students who have come to Japan for high school visits introduce the culture of time and deepen their understanding. The purpose of this is to teach different countries and learn more about the cultures of other countries. The purpose of "Intercultural Experiences" is to actually experience different cultures in home economics rooms, such as practicing cooking of local dishes from various countries. Promote self-cultural understanding by learning and sharing in groups and classes jointly. In addition, learning new things (food, life, culture, etc.) that are close to you will be able to improve your ability to find problems if you can touch new discoveries and problems.

It is also possible to apply a multi-faceted vision that seems to begin to be learned within April-May.

④ During the period from December to March of this year, students will learn about problems that are occurring in the world for the study of second graders. Later in this period, second-year research is planned, and first-year students are scheduled to present. By learning Japanese culture during the period from June to November, basic knowledge for studying international issues has become established, and the following activities can be carried out smoothly. Learning international issues increases understanding of the presentation. The current SGH studies only Japanese people from "knowing" only to "proposing solutions". This may lead to a conclusion based on Japanese preconceptions. Joint learning between people and foreign countries is the solution. By focusing on the world's cultures, problems, and ideas throughout the year, it will be possible to conduct research in two years smoothly.

from December to March
Presentation

from June to November
Middle presentation

from April to May
Being friends
Deciding theme
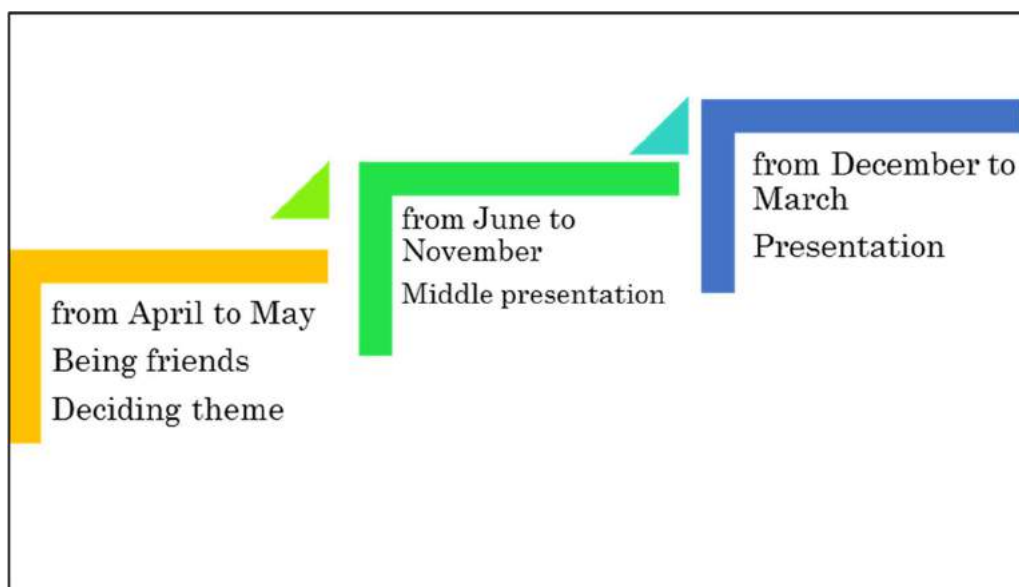
⑤ When in 2nd grade, conduct research on thematic themes mainly on international issues. At this time, the group conducts a group study of about four people: two foreign students and two Japanese students. Each member decides about 1 to 3 free themes such as world issues and cultures learned in their first year, and is composed of members who are interested in the same theme.

⑥ Members and themes will be decided from April to May, and recreation will be conducted in the newly decided team to deepen friendship. Large themes are determined to some extent by the fields in which the members of each group are interested, so sub-themes are determined within the group. As for the major themes, surveys are conducted on the fields of interest in the research between students and first-year students, and roughly 4-5 major themes are created. After that, students who have been classified to some extent by major

theme are divided into groups of 4-6 people. Each group decides the research content, direction, and sub-themes.

⑦ In June-December, gather together in a class about once a week, like SGH, to advance research. Each group creates research plans, collects and shares information within the group, and creates English papers. We are also considering increasing the number of classes when there is not enough time for research. An interim announcement will be made in September-October. By presenting research results and pointing out or suggesting defects or improvements from other groups or others, you can suppress preconceived research without sticking to group ideas. Make presentations and audience activities across classes and grades.

⑧研究 Present research from January to March. It is desirable to present in English rather than presenting research in Japanese. This is to improve global English. Research announcements will be made in February according to major themes, and in March the first and second year students will be announced. In the March announcement, the announcement will be made by several groups selected in the February announcement.

By implementing this proposal at many schools, we can nurture and increase high school students who have an international perspective and are interested in the world. The international perspective here refers to the ability to look at things from various perspectives worldwide, rather than looking at things as a person. In addition, it is possible to improve interest in the world. The main purpose of this proposal is to improve communication skills, understand different cultures, and understand one's own culture, and ultimately increase the number of global human resources with an international perspective.

The issues of my plans are listed below.

① There may not be enough international students to create a group.

As raised in the research results, the number of international students as of May 1, 2017 is 260,742. There is a problem that many high schools are too few to form a group of foreign students and Japanese.

The direction of the solution to this problem is the idea that the foreign members of the team are not limited to international students. We ask for the cooperation of many foreigners living in Japan, regardless of their age. Ask the participating foreigners what time zone they want and adjust the time zone for classes.

As the difference between foreign students at the first year of high school can be solved, the next problem is the activity at the second year of high school. When I was in second year of high school, as I mentioned in the results of my research, I fixed my members and spent one year doing research to solve international problems.

②There are differences in the number of people depending on the prefecture, and depending on the prefecture, there is a possibility that a small group cannot be formed. There is a possibility that groups with sufficient number of people in each prefecture cannot be formed. The ideal group is composed of 2 or 3 Japanese students, plus 2 foreign students. However, if there is a large bias in the ratio of Japanese students to foreign students, the purpose of this proposal It may hinder multicultural understanding and the improvement of various skills such as global English. The direction of solving this issue is the same as ①.

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To improve the English skill of Japanese people
~One innovation for Japanese elementary schools~

5112 Miu Kunitomi

○Abstract

To improve whole the English skill such as listening, reading, and writing of Japanese people, I compared Japanese present English education with that of other Asian countries whose environments of English are similar to Japan. Then I picked up some problems of Japanese English education, and researched the way to improve Japanese people's English skill. As a result, I suggest that Japanese education should be started at the first grade in elementary school, and both output learning and input learning should be included equally in English classes.

1. Introduction

According to the Education First(hear after EF), English ability index that measured people's English skill, the rank of English skill of Japanese people was in 49th place, and Japanese rank has been dropping year by year from 2011. The world is getting more and more global, and the necessity of English is increasing as a common language in the world, so these Japanese present situation is the most significant problem to be solved. Therefore I studied about English education in Japan, and suggested the English education reform plan in elementary school. Why I focused on education in elementary schools is that English is not an obligatory subject in Japan.

2. Method

I researched in the following order using the Internet.

①   Survey the necessity of learning English
②   Determine viewpoint to approach solutions
③   Think about the solutions using other countries data
④   Suggest an innovative idea in English education of elementary school

3. Preview

I researched present situation of Japanese English skill

Compared to the Korean average score of "GTEC for STUDENTS" in the "East Asian High School English Education GTEC Survey 2006", Japanese score was less by 52.3 points in reading   test,   and   by   23.9   points   in   listening   test   than   Korean

図1 英語コミュニケーション能力調査結果
（GTEC for STUDENTS の平均スコアと標準偏差）

	日本〔n＝3,700人〕		韓国〔n＝4,019人〕	
	平均スコア(点)	標準偏差	平均スコア(点)	標準偏差
リーディング〔320点満点〕	153.2	39.7	205.5	53.2
リスニング〔320点満点〕	163.7	41.4	187.6	49.3

4. Results

①Survey the necessity of learning English

　According to The English Club, which collected information from Ministry of Education, Culture, Sports, Science and Technology, the United Nations, US Visa Talk and Crystal D. "A History of the English Language", about 1.5 billion people of about 7.3billion people in the world use English as a practical communication tool. From this, it is clear that English is a global common language, and Japanese people can also communicate with people in many countries and regions by speaking English. So, Japanese people have enough necessity to improve English skill.

②Determine the viewpoint to approach solutions.

　Mr. David Hunt, Chief Operating Officer of ETS, who develops TOEFL / TOEIC, listed conditions of the countries / regions which have more possibility to improve people's English skill.

　1) English education is started earlier.
　2) English classes are done in better quality.

From his definition, I decided to use these two viewpoints;

　1）When to start
　2）How to study

③ Think about problems

　(1)When to start

● 　According to The Foreign Service Institute (FSI), the time required for an English

speaker to reach the level of "Speaking 3: General Proficiency in Speaking" and "Reading 3: General Proficiency in Reading" in Japanese is 2200 hours (88 weeks). I think the same can be said about Japanese speakers learning English. Even if there are 1 hour of English classes and 5 hours a week in the 6 years from the first year of junior high school to high school graduation, the total English learning hours will be 5 (hours) × 4 (weeks) ×12 (month) × 6 (year) = 1440 (hours) by simple calculation. This is clearly not enough time for Japanese speakers to learn English. Therefore, early learning of English is considered necessary for English early learning.

(2) English learning content
To find a practical method in Japan, we compared Japan with South Korea and Singapore, which have higher EF English proficiency index rankings than Japan, even though the English situation is similar to Japanese one.

<Japan>
○ English learning achievement goal
(According to the Ministry of Education, Culture, Sports, Science and Technology, "Guideline for Learning 1st Goal")
Through foreign languages, make students understand languages and cultures, foster an attitude to actively communicate, and develop communication skills while familiarizing them with a foreign language speech and basic expressions .
→The government have a core point in understanding of different cultures and improving communication skills

○ Learning content
○ English activities in elementary schools in Japan are "foreign language conversations as a part of an international understanding learning," which is conducted at the discretion of each school as a part of comprehensive learning. According to the "Survey on the Implementation of Elementary School English Activities", approximately 80% of public elementary schools conduct English activities during the total learning time.
● Songs and games 97.1% of schools
● Simple English conversation (greeting, self-introduction, etc.) 94.8%
● English pronunciation practice 73 %%
(This percentage is the percentage of schools in the sixth grade that do the above among the schools that conduct English activities)

<Korea>

○ English learning achievement goal

Develop the ability to understand and express basic English

○Learning content

- Spoken language education through playing such as songs, chants (poetry and word play rhythmically without melody) and games
- Reading basic nouns in 4ᵗʰ grade in elementary school and reading and writing basic words in grade 5
- The grammar also deals with Japanese middle-level items such as present tense, future tense, and infinitive.

<Singapore>

○ English learning achievement goal

① Students must have the ability to express themselves in English. In particular, they must acquire basic skills in order to be able to make correct grammar, description, and basic pronunciation. (Basic self-expression skills)

② Most students must have the language ability to express and describe in English.

③ At least 20% of all students must have advanced English proficiency. These students need to have the same level of English skills as talented people in English-speaking countries as a human resource for Singapore to build an international advantage in highly specialized fields.

In order to achieve these three goals, (1) Listening and Viewing, (2) Reading and Viewing, and outgoing communication skills are the key points. (3) Speaking and Representing), (4) Written and Representing, and (5) Grammar and (6) Vocabulary based on knowledge.

○Learning content

School provide education to improve the six abilities described in the English learning goals.

(1) Listening and Viewing

- Recognition of vowels and consonants
- Conversation pace, conversation tone, conversation strength
- Teachers teach students how to express conversations in various situations.
  → Give a concrete conversation image.

(2) Reading and Viewing

- Guidance by replacing voice with letters.
- Instruct students to use fairy tales, fantasy, biographies, and myths as reading targets to

make reading comprehension easier.

(3) Speaking and Representing

● Practical guidance on specific greeting expressions

● Instructions on accurate and clear pronunciation, speaking pace, volume and strength

● Summarize students' thoughts and teach them how to express their consent

(4) Writing and Representing

● Teaching from how to read the alphabets

● Instruct students to summarize and describe their thoughts. In this case, the teacher give guidance in consideration of errors in grammar and spelling.

(5) Grammar

・ Consider acquiring the basic skills of listening skills, reading comprehension, conversational expression, and written expression.

・ In order to understand the English sentence structure and grammatical rules, use examples from listening and writing materials to teach accurate grammatical expressions.

(6) Vocabulary

● Relate vocabulary acquisition to students' experiences and make them feel the joy of learning English

● Teach a vocabulary related to synonyms and antonyms.

● Give repetitive instruction to students can acquire vocabulary according to their growth stage.

● According to the Ministry of Education, Culture, Sports, Science and Technology's "Survey on the Implementation of Foreign Language Activities for Elementary Schools (H24)", 80% of junior high schools answered that they wanted an opportunity to "read" and "write" English words in elementary school English classes.

● According to the Ministry of Education, Culture, Sports, Science and Technology, a research to look at the efforts at about 3000 elementary schools (about 15%) that have been engaged in foreign language activities from the lower grades, there is a tendency for learning motivation to decline in the upper grades. By introducing subject-type foreign language education that systematically guides students to "reading" and "writing", children's ability to express and understand foreign languages and their learning

motivation was improved.

④ Suggestion of an innovative idea in elementary school English education

①　Start English classes from the first grade of elementary school.
―Become familiar with English as a second language of Japanese. from a young age so that we can speak without being conscious.

② Do classes that introduce basic vocabulary, grammar, communication, and speaking.
-Understand the advantages of input-type and output-type learning methods, and do output-based learning based on knowledge grown by input-based learning.

③ Establish regular lesson process
- In one regular lesson, it is necessary to establish a constructive educational curriculum because it is important to efficiently use the knowledge gained from input-based learning for output learning. Specifically, it is effective to do output learning using the learned grammar in the next lesson after grammar class.

I proposed an innovative idea in elementary school English education

○ English learning achievement goal
By the time students graduate from elementary school, they should be able to:
- Studying English textbooks, understand the roles of the five main parts of sentences: nouns, verbs, adjectives, adverbs, and articles, and understand the simple sentence structure based on the subject and predicate. Students should be able to read words and English composition (Reading ability) and write (Writing ability). We aims to understand the first and second sentence patterns, and students should be able to write expressions used in daily conversation and idiomatic expressions, which are not included in first and second sentence patterns.
- Students should be able to have daily conversations with others using the same level of English as the English grammar they learned in past classes. You should be able to use expressions and idiomatic expressions used in everyday conversation even if they are not included in the learned English grammar. In addition, using simple English grammar and words, you will be able to convey your opinion on a topic to others for 1 to 2 minutes (Speaking ability). Students don't have to be very conscious of making correct English grammar, but teachers should emphasize that students can experience the joy and

pleasure of communicating their own opinions in English and communicating with others.

● Students should express your opinion on a topic in sentences using about 50 to 80 words with learned English words and English grammar (Writing ability).

○Start time

Strat English classes from first grader of elementary school

○ Learning content

Elementary school 1-2 graders

<Input learning>

● Learn the shape and order of the alphabet and be able to write with attention to upper and lower case letters.

● Students should learn and write simple parts of speech, such as nouns and verbs, with a focus on the distinction of parts of speech, focusing on English words appearing in textbooks. As a way to efficiently remember English words, I recommend to test easy English words regularly for about 5 minutes.

● In the second half of second grade, students should be able to write simple (greeting) English conversation in English. Similarly, and to translate a simple (greeting) English conversation into Japanese.

<Output learning>

● Learn the pronunciation of the alphabet and be able to pronounce it in the correct mouth shape. Following the teacher's pronunciation, the students try to imitate the teacher's pronunciation and learn the alphabet by singing so that the student learns the alphabet more accurately and efficiently.

● Learn simple English conversation with textbooks, read the English text after the teacher, or imitate it with each student. Conduct this activity with some students to improve communication skills.

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The spread of career education for high school students

～A suggestion of a new class in cooperated with an enterprise～

5113 Chisumi Koitabashi

Abstract

This study suggests to improve the career education program for high school students: a high school and an enterprise cooperate each other to make a new class.

High school students have to think about their personalities and their path to prepare for their future.

However, Ministry of Education, Culture, Sports, Science and Technology (MEXT) says that modern Japanese students are not sure to which course to choose and why do they learn at the school because school classes are not exactly related with their real life or career.   So I focused on career education of high schools.

I propose that some NPOs or enterprise should work together with schools so that the program can be more useful and effective.

Introduction

What is the "career education"?   It is the program to develop young people's self-understandings and improve their occupational view for their self-realization.   Leaning through working experience or internships is one of the example.

First, I will introduce about some examples of Japanese career education system and their problems.   Then, I compare them with Finland's career education to search for the solutions because Northern European countries are known for their productive education system and especially Finland rank high in studies into the overall happiness of nations and the Program for International Student Assessment (PISA).   Finally, I summarize the conclusion and outlooks.

Discussion and implications

According to the Ministry of Education, Culture, Sports, Science and Technology, career education is an educational effort aimed at nurturing the abilities and attitudes necessary for children and young people to form a career.

As for the practice of career guidance so far, the philosophy is not fully reflected, the long-term viewpoint is not supported, and the relevance and systematicity of each activity in the guidance plan are scarce.   This is an issue. From such a situation, the current course guidance is evaluated as guidance that is biased toward the course decision, and is also called "exit guidance".

In career education, it is necessary not only to select and determine career paths, but also to cultivate a wide range of abilities that can become independent as future members of society and respond flexibly and flexibly to changes in the times.

Nowadays, many young people have no hope for the future, so I think career education can be a great solution for it.   However, career education program is not so popular in schools in Japan, and it has a lot of problems.   I will introduce about the examples of current Japanese career education program and their problems.

<u><Introduction examples of career education ></u>
There are some kinds of career education program.   For example,
- By asking questions about daily life, courses, and troubles, students can verbalize what they like and dislike, and promote self-understanding
- Encourage understanding of work and occupation, such as industry research and understanding of the company's value chain
- Virtual experience of work style and income, preaching the importance of life design and fostering work / professional views

The following four forms are mainly used for implementation at school level.
○ delivered teacher style

Invite seniors who have chosen a course and those who are already active on the front lines of society as lecturers. By having an experienced person talk empirically, it is easier to understand than learning as knowledge, and it can be expected to encourage specific actions.

○ Occupational experience and field trips

It means that conducting experiences outside the school that cannot be experienced at school like internships for workplace experiences, university / office visits, workshops with employees, projects to solve local issues, etc. Not only students can hear it, but they can feel it directly with your eyes, leading to a deeper understanding and having contact with society. In addition, they can have friends of the same generation who do not stay on campus, and can stimulate each other.

○ Intercultural exchange format

It develops global human resources to broaden the possibilities for career development and increase future student choices. By having the opportunity to use a language as a communication tool on a daily basis, accepting foreign students, and providing opportunities to study abroad while studying, the difference with the other party is taken for granted, and the "difference" in the culture and customs of each country Develop an attitude of being an international person by cultivating a feeling of recognition and understanding. Examples of

introductions include accepting homestays for foreign students, presentations and plays using foreign languages, and performing songs.

○ Practical education format

Rather than vocational experience, nurturing independence by doing business on its own, and developing the skills necessary to survive the future society, such as manners and information processing skills necessary for transactions. Instead of teaching, confronting and thinking for yourself, you will inevitably learn the skills you need after going out to society.

<u><About practice examples of career education in some prefectures ></u>

Next, I will introduce three practical examples of career education that are actually held in high schools in Japan. It can be seen that each school has its own unique classes.

・ Practical examples in Chiba Prefecture (overall plan)

I. Company tour report presentation (presentation)

Early in May of the first year, students will observe the facilities, equipment, and atmosphere of the company and learn about the required qualifications, skills, qualities, etc. Based on the experience of company tours, career development is promoted by sharing experiences and reflections through presentations by representatives of each class. Through his activities, he understands his personality and develops an attitude to think about his / her own course, and aims to improve his / her ability to convey his / her thoughts and information and the ability to understand others' ideas and utilize the information. In addition, we are trying to enhance career education by providing continuity between the workplace experience experienced in junior high school and the internship scheduled to be held in the second grade of high school, and by approaching according to the stage of development of students.

II. Internship Report Meeting

During the 1st semester, students practiced their opinions at school grade meetings and conducted a 5-day internship during the summer holidays. To improve the communication ability through group activities through presentation activities that present the experience, ingenuity in the way of speaking that attracts listeners, questions and discussions. In addition, by actively speaking about the difficulties, reflections and failures of internships, proactively analyzing and sharing them, we can make future career choices more reliable, and will be able to overcome the difficult situations we face when working. The aim is to acquire strength and power to contribute to society.

・ Ibaraki Prefectural Hitachi Technical High School

With the Hitachi region, one of the premier industrial zones in the prefecture as the core, the four chambers of commerce in the north of the prefecture collaborate with local technical high schools and the prefectural board of education in order to foster human resources responsible for regional manufacturing, The company develops integrated business with local companies, such as research on IC tags and energy-saving cars. Technical training was conducted at a local company for a long period of one year. In addition to the work that involved the responsibility of actually making the product, there was enthusiastic guidance on the process of making small devices independently and the rules, occupations, and views of work as a society, in order to enjoy an understanding of the mechanism and a sense of accomplishment. Since practical training is conducted once a week, students' skills, skills, and occupational views were improved, and communication skills that were seen in the results presentations were improved. In addition, good relationships are being built with students and high school accepting companies, and new cooperation between high schools and local businesses is beginning to emerge, such as the cooperation of companies in school initiatives other than practical training. .

・ Prefectural Toride second high school

Career guidance and career education have been conducted for some time, but the systematicity was weak and it was not able to function sufficiently in student's independent career selection. Therefore, we devised a system that systematically links the activities and implements them systematically. First of all, as a new organization for promoting career education, a new committee was established and an overall plan for career education was formulated. Next is the formation of a common understanding among faculty and staff regarding career education. We have formulated an annual instruction plan that has been incorporated into in-school training and each subject. Finally, planned and systematic promotion of career education in each grade by visualizing the goal setting, it is possible to clarify the contents of instruction to be performed and make the instruction consistent.

<Implementation problems and improvement measures>

As an example of problems in carrying out career education activities in class, Ibaraki Prefectural Toride second High School has been providing career guidance and career education for some time. Could not function well in the selection. Therefore, we devised a system that systematically links the activities and implements them systematically. First of all, as a new organization for promoting career education, a new committee was established and

an overall plan for career education was formulated. Next, in order to form a common understanding among the faculty and staff about career education, we have formulated an annual instruction plan that has been incorporated into training and various subjects within the school. And finally, in order to promote career education systematically and systematically in each grade, by visualizing the goal setting, the contents of instruction to be performed became clear and the instruction could be made consistent.

Like these cases, in carrying out career education activities, it is important to first clarify the current state and problems of each school, and to continue with the leader's side having a common understanding.

<u><Comparison with overseas career education></u>

○Education in Finland

In order to refer to overseas policies when considering career education in Japan, we surveyed Finnish education in Scandinavia, which is known as a major educational country. In Finland, the success of education has spread to the economy, and the number of researchers per capita is higher than it in other countries. Technological innovation is also the top in various surveys. The unemployment rate is lower than average, with 82% of adults graduating from high school or equivalent education, 12% above the average in developed countries. Regardless of elementary, middle and high school, Master's degree is a teacher recruitment standard, so Filand teachers are very prestigious occupations, and when they become teachers, it is common to work until retirement without changing jobs (* First in the US 50% of teachers who have changed to another occupation in the last five years). The school has adopted an educational policy called "Harvard-style mentor education", and it is not a lesson style in which teachers give unilateral knowledge to students, but how to solve problems in individuals and groups in order to improve students' independence and thinking skills. Many ways of thinking are used.

Also, in Finland, there are many opportunities to think about the future during junior high school graduation, as there is a great choice of whether to go to a general high school or vocational school. In Japan, the ratio of vocational schools to general high schools is 3: 7, while in Finland it is 1: 1. Therefore, there is a "carrier guidance" class in junior high schools. In this lesson, students will be able to think broadly about themselves and society over the course of three years toward their own career development.

○Suggestions for Japanese education

Comparing Finland and Japan mentioned above, the recruitment standards for teachers are different, and if teachers are required to have the same role as Finland in Japan, teachers must first be trained using a different approach. . However, there is a difference in the school's

educational policy in the first place, and in Japan there is an excessive amount of work by teachers, including club activity guidance, and there is a current situation where "blackening" is being called out. I thought it would be a burden to impose this on school teachers.

Therefore, I propose a new career education activity in which high schools and local NPOs and companies cooperate. It may be hoped that more effective career education activities can be realized by continuing regular systematic classes rather than short-circuit work experiences.

Conclusion

From these examples and comparing, I believe that we need promotion and improvement of the career education programs at high schools in Japan. If the schools and enterprise cooperate with each other, students can have new perspectives and relationships between various types of adults so they will be able to know there are a lot of ways in the future. It can encourage students' self-understanding and interest in society and dispel vague concerns about the future so it will be an effective project for students' self-realization. Furthermore, we can give equal opportunities to all students at once and we can have more expertise in our activities, and it also helps reduce the burden on school teachers. Additionally, it is expected to create new jobs by outsourcing career education activities.

As a problem for future research, I think I have to research for the problems of existing programs by conducting interviews with school teachers to make a real plan of career education classes and make it come true. Finally, I want to introduce my idea into my school curriculum someday.

I strongly hope that the new career education method changes Japan's current efforts to be improved from now on.

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What Japan can do to decrease killing of animals
~Compare with world measures~

5 114　Ayana Kokubo

1. Purpose of this study

In present day Japan, the number of animals which is killed has been decreasing. However, in reality, some areas don't have killing animals. It depends on each areas. I would like to propose measures to help with this situation, referring to the activities for reducing slaughter around the world.

2. Method of this study

I used the Internet to survey about problem in Japan and world solution. Then I compared with world current state of killing animals and Japan current state of them.

3. Research results and issues

In Japan, the animal welfare center will kill animals if a new owner does not appear after detention of a pet deposited by the owner for a certain period of time. Then dogs are treated according to the Rabies Prevention Law. Unowned dogs

(stray dogs) will be captured and disposed of by local officials to prevent the spread of rabies. Except stray dogs, there are dogs that are brought into the facility due to the owner's abandonment, and dogs that are injured on the street and protected, but these are dealt with accordance with "Animal Protection Law". Also, cats are disposed to accordance with the Animal Welfare Law and regulations established by local governments. The number of dogs and cats that are determined to be killed by laws and ordinances such as these has been decreasing year by year from 1974 to 2016. However, although it is decreasing, the number of slaughtered dogs in 2016 was 10424, the number of cats slaughtered was 45574, which is far from ideal 0.
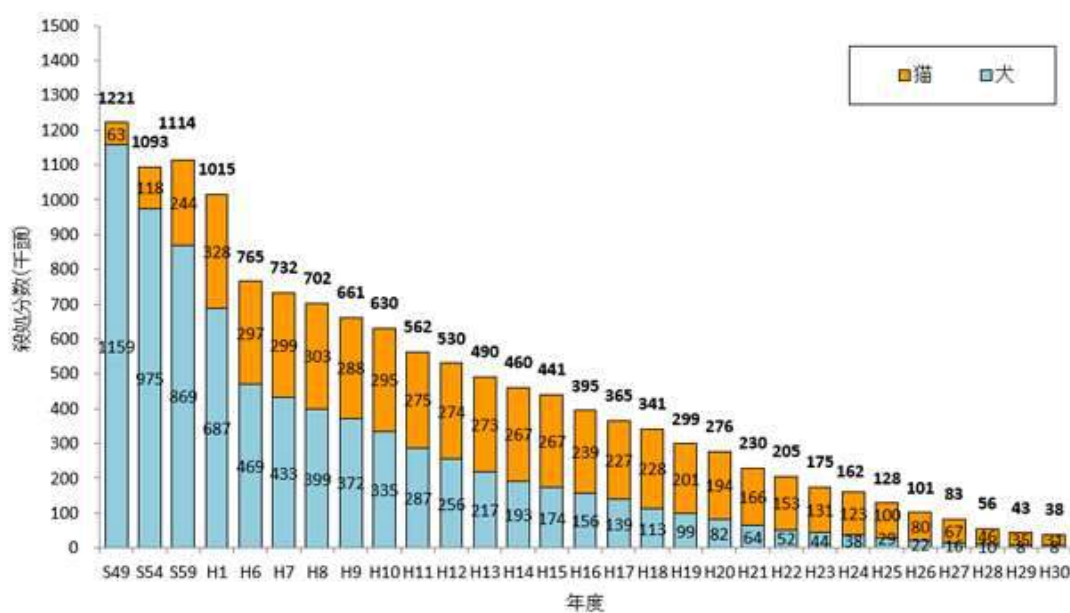
From the Ministry of the Environment statistical data "Pick up dogs and cats and

injured animals"

<https://www.env.go.jp/nature/dobutsu/aigo/2_data/statistics/dog-cat.html>

On the other hand, in Germany, which is famous for no slaughtered animal, 1 to 15,000 animals are protected annually in an animal shelter called Tierheim. Not only dogs and cats, but also a wide variety of animals such as horses and pigs are Protected there.

Then, I will explain how to earn income to run the facility as Tierheim Berlin in Germany. Here, it is financed mainly by donations and bequests from companies and citizens. The Berlin Zoological Society, which operates Tierheim Berlin, has 15,000 members and about 10,000 donors. When you become a member, you can get a member-only magazine, calendar, and information from animal advisor instead of paying at least 20 euros (about 2400 yen) annually.

In Germany, this kind of Tierheim has been able to obtain profits which help protect many animals. However, Tierheim is not mainstream in Japan.

There are reasons such as the cry of animals such as dogs and cats and the lack of understanding from neighboring residents. Then I would like to make a suggestion on this issue. Can we make effective using of buildings and parks that

are currently closed? By doing so, I think that it will be possible to reduce the cost rather than constructing a new facility, and it would be easy to get the understanding of neighboring residents if it was originally used as a school or park. And how about using your donations to renovate unused buildings?

But more problems come up. That means that there will be additional costs for maintaining the facility and caring for the animals after the renovation. Here I make a new proposal. Among the animals that are killed, there are good and bad children. My suggestion is to have a rental system for those who have good personality for walking. If the rental fee at that time is used as a donation, it can be used for facility maintenance costs, although it is small.　Also, it may be good to make a full day rental system as well as taking a walk to earn revenue.

Recently, media such as TV programs, commercials, celebrities, and the general public are also concerned about the killing on SNS. If such a facility is created in Japan, there is a possibility that the current situation of killing Japanese animals and activities for collecting donations will spread through such people.

To produce the facility to help animals may be a small step to avoid wasting precious lives. I think we can save animals that are killed in a way that suits Japan, which is different from the world.

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Situation of surrounding the killing of dogs and cats in other countries : UK,

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Me and gender issues
～How to get rid of prejudice on gender～

5115　Ayumi Goto

○Conclusion

As I talked with my friends, I realized that we had a prejudice against gender, and I started studying gender issues. First, gender is the social and cultural gender and gender differences. It is called this to distinguish it from biological sex and gender.

By studying about gender and looking at my experience, I have a diagram in my mind that "to be the object of desire = to be praised below me" I noticed. I realized that gender prejudice can be brought up unconsciously, so I thought that "appropriate sex education to prevent prejudice" from a young age was necessary.

1　Introduction

The first chemistry class this year, the teacher's suggestion, instead of introducing myself, we explained the advantages of co-education and single-sex education one by one. This is what my classmates cited as an advantage of co-education.

"Because there is a boy 's perspective, you can be gentle."

"I can talk to another creature, a girl."

I felt. Isn't it old-fashioned that girls have to be gentle? Was girls different from boys in the first place?

Is it the story of a generation before us that is captured by gender? With a sense of crisis, I began to study gender issues.

2　Methods

I think about my gender awareness with reference to books.

references　　「女子という呪い」Karin Amamiya

　　　　　　　「女ぎらい」Tizuko Ueno

3　Conclusion

First, gender is the social and cultural female / male and their differences. It is called to distinguish it from sex, the word means biological female / male.

My mother, after I grew up, is very reluctant to go out with a lot of exposure and to hang my underwear where it can be seen from the outside. "Pervert may be coming," my mother often scolded me. Is being a woman the same as living in scared? Is a woman so weak? I thought that being a woman was a disadvantage to me. When you

hang your underwear, no man hangs out of sight, worried about being the subject of someone's desire. With the desire not to admit that a woman is a weak being, I became very scared that I am a woman. After becoming aware of the fear, I began to often see dreams of an unknown man entering the house and a dream of being chased by an unknown man. I was afraid to go out the morning when I woke up.

I have been told "I can masturbate with you". I got a shocked, and I suddenly came up with the line, "I'm excited to read novels and comics that make a man like you subject of desire." I didn't actually say that, but I noticed that I had this diagram of "Make an opponent the object of desire = I can give up the opponent below me" embedded in me. I have always read manga and novels that deal with same-sex romance that I can read without worrying about gender issues, but I also noticed myself reading the genre BL in terms of "vengeance for men."

Since I noticed a diagram of "Make an opponent the object of desire = I can give up the opponent below me", I became to think about how to deal with "Love" and "Lust" It became so.

The beginning of the solution was Chizuko Ueno's lecture and her book "女ぎらい".

Mr. Ueno compared human libido to Pavlov's dog. She showed sexual desire as a conditioned reflex, based on Lacan's psychoanalysis that "human desire is the desire of others".

I was very saved by the answer. I knew what sexual desire was not based on instinct, and thought that there was no need to satisfy sexual desire in love, and there was no reason to justify sexual desire and respond to it.

But in the first place, why did I have a diagram in my mind that "to be the object is the subject of desire = to be praised below me"? The first thing I encountered about sexual things was magazines and comics, and I think that sexuality there was a natural part of me.

 What kind of sexuality is ideal? As Chizuko Ueno says, is libido the desire of others? In retrospect, what I needed might have been "appropriate sex education to prevent prejudice" from an early age.

My problem has not been solved. However, by studying about gender issues, I was gradually relieved from the gender view of `` this should be '' that was embedded in me unknowingly, and reconsidered the identity of my fear. I think I was able to get the freedom that I want to live by myself. I live as me, not as a girl, not as a subject of desire, or as an existence to be protected.

Japan's overall awareness of gender issues will not change much when I change my mind. However, while we rarely encounter gender issues in real, gender is involved in

a wide range of areas of life. It is of great value for each to rethink their gender view. Japan should not only protect gender equality and women's rights, but also have more opportunities to learn, think and discuss gender issues.

Therefore, I suggest two ways as new sexuality education.

One is to reconsider our own gender. It aims to get students notice their own gender biases through learning various view of gender. We can classify gender into four different perspective, sex, gender, self acknowledgement, sexual orientation. Each of these is infinity. So it also teaches us that the sexual existences are many.

The other is to know various love expressions and relationships. It aims to get students have positive images about loving. If students know various love expressions and relationships, they would not stick to one of many.

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・女ぎらい
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・子どもと性
・思春期の性の問題をめぐって
・性教育はどうして必要なんだろう
・若者の性白書
・教科書にみる世界の性教育

Exercise fun!

～Improvement of physical fitness for Japanese elementary school students～

5116 Yuzuki Konishi

○ Overview

"Based on the current situation, we will conduct a comparison of overseas curriculum and questionnaires, and will propose improvements to current Japanese physical education classes based on the results.

○ Research background

The reason I decided to make this theme this time was that I heard that in recent years there has been a decline in physical fitness of elementary and junior high school students in Japan, and my profession is aimed at elementary and junior high schools. Because it is a physical education teacher.

Elementary and junior high school students are listed as examples of physical fitness decline, but researching with a focus on elementary school students knows that basic physical fitness of human beings is almost decided in the lower grades of elementary school as we investigate I decided to go.

* Research significance and purpose

The biggest goal is to improve the physical strength of elementary school students, but it will be necessary to take some steps to get there. Therefore, the purpose of this research is to propose a lesson method that encourages students to participate in physical education classes, which are related to improving physical fitness of elementary school students.

* Research method

·the Internet

Use of highly credible websites such as the Ministry of Education, Culture, Sports, Science and Technology website and official overseas curriculum websites.

・ Literature survey

Use related articles in newspapers, and if you have previous research with similar content, use their papers.

・ Questionnaire / Interview

Conducted a questionnaire at Maebashi City Shimokawa Pass Elementary School.

* Research results and information

(1) Current situation

Currently, the physical fitness test conducted at school is the "Physical Strength and Motor Ability Survey" conducted by the Ministry of Education, Culture, Sports, Science and Technology from 1964, and the athletic ability measured by this has declined around 1985. It has been following. The decline in the results of "50m running" and "softball throwing" at 10 and 11 years of age is particularly significant, and both test items compared to the parent's generation (the 1972 survey conducted 33 years ago). It can be seen that it has dropped significantly. Furthermore, not only this second type, but overall, it is on a downward trend compared to the parent generation. Despite this, the average of the body measurements of modern children is above the average of the parent generation in both height and weight.

50m run (male)

■昭和４７年　■平成１４年

50m run (girl)

■昭和４７年　■平成１４年

softball threw(male)

softball threw(girl)
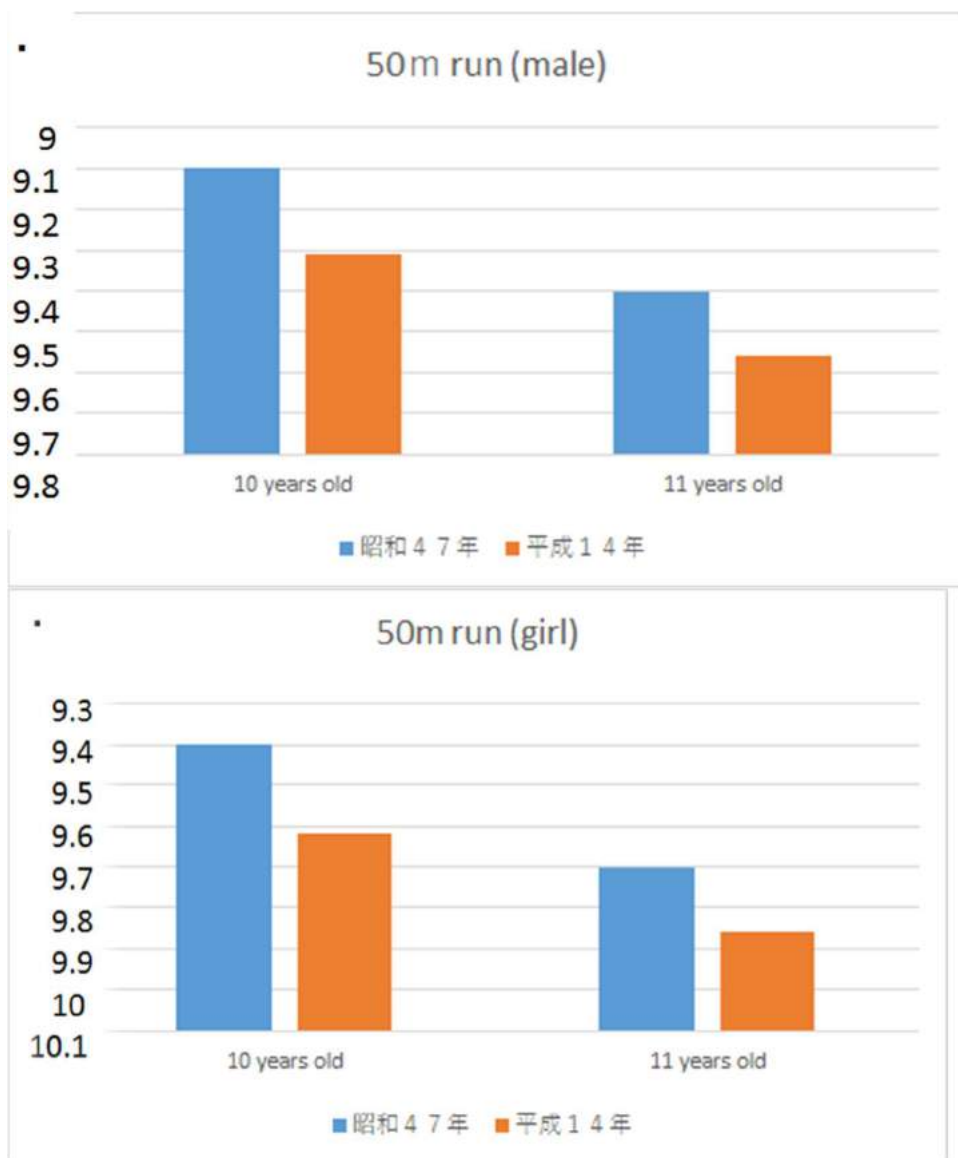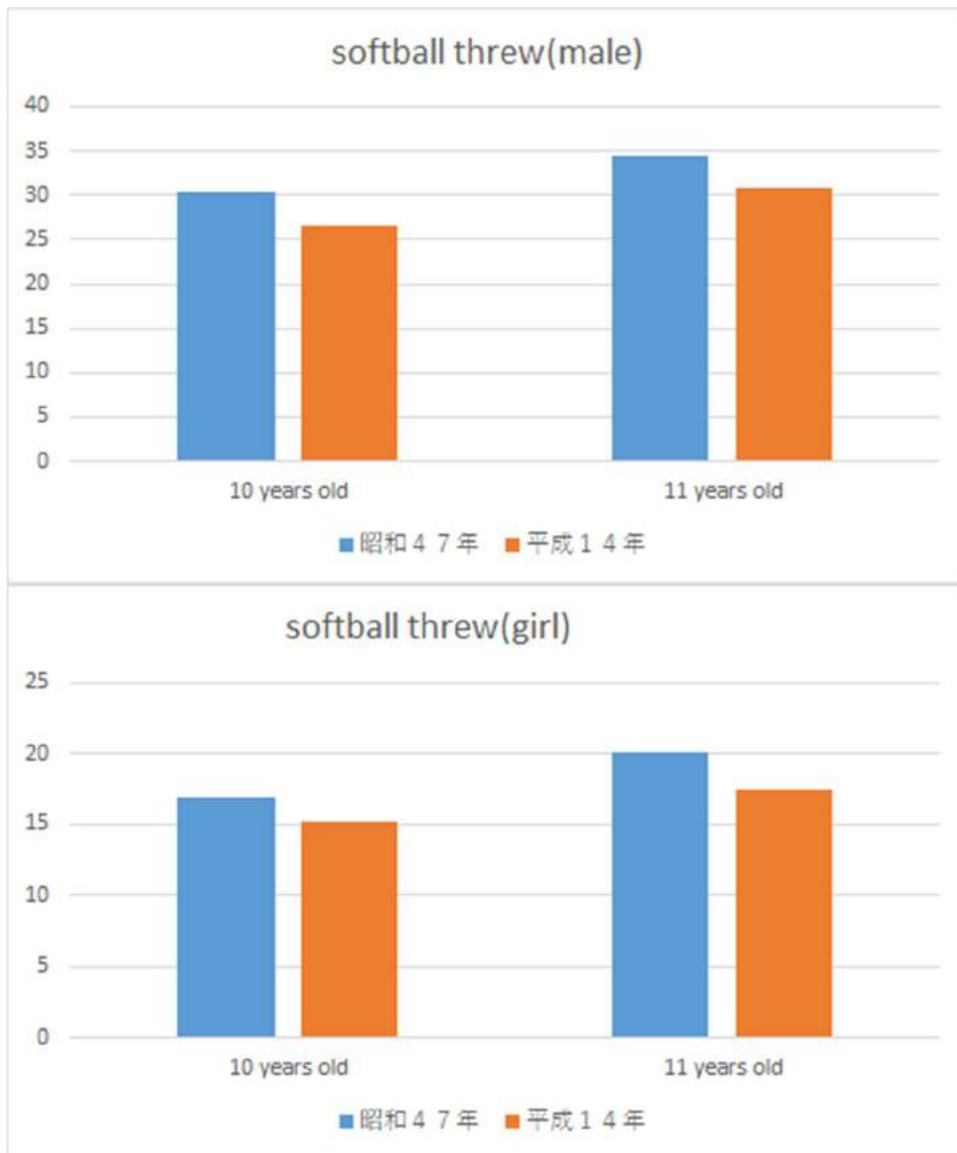
Fig. 1 Comparison of basic athletic ability with parent generation
(Ministry of Education, Culture, Sports, Science and Technology "2002 Physical Fitness and Motor Ability Survey Results")

Physical strength is indispensable for supporting human development and growth, and for creative activities. Physical strength, intelligence, and energy can be united to work healthy. For this reason, there are concerns about adverse effects on children's health due to a drop in physical fitness, a decrease in energy, and the like. In fact, the proportion of obese children is increasing, which may lead to future lifestyle-related diseases such as hypertension and hyperlipidemia. If adults continue to have negative health effects and a decline in energy,

children's ability to support society will decrease due to an increase in disease and a decrease in energy, which may affect the future of an aging society with fewer children. . This is one of the factors that cause a decline in physical fitness in modern children.

The decline in physical fitness and athletic ability of children has begun to affect daily life, and although it is a little old data, the total number of injuries of elementary school students in 1978 was about 345,000, whereas in 1999 it was about The number has increased to 450,000. (From the results of the Japan Physical Education and School Health Center 1999 survey) From this survey, it can be said that there are an increasing number of children who have broken bones and injured faces and heads. This can be said to indicate that there are many children who cannot fall out of their hands when they are about to fall, and are injured on their faces.

(2) Cause

There are a number of causes for the decline in physical fitness. One of the main factors is the spread of games. The spread of games has definitely reduced the number of children playing outdoors. In the past, they were exercising through playing games and playing with balls, while modern elementary school students and others are increasingly playing games indoors, which inevitably reduces the number of outdoor activities.
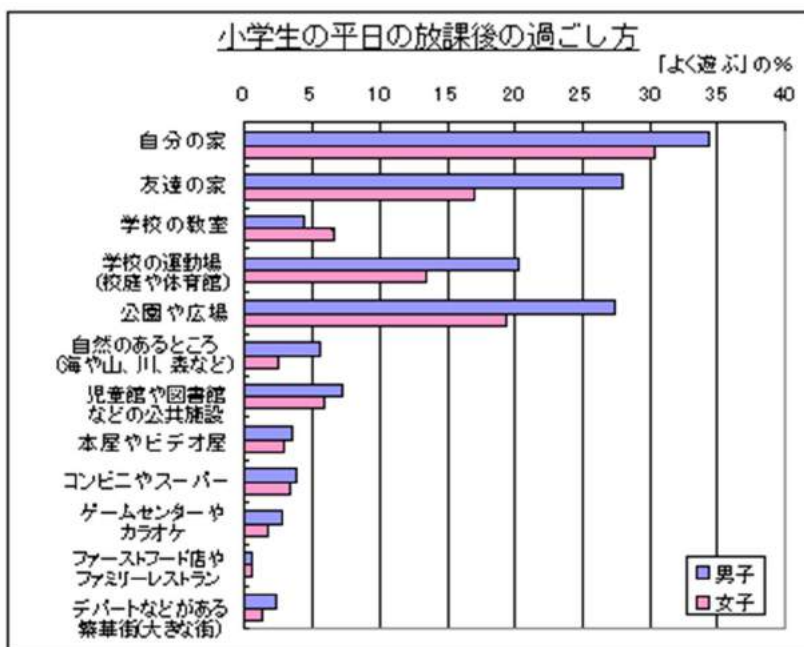
Fig. 2 Benesse Educational Research and Development Center "1st Basic Survey on Child Life"(From 2004)

It can also be said that environmental changes are one of the major factors. However, the changes in the environment can be described in various ways. For example, land reform has

recently progressed and residential areas have increased. Along with this, the number of places for playgrounds for children such as vacant lots has decreased, and the number of houses has increased, resulting in an increase in traffic on the surrounding roads. Because of this, children could not play on the roadside and lost the playground.

In addition, there is no end to suspicious person information recently. This has led to more parents worried about the safety of their children and tells them to refrain from playing outside, so they have lost the opportunity to move and play and exercise in their daily lives. It is.
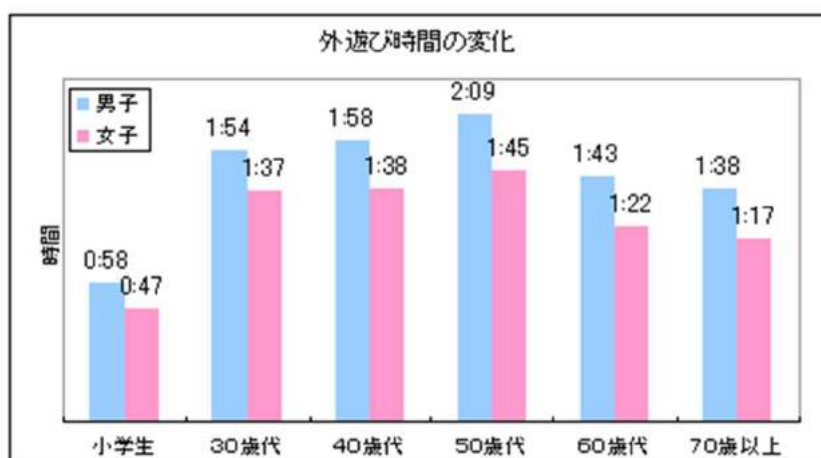
Fig. 3 Change of time when playing outside (Nakamura and Inaba survey in 1999)
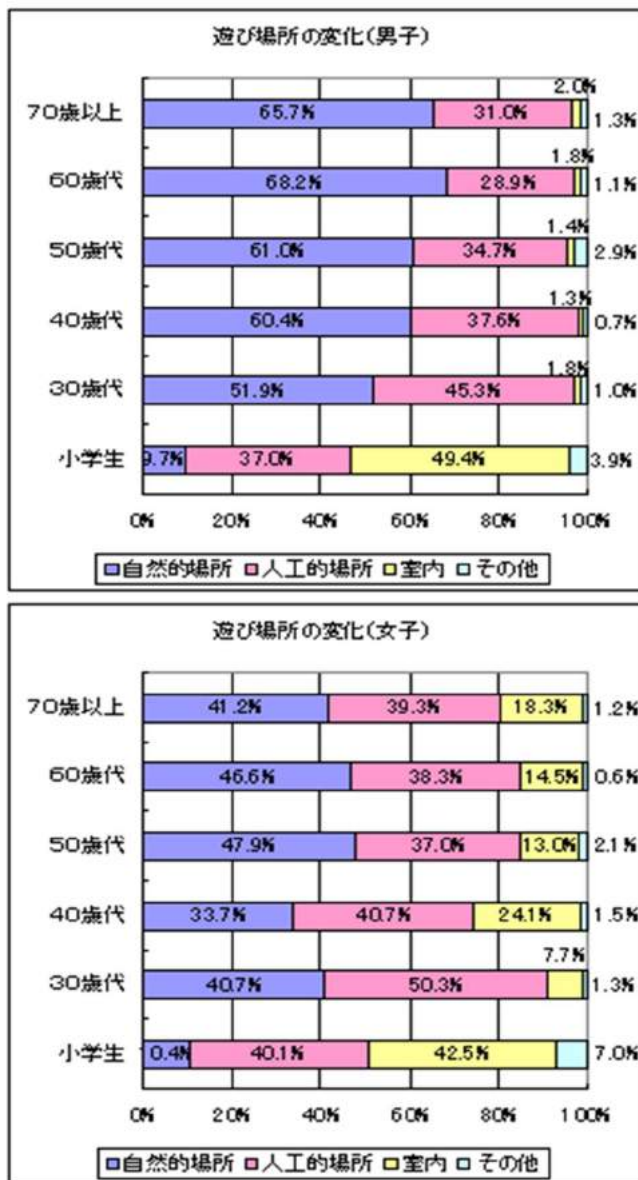
Fig. 4 Change of play place (1999 Nakamura / Inaba survey)

So I propose to improve physical education classes. I thought it would be better to change the direction of the lesson to know the joy of exercising. For example, I thought it would be easy to improve the gymnastics events such as mat movements, jump boxes, and iron bars, where pros and cons are largely divided. While I feel terrified, the sense of accomplishment is very large. Rather than being able to fly a three-step jump box from the beginning, it starts from the first step. Rather than trying to go upside down, start by grasping and lowering the hurdle as much as possible, starting with the smallest, and teaching sense of achievement before teaching fear. That way, you can be motivated and enjoyable.

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By doing such classes, you may want to move your body in daily life.

As for such physical decline in children, the Ministry of Education, Culture, Sports, Science and Technology has an awareness of issues related to body building, such as the annual "Children's Physical Strength Improvement Campaign".

○ Conclusion

It turns out that there are various factors in the decline in physical strength of children. In order to prevent even a slight decrease, we proposed an elementary school physical education class reform that can be done relatively easily. I hope the number of children who know the joy of exercising with a sense of accomplishment, become more exercising in their daily lives, and start sports through learning and other activities. When I become a physical education teacher in the future, I would like to take the initiative to make such classes and spread them.

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Japanese nutritional management

～Customs from childhood～

5117 Marin Sawada

○Abstract

The main purpose of this research is to increase the number of people who can manage their own nutrition. By doing this, it is possible to reduce the number of lifestyle-related diseases in Japan. In addition, since the number of children with lifestyle-related diseases are increasing, it is ideal to be able to manage meals by themselves since childhood.

There are several causes of lifestyle-related diseases, but the most important of these is diet and nutrition. In recent years, obesity has become a problem worldwide. Obesity can also lead to many illnesses. On the other hand, thinning of young women is regarded as a problem in Japan, and children are no exception. Skinny is also a problem from a health perspective, and it has been found that the probability of getting sick increases.

Both are major problems related to food. In order to improve these efficiently, it is best to get advice from a specialist such as a registered dietitian. For this reason, we thought that applications that can be used on smartphones, etc. can be easily managed with nutrition and easy to receive advice. Consider apps that are already released and easy for kids to continue with.

1 Introduction

There are three main research objectives. Create an opportunity to become interested in and manage their own nutritional management since childhood. Create a system that makes it easy to be aware of them on a daily basis. Doing these will reduce the number of patients with lifestyle-related diseases. Considering these three from a nutritional

perspective, the goal is to reduce the number of lifestyle-related diseases among all Japanese people.

2 Method

・ Literature survey (libraries, etc.)

Library. This literature survey will be conducted throughout the year. (The library will use MML, Fujioka City Library, or Takasaki City Library.

・ Internet survey

Find out about lifestyle-related diseases, calories and nutrition that should be taken a day on the Internet. Also, use existing similar apps yourself to find good points and improvements. At that time, the review section of the app and the feelings of the people around it are also referred to as opinions.

3 Results and challenges

First, the cause of lifestyle-related diseases was investigated. The main causes are disorders of eating habits, lack of exercise, stress, smoking and drinking. Lifestyle-related diseases include diabetes, hypertension, dyslipidemia, obesity, heart disease, and stroke. Formerly known as adult disease, it was found that adult diseases are caused by bad lifestyle habits from childhood, and in 1996 the Ministry of Health and Welfare renamed them "lifestyle-related diseases." The cause of death in Japan is a large proportion of cardiovascular disease and cancer of stroke and ischemic heart disease (such as myocardial infarction). Many of them are caused by lifestyle-related diseases, which also cause long-term care for people over 65 years of age. Therefore, why did the number of people who suffer from diseases called lifestyle-related diseases increase in recent years? There are three main reasons for this, and modern rich daily life in Japan has a great

influence. Food first. Japanese food, which was originally eaten by Japanese people, is said to be an ideal nutritional balance in a diet style based on Ichiju sansai, realizing a diet with little animal fats and fats, and helping to prevent longevity and obesity of Japanese people. However, in recent years, animal lipid intake has increased overwhelmingly, it is considered to be due to the Westernization of food has advanced. In addition, rich diet, even if not overeating, intake energy is excessive. Next, lack of exercise. Eighty percent of the public is now said to be under-exercise. Compared to the people of the past, modern people have less work to put a load on their bodies in their daily lives. The spread of home appliances, the mechanization of work, and the development of transportation networks. The progress of such a civilization brought convenience, but brought about a national lack of movement. Modern people are put in a situation where they become short of exercise unless they create an opportunity to exercise. The last is stress. These three are major causes of the increase in the number of lifestyle-related disease patients in recent years. Here, I noticed the place that "the custom from childhood is important" about "eating habits" in three. This is because I thought that it is difficult to change my lifestyle and consciousness when I grow up, and that I would be able to come up with something new if I was a student.

Therefore, it decided to collect information about the child. First, obese children. An analysis published in the British medical journal Lancet found that the number of people considered obese in minors in children up to teens has increased 10 fold in the past 40 years, according to a study of obesity trends in 200 countries around the world. In the UK, one in ten minors between the ages of 5 and 19 was obese. At this rate, obese children and adolescents will be more than underweight by 2022. In the first place, obese children and obese children are caused by a fat-prone biased nutritional balance, such as

a lack of vegetables and over-fat. According to a survey by the Ministry of Education, Culture, Sports, Science and Technology, the proportion of obese children is increasing year by year in all grades, and as of 2005, one in ten sixth graders and 1st grade of junior high school is considered to be obese children.

Obesity is a major risk factor for lifestyle-related diseases such as hypertension, hyperlipidemia, diabetes. The only measures in daily life are improvement of eating habits and moderate exercise. This, as the cause of obesity and lifestyle-related diseases of children, it is said that the cause of the child's solitary and absenteeism is one of the causes. In addition, the metabolic syndrome that the state prone to arteriosclerosis because it has a plurality of lifestyle-related diseases. Lifestyle-related diseases also progress arteriosclerosis alone, it has been found that many people have more than one at the same time than one. One by one arteriosclerosis is very likely to progress by developing a plurality of simultaneous disease even in mild symptoms. By arteriosclerosis progresses, angina pectoris and myocardial infarction, becomes a disease such as cerebral soot, can be a life-threatening state. According to a survey conducted in Japan (Moriguchi Keihitokai Hospital HP), obesity, hypertension, hyperglycemia, triglyceride, and high cholesterol, the risk of myocardial infarction is 10 times higher if it is two mild diseases, and the risk is more than 30 times that of three or more. The number of children with this metabolic syndrome is also on the rise. Next, about the adipocytes. There are two main types of adipocytes in human scant s. Divided into white adipocytes and brown fat cells, the former saves energy as fat, and the latter is tasked with turning energy into heat. These are fixed times of proliferation, and the three months before delivery (fetal period), infancy, and puberty surged, and fat cells increase at once when they gain weight at this time of year. However, it does not decrease unless surgery is

done. Up to BMI27 can correspond by adipocytes increases. However, there is no choice but to increase the cells themselves, it does not decrease even if dieted (adipocytes one 130 [mu] m). Therefore, it was found that the eating habits of adolescent children were greatly related to the life after that. We have been talking about "obesity" in the past about the problem of food in children, but on the contrary, it has become a problem to be caught up in "thin desire". In Japan, less than BMI18.5 is considered to be "thin", but according to the latest "2013 National Health and Nutrition Survey" (Ministry of Health, Labor and Welfare), the ratio of skinny in adult women was 12.3%, the highest since the survey began. According to the study, men have been on an upward trend since world War II, while women in their 20s and 40s have been declining since around 1970 and women in their 50s and older. In particular, the scrawny in his 20s is serious, with more than one in five (21.5%). It has been found that the risk of various diseases increases even in thinness. According to studies that analyzed the risk of death from BMI, cancer, cardiovascular disease, and other diseases in 850,000 East Asians, including Japanese, all items are higher even when obesity progresses and thinness progresses.

A 2014 study of 51 studies on BMI and risk of death, excludes people who are underweight due to diseases such as cancer and chronic lung disease, but the mortality rate for weight below BMI18.5 is normal BMI (18.5 to 24.9). 1.8 times higher than the people of the If the skinny becomes serious, it may lead to "anorexia (anorexia)" and "bulimia". The former is accompanied by extreme scrawny to avoid food for fear of gaining weight. Many are thought to develop from puberty to early adolescence. The latter is both overeating several times a week and months, and improper compensatory behavior for weight gain (such as vomiting and laxative use) and tends to develop slower than anorexia. When this eating disorder becomes chronic, it may lead to many health

disorders such as amenorrhea, hypotension, arrhythmia. In addition to strong "skinny desires", eating disorders also have mental factors such as anxiety and stress.

As a solution, I propose the use of applications that can be used on smartphones. There are apps that I feel are close to the role of the app that I am ideal now.

What I recognized in existing apps are Caromil (Lifelog Technology Co., Ltd.), Calorie Check API Work Performance Plus (SONY), and Asuken (Witt Co., Ltd.). Women often use the majority of users of these healthcare apps, but Caromil has a gender ratio of almost half and age in the 20s and 60s. Lifelog Technology Co., Ltd., which operates, has obtained a patent under the name of meal management system in image analysis. All features are available for free. The calorie check API Work Performance plus is operated by SONY, and its unique dietary image analysis technology allows you to simultaneously analyze multiple dishes in a captured image and record the menu and nutrients of the dish. I felt that mainly working people were the target. Many of the users of Asuken are women who aim to diet. The company is also looking around the world, and has released a North American version in 2017.

Where did you focus on these are the functions called "image analysis". I think this feature is essential for my ideal app. Because the target is "child" and the main purpose is to make nutrition management a "habit", words such as "easy", "easy" and "simple" are considered to be very important. In that respect, image analysis is overwhelmingly superior to other calorie recording methods in that it is easy.

In addition, it is good that there is a mechanism that not only analyzes nutrition, but also recommends advice according to each person's daily exercise amount, exercise content, recommended menu, and how to cook it to the person himself or his/her parents.

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6 月 22 日

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「シンデレラ体重」を目指す女性の心理

Mental health and music at work

～Improvement of work environment by BGM～

5118 Yuri Shishido

1. Research summary

I defined that playing music in the office increases work efficiency and reduces working hours. Specifically, I thought that the BGM could mask noise and concentrate on job and, and that the effect of music for our mental health could reduce work stress.

2. Purpose of research

Recently, the public opinion of "black companies" has been wide spend as a social issue in Japan. The Ministry of Health, Labor and Welfare does not define "black companies", but general characteristics include: first imposing extreme long working hours and assignment on workers, second nonpay overtime and power harassment rampant It is said that the overall compliance awareness is low, and third over-selection of workers under such circumstances. In particular, overtime work is regarded as one of the major social problems. The upper limit on overtime work has been enacted in the ministry, and large corporations will not be able to work overtime exceeding the upper limit of overtime hours by law from April 2019 and SMEs from April 2020. (Ministry of Health, Labor and Welfare https://www.mhlw.go.jp/index.html)

It is clear that a society that neglects work-life balance is far from a sustainable society, such as a tendency that workers who do not work for a long time are considered motivated and a system in which the employer overuses and discards workers , And we must overcome this problem immediately. Even if it is not defined as a complete black company, there must be many companies and governments that have to rethink their work environment and work style. Economists argue that working hours are not necessarily proportional to work efficiency and productivity. (National Institute of Economy, Trade and Industry, https://www.rieti.go.jp/jp/) For example, in Norway, many companies and local governments experimented with short working hours, and worked 8 hours a day. It aims to improve work efficiency by keeping it down to 6 hours.

It is difficult to reduce working hours in modern Japan, where corporate policies and severe economic competition are mixed, but flexible companies and workers trying to improve the work environment. It consider that such information should be provided to companies that review their work-life balance. This is a final issue that deviates from the point of argument, but it is a law that prohibits poor work environments and does not tie up and annihilate the behavior of black companies, but only companies that have new ideas can improve the work

environment. Therefore, I think that the Japanese labor society should be innovated with a system that relatively highlights the workplace environment of black companies.

3. Research results

First of all, we must explain why sound uses firewood to improve the work environment and mental health. In a word, I think that there are many things that image hobbies and entertainment, but the music used in this research is "acoustic psychology" and "music psychology". These two have been established as one of the well-known academic fields.
First, I will explain some of these two areas in detail.

i Acoustic psychology

Acoustic psychology is the study of human hearing and consists of a combination of research results in various fields such as physics, acoustics, psychology, physiology, cognition, perception, and music theory. Since ancient times, composers, performers, and conductors have empirically known the results of research in the field of psychoacoustics, but learning them systematically and reflecting them in their musical expression is an expression. Indispensable to reduce the distance between the audience and the audience. (Akihiko Matsumoto, acoustic psychology is from http://akihikomatsumoto.com/maxmsp/psychoacoustics.html)
By verbalizing, it is expressed in technical terms and abstract expressions, but by displaying the link destination from the above URL, even beginners can understand a little about what psychoacoustics is. To sum up as much as possible, psychoacoustics is a field about the relationship between human hearing and the brain. The effect that has been elucidated by many researchers in acoustic psychology, and the masking effect was used as one of the laws in this study. The masking effect is a phenomenon in which one sound is obstructed by another sound and is blocked and cannot be heard. When the two sounds are pure tones, the smaller the frequency difference, the greater the effectiveness. (Britanica International Encyclopedia) For example, jazz and bossa nova songs flow in conversations in a hustle so that it is difficult to hear due to ambient noise, and chatting with the surrounding day is difficult to hear at cafes etc. I'm going. Using this fact, we considered that it would be possible to mask noise and noise, such as keyboard operation sounds, by playing music even in a work environment.

ii Music psychology

Although music psychology and acoustic psychology are similar in spelling, their contents

are different. Music psychology

Is a science that studies musical phenomena by psychological methods and theories. In addition to psychological elucidation of sound organization, pitch, melody, rhythm, etc., scientific measurement and psychological support of performance techniques, physiological, introspective and developmental studies of appreciation responses, as well as discovery of musical talent. Researched and developed since the 19th century. (Britanica International Encyclopedia) Whether there is more about music psychology, whether it is more familiar to our lives or more likely to be the object of interest of many people, papers and literature are more about music psychology. With reference to previous research, music psychology has been studied in various fields such as music therapy and educational theory. (cinni https://ci.nii.ac.jp/search?q=%E9%9F%B3%E6%A5%BD%E5%BF%83%E7%90%86%E5%AD%A6&range=0&count=20&sortorder=1&type=0)In music psychology, there are papers that mention the effects of music on human emotions, and I referred to it.

For example, up-tempo songs can elevate people's emotions, while low-tempo songs can bring calm emotions.

Through these two fields, I defined that playing music in the workplace or office increases work efficiency and reduces working hours.

Specifically, I thought that by playing BGM, the noise was masked and I could concentrate on work and conversation, and the mental health effect of music could reduce work stress.

In fact, there are companies that provide office bgm as a service, and there are governments and companies that answered that the use of this service has led to improved work efficiency and improved atmosphere.

(usen https://sound-design.usen.com/)

Don't forget that it's important to play BGM instead of listening to music with earphones.

4. Research issues

The likes and dislikes of music vary from person to person, and the effectiveness of work efficiency will vary from person to person.

Also, even if work can be made more efficient, if you use it in reverse and work hours remain the same as before, it will be an end to end.

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The way of having contact with various children

～A comfortable environment for children with developmental disabilities～

5119 Kohana Tobe

Abstract

 From this study, I could know about developmental disabilities which is difficult. I had never thought in detail before I study this. Moreover I could think three improvement plan like suggestion. First and second suggestion can do at school. The other can do at home. The first school proposal is to study in groups for each class. By making it a group, they can increase opportunities to interact with people around them and overcome developmental disabilities. The second school proposal is to study with walking around in the class. For example, shuffle the member with other groups after meeting in the group and share opinion. That you can get a new perspective and engage with many people. The home proposal is a fusion of a to-do list and a point system. To-do lists can be made a habit by doing what they do. The point system is the driving force for small children because of the expectation that points can be accumulated. I would like to propose these three methods and work on my own.

1 Introduction

  There are two major motivations for research.

  First, because I want to be a teacher at the elementally school in the future, I decided to study things related to children's education that would be useful for my future. In order to build a good relationship of trust with adolescent and rebellious children, I thought that one way to interact was a big point.

  The second is from elementary school experience. When I was an elementary school student, I had a friend with developmental disabilities, and they was living in a special class because of disabilities. I thought that it was natural because I had a disability for that, but now I think again that some of them feel that they want to live in the same classroom as everyone else. So I wanted to provide an environment where children with developmental disabilities would not have trouble in studying and living.

   They are to eliminate discrimination and prejudice against developmental disabilities, to provide an environment where children with disabilities can live easily, and to get the ability to cope with children with disabilities.

  I would like to proceed with my research mainly through previous research and experiences with the Internet and application The papers of previous studies are "Possibility of individual education support plans from the perspective of triangle effects in early childhood education", "Strategy of public-private collaboration in support for disabled children", "Education for children with mild developmental disabilities through regular consultation in elementary schools Excerpted from the three "practice support models" that can be used. The Internet was used by comparing several sites. As for the experience with the application, I experienced the application that I used for research last year again.

2 Discussion and implications

Chapter 1 Developmental Disabilities

Section 1 ASD

This is an abbreviation of Autistic Spectrum Disorders and refers to "Autism Spectrum Disorder. The characteristics of ASD include language delays, inability to understand what the other person wants to say based on facial expressions and voice, strong attention, weakness in engaging with people, and strong anxiety. There are three main ways of interacting with people with ASD. The first is to treat characteristics as advantages rather than treating them as disadvantages. For example, a strong commitment can be understood as being enthusiastic and focused and able to follow the rules. The second is to help you develop your field of expertise. It's important to support people so that they can do better, rather than forcing them to train until they are able to do their best. The third is to create an environment and education that will not be excluded from groups of friends. There is a tendency that humans are extremely different from themselves and who are extremely difficult to adjust to others. It is necessary to create an environment that matches the characteristics of ASD.

Section 2 ADHD

This is a summary of Attention-deficit disorders, Hyperkinetic disorders, and Hyperactivity, which refer to "attention deficit disorder", "hyperactivity disorder", and "hyperactivity disorder", respectively. There are three features of ADHD: carelessness, hyperactivity, and impulsivity. Carelessness may be difficult to concentrate or distract. Hyperactivity is not calm. The impulsiveness can be considered to act without thinking about the thoughts. In ADHD, we investigated the behavior of people around us. There are three main types. The first is a method to increase concentration. When you need concentration, try to eliminate as much as possible stimulants such as TV and toys. The second is a concrete example. Since words may not be communicated, it is necessary to give visual information by embodying instructions. For example, it is necessary to give instructions using actual things in addition to telling them with pictures. The third is how to deal with undesirable behaviors. Speaking when an undesirable behavior is seen only stimulates rebellion. In addition, there are many cases where a simple utterance does not include what to do. It is also possible to calm yourself calmly because roughing the voice also stimulates the handicapped person, and to explain specifically what to do and how to decide one instruction at a time It is important. In summary, it can be seen that environment settings and specific instructions are important.

Section 3 SLD

This is an abbreviation for Specific Learning Disorder, which means "localized Learning disorder or earning disorder". The characteristic of SLD is that it is not good at reading, writing, listening and conversation. There are two ways to interact with people with SLD, and the first is not too good and not left too much. If you help everything your child is not good at, you will have a dependency that you can get this done. That's why it's not good to leave it too much. It is important to support children so that they can do it themselves, and since they are not children but help, they must not do everything. The second is to study using the materials that are appropriate for the child. I thought that learning disabilities would progress further if I tried to use teaching materials that I did not have. I don't think it's not just learning but I can't continue if I don't have fun, and I can't continue anything long unless I want to do this much with interest and know more. You should change it if you feel that it doesn't suit you. The third is not to convey only words, but to convey the words in letters and pictures. It is thought that it is easier to

communicate visually and the learning effect is improved. It turned out that it is important to create an environment where learning can be enjoyed (such as teaching materials).

Chapter 2 Current status of improvement measures

I have studied so far and found that it is important to prepare an environment in the school for these three developmental disorders, although the methods are different.

Section 1 How to identify developmental disabilities

I found a checklist for developmental disability diagnosis. There are 12 items in total, as shown above. This checklist is not all because the symptoms are different for each of the three. In order to find out what developmental disabilities you have, you can easily identify them by referring to the respective checklists. However, there are some that tend to be seen often in children with developmental disabilities, so if you check yourself, you may not be determined to be a developmental disorder just because you applied I understood. From this, it is not necessarily a developmental disability if one of the stories is a trend that can be seen.

Section 2 Improvement Method

During my research, I could only find a way to improve myself. As a way of doing that, I looked at a company app called LITALICO and tried it out. LITALICO has nine apps in total, and each one is interesting and you can learn while having fun and playing. I examined in detail two apps that I found very well from the experience. The first is the "mouse timer". This is useful for understanding the length of time and tells the mouse that the time has passed by biting the apple. The second is the "Animal Card". This can learn the name, cry, silhouette, etc. of the animal at the same time, and helps to understand the meaning, sound, and letters at the same time. You can learn happily like a game.

Chapter 3 Suggestions for Improvement

It has been studied a lot until now but here was no pretty good solution. I want to improve without relying on the application. Therefore two in the school faces, one at home surface, to a total of three proposals.

Section 1 Things you can practice at school

The first of the schools face is that to group learning every time the lesson. I think there are many people who have already done this, but I don't think they will study in groups in all classes they receive when they are elementary school students. In fact, when I was an elementary school student, I only had group learning when I solved graphics problems with arithmetic. Children with developmental disorders, many people and not good to be involved with people. That is why I think group learning should be done. Even when studying, there will be a difference with children who do not have disabilities. For this reason, creating a group will increase opportunities to interact with people around you and help you overcome it. However, I thought that leaving it as it is could lead to deterioration for some people. Therefore, I think it is necessary to have a teacher for a few minutes at the beginning of the discussion and create an opportunity to speak.

The second is to do classes that move around in the classroom. For example, after

discussing in a group, if it is a group of four, exchange two people with another group, point out their opinions, listen to the other party's opinions, say good or bad, and share with the original group also a new view You can get involved with a lot of people.

Section 2 Things you can practice at home

The family side is a fusion of to-do lists and point systems. To-do list can be habit by being in character that do. The point system is the driving force for small children because of the hope that points can be accumulated. For example, put an item called "help" in the to-do list to prepare help that children can enjoy easily and safely. By using only the point system for help items and making the point that the child wants to learn the most, teach them how much they take for granted and make their behavior habitual. However, it seems not to do only that one to the point want of thought that it is useless. Therefore, we propose 5 different types of helpers, letting you do the help you need on the day of the week for 5 days on weekdays, and the help you like only at the end of the week. Some people may find it difficult to help every day, but it doesn't mean they can do a huge amount. If you are helping to "collapse the laundry," you can fold your own clothes a little.

3 Conclusion

All of these methods are not entirely new opinions thought from scratch. It's a combination of the existing ones and an advanced version of what's happening, but I thought that you should start with a simple place, as you come up with various measures. And I proposed how to combine them. I do not know whether I am in an environment where I can practice it in the future, but I will try my best to provide an environment where people with developmental disabilities are free from prejudice and discrimination, and are easy to live. I want to change my mind.

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Promotion of World Heritage Education
～establish a new style of education～

5120　Mei Toyota

Abstract
　　First, I decided to study World Heritage because I was interested in World Heritage. In recent years, protection that is the purpose of World Heritage has been neglected, and damage due to excessive tourism purposes, lack of successors, and heritage to be preferentially protected such as critical heritage have come out. In order to solve these problems, it is necessary to reaffirm the values and concepts of World Heritage sites globally, and actively develop and educate human resources to create a sustainable international society. Currently, there is an education style called "World Heritage Education" promoted by UNESCO. Through World Heritage, you can develop the ability to solve various problems of modern society. In order to disseminate World Heritage education in Japan, it is proposed to conduct classes using VR at the "Comprehensive Learning Time" in elementary and junior high schools.

1.　Introduction
　　I started collecting information on World Heritage because I was interested in the ruins. According to the Japan UNESCO Association Federation, there are currently 55 critical heritages (names of heritage that should be preferentially protected by the entire international community) due to various external environmental threats, and there are few human resources who protect and inherit the heritage. In addition, the scene where the original purpose of the World Heritage site is forgotten and the name is walking alone is also conspicuous. This problem has a big impact on the next generation, and I was very sorry for this. Therefore, I decided to study methods for sustainable protection of World Heritage.
　The significance of this research is to activate the heritage conservation activities by implementing or proposing activities that lead to the protection of many people with interest in the world heritage.
I used the internet to search homepages and "CiNii" to collect the report. I also used books (mainly mass-market paperbook) published by professors and researchers who were interested in studying books online.

2.　Discussion and implications
Chapter 1　　World Heritage and Challenges
Section 1 World Heritage
World heritage is a natural or man-made site, area, or structure which is common to human beings that has been created by the generation of the earth and the history of mankind and should be conveyed to the future. Definition in the World Heritage Convention (official name: Convention on the Protection of World Cultural and Natural Heritage) adopted at the 17th UNESCO General Assembly in 1972. The World Heritage Convention aims to protect cultural and natural heritage as a world heritage for the entire human race and establish a system of international cooperation and assistance. World Heritage is divided into three main types: cultural heritage, natural

heritage, and complex heritage. A total of 1073 cultural heritage sites, 832 cultural heritage sites, 206 natural heritage sites, and 35 complex heritage sites are registered (as of July 2017).

Section 2 Issues of World Heritage
(1) Concerns about tourism pressure
Currently, the "heritage common to mankind", which is the philosophy of world heritage, has been neglected, and attention to tourism is increasing beyond the protection of heritage.
According to the Nihon Keizai Shimbun, "The wobble of the philosophy has surfaced in recent years. The purpose of the treaty was to protect the World Heritage as a property of mankind from disasters, fires, and destruction by development. "Now it will be more noticeable if it is directly connected to tourism" (Nihon Keizai Shimbun, November 4, 2012), forgetting the purpose of the original world heritage and alerting public opinion that neglects heritage protection .
Disregarding the philosophy of the world heritage is a serious problem. Due to the difference in interpretation of the significance of this World Heritage site, tourism that considers the environment is not performed, and there is concern about tourism pressure.
(Tourism pressure (tourism pressure) is a negative effect on tourism heritage advocated by Mr. Yukihisa Furuta. Environmental congestion issues due to traffic congestion and exhaust gas, manners for tourists, construction of facilities aimed at tourists There is a landscape problem by.)
The loss of the natural environment and cultural assets due to terrorism is also a problem. A major example is the Bamiyan ruins in Afghanistan. The Bamiyan Valley had the world's largest statue of the Great Buddha, 55m and 38m high, built in the 5th and 8th centuries. It symbolizes the fusion of Bamiyan's Asian and Middle Eastern cultures and a thriving Buddhist culture, and was also registered as a World Heritage Site. However, in March 2001, it was destroyed by the Islamic Sunni radical organization in Afghanistan.

Figure 1. The destroyed Bamiyan Buddha Skytichet Tourism Guide
https://skyticket.jp/guide/124152

(2) Existence of critical heritage
Critical heritage is property that is registered on the UNESCO World Heritage List. Natural disasters, conflicts such as civil wars and wars, man-made disasters such as development, environmental issues, etc. This is a property that is registered on the UNESCO "World Heritage List at Risk" (hereinafter referred to as "Critical Heritage List"). As of October 2018, there are 55 critical heritage sites. Once registered in the critical heritage list, the state of conservation management is reported every year by the contracting party, and it is removed from the critical heritage list through sufficient protection activities. In addition, after being registered in the critical heritage list, no conservation management is performed, and if the situation does not improve, it will be deleted from the world heritage list.

There are two cases in the past. "One is the Arabian Oryx Reserve, which was set up in the Jidad Al-Harasis Plain in Oman." The Arabian Oryx Reserve was registered as a natural heritage in 1994 in order to protect the endangered Arabian Oryx. Mineral resources were discovered within the scope of World Heritage registration, and the Oman government I was forced to choose protection. The second one is "Dresden's Elbe Valley" in Germany. In 2006, within the scope of World Heritage registration, a bridge plan for the Elbe River emerged to avoid chronic traffic congestion (a bridge under construction before the photo). Therefore, it was registered in the "Critical Heritage List" in 2006. Dresden City was removed from the World Heritage List in 2009 because it prioritized civil life over heritage protection and did not cancel construction projects that undermine the integrity of World Heritage sites. "(Yoshihisa Furuta 2010).

The two cases that were registered on the "Critical Heritage List" but were deleted from the list because of insufficient protection activities were considered very disappointing.

(3) Necessity of protection activities

Also, there are limits to human support and financial support for protection activities in UNESCO.

According to Yoshihisa Furuta, "the World Heritage Fund" has been established for the purpose of protecting the World Heritage Site, but its use is limited, such as emergency assistance in the event of a disaster, and the amount is small. Because it has become a World Heritage Site, it is not the case that UNESCO will protect the World Heritage Site, but it is a major premise that each Contracting Party must recognize its obligation to protect the World Heritage Site in its own country and do its best. (Yuruhisa Furuta 2010). It will be important for each country to take actions to conserve heritage, not just the "World Heritage Fund", which is funded by each State party.

Chapter 2   Promotion of World Heritage Education
Section 1 Diffusion and challenges of World Heritage education
From the above problems of the World Heritage Site, we will re-recognize and improve the "Outstanding Universal Value" important for the World Heritage Site, and promote conservation activities.
I thought that it would be necessary for future generations of children to know not only the value of World Heritage but also the negative aspects such as critical heritage. Therefore, the relationship with education is indispensable. Therefore, it is World Heritage Education (hereinafter abbreviated as "WHE") that we want to spread in Japanese schools. WHE is learning that we considers how to protect and preserve World Heritage sites and how to use them. According to Shunsuke Hasegawa, WHE are able to be categoried like that.
a) "Education about World Heritage" to learn about each World Heritage
b) "Education for World Heritage" to conserve and inherit World Heritage
c) "Education through world heritage" to tackle global issues such as international understanding and environmental issues from the viewpoint of world heritage
In particular, the last item is deeply related to education that cultivates comprehensive skills such as the ability to solve problems, thinking about various problems of modern society called ESD (Education for Sustainable Development) recommended by UNESCO. (Shunsuke Hasegawa, 2013).

In Japan, Nara City's Board of Education WHE is famous. In Nara Prefecture, you can learn about cultural exchanges with China and South Korea from the Silk Road through historical buildings such as Horyu-ji Temple.

However, there are problems such as low recognition of WHE and difficulty in incorporating it into classes. According to Saori Yoshii, about 70% of the educational committees of municipalities in Japan that have a World Heritage site wishing to implement WHE exist, but there is a lack of room and teaching materials to be incorporated into the actual curriculum. And other physical difficulties (Saori Yoshi, 2013).

3.   Conclusion

Section 2 Promotion of World Heritage Education

In order to solve these problems, I propose the introduction of WHE into the curriculum in cooperation with the Japan UNESCO Association Federation and the Ministry of Education, Culture, Sports, Science and Technology. Understand the value of World Heritage and the existence of critical heritage, and consider future conservation activities. Consider the development of WHE with an emphasis on b) "Education for World Heritage" in the classification of WHE. Because students are also asked about their ability to solve problems, they are mainly junior high school students.

Considering that there is no room to incorporate in the timetable, which is one of the reasons why WHE is not popularized in the first section, it is recommended to use "total learning time". Also, from the viewpoint of the relevance of WHE classification c) "Education through World Heritage" to ESD, it is possible to incorporate it into other subjects such as social studies. In Nara City, various schools have reported examples of initiatives in various classes such as English (Nara City Integrated Education Research Conference 2013).

Also, there are overwhelmingly no areas around the world, such as Nara City, where there is a shortage of teaching materials for WHE and the remarkable development of WHE. Therefore, we propose the use of VR (Virtual Reality). There is an example of a class that actually uses VR technology in Japan. On September 27, 2017, NTT Media Supply, Nishi Nippon Telegraph and Telephone Nagoya Branch, Toyota Municipal Jyosui School hosted a social studies geography study class. It was done in the form of sharing and comparing VR images about Asian cultures. According to ReseMom, "In a questionnaire survey of students, all responded that they were" fun and positive in their class ". More than 90% of respondents said that they would like to take it actively if there were similar classes again. "We can expect learning effects (ReseMom, 2017/11/21). By using VR, it was possible to see the World Heritage images of other countries with a sense of realism, which would lead to more students' interests. According to BBnews, following the destruction of the Syrian World Heritage site Palmyra in 2015, a French digital surveying engineer team and specialists from the Syrian Government Museum of Cultural Properties (DGAM) collaborated to bring Umayyad in the capital of Damascus. A 3D image database of archaeological sites such as Crack de Chevalier near the city of Homs destroyed by mosques and fires was built (BBnews, March 15, 2016). In response to this, I think that it is possible to deepen the idea of conservation activities and significance by looking at the database of already destroyed and critical heritage through VR.

Chapter 3　Future Issues

From the sense of crisis that I felt as a World Heritage site, I was able to think about the educational style to pass on the universal value of the World Heritage site to the next generation of children. The problem is that more specific teaching materials and lessons have not been proposed. In addition, the use of VR is expensive, and the realization of funding is unclear, such as unclearness of funding sources. I want to continue my research. I also want to think about the plan in the future.

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What you need to help a two-year-old child to eat

～Enjoying meals with effective use of unpleasant period～

5121 Yumi Nakamura

1. Introduction

 All children have "rebellious periods". As a characteristic, parents may learn to rebel against what they order and try to move things forward on their own. However, it is not possible to do themselves, and it becomes a settlement that it becomes disgusting again and it is a waste. The purpose of this study is to make effective use of such rebelliousness periods and to "improve the diet of the rebelliousness period" in order to make children learn the concept that "meals are fun". Conjunction the curiosity and the insistence, it leads to the confidence that it has grown a little to be able to take meals by oneself. And, it is said that likes and dislikes decrease when various one is given from this time. For this reason, I thought that by arranging the world's cuisine so that children could eat it, likes and dislikes would be reduced and I could touch the world's food culture. Therefore, as the final purpose, we propose a method of arranging the cuisine of the world that even children of the unpleasant period want to eat.

2. Purpose

 As mentioned in the outline, the first objective is "Improvement of the meal menu during the unpleasant period". And, the goal is to propose how to help when they have dinner.

3. Means

 a)Internet

 b)Magazine of rearing children

4 . Achievement

　　○Difference of children's the period of rebelliousness

　　Children has three of rebelliousness period against their parents,

　　①　When they are baby

　　　It's about time you cry and tell people about your physical condition and mood, such

as "I'm hungry," "I feel sick in diapers," or "I'm sleepy and I feel sick." It's also a bit of

a difficult time because you don't know what's causing you to cry.

　　②　unpleasant period

　　　It starts around the age of one and reaches its peak around the age of two. It can also

be taken as a proof of self-assertion and autonomy. However, by being able to express

feelings and feelings, we communicate in defiance of everything that is not what we

want to do and what we don't like. Because it is still difficult to communicate, it is also

called "the two-year-old child of the devil".

　　③　puberty

　It is seen in the junior high and high school students. a major feature of refusing to

rely on parents in particular and trying to keep a distance.

　　○meals of two years old

・characteristic of meals

　　　There are many things to see for the first time, and just looking at the shape gives

　　birth to likes and dislikes. Of course, likes and dislikes are easy to be born even in

　　taste. And the best feature is that it creates a self-assertion that you want to eat your

　　own meals. It is difficult to eat alone because it is possible to grab the thing still.

・balance of meals

　In a diet from 1 to 5 years old, it is more important than quantity. However, it is not

the one that the menu comes up immediately even if it is said that it is a meal which places emphasis on the balance in general. For this reason, I would like to recommend it by reviewing my eating habits according to the figure called "Meal Balance Guide".
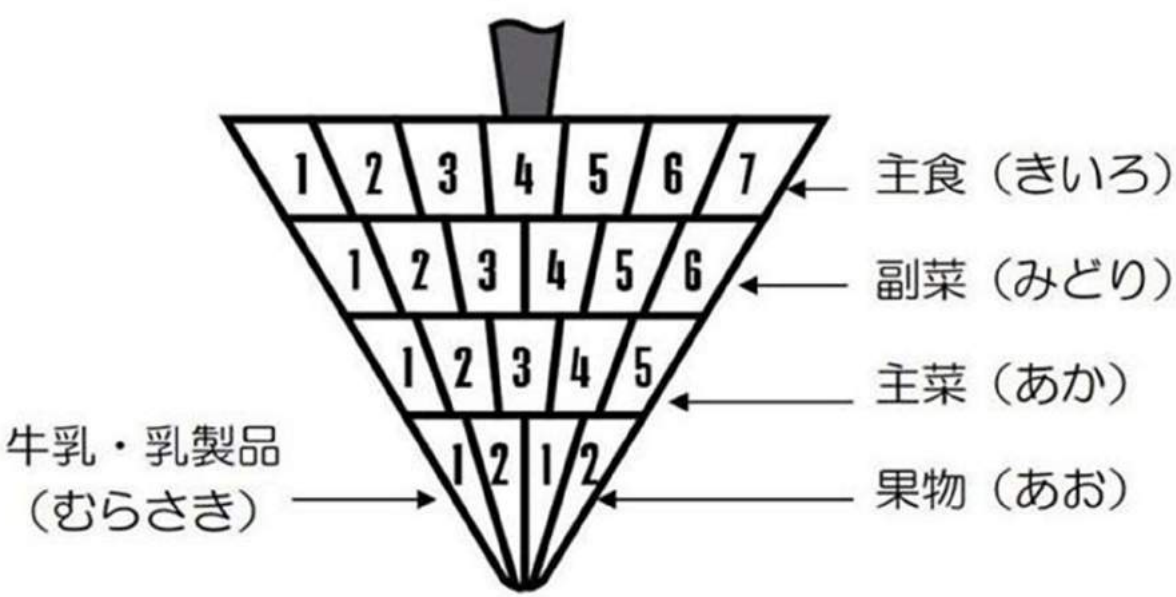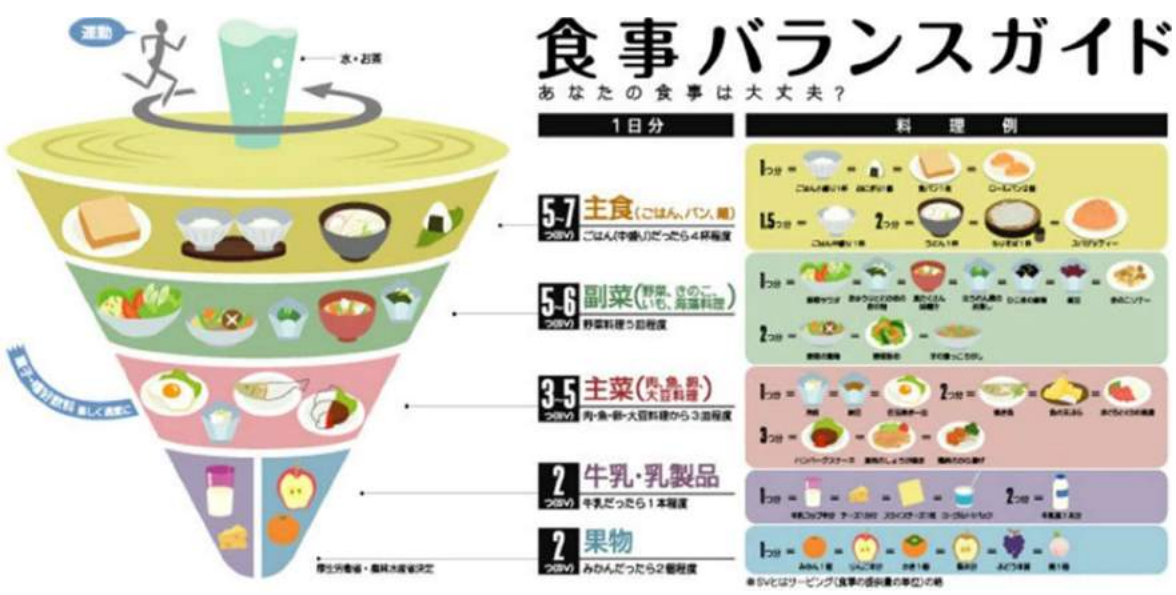
↑ "Meal Balance Guide"

○　How to write "Meal Balance Guide" and attention point

Classify the meals you ate according to the figure. If the balance of the meal is bad, there

are a lot of places, and the frame collapses. Be conscious to be able to paint the color evenly on all frames.

In order to unify the recipes, we used the "Cooking Recipe Library of the World" and arranged them with local cuisine from countries in Asia. (http://www.asahi-kasei.co.jp/saran/recipe/world/)

○Why is it important to eat at the age of two?

The two-year-old has to lay the foundation for the rhythm of eating habits in his lifetime because of they activities such as sleep, eating, and playing. In addition, as the scope of activities expands, children become more curious and become interested in food. It is important to increase your experience in food by making the most of that time. In order to have a good meal, you have to learn the feeling of being hungry. For that purpose, it is necessary to have a living environment where it is possible to exercise and take a regular diet, and by making this feeling remembered at this time, it leads to the formation of the life rhythm. Likes and dislikes about foods will also come out at this time. By helping with cooking and being involved in the cultivation and harvesting of food, you will have less resistance to what you don't like, and more things you want to eat and what you like. Eating with family and friends is the foundation for expanding your experience by confirming your trust and security of people close to you. You can deepen family ties through meals.

○Point of nutrition

•Although the body is small, growth is active and exercise is high, and the amount of nutrients per body is about 1.7 to 2 times more necessary than in adults. For example, a three-year-old child has 1.5g of protein per kg of body weight. Adults, on the other hand, are about 0.9g. Even if the weight is 1/3, fish and meat with a lot of protein, eggs and tofu,

etc. are necessary for more than half of adults.

•In early childhood, the stomach and digestive organs are small, and the work is not enough, so a snack is necessary for three meals. Mainly milk, dairy products, eggs, and fruits, make it within 10-20% of the total energy of the day, add quantity, quality, and enjoyment for eating.

★Changed point

Arranged menu:[Raw spring roll]

   The place where the leek originally has is replaced with spinach. Thereby iron and minerals, vitamins, it is possible to take more nutrients such as carotene. Odor, since the bitterness, etc. is less than the leek, the color as it is, it is easy to eat even children. But you need to boil salt once to take the spinach's unique astringency. The trouble increases a little. Beef noodles are easier to chew than spring rain, so rice noodles are used.

○How to take the meal with children well

①let do themselves

   When I'm about two years old, my curiosity becomes more strong, and even if I can't do it, I start to think that I want to do it myself. When a child thinks so, it is not stopped any longer, and it is often not heard no matter what it says. I think that I want to want to talk or help, but it is one means to dare to watch. There are things that go easier than I thought.

②to give choices

   Sometimes parents decide unilaterally to make a sense of blockage, or they just feel uncomfortable. To avoid it, try to increase the choice and let the child choose it. By giving choices, the ego sprouts, and the child thinks that he or she can choose the action by his

own desire.

5   examination and tasks

By replacing the ingredients, the original flavor and taste of the original dish may be lost. Therefore, it is necessary to consider what kind of ingredients are the closest taste when substituted, it has been away from the original taste. In addition, it was difficult to arrange the cooking method to make it easy for the child to take the nutrition which had to be taken with the nutrition necessary at the stage of still growth of two years old. And I could arrange individual dishes, but I couldn't think of a combination of the dishes. This time I arranged the main dish (main dish), so the lineage seemed to fall apart, such as whether to make it Chinese style or Italian style in one meal by all means. In order to do this, I would like to add an arrangement to a form that is easy to eat, such as side dishes, and add an arrangement of one meal menu.

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Reform of music therapy and music therapist system
～The necessity of accepting music therapy as medical care～

5122 Ayaka Nozawa

An introductory chapter

      Do you know that music therapy has attracted secret attention in recent years? Music therapy refers to the use of music to treat patients. Specifically, it is "therapy that intentionally uses music to respond to the physical, emotional, cognitive, mental, and social needs of the subject (client)" (quoted from Yumiko Sato, "What is music therapy"). Patients are covered in a wide range of ages, from kindergarten children to the elderly, and the music and musical instruments used are used depending on the subject being treated. The person who uses this music as treatment is called a music therapist.

In 2014, a project called the Mihama-Kiho Project in Mihama and Kiho towns in Mie Prefecture conducted an experiment to see if there would be any differences between "just making dementia patients exercise" and "combining exercise and music." In a study of about 150 healthy elderly people, the results show that when we combine exercise with music, it improves visual space cognitive function rather than exercise alone, and maintains and increases the frontal lobe volume. In a study of dementia patients, it is also effective in suppressing the progression of dementia, it was shown to prevent deterioration of the operation of daily life. With respect to the results of the volume of the brain, it is difficult to think that the nerve cells increased because the object is elderly, and as a result of the intervention, changes occur in angiogenesis from increased blood flow, and the result has come out as an increase in volume. There is also a project that begins to scientifically prove the effect that music has on the body from the Mihama-Kiho project (quoted from the paper). However, to become a music therapist, we have to go a long way. There are two main ways to acquire a qualification to become a music therapist. Music "Enroll at a certified music therapist certification school by the Japanese Society of Music Therapy" and "Take the examination to acquire a qualification after participating in a seminar hosted by the Japan Society of Music Therapy." The certified school course is enrolled in a certified school, and students learn the certification curriculum and acquire the necessary credits. We should take the music therapist exam, obtain interview rights when you are expected to graduate from a certified school, take an interview, and acquire a qualification. The required lecture course must first pass the music exam in order to obtain a qualification. Later, I attended as many lectures hosted by the Japanese Society of Music Therapy (for the sake of attending 1.Being a regular member of the Japanese Society of Music Therapy 2.Graduated from a university, junior college, technical college,

or vocational school 3. Have a total of five years of clinical experience, including two years of music), and take a music therapist exam. In addition, you can obtain a qualification by passing the interview. Of course, you have to be able to do music in order to get a qualification. Among the many musical instruments, playing the piano and guitar is considered to be the minimum requirement to acquire qualifications. The reason is to respond to the various needs of the person receiving music therapy. The problem is from here. Music therapists can be qualified, but because they are not national qualifications, very few people can live only music therapists as occupations. Currently, most music therapists are active as volunteers. Even though it is just a long way off, even if it is possible to become a music therapist, the weight that it is necessary to be compatible with other work gives the mind of the people who are going to become music therapists.

I n   conclusion

Chapter 1   Currently confirmed power of music

We know that music, including what we have today, has a positive mental effect. It is called natural sound, 1/f fluctuation, and high frequency. What is called a natural sound refers to a special microphone recording of all sounds that can be heard naturally such as the sound of waves, sounds in forests, and sounds of streams as the name suggests. In this natural sound, the sound of the water system such as the sound of the brook and the sound of the wave contains a lot of 1/f fluctuation. These give us a comfortable feeling such as comfort to our living thing. In addition, there is a thing called alpha wave (alpha wave) as a good wave for the body. Alpha waves are a type of brain wave that comes out of the human brain. According to German scientist Hans Berger, human brain waves emitted by the state at that time can be classified into five types, and they are classified by frequency. Alpha waves are eEGs in the range of 8Hz to 13Hz in terms of frequency, and are eEGs that appear in a calm state. This has the effect of relaxing the body and mind as well as 1/f fluctuation, and suppressing stress. It is also known that it has the effect of activating the brain. Quite recently, it is said that there is also an effect of preventing the disease to enhance the immune system in the alpha wave. It has been found that alpha waves have the effect of balancing not only concentration but also autonomic nervous system, and research has been promoted to demonstrate the effect of enhancing immunity. It is said that alpha waves come out naturally when we relaxed. Therefore, if you can calm your self-confidence, you can put out an alpha wave. One way to relax your body and mind is to listen to music. If you listen to music that is highly effective in healing, you can relax

your mind and body, and the effects are also incorporated into music therapy. Classical music is generally said to be easy to produce alpha waves. Many of the famous classical music that has been passed down to the present day is said to be highly effective because it is music that is familiar to a wide generation with a melody familiar to the ear. In the famous song, songs such as Pachelbel's canon and Bach's Aria on the G-line are considered songs that are easy to get alpha waves. In addition to classical music, there is "healing music" that incorporates the sounds of the natural world mentioned earlier in music that is said to be easy to produce alpha waves. They have no substance, and it still takes time to conduct research and identify scientific evidence. However, patients who have been treated with these are effective.

Chapter 2 Necessity of Recognizing Music Therapy as Part of Medical Care

There are still many problems to be solved in music therapy. First of all, the low name recognition is given. There were several people around me who had heard the name of music therapist. However, when I asked them specifically what the activity was and what kind of person he was interested in, he knew only enough people with one hand. It is necessary to get out of this vicious circle which cannot become a national qualification from this low recognition, and the name recognition remains low again by not increasing the number of people who become music therapists. And above all, I think that it is necessary to adjust the length of the road to the qualification acquisition. The length of one year to take the qualification acquisition examination and the length of the clinical experience necessary to obtain the qualification for the other five years. Even if it becomes a music therapist through these, it is not easy to find the scene to work not to mention the employment. Even if you decide to become a music therapist, you will surely get lost. With regard to name recognition, we propose to increase the number of places where elementary, middle and high school students can experience music therapy and music therapists, and hold events that can be experienced in places where visitors can easily visit, such as community centers. We will increase these opportunities. I think that more people will be interested and try to acquire it if more music therapists can solve the name recognition problem by performing these problems. In addition, the lack of work is given as another problem to be solved. Current music therapists are active in hospitals and special needs schools. However, it is not a formal employer of the hospital when it gets a job. These problems eventually lead to more people who hesitate to acquire qualifications due to their low income. Here, it is existence of the hospital which is the activity place of the music therapist now to become the key. It is an appropriate idea to think that music therapy is a kind of medical treatment after all. It is thought from the

point that the patient is a person who has the sickness of the heart mainly. I think the hospital is the most suitable employment place and propose.

I n conclusion

In order to recruit more music therapists, I propose to arrange events for the current music therapist to deepen their understanding, and to hire a therapist at a hospital.

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Symbiosis of multi culture by cultural art
～Contributing to foreign immigrants problems～

5123 Kanon Miyajima

1 Introduction

   Currently, the number of immigrants who come to Japan is increasing rapidly by advancing globalization. It has become a common sight that immigrants live with Japanese. Immigrants leave their hometown and they are obliged to live in new environment which have different culture, custom, tradition, climate and so on compared to environment where they were born and raised. It is not easy for them to establish new relationship with local people and to get used to new life. They feel uneasiness and loneliness. This situation is called lack of "social inclusion" (a state in which all people, including those who are vulnerable, are blended into society and such ideas.) However, we cannot rely on past examples even though we will try to solve this serious problem by using wisdom and knowledge of them, because the change of period and society caused the problem. Therefore, we are under situation that trial and error are piled up. In response, I suggest holding art events to remove immigrant`s unstable mind and to provide them opportunities to interact with local people. In order for each person living in same area to accept diversity and create a society that transcends various gaps, we create an environment in which people can share and empathize with things that cannot be seen, such as sense and emotions rather than discussion and using languages. I adopt art as a tool of their interaction. I believe that it is possible to form an inner connection by meeting people who have different culture and customs of local people and immigrants in this space. Eventually, I considered the planning of events.

2 Purpose of research

  I want to provide foreign immigrants who feel uneasiness and loneliness a sense of security through holding cultural and artistic events. In addition, I suggest them to participate an events in order to promote interaction with local people. Then, immigrants and local people can get opportunities to know each other, thereby, new atmosphere and new culture would be introduced to the area.

3 Methods of research

  The agency's materials are mainly used, but other books and Internet sources are also used. In some cases, there is a possibility of visiting companies and universities. My hope is to contact companies that have contributed to solving the problem of foreign immigrants in the past by visiting and sending e-mails to them. Then, take that information into the sake of

planning your own cultural and artistic events. As for this method, even though there are many foreign immigrants, the city, the ward, and the ministry where cultural and cultural events for the purpose of cross-cultural exchange are not covered in a big way, I think and propose cultural and artistic events suitable for the nature of the land. If I have the opportunity, I would like to spread my thoughts and plans on my problems and see the real aspects of the problem of foreign immigrants. (Details of the reference material are described in the literature.)

4 A result of the study

I would like to explain the current situation of the problem of foreign immigrants. In recent years, globalization has progressed worldwide, and many foreigners are flowing to Japan. They have to leave their familiar hometown and enter the land of Japan, which has a different way of life and atmosphere. If you try to imagine this situation by replacing it with your own, you can think of a mentally unstable state. Even if you don't speak the language well, even if you can speak it, it's different from the place where you are, even if you can speak it, it's custom, climate, air, scenery, and values and religious views with the local people. I feel a strong sense of loneliness because I am not familiar with the anxiety of a new life in a foreign country and the friendly relations of the neighboring residents who have already been made. This is a situation that is actually a problem in the materials published by the Agency for Cultural Affairs commissioned, and it is said that there is a lack of social inclusion (a state in which people are integrated into society). I propose to participate in cultural and artistic events as a place to interact with neighboring residents to foreign immigrants who are in such a state of mental distress. According to the research materials of the Agency for Cultural Affairs commissioned earlier, culture and art have the power to visualize individual consciousness and identity, and to suggest a connection with people even if words are not understood as a communication tool. In recent years, it has been seen that the region uses culture and art as a place of cross-cultural exchange by using the effect. The following materials are activities that I have investigated and taken up.

① Brazil Town in Oizumi Town, Gunma Prefecture
In the 1970s, many foreign workers have moved to this land due to labor shortages. Their nationalities are mainly in Brazil and Indonesia, but recently the number of immigrants from China, Vietnam and Turkey has also increased. The event by the immigrant Brazilian called "Samba Carnival" became famous and customary now, but at that time there were complaints from local people about the problem related to life manners such as littering and noise of the garbage of foreign immigrants, and there was an anti-foreign immigrant

atmosphere. However, the samba carnival was held at that time, and some locals were looking forward to it. Among them, Brazil won the 2002 World Cup and the Brazilians made a big fuss. The damage was such a large-scale event that the police riot police were dispatched because there were many people who were destroyed by the town's thing scar and a big wound to the car. After that, there were a lot of locals who wanted to see the event still though the samba carnival was temporarily stopped. Because of this, the samba carnival was re-revived. In the past, local people's interest and understanding of foreign immigrants has increased, and the coexistence of different cultures has been realized. Now, the Oizumi Town Tourism Association is planning an exchange event with foreign immigrants.

←Oizumi sanbakarinabaru in 2014
This is a picture from rurubu travel.

http://www.rurubu.com/news/detail.aspx?ArticleID=2499

② Ala Town Genki Project (Kani City Cultural Creation Center)

This is a project that started in 2008 with the aim of holding an exchange event based at the Kani City Cultural Creation Center in Kani City, Gifu Prefecture, and creating a community in the town. People who feel "difficult to live" are working to create an environment that is not mentally or socially isolated by utilizing the power of culture and art. He has now signed an agreement with Leeds Playhouse in the UK and is putting more effort into it. The following is a past project aimed at interacting with foreign immigrants in the ala town genki project.

Multicultural Coexistence Project 2009

As a record of ala's activities held in 2009, a record of the plays created by multinational foreign immigrants and locals was posted. Although 6% of foreign citizens live in Kani City, many cultural problems have occurred with civic life and school life. Therefore, through the creation and performance of theater by Kani citizens, including foreign immigrants, the "Multicultural Coexistence Project" was launched with the aim of understanding each other's lifestyle and culture, and creating a community that is rich and comfortable for both of them.

This project began with a so-called "mixed mix" of more than 60 Kani citizens of different ages, nationalities and languages, but each distance gradually approaches by communication by simple communication games and gestures in the early stages, On the way home from the practice, they all got together to chat at the restaurant. They also discussed and presented a subject, discovered each other's "differences" each time, and became a fun atmosphere. In the process of creating a single work, they became interested in each other's "differences" and turned it into fun and rich, not a barrier in the community. The following is the details of this project.

Date: April 19 - July 25, 2009

Participation: 10 countries, more than 60 people

Nationalities: Brazil, China, USA, Philippines, Jamaica, United Kingdom, Australia, New Zealand, Argentina, Japan

←play`s title is "kikiippatsu"

This is a picture from kani cultural creation center

https://www.kpac.or.jp/event/detail_150.html

I devised my own event plan by referring to these cultural and artistic events that took place in the past. First, we narrowed down which land events to plan based on the data called the ranking of foreign national ratios in all regions. According to this document, Ikuno (20.342%) in Osaka Prefecture was ranked first, followed by Kawakami Village (15.748%), Oizumi Town (12.974%), Minamimaki Village in Nagano Prefecture (11.395%), and Shinjuku-ku, Tokyo (7.889%). These areas are actively involved in supporting foreign immigrants, and many kinds of cultural and artistic events were held at facilities such as the Ward Center and Cultural Center. (In addition, many foreign trainees live in Kawakami village and Minamimaki village, and since there are many communities with agricultural

managers, there are not many cultural and artistic events, but they are excluded because they deviate from the purpose of this research.) So I turned my eyes to Mino Kamo City, Gifu Prefecture, which is in sixth place. Mino Kamo City has a foreign ratio of 7.654%, and is owned by Brazilian, Filipino, Chinese, Korean, Korean, Peru, and Vietnamese nationals. According to MINOKAMO, a multicultural city, in order to reduce discomfort in schools and lifestyle habits of foreign immigrants, we have held Japanese language classes for foreign immigrants. We distribute emergency evacuation cards and actively provide communication support and life support. Volunteer activities and various events (such as a cappella concerts) were also included as international friendship projects. However, I noticed that cultural and artistic events are written in a way that is like a supporting role compared to other activities such as life support. In fact, there were few cultural and artistic events even if it was said that the event which raised the cultural exchange even if the material such as the homepage of Mino Kamo City was seen, and most were language exchange. Mino Kamo Has a total population of 56914 and 4920 foreign residents. According to the data of December 1, 2018, the total age group is the most people in their 40s and 50s, and there are many residents aged 25 to 40 years old when viewed by the number of foreigners only. In terms of tourism and specialty, according to the Mino Kamo City Tourism Association, there are many regional traditional festivals such as the On Matsuri and the Mikamo Japan Showa Mura Half Marathon as events held in the past and still held today. The following is a cultural and artistic event in Mino Kamo City that I planned.

The history of the Onmatsuri, which is created and expressed by citizens
 "Onmatsuri" held twice a year in Mino Kamo City in the summer and autumn. Citizens explain and express the roots of the on matsuri, the mikoshi used, costumes, etc. in theater, dance, and performance. All citizens work together to practice, discuss, recreation, and create a stage to promote unity and mutual understanding among citizens, including foreign immigrants, as well as people outside the city who have come to see the stage. The purpose is to make Mino Kamo City's on-festival more known and enjoy the actual Festival more. (Modeled after a project in Kani City, Gifu Prefecture.) The reason for this project is that most of the citizens in their 40s and 50s, who are among the age groups of the entire city, are involved in the festival, which is a friendly festival that has been involved for 25 years, and that many foreigners have an interest in Japanese traditional culture. In addition, as a way to boost this stage, we are planning to set up a booth to serve dried persimmons, sake and pickles, which are local specialties. Also, the concern is that religious parts are also involved because it is a Japanese festival. It may be contrary to the religion of individual

foreign immigrants, but if you give details of the event in advance, and then ask them to participate after understanding it, I believe that it is inevitable that people will be in trouble because of religious problems.

5Future issues and plans

There are issues that need to be considered in large quantities when looking closely at budget, permission to the city, securing human resources, etc. in order to realize the project, but even in situations that cannot be executed, I will examine it assuming that it will actually be carried out, spread in the form of a plan. In addition, I will actively participate in volunteer activities related to event management from now on, and it will be up as an experience of practically what to do to manage the event.

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Gender education using VTS
～From the viewpoint of critical thinking～

5124 Yuko YamadaStudy purpose

The purpose of this study is to deepen the Japanese student's understanding of gender as well as the understanding ability of others by working on VTS (Visual Thinking Strategies) at the session.

- Research result

1. The current state of the Japanese gender problem

According to the Gender Gap Index World Economic Forum is announcing (the index which indicates an advance of which degree women was achieved by political participation, financial participation, insurance and an educational point of view), Japan has been recording low index of politics and the economy, and the rank is also less than 100th place out of 140 countries. There are examples of childbearing and child care stands way on women right because of being a woman. Actually, 60% of the employee-less women who is taking care of their children are hoping for getting a job. The reason of this rank is the stereotype in japan. It has been common that women do childcare and housework and men work outside in Japan. This stereotype causes women to retire for childcare. Therefore Japan has a low percentage of women in parliament and managers.

Consciousness that men work but women do not, and homework is always done by women is formed by the family background in our childhood, and things like a uniform which the difference in the appearances of the men and women is clear. In addition, the difficulty of living a sexual minority at school is also one factor. Even if the specialty field of the university is seen by the size of the difference in the number of people of the men and women, the difference is in the fields of clear for engineering and cultural sciences. That is there is a possibility from the gender look from the time that those are childish.

Gender problems also exists at the school. For example, there is a big difference in the function of uniforms between girls and boys. Schoolboys wear pants, and school girls wear skirts as their uniforms in Chuo secondary school. These uniforms show the gender gap between boys and girls because skirts less play the role against the cold than pants and it is difficult to pedal a bicycle against the dry monsoon which is very strong and cold, even though the school uniforms are school regulations. On the other hand, air permeability of male pants is bad compared with a skirt in summer. Not only for boys and girls, but also these uniforms are uncomfortable for sexual minorities.

It's based on those points and it's supposed that the cause of the Japanese gender problem is stereotype-inaction of the gender of the childish time.

Gender education inside the student is considered not to stick to the stereotype and to deepen the understanding to various choices in a life and sexual minority to the current state a gender problem has caused already inside the minor.

2. Utilization of definite plan-VTS of gender education-

It's necessary to ask a different opinion with oneself to notice a prejudice and a stereotype to the opposite sex including the sexual minority. But how to interpret a gender, the discrimination and a prejudice depends on each person at the end, and it isn't good not to notice various opinions are existing or to press the opinion. Therefore a definite plan of gender education is considered by the discussion form. It's to share and discuss opinions, and not the form of the tuition who tells knowledge and a way of thinking to a student one-sidedly. However, it's between the students, and for a teacher to deepen his understanding.

I suggest using VTS（Visual Thinking Strategies） as a way of its class. VTS was developed based on an appreciation education program called Visual Thinking Curriculum (VTC) carried from 1980s to 1990s. During VTS, a facilitator asks appreciations three questions ""What has happened in this picture?" "From where of a picture did you think so?" "Is there other discovery?" The facilitator never disclose by what kind of process the work was drawn primarily and make them talk in the state which has no prepared responses. As oneself who speaks about his consideration and also while indicating a basis is others, or it's possible to be to hear a different opinion and know new viewpoint and idea, and it leads to improvement of the understanding ability of others and the will which hears partner's talk. Besides the facilitator is also to understand speaker's talk and change a word by the appropriate usage, and VTS has the effect on improvement of the language ability of the young student and foreign language learner.

There are no correct answers in a way of thinking to the gender, work in the family and an allotment of domesticities, and it's different depending on a religion and the environment that people grew up. I can think VTS which can collect a lot of opinions to this one visual phenomenon is effective to notice the difference between the way of thinking and the others' way of thinking.

It would be possible to be also to utilize a newspaper and the internet besides the painting and do the current state understanding more behind VTS according to the age of the tuition's target student as well as this form.

3. The problem to utilize VTS

The work used in VTS is possible by a picture as well as a painting. But a different advice is difficult for the thing which can consider a phenomenon from a multilateral viewpoint and

something for which it's too easy to understand what has happened to give. Therefore I also have to consider in choice of a work, but it's possible to imitate and use a work which was used actually when excluding the purpose, called a gender, and it would be possible to get the effect of VTS. But in case of the purpose of getting regaining consciousness about a gender, a device is needed about choice of a work.

The work it's possible to judge from the angle of the gender would be shared with two patterns.

(1) The work made by using a gender problem (the girl who works without going to school, the lady who keeps house and the man who works) as a base material

(2) The subject is unrelated in a gender problem, the work by which a prejudice to a gender is judged when considering a story of a work

When he adds(3), for example a man works, and when having an idea such as domesticities for a lady, the person who associates the work by which it has a child in a house with a mother when it's seen, and a man is going to work, would have. But I may notice the idea hears a different opinion, and that isn't universal. Thus if it isn't a work like (1), I think they're able to get the effect.

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Reduce food waste

～How to sell substandard vegetables～

5125 Sakina Yuasa

1. Motivation and purpose

On a TV program, there was a large amount of slightly badly shaped corn in a farmhouse. When the staff asked "How would you do about these corn?" He said, "I 'll throw it away because they are not for sale." I was very surprised and found out that a lot of eatable food is being discarded. According to the data presented by the Ministry of Agriculture, Forestry and Fisheries, Japan's annual food waste was 17 million tons, of which 3 to 4 million tons were still eaten. Around the world, about 800 million people suffer from hunger, and the amount of waste, such as food waste, is seen as a problem. So I decided to think about reducing food waste in Japan. There are various types of food waste, but I also addressed this issue from the standpoint of substandard vegetables, partly because of the influence of television programs. I thought that it would be possible for many consumers to purchase by selling non-standard vegetables in the supermarket. We considered whether it is possible, and also considered what kind of sales method should be developed in the supermarket with reference to stores that actually sell non-standard vegetables. I got the conclusion that Sales of non-standard vegetables can be said to be possible from the consumer's point of view to meet the needs of many consumers. When we selling it, it is necessary to make it cheaper than usual vegetables and explain the safety of it.

2. Consumer's idea of substandard vegetables

According to the "Consumer Awareness Survey on substandard Vegetables / Fruits" from the Agricultural, Forestry and Fisheries Business of Japan Policy Bank, over 60% of the total have purchased non-standard vegetables. 65% of those who have no purchase experience want to purchase in the future. In addition, about 60% of people asked whether or not non-standard vegetables would affect their choice of suppliers, saying that "Influence (15.9%" Impact "45.5%") I answered. From this, it can be seen that many people are interested in substandard vegetables and are useful at the same time. The question of how much cheaper than standard products is to purchase non-standard vegetables is 31.5% for "price cheaper than 20%", 16.6% for "price cheaper than 10%", and "almost the same price as standard product" As a result, it was found that more than half of 52.8% are interested in purchasing if the price is 20% cheaper than the standard product. Reasons for purchasing non-standard vegetables are 64.8% because the price is cheap for quality, 55.5% because the taste does not change from standard products, and 37.7% because it does not stick to the appearance. became. On the other hand, the reason for not purchasing / reducing the purchase was 44.4% because there is no place to buy, and 32.2% because the reason for

cheapness seems to be out of the standard. From this survey, consumers tend to buy things that are cheaper and safer. Also, there are limited places to purchase non-standard vegetables, and it can be understood that many consumers consider substandard vegetables with a discount of about 20%. From the questionnaire results of Nippon Financial Bank, the following can be cited as the merits of selling substandard products at supermarkets. 60% of consumers say that the presence or absence of non-standard vegetables affects the purchase destination, and it is said that there is no place where more than 40% of those who do not purchase can buy it, and there are many people who want to purchase more and want to purchase in the future. In addition, because consumers demand cheaper vegetables, selling non-standard vegetables at supermarkets increases the number of people who want to purchase or who consider purchasing because of their low prices, leading to a reduction in the disposal of substandard vegetables. However, simply placing non-standard products in supermarkets is likely to cause many consumers seeking safety, and it is expected that they will not buy strange-looking vegetables. From the demand, I thought that when selling, in addition to displaying the price of the vegetable and the production area, information that would be safe for consumers, such as safety and taste, should be displayed.

3. How to sale

Many of the non-standard vegetables are sold in large quantities for restaurants on the net, but in the grocery store called "ShunpachiSeikaten" and the French "Intermarche", both regular and substandard vegetables are sold. Actually has been successful. There are usually two shop assistants at the "ShunpachiSeikaten" and if you ask a question, they will explain where the vegetables are produced and how to eat them. In addition, each vegetable has a hand-drawn pop, which describes the price and production area, as well as the taste and how to eat, creating an atmosphere that will motivate purchases. "Intermarche" abolished strict standards screening, set up a special corner in the most prominent place for fresh produce, and prepared special posters and pops. Next to regular vegetables, the price of substandard vegetables was sold at a discount of three. I sampled soups and juices made from nonstandard vegetables prepared in advance and received explanations. I was convinced and many consumers bought them. For these reasons, substandard vegetables are sold in the same place as regular vegetables, and many consumers recognize the non-standard vegetables, which are cheaper than regular vegetables by showing safety and deliciousness. It is thought to buy. Specifically, I think that it will be easier to accept by posting and displaying signs, posters, and advertisements indicating that we handle non-standard vegetables, and getting consumers to understand in advance.

4. Conclusion

It is thought that disposal of non-standard vegetables can be reduced by selling at

supermarkets. Non-standard vegetables are sold at 2 discounts of regular vegetables. Referring to the sales method of the store you examined, in addition to displaying the price and production area, indicate that the vegetable was grown by the same farm as the regular vegetable, and in some places near the sales space Provide consumers with safety by providing brief descriptions of substandard vegetables. Many consumers demand cheapness and safety for vegetables and there are many people who want to buy non-standard vegetables, but there are few shops selling substandard vegetables, so they can not buy it. Selling substandard vegetables at supermarkets can solve these problems and then many consumers will purchase non-standard vegetables, and the amount that has been disposed of up to now will be consumed, I think. Substandard vegetables are a little cheaper than regular vegetables, so it may be purchased by consumers who were hesitant to buy them up until now, and it is thought that supermarket sales will also increase. If there is too much supply compared to the demand of consumers, most people will purchase non-standard products that are cheaper than regular products, and regular products will not sell very well, making it impossible for farmers and supermarkets to expect profits. It may be the result that food loss increases. These are the problems in this study.

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Determinants and intended consumer behaviour toward deformed fruits and vegetables

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Reform of Japanese consciousness of psychotherapy
～Before the formative period of the fixed view～

5201　Kenta Kobayashi

1.　Abstract

"Common knoeledge" is prejudice collection that was learn up until the age of 18," says genius physicist Albert Einstein. We live with prejudiced eyes without doubting common sense. According to estimates by the World Health Organization (WHO), over 4% of the world population suffer from depression now. Looking at the Asian region by international estimates, Japan is the second most popular country after China. WHO points out that social prejudice and mental health shortages for mental illnesses including depression are problems. In addition, the number of suicides in the world in 2015 was about 788,000, and suicide was the second leading cause of death among young people aged 15 to 29 years, and depression was the main cause of suicide. So I thought that the early detection of depression might help reduce the number of suicides. I set my goal for this research to sympathize with the above WHO indications, and in particular, to come up with solutions for the former indications.

2.　Introduction

In recent years, Japan has been focusing on mental care. The Ministry of Education, Culture, Sports, Science and Technology announced that 1 in 15 Japanese people will suffer from depression in their lifetime. In the first place, it is said that depression is caused by complicatedly entangled stress, and the only way to deal with it is to take care of the mind. However, Japanese people have low awareness of mental health problems and few people visit for psychological consultation. So I propose two ideas to overcome this situation. The first is to create an atmosphere that makes it easy to go to the consultation room. I thought about the new way of consultation room by merging clinical psychology and color psychology. The second is to create a system where consultants can talk to each other. I think that the burden on my heart will be reduced by listening to someone who is in the same situation as me. This system was based on activities by those suffering from cancer. The challenge is how to change the Japanese consciousness about mental care.

3.　Methods

There are two methods used in this study. The first is the website of the Ministry of Education, Culture, Sports, Science and Technology. The Ministry of Education, Culture, Sports, Science and Technology posted a wealth of information about the mind, so I thought that it would be

possible to gather information widely. The second is a document from the Ministry of Education, Culture, Sports, Science and Technology. I received this when I visited the Ministry of Education, Culture, Sports, Science and Technology during a visit to a research institution. Since it is easy to understand, I thought it might be useful for research and used it.

4. Results and Conclusion

I think that the lessons offered by the school are the best solution to dispel the negative impression to psychotherapy. To borrow Einstein's words, "common sense" named "prejudice" is formed by the influence of family, friends and people around, and the time when that common sense is completed is 18 years old. Finally, this common sense become a common idea. I looked into Internet. We assumed that if we could teach the freedom and legitimacy of mental illness treatment before the formation of stereotypes, the consciousness of society as a whole would change. In order to confirm the validity of this hypothesis, I examined the mental health care business in other countries. What caught my eye was "Social Develop" in the United States. This is an academic curriculum that was first introduced by the city of New Haven, and is being implemented for elementary, middle and high schools in the region. It teaches students through role-playing how to express and convey emotions and avoid stress. Students will try to find out how to avoid stress that is the cause of depression and how to reduce it. I think that such classes can play an important role even in Japan where culture, language and religion are different. Education about "mind" is not limited to New Haven City, but also in Michigan. West Bloomfield High School in the state seems to incorporate mental health education into the curriculum. The curriculum consists of 15 classes, and through lectures, group study, and therapy sessions, students learn how to investigate and deal with the causes of mental disorders. We are also aiming to acquire communication to properly convey the condition to the surrounding people. A similar move is seen in the UK. In Cardiff, the Welsh region, five junior high schools have introduced a curriculum that deals with mental health. It seems to deal with the mechanism of mental stress, how to interact with it well, and the skills to share with others.

Especially in Europe and the United States, there is a high interest in mental health, and mental health is more popular than in Japan because it is incorporated into the curriculum in classes.

For this reason, there is a movement to provide mental health education for middle and high school students.

Japanese company ling light believes that this "social situation where awareness and measures for prevention are lacking" has become a trap for dissemination of mental health. Yes. The first is the problem of the disease itself. Psychosis is a disease that has no subjective symptoms

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and is difficult to notice abnormalities. Japan also has a culture that creates prejudice against people with mental illness, creating an environment that is difficult to consult. Second, there is no preventive activity. It seems that the current medical fee system only deals with after the onset of symptoms.

 I thought that consciousness could be raised as one of the major factors to solve the mental health situation of Japanese people. According to Prof. Toshie Amemiya of the Japan Counselor Academy, psychological consultation in the US is very low threshold. At the Ackerman Family Therapy Institute in New York, where she visited, the client was readily available for counseling. In the United States, it is considered that the person goes to counseling for daily self-management and maintenance, and counseling is not taken by people who have a heartache like Japan. As a result, you can feel free to consult. The US mental situation is said to be 20 years ahead of Japan. In the UK, Prince William conducts "Heads Together", a mental health awareness campaign with Princess Katherine and others. Britain, which is trying to solve mental problems with the whole country, is leading the world as a developed mental health nation.

Based on the above, I thought of a way to solve Japanese issues.

The first is to change the consultation room to something more friendly. According to "School Counseling Practices and Issues at Public Schools" (Kinako Ito, Associate Professor, Department of Child Psychology), of the 78 free descriptions of a public junior high school she surveyed, the largest number was written It seemed to be a difficult atmosphere to reach the room. (Figure below)

Difficult atmosphere, environment	Difficult atmosphere 18	Problems with the location of the consultation room 6
SC personality and expertise SC specialization	SC specialization 10	SC personality 2
Insufficient information and opportunity Consultation room opened	SC information insufficiency 6	No opportunity 2

Luck of interact with SC, information 7
School issues 1
None in particular, no description 25

In other words, to increase the number of consultants, it is essential to change the atmosphere of the room. Most of the consultation rooms are white. According to color psychology, white

has good aspects, but there are also negative effects such as tension and feeling empty. So, in order to eliminate such an adverse effect, I tried one solution. That means changing the color of the room. If you put yourself in a warm or stable color or color space, it will stabilize your mind and give you calmness.

It seems to be a combination of colors that give a calmness by incorporating a dark color based on a light color.

Also, if the dark color is near the ground and the light color is in the upper position, it seems that the color is stable and the mind is stable.

Figure 1

I thought that it was possible to wipe out the atmosphere that was difficult to get to the counseling room by combining color psychology with clinical psychology.

The second is to create a system that refers to the "peer to peer" practiced for cancer patients. .

These features are "a place for patients to support each other's perspectives" . In cancer treatment and medical treatment life, various troubles and anxieties come out. When cancer is diagnosed or initially treated, family members and people around them often listen to the person. However, when the results of his / her treatment become stable and the treatment life becomes longer, he / she feels tired of listening to the story many times. And he seems to stop talking to avoid it. Also, by this time, I was more worried about personal worries about daily life, such as medical treatment, rehabilitation, economics, etc. than cancer illness itself. If you don't know if you should consult, you may feel lonely. In such a case, patients who have the same situation support us. By listening to other patients' stories, just knowing that "I am not alone is troubled" or that "There are other people with similar problems" It will be a lot easier.

Therefore, I thought that if the system that supports people in this same situation is applied in psychological consultation, the number of people who resolve or reduce their worries will increase. I think that there are not a few counselors who are dissatisfied with arranging the same entrustment with the tone that other red people have understood. So I will not underestimate the value of applying this system in order to solve the problems of consultants. Only those who are or have been in the same situation know the most about their suffering and sorrow. In other words, it is very important to discuss and interact with counselors who have the same trouble.

I think that it is the quality of the consultation system and the change in the consciousness of psychological consultation that can reduce the burden on the mind before it becomes irreparable. That's why I thought the Japanese version of "social Develop" was the biggest solution to the current situation by creating an atmosphere that makes it easy to get to the
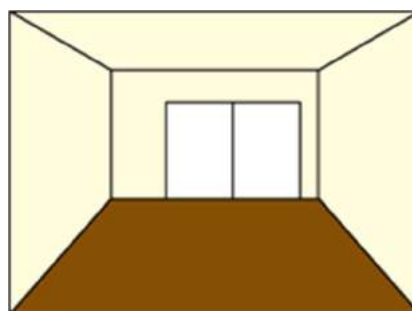
counseling room, creating a place to support each other, and by the formation of stereotypes. The future task is to think specifically about what points will be changed and what will be imitated when "Social Develop" is made into the Japanese version.

5. Discussion

Educational reform is effective in eliminating the prejudice of Japanese psychotherapy. If we can get right knowledge in childhood when common sense is not sufficiently permeated, the consciousness of the nation will not be caught by prejudice. It is our future action that can lower the high barrier of psychological consultation. I think we must strive to improve mental and physical health without being bound by old prejudice.

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Allergy measures at the time of disaster
～Trends and measures learned from other countries～

5202　Daichi　Shioda

○abstract
Currently, Japan is taking measures against allergies. However, when a major disaster
happens, the suffering of the affected people is very serious. Therefore, advance measures
are necessary. From the perspective of allergies and disaster prevention, I considered what
measures should be taken by comparing Japan and other countries. As a result of collecting
information, domestic measures were not sufficient, and this was thought to be due to low
recognition. Next, I examined information from other countries. According to the literature
on disaster prevention in the United States, manuals for allergies can be found on the
government Internet site. Based on these, Japan believes it is necessary to raise awareness of
allergies regarding disaster prevention. In addition, the government will not only enhance
stockpile, but also need to disclose in advance where they are and how much they are. In
addition, I think that there is a drawback in the Japanese administrative system as a reason
why measures and information dissemination are not progressing. We propose that
organizations in various fields, such as disaster prevention specialists and allergy specialists,
work together across departments and public and private boundaries, and that it will
increase the number of years until the position changes.

1 introduction
・about allergy
　Originally, antibodies recognizes and binds to microorganisms such as bacteria and
　viruses which have entered the body as allergens. That antibodies react excessively with
　specific allergens, causing symptoms such as dermatitis, asthma, and hay fever is called
　allergy to cause.
　A person who has an allergy is called an allergic patients.
　According to the Ministry of Health, Labor and Welfare, one of two Japanese people have
　any allergies.

2 purpose of research
Currently, one of two Japanese people has allergies, so prevention to allergy and response to
allergic patients are developed. And the number of time that patients feel inconvenient in

everyday life, but if a big disaster occurs, patients cannot keep their everyday life. It will be very hard for patients. Then we should prevent to disaster for allergic patients, so I will suggest about what Japanese organization should do.

3 research method

I mainly got information from the internet site which is made by governments or laboratories.

Allergy is said developed country disease, so I got information from developed countries.

In addition, there are air pollution problem such as PM2.5 (particulate matter) in China, so I searched about China, too.

The relationship between allergy and air pollution does not have certainty, but air pollution is listed as one of possible cause.

4 result

(1) United States of America

Basically it is not assumed that an earthquake will occur. In addition, a large amount of rain and strong winds, such as hurricanes, are assumed, and mold allergy is the most cautioned allergic disease. The published manual recommends putting your luggage in one large case in advance, based on running away by car. Information on allergies was found in non-allergy manuals. However, compared to Japan, it is superior in that allergy-specific manuals can be viewed from the government Internet site.

(2) Japan

Japan has some disasters. The most popular disaster is earthquake. Japanise government send information about what to do when disaster happen, but there are few information about allergy in the information.

5 discussion

Compairing America and Japan, Japanese government send less information about allergy in time of disaster than American organisation.

I wonder the reason of Japanese currently prevention is low awareness of allergy.

6 conclusion

Japanese government should develop proactive measures.

I think Japan should improve awarence of allergy.

To implove awarence of allergy Japanese government should add information about allergy into education. And send more information about allergy.

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厚生労働省 健康局 がん・疾病対策課　　アレルギー疾患の現状等

Aiming for a sustainable society

～To solve the e-waste problem～

5203　Keita Shimizu

Abstract

We usually live surrounded by many electronic devices. For example, is it a TV, a PC, or a smartphone? As time goes by, it will eventually be time for replacement. If you buy a new one, it will not be used and will become trash. What will happen to them afterwards? E-waste refers to electrical and electric waste, that is, waste of electrical and electronic equipment, as described above, such as TVs, PCs, and smartphones. The E-waste problem in my research sub-theme is that this E-waste produced in developed countries is exported to developing countries by illegal traders, and serious environmental destruction is caused by illegal dumping or inappropriate treatment and disposal. It is causing an effect on the human body. The electronics we have used are causing such a serious problem in a distant foreign country. This is surprising. Therefore, I decided that the purpose of my research was "Think about a way to solve the E-waste problem and propose it in as concrete a form as possible". In addition, I thought there were two approaches to finding a solution to this problem. The first is to stop E-waste from being exported from developed countries to developing countries. The second is to establish a system that allows the E-waste itself to be recycled well in its advanced countries. As for the first, there is already the Basel Convention that regulates the import and export of waste, and furthermore, the Ministry of the Environment has proposed that the Ministry of the Environment establish a standard for second-hand goods because it cannot be controlled for reused goods. In this study, it was judged that there was no need to make any specific proposals. For the second, the keyword "urban mine" is important. The details are explained below, so I would like you to read them, but in the end my proposal was to spread this city mine.

1. Introduction

＜The purpose of research＞

"To find a way to solve the E-waste problem, which is regarded as a global problem today, and to propose it in as specific a form as possible. The E-waste problem is that electronic devices such as TVs, PCs, and smartphones, which are now indispensable for our daily lives, have finished their roles and become waste, and then developed from developed countries by illegal companies. It is a problem that has been exported to the country, where it has a negative impact on environmental pollution and the human body

<Research method>

Mainly using the Internet, but in recent years, the word "media literacy" has begun to attract attention, and I thought it was necessary to pay attention to the reliability of information in this research. Therefore, I mainly use the following pages that I have determined to be reliable.

・ United Nations University ・ Ministry of Foreign Affairs ・ Ministry of the Environment

2. Discussion and implications

<What is the E-waste problem? >

"E-waste" refers to electrical and electric waste, that is, waste of electric and electronic equipment. Used TVs, PCs, smartphones, etc. become waste. And the E-waste problem is that these wastes from developed countries are exported to developing countries by illegal traders, and they contain harmful substances. Disposal causes serious environmental damage and effects on the human body.

<To solve>

I thought there were two approaches to finding a solution to this problem. The first is to stop E-waste from being exported from developed countries to developing countries. The second is to establish a system that allows the E-waste itself to be recycled well in its advanced countries.

<First method>

① Current situation

E-waste is currently being exported from developed countries to developing countries across national borders, but in fact, the import and export of waste is not recognized worldwide. The Basel Convention is the most famous treaty that regulates the import and export of waste.

② Basel Convention

Background

(1) The movement of hazardous waste across borders has often been carried out mainly in Western countries since the 1970s. In the 1980s, wastes from developed countries in Europe were left in developing countries in Africa, causing environmental pollution, and crossing the borders of hazardous waste without any prior communication or consultation. The problem that the final responsibility was unclear became apparent.

(2) In response to this, after consideration was made by the OECD and the United Nations Environment Program (UNEP), in March 1989 in Basel, Switzerland, international regulations on the regulation of the movement of certain hazardous wastes across borders, etc. The "Basel Convention on the Control of Hazardous Waste Cross-Border Movement and Disposal" was established (effective 5 May 1992. As of May 2015, the number of Parties is 181 countries, EU and Palestine).

(3) Japan is importing and exporting recyclable waste as resources, and under the judgment

that trade in accordance with the procedures of the Convention is an active international contribution to global environmental issues, On September 17, 1993, a letter of accession to the convention was deposited, and the convention became effective on December 16, the same year.

Overview

The Convention consists of the preamble, 29 articles, the end sentence, and 9 annexes (but not in effect for Annex VII). The main provisions are as follows.

(1) Export of hazardous waste and other waste specified in this Convention (hereinafter referred to as "waste" in this document) requires the written consent of the importing country (Articles 6 to 3) .

(2) Parties shall ensure that domestic disposal facilities are available as much as possible to minimize waste generation in the country and to ensure environmentally sound disposal of waste (No. 4 Article 2 (a) and (b)).

(3) Recognize illegal trade in waste as criminal and take measures to prevent and punish acts that violate this Convention (Articles 4 and 3).

(4) In principle, the import and export of waste with non-parties is prohibited (Article 4-5).

(5) Prohibit the export of waste to the Antarctic region (Article 4-6).

(6) Transport and disposal of waste may be performed only by authorized persons (Article 4 (7)).

(7) The transfer of waste across borders requires the attachment of appropriate transfer documents as stipulated by the Convention (Article 4. 7 (c)).

(8) If the cross-border movement of waste cannot be completed as contracted, the exporting country will take appropriate measures, including picking up the waste (Article 8).

(9) If the transfer of waste across the border becomes an illegal transaction as a result of the exporter or the act of the producer, the exporting country will take appropriate measures, including the collection of the waste (Article 9-2).).

(10) Parties shall make technical and other international cooperation mainly to developing countries to treat waste in an environmentally sound manner (Article 10).

(11) Bilateral or multilateral arrangements regarding the transfer of waste across borders can be concluded with non-parties as long as they do not violate the purpose of the Convention (Article 11).

Regulated waste

(1) Article 1 of the Basel Convention defines hazardous waste subject to regulation as shown in (a) and (b) below.

(A) Waste belonging to any category listed in Annex I (excluding those that do not have any of the characteristics listed in Annex III)

(B) Waste that does not fall under the waste specified in (a), but is defined or recognized as harmful by the national laws of the exporting country, importing country or Parties that are transiting countries.

(2) As described above, whether or not it falls under the waste subject to the Basel Convention is determined by referring to both Annexes I and III. Since it was an abstract provision, there were inconveniences such as the interpretation of the waste subject to regulation being divided among the parties. Therefore, at the 4th Conference of the Parties (Malaysia), a list (Appendix VIII, IX) that specifically shows the regulated items and non-regulated items is prepared, and the regulated items of the Basel Convention are possible. I decided to clarify as much as possible. Items that are not listed in Annex VIII or IX will be judged by referring to both Annex I and III as usual.

③ Weaknesses of the Basel Convention

The Basel Convention seems to have tried to address the E-waste issue, which is the theme of my research, as described in (1) and (2). As shown in the overview, it shows a strong stance on the import and export of waste. However, there was a loophole in this treaty. That is, if you trade in the name of "reuse goods", you don't have to be caught by the treaty. Reuse is a term for "reuse" that can be counted as one of the 3Rs. Unlike recycling that changes the shape and reuses, reuse means that the shape is reused as it is. E-waste is originally an electronic device and is very valuable. Even if it is slightly broken, it may be a second-hand product if it can be used again. The secondhand goods are discarded in developing countries, and improper disposal and processing cause environmental pollution and adverse effects on human health.

④ Countermeasure

After all, it seems necessary to make something like a standard so that it can also handle used goods, but when examining it, the Ministry of the Environment has already said that it is `` used goods judgment standard based on the Basel Convention E-waste guideline draft '' I decided that it was not necessary to make any specific proposals in my research because this solution is expected to be improved over time.

<Second method>

① Current situation

I think one of the reasons that E-waste is exported from developed countries to developing countries is that the recycling system in developed countries is not working. If recycling is going well, I don't think illegal companies will take E-waste to developing countries and dump it, causing environmental pollution and harm to the human body.

② Urban mining

E-waste is inherently very valuable. This is because small home appliances such as TVs, PCs, and smartphones use precious and rare metals such as gold, platinum, cobalt, and tantalum.

Metals have value in the element itself, and even if it is used in a product, the amount does not decrease or change to a different element, and the value of the element itself is not lost. E-waste will be a promising metal resource by making it possible to reuse useful metals that are present in the waste as raw materials for new products. Such useful metal resources in E-waste are called "urban mines" in the mine. These words have attracted attention in recent years.

③ Urban mines in Japan

Used small household appliances such as TVs, PCs, and smartphones contain precious metals and rare metals such as gold, platinum, cobalt, and tantalum. As explained above. In this "urban mine", about 650,000 tons of small household appliances are discarded in one year, while it is said that it contains 84.4 billion yen worth of precious metal. Yes. Because urban mines are recovered by recycling, unlike mining, which can cause deforestation and groundwater vein contamination, it has little impact on the environment. In addition, it is characterized by a very high metal content, and gold ore taken from natural gold mine contains about 5g of gold per ton, but from 1t (about 10,000) of recovered mobile phones. It seems that about 280g of gold can be recovered. Japan is known as a resource-free country, but it is a leading resource country for urban mines. For example, 6,800 tons of gold are stored in the country as urban mines, which is equivalent to 16% of the 42,000 tons in the world. Silver is 60,000 tons, accounting for 23% of the world reserves. There are many other metals that account for over 10% of the world's reserves, including 16% indium, 11% tin, and 10% tantalum. Comparing the resource reserves of natural resource countries with Japanese urban mines, gold, silver, lead, and indium are the world's largest resource countries, copper is the world's second largest, and platinum and tantalum are the third largest. Positioned in the country.

④ Initiatives

There is a recent initiative that has received much attention regarding this "urban mine". That is "Made from an urban mine! Everybody's Medal Project".

Overview

"Made from an urban mine! Everybody's Medal Project" is a project to produce medals used in the Tokyo Olympic and Paralympic Games (hereinafter referred to as the Tokyo 2020 Games) using metal collected from small household appliances by recycling. This is the first attempt in the history of the Olympics to promote the recycling of used small home appliances and to allow citizens to participate in the Olympics. All 28 items covered by the Small Home Appliance Recycling Law, such as mobile phones, personal computers, and digital cameras (introduced on page 6-7). With the Tokyo 2020 Games, we aim to realize a "sustainable society" that places more emphasis on the effective use of resources. Of course, more than

1,200 local governments nationwide have participated in this initiative, not only in Tokyo, but as of September this year. With urban mine recycling as a legacy, the entire nation will work together to advance the project toward the success of the tournament. The number of medals required for the Tokyo 2020 Games is about 1,666 gold, silver, and bronze, totaling about 5,000. Although the design and size of the medal is not yet determined, it must be at least 60mm in diameter and 3mm in thickness according to the regulations of the International Olympic Committee (IOC). Considering that the required content varies depending on the medal and that losses are generated during production, approximately 40 kg of gold, approximately 4,900 kg of silver, and approximately 3,000 kg of copper are required. The project is scheduled to end when the necessary materials for medals are available until spring 2019, but small home appliance recycling will continue to operate as before.

3. Conclusion

<Proposal>

I felt that the concept of "urban mine" would be important in solving the E-waste problem. This time, I think that the popularity of this word has expanded at the event of "Making Olympic medals" involving the people, but in the future we need to make it even more widespread. Therefore, this research suggests that urban mines should be spread.

<Issues>

Although I finished my research with such a proposal, it was too weak and it was not protected to say that it was a concrete proposal for the purpose. So the challenge in this research is to think about a specific way to spread the word "urban mine" which is the key to solving the E-waste problem.

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https://ourworld.unu.edu/jp/toxic-e-waste-dumped-in-poor-nations-says-united-nations
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Revision policy (draft) of second-hand goods criteria (draft) based on the Basel Convention E-waste guidelines
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Create from an urban mine! Everyone's medal project

http://www.toshi-kouzan.jp/

A potential of preserved food
～To reduce Mottainai～

5204　Akito　Takahashi

○Abstract

　There are a lot of food garbage. The amount garbage discarded from home is considerable. There are various reasons for this, such as the expiration of the expiry date due to over-buying, rotting, mold generation, remainder of cooking and so on. It is bad for the environment to dispose of unused food. Before that happens, you can reduce the amount of "Mottainai" from home by using preserved food. In addition, each of us has the spirit of "Motatainai" so we can make efforts to reduce food loss on a regular basis.

○Introduction

　We commonly see jams and dried fish. They are preserved food. The features of preserved food is that it last a long time. Therefore, preserved food can be used as food in the event of a disaster.

There are many food garbage from convenience stores and restaurants, but also there are many garbage from homes. There are various reasons for this, such as the expiration of the expiry date due to over-buying, rotting, mold generation, remainder of cooking and so on. I felt "Mottainai" when I heard that.

The preserved food can last longer than the ingredients. I think it can be used all over the world. I decided that I would study about this because I thought this can help to improve food loss and reduce waste.

○Discussion and implications

　"Mottainai"……One of the regrettable feeling for things still usable, but treat as garbage.

　Preserved food refers to food products that have been preserved and processed for a long period of months to years, taking into account storage and storage. Most of them were created by the people of the old days, assuming the situation of difficult food security, such as the winter season, dry season, long voyage, and war. Currently, it can be used during disasters. In my research, I don't think there is much difference between preserved and emergency food. As mentioned above, preserved foods are foods that can be stored for a long period of time, such as months to years, and are mainly processed to prevent spoilage. Emergency food, on the other hand, refers to food when normal food supply becomes difficult due to an emergency such as a disaster or conflict.

There are various preservation methods for preserved foods, such as pickled with salt, pickled

with vinegar, dried, fermented and smoked.

・Salted

Store perishable items such as vegetables and seafood for a long time. Or soaked in salt to give a salty taste.

・Dry

A food that is intended to preserve quality for a long time by preventing changes in quality by keeping the food dry and low moisture. As a result of the drying, transportation becomes convenient, and depending on the type of food, there are things that increase the taste and those that produce a different taste.

・Pickled in vinegar

Pickled vegetables, fish and shellfish in seasoned vinegar. It has an antiseptic effect due to acid and an appetite enhancement effect due to acidity.

・Smoked

A kind of dried food that was originally salted fish and meat with a special fragrance, making it suitable for storage. Also called smoke.

And so on.

Among various storage methods, I thought that "drying" was the most suitable to do at home. As described above, drying can prevent mold and spoilage by removing moisture from the ingredients. Therefore, "drying" is easier to image than other storage methods. This is because I thought it would be easier to move to action if a concrete image was made. However, there are problems with this. That is, some ingredients may not dry properly. Meat, fish, and fruits may be fine because they have dried food, but I don't see much dried vegetables. It is just a guess, but it is necessary to change the storage method depending on the ingredients.

○Conclusion

There are a lot of ways to make preserved food, I think "freeze" is the most easily one. If it is frozen, the freshness can be kept to some extent. Also, most foods can be frozen and simply put in the freezer, making it easy for many homes.

But my research has problems. That means that you can't know the expiration date, such as

the expiration date or the expiration date, of the preserved food you made. Therefore, it is necessary to eat as soon as possible, no matter how carefully it is "dry" or "freeze"

I talked about preserved foods to reduce food loss, but I have another suggestion. We have to always have the idea and spirit of "Mottainai". If you do so, I think it waste will decrease naturally in daily life. First of all, I want you to understand the idea of "Mottainai".

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「もったいない！食べられるのに捨てられる「食品ロス」を減らそう」
　　(https://www.gov-online.go.jp/useful/article/201303/4.html)

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　　(http://sekken-life.com/life/Hozon1.htm)

Business space required globally

～Beyond the cultural barrier～

5205　Keigo　Naganuma

○ Summary of research

It is better to incorporate various ideas to smoothly accept workers from overseas and adapt to modern office workers who are busy. In Japan and foreign countries, the way of working is often fundamentally different. In addition to the way of working, there seems to be a big difference in religion, human relations, customs, etc. in Japan and abroad. But it will take some time to become. In the globalization of companies where such problems are piled up, I think it is important to promote office design reform with the theme of "visualization of behavior".

1. Purpose of research

Now that globalization is progressing, we will promote what changes are necessary for companies that have various problems regarding the acceptance of foreign human resources from the design of the office.

2 Research methods

Use the internet.

3 Background of research

Although Japan has a relatively small land area, office designs have been created since long ago, making good use of the small land and working diligently to work and make full use of the characteristics of Japanese people who value "total harmony". The specific features are as follows.

・ In order to facilitate communication at work, it is easy to adopt a layout called "Island" that places desks side by side.

・ In the meeting room where employees meet, the desks are arranged efficiently in a large space so that each person can listen and reflect their opinions.

・ In order to make full use of the narrow space, office tools and luggage are placed on one floor and are cluttered.

・ Since the layout is created with the intention of working in a limited space, there are few or no refresh rooms for resting.

In recent years, an increasing number of companies have adopted examples of overseas office design. It seems that a good mix of these principles and innovative overseas office designs will

bring about a new positive change in the ease of working in the office.

On the other hand, "individualism" has permeated in Europe and the United States, and emphasis is placed on individual abilities in work. If you leave results regardless of age, you can advance, and conversely, all failures are your responsibility. Office design also emphasizes an environment where individuals can work comfortably.

The following are the characteristics of Western offices.

-The room is partitioned by a partition so that each person can concentrate on work, and the surrounding noise is kept out.

・ When you make a business contact, you basically use an SNS environment on your computer, such as skype or chat, and do not spend unnecessary time traveling indoors.

・ There are plenty of refresh rooms available for breaks.

As described above, overseas office designs are generally designed so that individuals can easily switch between work and rest. It doesn't bother me with noise, so it's easy to get high achievements at work, and spending a break in the refresh room seems to charge you for your next job.

Japanese office design is said to be about 10 years behind overseas.

As you can see, there are various differences between Japanese and overseas office designs. The number of companies with sophisticated offices in Japan is gradually increasing, but there are still some parts that are still behind in other countries.

There are also major differences in work styles in Japan and Europe and America.

Here are a few of the differences between Japan and the West (here, the US as an example).

○ Group work

America

It is important to conduct meetings efficiently, that is, to produce more results in a smaller number of times and in a shorter time. There is a tendency to avoid large-scale meetings. Individual leadership is regarded as important, and opinions can be given without regard to hierarchical relationships.

Japan

Meetings are common in many companies. The process of the project is evaluated by accumulating many times and times, and the direction of the people involved is matched. Honorific culture rooted in Japanese is effective in maintaining human relations, but it tends to be difficult to discuss vigorously at the meeting, reflecting the hierarchical relationship

clearly.

◯ Form of meeting

America

In the business environment, tools such as telephone, email, and Skype are very commonly used. However, in terms of building human relationships, the importance of talking face to face is the same as in Japan.

Japan

Although in-house SNS and video conferencing are expanding, "conventional meeting and talking" is respected as a courtesy.

◯ Organizational system

America

The working style is almost the same as in Japan. Time can be determined flexibly, and it is common to work while at home.

Japan

Many companies work according to the specified working hours, and few companies have a telecommuting system.

4 Proposal

Here, it is necessary to improve the accuracy of information transmission means. Specifically, it is the use of pictograms. A pictogram is a visual symbol that takes the form of a simple illustration, and is considered to enable communication that does not rely on language.

5 Literature

"Why Japan's Office Reform Is Behind? Ten Years After Expectations from Overseas Companies" <https://biz.moneyforward.com/blog/32826)> (Access Date: December 17)

Intelligence agency reform to protect Japan from international terrorism
～ Realization of information unification and establishment of external information organizations～

5206　Kentaro Hashimoto

1. Introduction

In recent years, various terrorism has occurred in countries around the world. The large one is called international terrorism. When it becomes a target of international terrorism, "information" is indispensable to prevent the terrorism. In an article on a net news, I saw an article that "Japanese information agencies are weaker than information advanced countries". I became anxious as I became interested in the Japanese information system. In this study, based on the current situation and issues of Japanese information institutions, we will consider what information institutions are necessary for Japan.

2. Chapter 1 Japanese information agencies
<Cabinet Information Research Office>

The Cabinet Information Research Office is in charge of office work related to the collection and analysis of information related to important policies of the Cabinet and other investigations, as well as work related to the protection of specific secrets. It is shared and processed by the international sector, the economic sector, the Cabinet Information Center, and the Cabinet Satellite Information Center. In contrast to other ministries and agencies that collect and analyze information on the fields that they are responsible for, the internal tone covers a wide range of events, not limited to specific matters, that is, "information on important policies of the Cabinet". Information is collected and analyzed.

<Public Security Police (National Police Agency Security Bureau, Metropolitan Police Department Public Security Department, Prefectural Police Headquarters Security Department, Competent Police Station Security Division)>

"Public security police" in Japan is a popular name, and strictly speaking, there is no organization called public security police. With the National Police Agency Security Bureau at the top, it is organized by the Metropolitan Police Department's Public Security Department, the Prefectural Police Headquarters Security Department, and the police department security department in charge. division information second in charge Investigator

is to oversee, is referred to as a "ZERO", there under the command of the secret central command center of that preside over the collaborators acquisition tool, such as acquisition and management of the spy. Even the head of the prefectural police headquarters and the head of affiliation are not informed of ZERO's duties and operations. This is because there is a risk of information leakage if special matters issued by the National Police Agency Security Bureau etc. are performed in the organization of the table. Public security investigations are conducted only by public security police officers from the standpoint of the particularity of the case and confidentiality. Overseas, work against Japan by international government and international terrorism. Domestically, investigations and information gathering are conducted for extremely left violent groups, the Korean generals, the Japanese Communist Party, socialist associations, student movements, civil activities, new religious organizations, right-wing organizations, etc. In some cases, violators are arrested. Furthermore, colleague's public security police officers, general political parties, central ministries, self-defense forces, and major media are also subject to information collection.

<Public Security Intelligence Agency>

Public Security Intelligence Agency is subversive activities Prevention Act, on the basis of the law on regulation of the organization that carried out indiscriminate mass murder act, it has been tasked with possible to ensure public safety. Aspects of domestic and international situations that affect public safety, including observational dispositions to Aum Shinrikyo and trends in other countries including domestic organizations, international terrorism, North Korea, China, Russia, and other neighboring countries is working on the collection and analysis of information.

<Ministry of Defense, Defense Policy Bureau (SDF)>

In the SDF, there are organizations that handle information in each staff supervisor and in the land, sea and air. The Information Headquarters reports directly to the Minister, but it also provides intelligence to the Integrated Staff Division. When dispatching the Self-Defense Forces overseas, the local information team of the Ground Self-Defense Force Central Information Corps is dispatched to the site as a predecessor to collect information.

<Ministry of Foreign Affairs International Information Management Organization>

The International Information Management Organization is a department of the Ministry of

Foreign Affairs that specializes in collecting and analyzing diplomatic information. In the Ministry of Foreign Affairs, regional offices consolidate public power from foreign diplomatic missions and make policy decisions, while the International Information Management Organization keeps distance from policy decisions and concentrates on information analysis.

. Chapter 2 Issues of Japanese intelligence agencies

There were two points that I found to be a problem after researching and summarizing Japanese information agencies.

First of all, the intelligence community is decentralized and information unification has not been realized. There is no system in place to collect information from each ministry, analyze and evaluate it, and provide it to the Prime Minister for use in policy decisions. The lack of an organization that analyzes and evaluates information is a serious problem. This indicates that all-source analysis is not working in Japan. As a result, each ministry and agency will only hold information and hold a meeting, and the accuracy of the information will be used for policy decisions without being evaluated from an objective viewpoint.

Second, there is no institution specializing in foreign intelligence. Strictly speaking, there are departments in charge of external intelligence, such as the Metropolitan Police Department Public Security Department's Foreign Affairs Division, but there is no single agency in charge of external intelligence. Many advanced countries, such as the US Central Intelligence Agency, the UK Secret Information Countermeasures Office, and Russia's External Information Agency have established external information agencies.

From the above, I examined the establishment of an organization that gathers intelligence community information and an external information organization.

4. Chapter 3 Intelligence agency Reform
<General Intelligence Management Agency->

"The General Information Management Agency was examined as an organization that aggregates, analyzes and evaluates information from each ministry. Mobilize and operate personnel from existing information agencies. Like the Cabinet Information Research Office, it does not belong to the Cabinet Secretariat and is an organization under the direct control of the Prime Minister. Currently, information is sent to the prime minister from various ministries and agencies, but all information is collected once in this organization. It can solve

the current situation described in Chapter 2 that the intelligence community is distributed and information unification has not been realized.

<International Intelligence Agency->

The International Information Agency was examined as an organization specializing in foreign intelligence.

5. Summary

Based on the current situation and challenges of Japanese intelligence agencies, we considered what kind of information agencies are necessary in Japan. There are a lot of things to do before In the future, I would like to consider the organizational structure of each agency and conduct a simulation to consider a more practical new agency. In addition, it was found that it was more difficult than expected to obtain information on information institutions through this research. Although it is not a realistic idea, I would like to hear the opinions of people who are actually active in the field.
Also, I couldn't make a detailed comparison with overseas intelligence agencies this time, so I would like to do it in future.

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The Unique method of education in Finland

～The apparent difference between Finland and Japan～

5207　Yota　Harada

○Abstract

　　I focused on the education methods in Finland, which has made excellent grades in worldwide exams such as PISA. Then I found that there are unbelievable methods in Finland. For example, students in Finland don't have exams. Also, they don't receive school grade report until they enroll in junior high school.　I wondered why they can keep the high standard of studying. Actually, they make an attempt to encourage their ability and guts, enhance their efficiency of studying, shape positive attitude to study harder. For example, in Finland, there is no homework, and summer vacation in Finland is longer than ours by approximately one month. With this, children will not only learn the importance of playing, but also be able to work on learning with a sharp sense of study and play. In addition, the lessons are also devised, and in addition to actively adopting exchanges of opinions among students, they are also developing the will to speak and act independently. In further research on Finnish educational methods, we discovered differences in our philosophy with Japan and innovative initiatives that are not found in Japan, and examined whether there are any initiatives or systems that can be used in Japan based on this.

　Finally, I suggest that teachers in Japan should have more time to discuss the questions with students each other. Also, they should avoid arising gap between high-educated children and low-educated ones. They also need to look over the importance of long vacation and homework.

1．Purposes

　　At the beginning of the school year, I have studied educational problems and how to solve those. As a result, it was found that the educational problem was roughly divided into "Internal problem" or "External problem". The former is a serious problem such as bullying, the decrease in academic ability, and the truancy, and the latter is a problem caused not only by the institution such as the school and the educational facilities but also the environment surrounding them. We investigated the current situation of the scholastic decline of internal problems using the results of international tests such as "PISA" and "TIMSS" because it would be a major issue of the burden that could not be solved by ourselves if we proceeded with inquiry activities with an eye on external problems. As a result, it became clear that academic ability and interest in the field of science, mathematics, and mathematics in Japan decreased. These are the one seen mainly at the time of "Composure education" progress, and as a fact,

there is shocking data about the poor condition of the calculation of the elementary school child at that time, too. Then, it is a peculiar method of Finland that it met while investigating the educational situation of each country. At first glance, it seems to have even the negative effect of keeping the student's motivation down, and why is it that the method which seems to make it lazy keeps the academic ability of a high level in the world mysteriously? What is such a method? I wonder if it will not be partly incorporated in Japan. In this study, we investigated such a thing as a core.

2．Methods

I conducted research on the Internet. Information gathering was based on the basic stipulations, and compared the sites listed in section 5, I looked at the rankings of international examinations in Finland and Japan, educational characteristics, excellent points, and extremely unusual points.

From October in 2018 onwards, the main consideration Based on the information obtained so far, I analyzed the transition of international test results in both Japan and Finland, organized the educational policies of the two countries, and compared and examined the strengths of the two countries.

Additional research was also conducted and information was analyzed based on several new sites.

3．Results

3-1.Ranking of Japan, Finland in PISA

Years	Mathematical Literacy	Reading Comprehension	Scientific Literacy
2000	Japan：1st Finland：4st	Japan：8th Finland：1st	Japan：2nd Finland：3rd
2003	Japan：6st Finland：2nd	Japan：Out of Range Finland：1st	Japan：1st Finland：1st
2006	Japan：10th Finland：2nd	Japan：Out of Range Finland：2nd	Japan：5th Finland：1st
2009	Japan：9th	Japan：8th	Japan：5th

	Finland：6th	Finland：3rd	Finland：2nd
2012	Japan：7th	Japan：4th	Japan：4th
	Finland：Out of Range	Finland：6th	Finland：5th
2015	Japan：5th	Japan：8th	Japan：2nd
	Finland：Out of Range	Finland：4th	Finland：5th

3-2. Educational Characteristics of Finland

・ In Finland, as in Japan, 6 years of primary education and 3 years of secondary education are compulsory education courses. However, the school age is one year older than other countries.

・ From preschool education to higher education to ensure that all citizens receive education equally. The education fee is free. In addition, textbooks, transportation costs, and pick-up of children are free.

・ The school year begins in mid-August and lasts for about 190 days until early June. Summer vacation is also long, about 2 months. In addition, the number of classes per day and the total number of class hours are small.

・ Finland is conscious not to make a difference in academic ability. The test does not exist until the age of 16, and no notification table is provided until the 6th year of primary education. He says that children don't need high-level mathematics.

・Some teachers incorporate smartphones into their classes. Compared with Japan, Finland tend to pay attention to knitting and craft classes. In short, they believe that the skills of practical subjects—apparently don't seem to be as important as that of language or math — will be useful in society.

・Teachers spent much less time classes than other country. Per a year, the difference would rise to 600 hours. They tried to omit the amount of curriculum so as to maintain the time for profession training. They want students to acquire not abstract method but practical benefit.

3-3.The Advantages of Finland

・The school tuition is constantly free. Moreover, universities provide us with charge for traffic, meals and stationeries. On the other hand, school tuition is high. According to figure 1 below, in the competition of annual school tuition, Japan ranked third place. Needless to

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say, Japan has started free school education, but it's hard to reduce school tuition in colleges. However, in Finland, the underlying barrier that disturbs children from studying has already been broken.

・Finland adopted a small group of about 20 people per class. The purpose of this effort is to prevent children with low academic ability from being made. This has been adopted in some subjects (mathematics, and rarely English) in Japan, but it is still developing. In addition, the average number of students in one class in Japan is 28, 33 to a maximum of 40 in junior high school. This makes it difficult to give detailed guidance to each person, and it creates disadvantages such as differences in academic ability between regions. This tendency spreads every time I go on to school.

AVERAGE ANNUAL PUBLIC TUITION FEES
Fees at the bachelor level for public institutions, 2015/16

Country	Fee
United States	$8,202
Chile	$7,654
Japan	$5,229
Canada	$4,939
Australia	$4,763
South Korea	$4,578
New Zealand	$4,295
Israel	$3,095
Netherlands	$2,420
Spain	$1,830
Italy	$1,658
Portugal	$1,124

SOURCES: OECD's Education At A Glance 2017, Statista   BUSINESS INSIDER
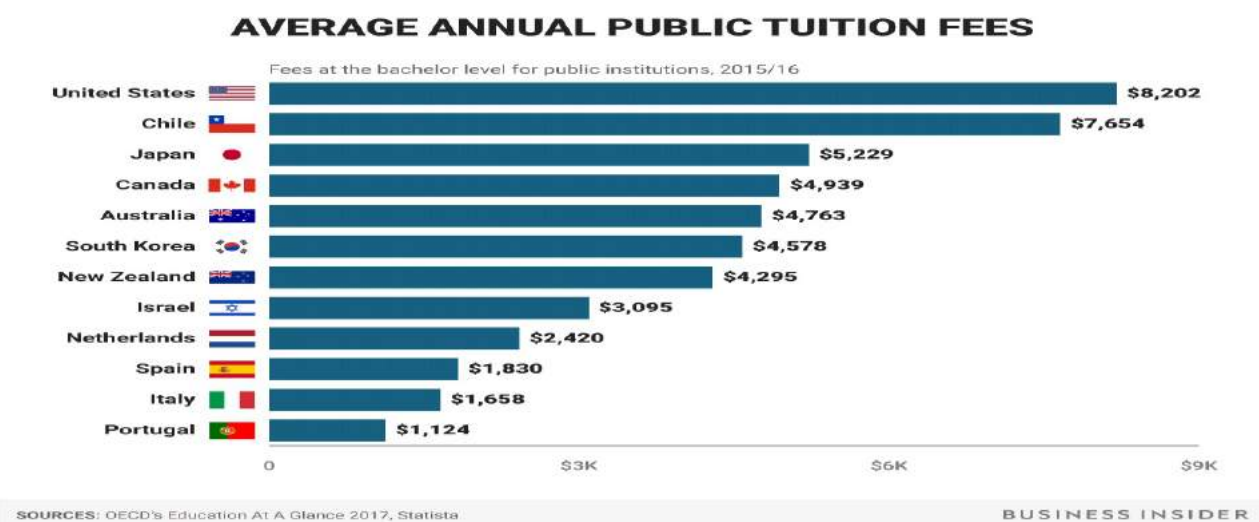
(Figure 1 : AVERAGE ANNUAL PUBLIC TUITION FEES from BUSINESS INSIDER)

・A small group of about 20 people per class is adopted. The purpose of this effort is to prevent children with low academic ability from taking a delay. This has been adopted in some subjects (mathematics, and rarely English) in Japan, but it is still developing. In addition, the average number of students in one class in Japan is 28 compared with Finland, with 33 to a maximum of 40 in junior high school. This makes it difficult to give detailed guidance to each person, and it creates disadvantages such as differences in academic ability between regions. This tendency spreads every time I go on to school.

・Finland has fewer days than Japan and many summer holidays. The difference is about 40 days. There are no cram schools or private tutors. In addition, homework, which is common in Japan, is not given, tests are not up to 16 years old, and there is no notification table at the elementary school stage. As a result, local students have the awareness that

they will rest well on their days off, and they can start studying with a new feeling and help to maintain motivation.

· In Finland, most talented people are teachers. In addition, the road to obtaining qualifications as a teacher is hard, and only those with a master's degree can be made. Therefore, the existence of a teacher is just an image of a longing for children, and when I took a questionnaire about "profession I want to be in the future", the first place was a teacher. The presence of a teacher who teaches children with studying is something that students want to be.

· By the way, in the questionnaire of the occupation that elementary school students want to be, teachers who were usually ranked about 3rd place.

· It can be interpreted that there is little awareness of the lack of knowledge, but in Finland, there is a low awareness that it is embarrassing to stay in Japan. This is based on the idea that it is more embarrassing to advance without understanding the content of the study, and it is a consciousness to learn until you understand even if you are a year old. This consciousness is symbolized by the saying in Japan that hearing is a temporary shame, not listening is a lifetime shame. In Japan, this kind of consciousness can lead to negative thoughts that move away from weak subjects. In addition, it is easy to worry about what others cannot do in Japan.

4．Conclusion

I thought about the Finnish original education method and the point that I think should be adopted in Japan.

·　Be sure to observe Japanese traditional education laws and conduct small-group education, creative learning among students, and active exchange of opinions. For example, in Japan, I would like to imitate the attitude of studying on a student basis without strict designation such as "Getting up and exchanging opinions" in Finland, in order to improve the problem-seeking spirit. As a trend that Japan has seen in the past (especially before the war), as a "relationship between teachers and students", the lecture-style classes and education formats that listen to teachers' classes that have been kept strictly, of course, I think we can keep it in Japan in the future, but the level of understanding of students remains extremely low in lectures that only teachers explain. As shown in the diagram below, "Lecture" only shows 5% of students 'understanding.
In other words, the dialogue between students should be emphasized. In recent years, there are many styles in which lessons are taught mainly by students based on the idea

that "teachers do not teach answers" and "teachers are like leaders who guide students". In other words, "Practice doing" equivalent to 75% comprehension and "Teach Others" equivalent to 90% are incorporated in the figure below. I think it would be better to use it in a way that would be beneficial for future class development.

Adapted from the NTL Institute of Applied Behavioral Science Learning Pyramid
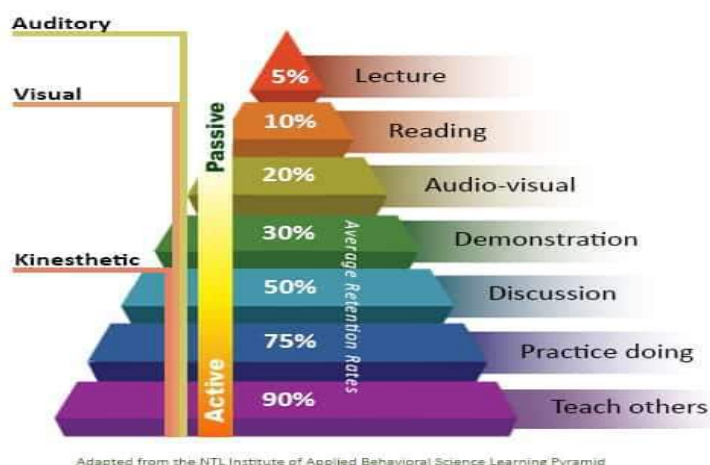
(Figure 2：Learning Pyramid from Education corner)

・I think Japan should adopt a system that pays close attention so as not to make a difference between students. For example, there are students who live on a daily basis and have unclear points or questions that arise when taking classes, but if they do not ask the teacher, the teacher can understand the actual situation at all. In addition, students may struggle because they cannot follow anything, and may lose their motivation for the subject. Therefore, the teachers should be more careful with the understanding of each person during the class, and follow up on the students who are not able to follow more actively, so that they can catch up with their understanding. Of course, teachers must evaluate their "scores" based on regular tests, etc., so it will be difficult to evaluate unless there is some difference in terms of the test, etc. It seems that it is difficult to aim for a high school as a group, and the shortcomings created by Japanese education are highlighted.

・ Review issues and long-term leave

Some Finnish educational policies are worth taking in Japan. Of course, the assignments are given by the teacher to confirm the students' ability and understanding, but it is not a matter of having more. That may mean giving students the opportunity to study independently. I also thought that it would be better to give social studies and other issues if the issues during long-term holidays seem to be hard. You may want to make it a period

that helps students learn that they can't usually experience. As I mentioned many times in the paper, the seemingly peculiar education method in Finland is the growth of children. It was a shock that helped me a lot. Japan's typical knowledge-packed and solid education has been formed over a long history in accordance with the characteristics of Japanese children. However, it will be important to follow the Finnish and reform educational methods.

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Making FIFA World Rankings more accurate

～Considering a new calculation method based on past amendments～

5208 Soshi Maki

Abstract

  The purpose of this study was to make FIFA World Rankings more accurate. The research was carried out mainly using the Internet. FIFA World Ranking have been revised four times in the past, and a new revision plan was considered with reference to them. During the period of research, the FIFA World Rankings calculation method was revised. The final draft was made with reference to the revised bill.

1 Purpose

  The Japanese national football team that made a good progress in 2018 FIFA World Cup held in June this year took the 51st place in the FIFA World Rankings. While not so high as 29th in 32 countries, he defeated many powerhouses and left the top 16. The Russian football national team, which ranked 32nd out of 32 countries in FIFA World Rankings, defeated Spain, who was a candidate for victory, and scored the best eight. In this tournament, many teams with lower FIFA World Rankings defeated higher teams. Therefore, the motivation for this research was that there were doubts about the accuracy of FIFA World Rankings due to the large number of people on the list, and that they wanted more accurate rankings.

The purpose of this study is to consider how to calculate FIFA Rankings that more accurately reflect the capabilities of each country. As a result of investigating the FIFA World Rankings, I learned that it has been revised many times in the past. I think there are good revisions and bad revisions. A conclusion is drawn with reference to these past amendments.

2 Methods

I mainly uses the Internet. Based on the information gathered, we will consider how to calculate FIFA World Rankings that reflect each country's capabilities more accurately.

3 Task and Achievement

What are FIFA World Rankings?

  FIFA World Rankings are rankings published by the International Football Federation (FIFA). Announcement began in 1993. Points are based on the results of the international A match of male A national teams in each country and region participating in FIFA. As the official name suggests, it is sponsored by Coca-Cola, the FIFA partner in the top category of FIFA official sponsors. So far, the calculation method has been changed four times.

Unlike clubs to which foreign players can belong, the national team is only a team of players of the same nationality, and further, FIFA World Rankings are calculated based on the international A match score of the male A national team. It is a "guideline" to show.

In each regional qualifier of the FIFA World Cup, preliminary qualifiers may be used to avoid competitions that have a very large difference in ability, and they are used for distribution, or qualifying for each continental championship sponsored by regional federations such as the AFC Asian Cup. It is used for grouping and group league combinations of this tournament.

Advantages of 2018 method

The following statements are based on the "Revision of the FIFA / Coca-Cola World Rankings" published on June 10, 2018 by the FIFA Council (formerly the FIFA Board of Directors). Because of the addition formula, FIFA and easy to transition smoothly from FIFA rankings until June 2018 at the 2006 system has been described. In the previous 2006 method, it was necessary to calculate the annual average points, so as mentioned above, there were representatives who kept the FIFA World Rankings high by reducing or avoiding the number of friendly matches, but in the 2018 method, There is no average point calculation, and the importance of the game to be included in the calculation formula is set higher in the official international tournament than in the friendly game (at least 1.5 to 3 times the friendly game, up to 12 times). , because it is set higher the importance of the game after the semi-finals of official international competitions, such a representative is no longer. In the 2006 method, the strength between Continental Federations was included in the calculation formula, but since that was also lost, the ranking can be raised regardless of the affiliated Continental Federation. For host countries such as the FIFA World Cup that are exempted from qualifying in the host country frame, the 2018 method has a larger point gain than the 2006 method if good results are obtained in friendly games. The Elo (Elo Rating) system is well known as a rating in the sports world, is well established, and is intuitive and easy to explain because of the addition method. The number of points earned or lost is a function of the opponent's relative strength. Therefore, the weak representative (representative with few pre-game points) wins the strong representative (representative with many pre-match points), the strong representative (representative with many pre-match points) becomes the weak representative (representative with few pre-match points) can get more points. In other words, the reward when winning a strong representative (representative with many pre-game points) opponents is greater.

Evaluation and problems of 2006 method

By entering all the matches between Europe and South American countries with strong powers into the basis of point calculation, the ranking has been matched to the subjectivity of more soccer fans than the 1999 method. On the other hand, however, for Asians who have few opportunities to play

against these countries, even if they perform slightly better in the FIFA World Cup finals, points will be offset by many other Asian matches, raising the ranking has become quite difficult. Also, in contrast to the North and Central America Caribbean region and Africa where the Continental Championship is held once every two years, Asia is held once every four years, and there are few opportunities to get high points. And the difference between the rankings of Africa and North and Central America and the Caribbean.

Moreover, while rankings are closer to the actual situation among higher countries, it is said that the index indicating the ability of the lower ranking countries is less accurate than before. In the past, points were obtained according to the difference of points and opponents even in a losing match, but in the 2006 method, every loss is evaluated as 0 points. For this reason, it is difficult to draw even in Europe, which is a powerful country, and Andorra and San Marino, who rarely play against other countries, are sinking to the bottom of the FIFA rankings. However, the two countries ranked 129th and 161st respectively in May 2006 when the 1999 system was last applied. Therefore, the rankings of these two countries have not changed much before and after this revision, and in the regions such as East Timor, American Samoa, Montserrat, etc., where Asia, Oceania, North and Central America, and the Caribbean are at the same level as both countries. There is doubt as to whether it is as powerful as the national team, which is difficult to draw even.

Also, FIFA World Cup host countries are exempt from qualifying, so they will not participate in World Cup district qualifying with a game priority of 2.5. Even if a friendly match was made instead, the rank was low because the importance of the friendly match was 1.

4 Consideration

In the FIFA World Rankings method of calculation, which was amended in 2018 Based on the above, it improves the problems of the 2006 system, more ability it can be seen that the changes to the FIFA World Rankings, as reflected. Therefore, we thought that the revision from the 2018 method is not necessary.

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Approach the mystery of FIFA rankings

Support for countryside by smart city

～Referring to foreign examples of smart city～

5209 Takeru Mogi

Abstract

Smart city`s meanings are wide. It can make our life useful. Especially, I focus on disaster and depopulation. I live in countryside so I want to improve the quality of life in Gunma. I think we cannot solve the issue of depopulation because its scale is so big. Therefore, I accept depopulation to the good way. My image of solving depopulation is to introduce smart city from foreign countries. For example, surgery for elderly people from far area, gather information. We should use them for improving depopulated area.

1. Purpose of research

I think the Japanese problem which is looked for the future with negative result is depopulation. How is it going our future? Then, I came up with an idea what solves the issue.

First, the object of research is completing depopulation but through seminar, I decided the object which is become good way.

My living area is proceeding depopulation and urban. I thought that I should ameliorate.

2. Method of research

I used Internet to study my title. From them, I consider and polish up them.

3. Task and achievement of research

I had studied about the means of complete solving depopulation.

First, smart city is improving basic infrastructure and life`s infrastructure service with advanced technology. And they make our market and society for sustainable.

<The example of foreign>

In America, there is Smart America Challenge above White House. It sets to target for smart home and environment equipment and emergency service, Health care, security and so on. Japanese government should aim at smart city like that.

As a pilot project, Sanzeno, California and intel jointly used sensors to analyze water quality, noise, and air quality. In Hawaii, Japanese NEDO (New Energy, National Institute of Advanced Industrial Science and Technology) cooperated to advance wind and solar power renewable energy.

A typical example of a European smart city is the 2009 Third EU Power Liberalization Directive. The content is to introduce smart meters as a new indicator in at least 80% of all demanding countries by 2020. Specifically, all units have been introduced in Italy and Sweden. United Kingdom, Spain, are expected to be full-scale introduction of the future in France. In London, England, by 2025, it will reduce carbon dioxide by 60 percent compared to the 1990 level. In Denmark and Spain, EV is used, especially in Denmark.

In addition, Canada and the United States have significant investments in smart cities. In Canada, a smart city challenge called Impact Canada Initiative is underway. In 11 years, the company received $ 1.5 billion investment from the private sector along with $ 300 million investment development. Enriching people's lives through innovation, data analysis and connected technology, regardless of the size of the city or community.

<Example of Japanese>

Although smart cities are developing mainly overseas, it is actually possible to give examples in Japan. Examples include Yokohama City, Kanagawa Prefecture, Keihanna Science City, Kyoto Prefecture, Toyota City, Aichi Prefecture, and Kyushu City, Fukuoka Prefecture. Toshiba's demand response encourages power savings in time zones and places where power consumption is high, thereby ensuring a stable supply of power. Air conditioners are often used during summer and winter periods when the temperature is intense. But by conserving electricity at that time, it was expected that electricity consumption would be stabilized and electricity prices would decrease. In addition, Toyota Motor Corporation of there in Toyota City, Aichi Prefecture ultra-compact electric vehicle sharing services: the operation of the "Ha mo (harmonium)", commitment to reduce the carbon dioxide emissions at the time of the single-distance movement has been performed. By this, carbon dioxide reduction in Toyota city was expected.

I have often heard about the cases and initiatives of foreign smart cities. And although I have seen them, construction for Japanese smart cities did not seem to be so important. In recent years of worry resistance and major cities caused the earthquake in the Nankai Trough, which is making noise in Japan. For example, Tokyo and significantly how to deal in the case was reduced in the future challenges functions, such as by disasters such as Osaka, Nagoya I think it will come. For this reason, we will investigate Japanese cases in detail. Then, search for areas that are strong against disasters in the suburbs of the capital, and consider and make proposals for the introduction of smart cities associated with the construction of the second city.

Although there may be foregoing the region, smart community of cases Kashiwanoha Smart City Agency for Natural Resources and Energy summary of the Ministry of Economy, Trade and Industry, Senju techno station, Tamachi Sumaenepaku, Shibaura city block smart community planning, Fujisawa Sustainable Smart Town, Sagamihara Hikarigaoka , Park Tower Nishi-Shinjuku Msport, Kashiwa Gunkan District Smart Community, Chuo University Smart Eco Campus, Dainisen Taipei Central Industrial Park, Shimabara City, Nagasaki Prefecture, Kyobashi 1-2 District Heat Supply. These are the twelve districts.

As an example, it is a composite city Kashiwanoha Smart City. Here, solar power generation, storage batteries, CGS, EMS, and private lines are used.

<My opinion about installing for Japan>

And we have to have the place which is strong for earthquake. That is because smart city`s basic point is electronic. It is fragile to be hit big impact. I think that we should introduce smart city for hard ground area. I think the area is Gunma in Japan.

The possibility of a disaster near the city is very high. For this purpose, a smart city will be created in the suburbs. For example, Gunma. However, as you can see from here, Gunma smart city is suitable for the direction of industry. To that end, I would like to advocate the construction of the second suburban city in Gunma.

I would like to summarize the reasons why I chose Gunma. First, a city is concentrated in a certain area, many natural disasters such as earthquakes occur in Japan, and the damage becomes enormous and the damage spreads throughout Japan and around the world. For example, Tokyo is the largest city in Japan, and a variety of companies and facilities are connected to it, and it sends out information and logistics to the world such as highways, railroads, and aviation. It is estimated that if Tokyo's information network is disrupted, it will cause enormous damage to Japan as it goes to the cutting edge of Japan in fashion, technology and information. Therefore, I thought that shifting the major Japanese cities to suburbs and regions was the biggest solution. Furthermore, Gunma Prefecture has few earthquakes.

It is predicted that Nankai Trough will hit east Japan. The probability of happening earthquake of magnitude 7 to 8 is about 70% in 30 years. Ibaraki, Chiba, Tokyo, Kanagawa, Yamanashi, Nagano, Gifu, Shizuoka, Aichi, Mie, Shiga, Kyoto, Osaka, Hyogo, Nara, Wakayama, Okayama, Hiroshima, Yamaguchi, Tokushima, Kagawa, Ehime, Kochi, Fukuoka, Kumamoto, Oita, Miyazaki, Kagoshima, Okinawa. These are region of being harm.
Moreover Tokyo earthquake is also expected. The percentage of happening big earthquake in Tokyo is 70%.

○ Earthquakes that occur in major active fault zones and trenches around Gunma

Prefecture

Earthquake Magnitude Earthquake occurrence probability
(Within 30 years)
[Points to note regarding the probability of earthquake occurrence]
Trench-type earthquake
Off Sanriku to Boso offshore Tohoku Pacific offshore Mw 8.4-9.0 Almost 0%
Off Sanriku and Boso
Near the trench in the tsunami earthquake around Mt 8.6-9.0 30%
(About 7% in specific sea areas)
Normal fault type around 8.2
Around Mt 8.3 4% -7%
(1% to 2% in specific sea areas)
Around 7.4 off Fukushima Prefecture
(Several earthquakes continue) About 10%
Offshore Ibaraki 6.9-7.6 70%
 Repeated plate-to-plate earthquakes 6.7 to 7.2 90%
Or more
Sagami
Trough M8 class earthquake along Sagami Trough M8 class
(M7.9 to M8.6) Almost 0% to 5%
About M7 earthquake with plate subduction About M7

(M6.7 to M7.3) About 70%

Nankai

Trough Nankai Trough earthquake M8-9 class 70% -80%

Earthquakes occurring on inland active faults

Sekiya fault about 7.5 Almost 0%

Uchinose fault, about 6.6 unknown

Katashinagawa left bank fault about 6.7 0.4% to 0.6% or more

Okubo Fault 7.0 or higher 0.6%

Ota fault about 6.9 unknown

Nagano Basin western margin fault zone

(Shinanogawa fault zone) Iiyama-Chikuma section 7.4 to 7.8 About 0%

Hidden section 6.8 About unknown

Fukaya fault zone, Ayasegawa fault

(Kanto Plain northwest margin fault zone,

Motoarakawa Fault Zone) Fukaya Fault Zone 7.9 About 0% to 0.1%

Ayasegawa Fault (Konosu-Ina section) About 7.0 Almost 0%

Ayasegawa Fault (Ina-Kawaguchi section) About 7.0 Unknown

Ogose fault 6.7 About unknown

Tachikawa fault zone around 7.4 Almost 0.5% to 2%

Itoigawa-Shizuoka Tectonic Line Fault Zone Northern (Otari-Akeshina) Section 7.7 About 0.008% -16%

Middle North (Akeshina-Lake Suwa South) Section 7.6 About 13% -30%

Middle-south (north of Lake Suwa-Shimogigi) section 7.4 About 0.8% to 8%

Southern (Hakushu-Fujimiyama) section 7.6 About 0% to 0.1% (Calculation reference date: January 1, 2018)

This is quotation. If we can avoid and buffer big earthquakes. Gunma is sufficient to endure earthquake more than other countries.

From this point of view, Gunma is strong against earthquakes. If the second suburban city is set up in Gunma, Gunma will be effective in stopping depopulation and further development can be expected. In that case, use smart city. In my plan, there are many facilities in the Tokyo metropolitan area, such as companies, governments, power, and communications. Turn that part into a smart city and move part of it to Gunma Prefecture. Prepare for possible countermeasures in case of an earthquake directly under the capital. To that end, the second branch of Gunma prefectural offices and companies, distribution of power supply media or refurbishment of equipment, migration of communication equipment, etc. can be considered. Therefore, I would like to proceed with a quick transition using smart cities.

There are other good points of Gunma. First, because it is geographically central in Japan, information can be quickly moved to various parts of Japan even if information facilities go down. Furthermore, as mentioned above, it is also strong against earthquakes. Another example is Takasaki's urban level that exceeds the prefectural capital of Maebashi.

However, there are some issues. First, there is a difference in depopulation within Gunma, and there is a way of approaching support to the area that has been focused on until now.

The solution is to access the mountainous area within Gunma from the urban area. There are approaches such as information, medical care, and buses. For example, in the

case of medical care, a video call is provided between a patient and a doctor, and a simple examination is mainly performed. For example, in the case of a cold, ask the state and prescribe medicines. The medicine prescription method can be changed to a delivery method such as a motorcycle, which can reduce the troublesomeness between the patient and the doctor. However, there are issues such as what to do when access is interrupted due to a disaster. Is there a way to make it invisible using smart cities?

In addition, the bus from the house to the supermarket is operated arbitrarily. Provide residents with media such as smartphones, and conduct systematic operations.

Then I have a big problem of my study. It is how we can avoid Nankai Trough earthquake and Tokyo earthquake. Gunma can put up with small earthquake but the damage will intensely become wide and terrible. We cannot find the solutions of reduce and fading away earthquake. Thus, I think that it is important to prepare for the disaster. How are we alarmed with it? This is my big fault of my research.

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Work Style Reform
~ Imitating Finnish system of club activity ~

5210 Miyu Irikura

Abstract

  In this research, I suggest to review the state of club activity. Recent years, in Japan, severity of club activity is pointed out. It is not only for students but also for teachers. It is a problem that students have many activity days in a week. It is a problem that teachers have many tasks in school lesson and club activity. However, Finland school do not have club activity. Finland is said that a developed country of education. I think no club activity is one of the reason why Finland have high quality of education. Japanese teachers cannot concentrate on teaching study because they have to do other work in limited time. I have an idea. It is a new state of club activity in Japan. The idea is "one teacher one place". My idea is only for teachers who feel hard to teach outside of school work. There are teachers who want to teach and there are cases that students need teachers to be strong. In these cases, teachers have to teach club activity. However, I think it is enough that only one teacher stay practice place to watch over safety for students.

1　Introduction

  I researched about "*yutori* education" at beginning but I had a question for the state of club activity, so I changed the goal of my research. I did comparative study between Japan and Finland. In this research, I suggest to review the state of club activity. Recent years, in Japan, severity of club activity is pointed out. It is not only for students, but also for teachers. It is a problem that students have many activity days in a week. It is problem that teachers have many tasks in school lesson and club activity. In fact, the guideline was announced in Gunma prefecture. Based on the above, I researched how club activity should be.

2　Discussion and implications

  Japanese government suggested that "*yutori* education system" in 1980s. This system is a new attempt that try to build up students imagine voluntary. A lot of points were changed but government announced "abolished *yutori*" in 2016 because there were some opinions that *yutori* education system made scholastic ability decline.

  Finland is said a developed country of education. However, in Finland, the number of lesson is less than in other countries. Finland school have some different points with Japanese school. One of them is about club activity. Finland school do not have club activity. Students play sports at club team in area where they live.

  Japanese teachers have to teach responsible club activity even so they have not played yet. Then they have to secure time for teach or preparation of games. Compared to this, Finland teachers do not have to secure time for outside school work, club activity. The data said Finland teachers waste less than 1 hour per week for outside school work, but Japanese teachers waste 8 hours per week for outside school work. Japanese teachers have the longest working hours. This is one of the reason that Japanese teachers are overworkers. There are problems that they cannot concentrate on teaching study because

they have to do other work in limited time.

3 Conclusion

 I have an idea. It is a new state of club activity in Japan. The idea "one teacher one place". For example, when students practice at gym, one teacher stays there, or, when students practice at ground, one teacher stays there. The teacher stays for students safety and they do not have to teach. In my school, basketball club and volleyball club practice in the same place, so I think it is enough that only one teacher stay there to watch over safety. Of course, there are teachers who want to teach and there are cases that student need teacher to be strong. In these cases, teacher have to teach club activity. My idea is only for teachers who feel hard to teach outside of school work.

 I think if school adopt my idea, overworking is improved and improve class quality, because teachers can take more time for school work. Finland school have only few lesson but their education quality is high. I think Japan can make more high quality education if review the state of teacher.

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世界で大活躍できる 13 歳からの学び　高橋一也

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朝日新聞デジタル

The Effect of "Nap Time"
~Toward the spread of introduction to companies~

5211 Miona Kihara

Abstract

In 2015, *Takahashi Matsuri* who worked as an employee of *Dentsu* passed away because of *karasumi* which is dying from overwork. Since this news flowed, the word, *karoushi* has been frequently taken up in Japan. Moreover, the word became Japanese English like *tsunami* or *sushi*. In this research, I would like to improve the GDP, enhance the work-work balance, and create an environment. The environment where it is difficult to take paid leave, which is a problem of modern Japanese society. Then, I suggest that workers should take a nap for the objective. To take a nap positively is called "power nap". By taking a power nap, it is possible to promote the establishment of knowledge and improvement of creativity. Moreover, according to "NASA Naps" written by NASA, the nap research has proven that 26minutes nap improves the performance by 34% for astronauts. Famous American companies, such as NIKE and Google, have actually adapted power nap. I consider that we may be able to solve the problem about overwork by adapting power nap for Japanese companies. However, I realized that the problem may remain because the amount of works for one person does not change fundamentally even if you can speed up for your works. As a result, I suggest to lose the problem about overwork that every Japanese should fundamentally review Japanese work style in order to keep work life balance and enjoy our life.

1. Introduction

The word, overwork was becoming popular as one of the Japanese problem since the news about that was reported. Conventionally, Japanese people are known as hard workers. However, recently, people focus on work life balance around the world, and also in Japan. According to the research by Center for Creative Leadership, How to Prevent Overwork From Killing Productivity, said that insufficient recovery can result in diminished performance. Rest provides the fuel necessary for hard work. It is important for Japanese workers who work hard to take enough rest. Then, I focus on the effect of power nap. I anticipate that they will be able to go home early if they take power nap at lunch because the work efficiency will go up by power nap.

2. Discussion and implications

The effect of power nap was advocated on a scientific basis based on the results of a study on a nap study called "NASA Naps" at NASA since 1995. Astronauts know that, sleep time in space is reduced from 30 minutes to 2 hours compared to that on the earth due to weightless stress and different day / night cycles. A good nap is essential for astronauts who are prone to sleep deprivation. The study was led by Professor David Linde of the University of Pennsylvania School of Medicine, and 91 volunteers tried 18 different sleep schedules over 10 days. As a result, a 26-minute nap for astronauts was found to improve performance by 34%. In particular, it was found that the cognitive function of working memory was improved by taking a nap. Furthermore, there are many research reports that napping has the effect of enhancing the skills and knowledge acquired in the morning. Moreover, human sleepiness is controlled by two systems. The first is homeostasis. In proportion

to the time of waking up due to homeostasis, sleep is insufficient, sleep debt accumulates, and sleeps. The second is a rhythm, semi-circadian rhythm, by a body clock of one cycle in 12 hours. Due to this rhythm, human sleep peaks from 2 am to 4 am and from 2 pm to 4 pm. In other words, even if it is not insufficient sleep, it becomes sleepy in the afternoon. In the world, people before the Industrial Revolution lived on "split sleep" in which they sleep at least twice a day. Also in Japan, around the Edo period, some areas had adopted "split sleep". Modern people are in a situation where sleep debts tend to accumulate. Loss of motivation and lowering of the boiling point of anger are also said to be affected by lack of sleep. These problems can be solved with power nap. Many celebrities also used power nap. Good examples are Napoleon, Churchill, Lincoln and Obama. Salvador Dali, also known as a surrealist painter, is said to have actively taken a nap.

3. Conclusion

After the news of Takahashi Matsuri was reported, the news of karousi or overwork was broadcasted one after another. Japanese government also try to solve the problem by such as Work Style Reform. However, now this bad situation continues. I consider that how can we do to change this situation. Then, I suggest that workers take a nap time at lunch.

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To solve the problem of refusing to go to school

～What can schools do for them?～

5212 Yuna Kojima

Abstract

Today, a number of children are absent from school. They called truant students. Truancy is a significant problem in Japan, and in other countries around the world. Truancy has been linked to serious immediate and far-reaching consequences for youth, families, and schools and communities, leading researchers, practitioners, and policy makers to try to understand and to address the problem. Although numerous and significant steps have been taken at the local, state, and national levels to reduce truancy, the rates of truancy have at best remained stable or at worst been on the rise, depending on the indicator utilized to assess truancy rates.

The main purpose of this research is to discover how to resolve the problem of truant students and why students became to refuse to go to school. The Cabinet Office states that the main cause of refusing to go to school is apathetic. Another reason is problems of human relations, emotional instability. As a refusing to go to school mechanism, it occurs when stress accumulates.

Then I suggest two point to solve this problem. The first point is to change the role of school counselor in elementary school. It means I feel school counselor is not friendly. So, we cannot consult them. Then, I thought we must change it. This system is simple. We must consult school counselors in elementary school. Then it will be natural things for all students.   The second point is checking the stress level by oneself.

1 Introduction

Recently, the number of truancy students are increasing. It is should be noted that students are refusing to go to school around the world. In Japan, about 3% of Japanese junior high school students are refusing to go to school. The main objective of this paper is to discover how to resolve truancy students and why did students become to refusing to go to school. Previous research said it is difficult for truancy students to call for help, and they cannot tell their true feeling. In addition, they also said about the method of refusing to go to school, people have a cup to control their feeling. People feel stress when their cup are filled with stress, then they tend to refusing to go to school.

I researched this study using Internet and previous research. I made a hypothesis of this research. The content is as follows
 1) Question: Why students become a truancy students?
    My hypothesis: students cannot control their feeling.
 2) Question: How do truancy student overcome?
    My hypothesis: Making a good relationship between teachers, friends and parents.

2 Discussion and implications

At first, the definition of non-attendance at school is due to some psychological / emotional / physical / social factors / backgrounds that prevent or fail to attend school. It refers to students who are not for economic reasons.

Many junior high school students are refusal from school, and about 3% of all junior

high school students are refusal.

Table 1: the number of truant students

students	The number of truant students(people)	Percentage from the whole （%）
Elementary school students	24175	0, 36
Junior high school students	95442	2, 69
High school students	55655	1, 67

The Ministry of Education, Culture, Sports, Science and Technology classified the causes of school refusal into five groups.
① Powerless type
→ They are not motivated to do anything, and they do not feel very guilty about not going to school.
② Play and delinquency
→ They play with people who seem to be bad, and skip school.
③ Human relationship type
→ School refusal caused by some kinds of problems in the relationship between friends, seniors, juniors, teachers, etc.
④ Composite type
→ If the cause is not one but some factors overlap and it cannot be said that one of them
⑤ Others
→ If you are not able to attend school for reasons other than ① ～ ④

The main causes of school refusal vary among elementary, junior high and high school students.
○ Elementary school student Attachment (attachment type)
○ Junior high school students: ego problems, identity diffusion, self-contraction, ambivalent feelings with parents
○High school students… Lack of ability to cope with life events (unexpected events) and coping ability (responding to stress)
Identical diffusion
From the above, it was found that the cause of school refusal was caused by changes in time and various feelings. In other words, stress is greatly related to school refusal. The cause is common among elementary school students, junior high school students, and high school students. Among them, the stress increases in each individual and it is possible that they will not attend school.
Therefore, the purpose of my research is to prevent school refusal by responding well to stress. From now on, stress coping will be very important for this research.
3Conclusion
From these evidence I suggest two point to solve this problem. The first point is change the role of school counselor in elementary school. It means I feel school counselor is not friendly. Therefore, we cannot consult them. Then I came up with an idea that we must change it. This system is simple. We must consult school counselor in elementary school. Then it will be natural things for all students. The second point is checking the

stress level by oneself. It means when we check our stress level by ourselves , we realize that we have stress and we consult school counselors more easily. Then, it will be good circulation.

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Temper with anorexia

～Thinking about the prevention and remedy of anorexia～

5213 Mako Kondo

Abstract

People who try to reduce their weight give up to reduce and they can keep their body moderate state. However about 90 percent of anorexia become from diet, but eventually they cannot control themselves and demand rigid idea from themselves. Now, there are five preventions of anorexia, but when I researched about them, I realized that it costs too much money to prevent anorexia. Therefore, I want to suggest the prevention of anorexia without going to hospitals. Also, I want to suggest the remedy of anorexia, too. When I studied anorexia, I realized that if we pay attention for our life habits, we stop to become anorexia. However, there is the case that people become anorexia by stress. We can decrease mentally and physically stress. Then, I suggest using color treatment. If we use color treatment, the sympathetic nerve and the parasympathetic nerve work. By using them, I think that we can prevent anorexia at home. Finally, I want to think the point of view of meals with color.

1 Introduction

The chance that I was interested in anorexia is having watched by television. Then, I had questions about the differences from reducing weight and anorexia and if we can prevent anorexia without going to hospitals. Also, I decided to begin to study it because the number of people who are adolescent women become it easily. Also, the purpose of this study is to find the way to prevent and to solve anorexia without going to the hospitals. And I will suggest the way of them.

2 Discussion and implication

 (1) About eating disorder

There are two kinds of eating disorder. They are anorexia and bulimia. Eating disorder is not only people who have span of anorexia, but also people who have span of bulimia. In case of the latter ones, they repeat span of anorexia and bulimia. Especially, there are large number of women who become anoxia and it starts by thinking like "I want to lose weight." Generally people restrict amount of meals, but people who become anorexia don't stop. Instead of reducing their weigh, they are scared for eating. Then, they continue the situation of anorexia and if the situation of anorexia continue, their bodies become lack of nourishment. Then it appears the symptom like slow pulse, low blood vessel, low temperature. If the nourishment doesn't go to the brain, the brain will atrophy and in case of women, their period will stop and also their bone will fragile. In span of anorexia and bulimia, almost people overeat. However, then people try to excrete food which they finished eating to out of their body by using laxative. Also, if other people describe how you look for example, they are said, "You are thin." they continue to try to reduce their weight because they assume them to be get fat. Moreover, if they live under the situation to continue low nourishment, they try to start to calculate the calorie and weigh their weight because they only consider their weight and meal. Eventually if people try to excrete food which people finished eating by overeating, they have the different symptom. For example, changing their inside of mouth, canker sore, obstacle to function of heart, declining power of concentration.

(2) About anorexia

The Ministry of Health, Labor and Welfare said that there are 20 thousands of the number of patients. The main common point of becoming anorexia is large number of adolescence women. The cause of becoming anorexia is different for each other, but the causes of large number of anorexia patients are stress and reducing their weight. There are not only bad points but also good points. This is examples.

	Good points	Bad points
Their condition	If they have problems, but they don't consider it serious.	They tend to be annoyed and don't work their brain. They cannot communicate with others. They regard other people enemy
Attitude of around people (from their view points)	Around people become kinder than before.	

(3) The remedy to care of anorexia

There are five main remedies. There is physical treatment, behavior treatment, recognitive behavior and family treatment, and psychological treatment. In case of Physical treatment, people who care of them take care of their high calories, so, people have to do infusion and transfusion. In case of behavior treatment, people teach for them a right way to reduce their weight. A recognitive treatment is to modify how to think of twist of extreme recognition. Family treatment is to adjust the role of family relation. A psychologist treatment is to support to develop themselves.

(4) Suggestion

My plan of this study is to suggest the prevention and the solution how to care of anorexia. It is important to keep your right routine life not to become anorexia, and to become the state of hunger. These solutions are best ways. If you keep regular hour, you become the state of hunger. There are examples.

・Exercising:　After your body become hot you have the state of hunger.

・Taking a bath for long time:　Your body become hot and you have the state of hunger.

・Sleeping enough

・Using your brain:　Your body use a lot of energy and you have the state of hunger.

・Watching the video of food

・Talking with your family and friends

The ideas of first to third are the things which many people always do, so I consider that they are few resistances. Then, the important thing is to keep regular hours. People can do forth idea easily because we can be affect by only reading books and talking with people. However, fifth idea is difficult to get good outcome. If you do sixth idea,

you can make the place that you can talk your trouble to your around people, also your around people notice your condition. Then, I suggest the way to keep your right routine life.

・Exercise at the place which there is a lot of colors which bring hunger

・Sleep and take a bath for appropriate time

・Communicate with your around people

Also, in conclusion to adopt color treatment, there are suggestions. Now, Japan doesn't adopt color treatment, but the U.S. adopts it. The reason why I pay attention to is that I knew that colors work for sympathetic nerve and parasympathetic nerve. If I use them, I will be able to cure for anorexia. The sympathetic nerve works by warm colors, so if I use them, their body will become activity state and they have a motivation to exercise. The parasympathetic works by cold colors, so if I use them, their body will become rest state and they have a motivation to rest. And I consider how we use colors. Then, I think this idea is good.

Proper exercise and appetite stimulation by using colors	⟹	Provide light stress	⟹	Increase quantity little by little
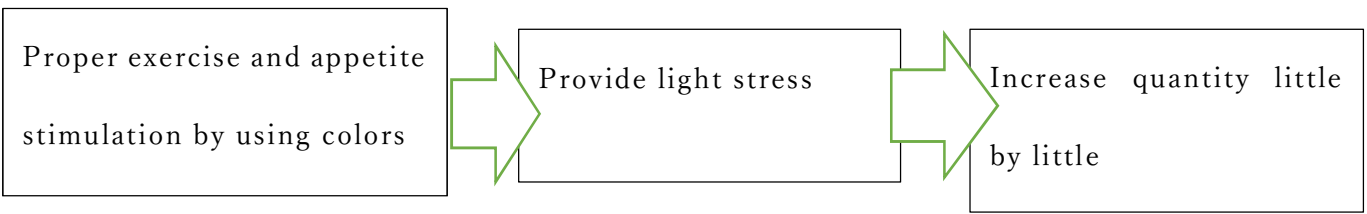
In case of not only reducing symptom, but also connecting overeating, they have to do measure by using colors which makes them losing appetite and exercising.
Then, I pointed out incorporate color into meals. Look at these pictures.

Many people think that they want to eat right salad. It is because there are warm colors like red and orange. The important thing is that you should incorporate warm color into meals if you have to eat. And look at this graph. This is the overcome of poll which eggs people think delicious by the internet site, color therapy.

Gender	Weak yellow scrambled eggs	Deep yellow scrambled eggs
Boys	8people	199people
Girls	5people	47people
Overall	13people	166people
proportion	7%	93%

According to this, many people want to eat salad which has deeper colors. Contrary to this result, if you incorporate cold color into meals, you lose appetite. Look at this picture. This is rice which is mixed blue food coloring. Therefore, color is related to appetite. So, it is span which patients reject to eat, you should incorporate warm color into meal. However, it is span which patients eat too much, you should incorporate cold color into meal. Then, let's see the state of human's body when people watch warm colors. This is flow.

watch color	• example of warm color ↓ • red, orange,yellow,green,white,black
react to energy	• example of change • blood pressure,pulse,respiratory rate
effect	• promote to consume energy • reduce energy
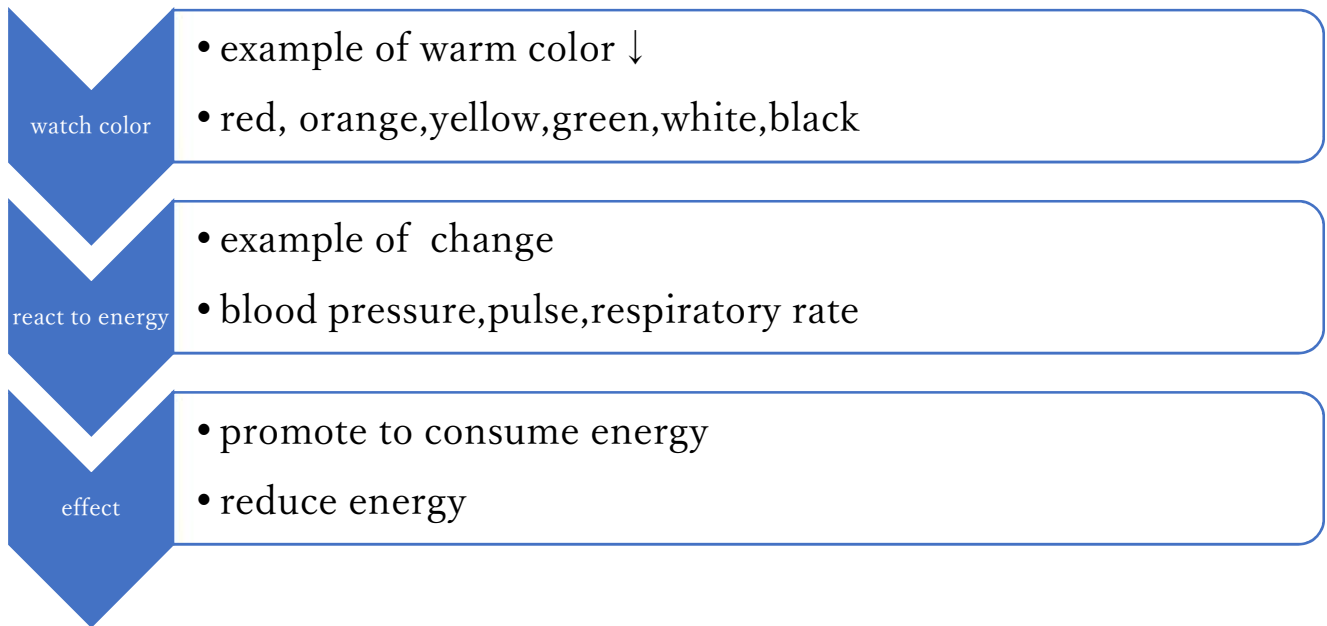
However, it is difference from feature of each racial. This is the example.

racial	feature	Favorite color
Japanese people	Can react to delicate color because of having black eyes	Nature's color
American people	Can't react to delicate color because of having eyes of weak color	Exciting color

So, we have to change the way of using color. From them, I thought that in case of people who have black eyes, we should have meal, including weak warm colors. Contrary to like these people, in case of people who have eyes of weak color, we should have meal, including deep colors.

(5) Examination

I thought that by paying attention to lifestyle habits, I could spend less time thinking about meal, making it harder to become anorexia. Also, I thought that it would be possible to incorporate color into meal. When it comes to treatment from the dietary side, there are many caution that not only the around people but also the patients themselves have to be careful. For example, it is necessary not to place around the patients such as instant foods and sweets that can be eaten immediately by the around people, but the patients themselves repeat overeating and anorexia, so they can control themselves well and　be limited it. Moreover, if doctor incorporate my idea into remedy, it will help patients of anorexia.

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Reducing food waste in convenience stores in Japan

～Focused on produced food waste～

5214   Yuka Sato

Abstract

These days, there are many convenience stores in Japan. However, it is a bad problem that they produce much food waste. According to Ministry of Agriculture, Forestry and Fisheries, Japan makes far more food waste than other countries. Thus, this paper reviews the attempt of garbage problems in the world and this study provides suggestion with to suppress the occurrence of food waste of convenience stores in Japan. The reason Japan produces much food waste is that there is the one-third rule which divide best-before date into three and sell only first division because of safety management. Besides, convenience stores in Japan want us to enjoy selecting goods so they make and install seasonal merchandise. Therefore I decided to suggest to use food waste well. Finally, I suggest that they install the biogas machine, a power generator from natural organisms, per a convenience store in Japan because we can generate electricity and fertilizer from food waste with this machine. Also, we can use this machine easier than other power generators. It has already used in Indonesia positively. However, the four seasons are clearly defined in Japan and we can use this machine in spring and fall so we have to put compost box, a jar which can save food waste made in during summer and winter. Moreover, checking convenience stores' website, I can't find the concrete number of food waste from their stores so convenience stores in japan should show the number of them. This ideas will need financial help from Japanese government.

1 Introduction

Convenience stores are worth existing in Japan because people today in Japan are in double-income family or live alone. However, it stands out that they produce much food waste. According to Ministry of Agriculture, Forestry and Fisheries' statistics, they generate 6,460,000 tons food waste in Japan per a year. According to World Food Programme, this number is twice as much as the number of food aid. Also, convenience stores produce about 836 tons per year. Then I provide the suggestion to suppress the occurrence of food waste of convenience stores in Japan.

There are few papers about food waste in convenience stores, but according to convenience stores' website, they try to reduce the number of food waste from introducing the point-earning system. We can say the same things as I mentioned when we focus on the world.

I search Google[https://www.google.co.jp] for keywords "food waste" "food loss." I examine the food waste in Japan and the world, the reason Japan produces much food waste, and the effort to reduce them. Then, I consider how to solve this problem.

2 Discussion and implications

First, I researched the number of food waste in Japan. According to websites of famous convenience stores in Japan, there is no information about the number of food waste. Then, I found out the number of food waste according to the Ministry of the Environment, but this data is in 2013, which is a little old. We can realize that all convenience stores provide about 70 kilograms per a day, but we cannot find what kind of grocery will be thrown away. So, I asked Seven-eleven, Lawson, and Family Mart to tell me the information of the number of food waste on November, 2018 but all of them didn't reveal it because it is the secret information for them.

The Number of Food Waste in Convenience Stores in Japan

(one store per a day)
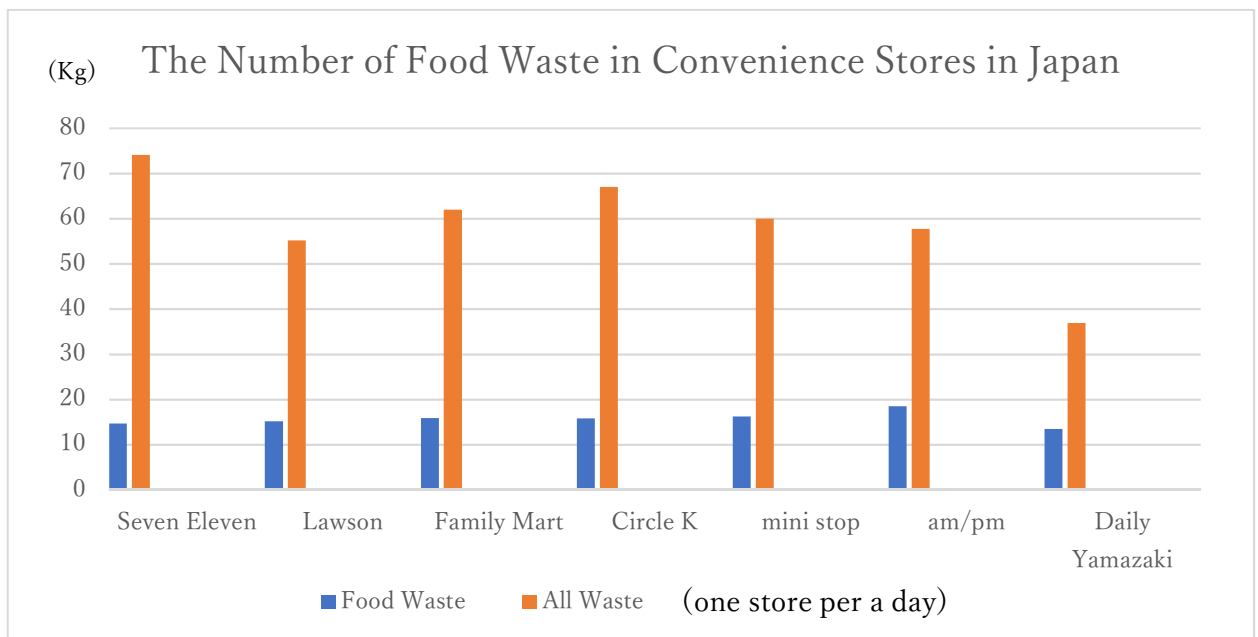
Second, I researched the reason they produce much food waste. According to the Japan Organic Resources Society, there are two reasons. One is that seasonable merchandise and standard goods will be food waste when they are changed in retail stores. The other is that they purchase more food than the amount of goal of sales in order to avoid loss of chances of selling before it would be sold out. Convenience stores want us to enjoy choosing products even if people who go to convenience stores at night, so they put as many products as they can at showcase so as to make the showcase looks good. According to Bulletin Online, this is because there are one-third rules, a custom of convenience stores. They device the time from the date of manufacture to expiration date into three and they sell products only first division. If they can't sell during the first division, they waste food even if we can eat during the second and third division. This is because they don't want to take responsibility of safety management.

To sum up, we cannot stop producing food waste in order to observe the policy on convenience stores and in order not to be made a complaint about the safety management. Then, I try to consider the way to use food waste well.

Third, I researched Corporate Social Responsibility (CSR) of convenience stores. According to websites of famous convenience stores in Japan, they focus on food recycle, and they bring food waste to their factories to make compost or

fertilizer. I think it is a great idea, but the transporting energy is futile, so I focus on compact system which can make compost or fertilizer.

Forth, I researched an effort not to increase food waste in other countries. In France, there is a low which regulates producing food waste for the first time in the world. In the United States, USDA provides the application which tells to the present circumstance of food waste and the way to reduce them in our houses.

In Indonesia, there are small-scale biogas balloon bio-digester. When I visited Indonesia in August, 2019, houses and facilities which are interested in environmental problems incorporated biogas machines without wasting organisms. Biogas system is the way to turn generator with biogas, which are occurred from organisms. We usually out biogas machines per a house or a facility. Biogas machines can make electricity and fertilizer from organisms. We reduce cost of wasting food waste and producing electricity. Also we can make fertilizer which can supplement the nutrition. According to ACCESS Inc., biogas system is worth moving because they are high safety and power generation efficiency is good. Moreover, they do not burn fuels, which is organisms, so they do not produce CO_2. Furthermore, in Indonesia, since it is a simple device as shown in the figure below, installation and maintenance costs are not incurred. The power generation method is simply to dissolve the fuel to be enough with water, put it in the device and seal it. The fuel from which biogas is produced can be used as fertilizer.

3 Conclusion

I suggest two ways to reduce the occurrence of food waste. I suggest to install the biogas system, a power generator from natural organisms, per a convenience store in Japan because we can generate electricity and fertilizer from food waste with this system. Also, we can use this system easier than other power generators. It is used in Indonesia positively. Moreover, we can cut the cost of carrying and wasting food waste and generating electricity. I compared between the situation when convenience stores burn all food waste and the situation when convenience stores use all food waste to biogas system. If convenience stores sell electricity made from biogas system, convenience stores can get about 7.5 million yen per year. Also, they can reduce 130t-CO2 pear year. In addition, biogas system can make fertilizer, so convenience stores may be able to do a business with fertilizer. It is a new market. However, there is one season in Indonesia, but there are four seasons in Japan, so they should put compost box to accumulate food waste in winter because biogas system can be used in temperature from 20 to 55 degrees. Also, this system is not famous in Japan, so we have to make biogas system well known.

836 t×150 N m^3/t×1.9 kWh/N m^3= 238,260kWh

238,260(1-0.2)kWh×39yen/kWh=7,433,712≒7.5 million yen/year

238,260kWh×-0.00055t-CO2/kWh=-131.013≒－130 t-CO2/year

Where,
150Nm^3   is gas yield
1.9kWh/Nm^3   is gas power generation

0.2   is captive consumption of electric power
39yen/Nm^3   is electric power selling price
0.00055t-CO2/year   is carbon dioxide emission factor

Second, I suggest that convenience stores should make the information of food waste public. Checking convenience stores' website, I cannot find the concrete number of food waste from their stores, and I asked three convenience stores seven-eleven, Lawson and Mini stop, to tell me what kind of food waste would become food waste and the number in November in 2018, but they didn`t tell me that. So convenience stores in japan should release them. This ideas will need financial help from Japanese government.

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Tring to work out a peaceful solution to international disputes

～making use of International Court of Justice(ICJ)～

5215 Kokoro Shimizu

Abstract

1　Introduction

　Although people experienced world war two times, we cannot achieve world peace. Especially, conflict happens in some countries. There are many way to solve conflicts because situation are all different between each conflict. In many solutions, this paper examines international court of justice (ICJ). It is a public institution, and judgement which are sentenced there are legally valid. The purpose of this study is to find the best way to make use of international court of justice.

　I use literatures, internet, preceding studies to research information. I went to the Takasaki center library and multimedia library of this school. I consult books for information about international court of justice. I search information for Internet especially official web sites of United Nations and the Ministry of Foreign Affairs. Also there are many preceding studies about ions and the Ministry of Foreign Affairs. Also there are many preceding studies about conflict and solving conflict. I want to try compare such information and select right information.

2　Discussion and implications

　In general, conflict is a clash of public interests and legal aspect because of disagreement about legal and facts between two parties (Mavrommatis Concessions Cases). Therefore not only international laws, but also consideration of politics, ethics and rules are made use of for solving international conflict. However international laws have legal weight, so it can take legal action against conduct which violate international laws

　Before the beginning of 20th century, it was recognized to claim rights of the countries by doing the wars when conflicts could not solved with peaceful solutions, because the use of military forces were not violations of international laws. For example, retaliation, military intervention, and wars. However the Charter of the United Nations prohibited from doing use of military forces in 1945. It required all of the signatory nations to solve conflicts with peaceful solutions, and countries can choose ways freely. For example, negotiation, mediation, arbitration, and trial. As I explained, the peaceful settlement of international conflicts and the principle of use of force are formed, work as standards of international laws.

　There are about two types of solution in international court of justice. One is court procedure. The other is non-court procedure. This paper review that trial propose deeply. It is a way to work out to solution for countries. Countries use international court of justice to do trial. Only countries use it, so for example, citizen and private enterprises cannot use it. However, agreement is necessary for both countries which participate in trial to use this system. There is two ways of agreement. One is to make agreement after breaking out conflict. The other is to make engagements to submit cases for international court of justice before happing conflicts. Countries include agreement as provision, so when conflicts happen which matches with provision, they use international court of justice. Also countries which are admitted to use it can make trial.

　However ICJ has some problems. First, even though the number of using ICJ is increasing recently, the number of being used ICJ is not increasing. It is important to make use of ICJ to solve international conflicts because ICJ is judicial branch of United Nations, so it is need for development of international laws. The judgement in ICJ have big meaning to interpret

international laws more deeply. Second, as I mentioned before, countries have to submit mediation before starting trail, so it takes long time before start it. Third, it is difficult to agree with each countries to start trial when they do international conflict. For these reasons, I could say that United Nations cannot make use of ICJ so much now. However it important to make use it.

  Therefore I suggest two solutions for it. First, it is encouraging countries to make engagements to submit cases for international court of justice before happing conflicts. If countries make mediations before conflicts, it will be more easy and faster to do trail than now, so more countries will use ICJ to solve conflicts. However, I think if United Nations encourage it, few countries will agree with this because it has a little risk to make disadvantage for countries. When countries agree with it, and the trail start after it, but countries cannot anticipate whether the judgement is good for the countries or not, so some countries are afraid of doing trail in ICJ. For such reasons, this solution will be able to make a few advantage to increase the number of doing trials, but it is necessary thing. Second, to appeal the advantage of ICJ that is useful to make people`s attention for some problems. When countries start doing trail in ICJ about international disputes, some media, such as newspaper, TV, radio will broadcast about that problem. After that, more people will be able to catch about the information about it. It is necessary and important for us to know about the international disputes problems and present situation in there, and to become be interested in it because there are many problems in the world which can be solved if there are enough funding for it. Therefore I strongly believe that to appeal the importance of ICJ to the countries is effective way.

3. Conclusion

  I suggest two solutions for it. First, it is encouraging countries to make engagements to submit cases for international court of justice before happing conflicts. If countries make mediations before conflicts, it will be more easy and faster to do trail than now, so more countries will use ICJ to solve conflicts. Second, to appeal the advantage to of ICJ that is useful to make people`s attention. When countries start doing trail in ICJ about international disputes, some media, such as newspaper, TV, radio will broadcast about that problem. After that, more people will be able to catch about the information about it. It is necessary and important for us to know about the international disputes problems and present situation in there, and to become be interested in it because there are many problems in the world which can be solved if there are enough funding for it. Therefore I strongly believe that to appeal the importance of ICJ to the countries is effective way.

For better special support education system

～To meet a variety of needs～

5216 Hikaru Shimoda

1, Abstract

I invested and considered the ideal way of the special support system for children who have development-disability. The disability has difficulty to diagnosis. Development-disability means the condition that the developing of brain function is affected by some kind of causes. We can cover the insufficient part of learning and acting of those children by a system called "taking special classroom for learning " （通級指導教室　in Japanese).　However, there are some bad points the burden to transfer. So we have to refer these demerits by the system called "special support classroom"(特別支援教室　in Japanese). In that system, professional teachers walk around in the classroom and instruct children. We can reduce a demerit of "taking special classrooms for learning", and the other teachers are able to take care of more children (I include the children who do not use "taking special classrooms for learning"). In addition, we should aim at the improvement of Japanese special support education system in reference to the overseas welfare systems such as "the inclusive policy". Therefore it is necessary to acquire the qualification that the whole teacher can be engaged in special support. It may be said that it is connected in realizing variety in the world to associate with the child with various characteristics.

2, Introduction

It is said that a child having developmentally disabled possibilities exist in the ratio of 6-7 of 100 exists by the survey of Japan. This proportion is quite small, therefore the topic is hard to become the object of interest. Recently, in Japan, the support activity for physically -disability people is getting popular and elementally school students learn about barrier-free systems. However, I feel that people in society are not interested in development disability people. According to opinions of parents who have development disability children, many of them are often worried whether they should let their children register at the support class or should put them in common class because doctors cannot diagnose development-disabilities clearly. The parents cannot accept the fact that their children have disabilities and make those children receive the common education which is not suited to them. In that case, the person with an obstacle is given heartless words to by a normal child and is often hurt. I want to resolve those problems of special support system and fulfill the needs of development-disability children and their parents by making new education system and school environment that all children can learn together. I refer to the example of foreign countries. I chose children who have development-disability in normal school (including children who are in special needs class) as the target of this study.

3, The present situation of development-disability children
Section 1: what is the development-disability? (from literature 4-8)

The development-disability has various kinds, but a point that some functions of the brain are defective by nature is common. It is not rare that the same person has several types of development-disabilities. That is why even the people with the same obstacle may not seem to be similar at all, and the point that individual has a very big differences. It is considered to be a characteristic, not a disease.

The development-disabilities are classified in some types, and autistic spectrum disorder (deflection,

feelings of an obstacle and the interest of reciprocal personal relationships), Asperger's syndrome, Attention-deficit hyperactivity disorder (no balance with age many motion-related impulsivity), learning disability, a stammering symptom are included. When approximately 1-2 of 100 people exist recently, the person of autistic spectrum disorder is reported. Now, in Japan, there are many people who was not able to find their disabilities when they are children. Through living as member of society, they find the difference of sensibility between other people and pile up the stress. Most of those people may feel the painfulness of living every day.

Section 2: Japanese present special support education system and its problem (literature 4-8)

The support education is defined as "appropriate instruction and a necessary thing supporting especially to stand in the viewpoint to support an independent action for the independence of the impaired infant child student and the social participation, and to grasp educational needs of infant child student each one, and to improve difficulty in high, life and the learning or to overcome the power to be able to have" by Ministry of Education, Culture, Sports, Science and Technology.

By the past education for the disabled, they paid attention to a kind and the degree of the obstacle of the child student, and the educational correspondence led by the child who received a postponement of the attendance at school or an exemption has been taken by a particularly severe obstacle. As a result, the number of the students who cannot enter school decreases because Ministry of Education, Culture, Sports, Science and Technology pushed forward institutionalization of the setting of the authority of class for the disabled shop grade (later description) for the child with development-disability.

These years, the number of child students registered at a support school and the class for the disabled and the numbers of the child student using special classrooms for learning are increasing especially. According to "the fact-finding about a child student needing special educational support to be registered at the normal class that Ministry of Education, Culture, Sports, Science and Technology carried out in 2002 of the whole countries," it is said that child students needing the support that is special at a place of education and the life may be usually registered at the class in the ratio of approximately 6% by a developmental disability. We cannot diagnose the developmental disability easily, so we have to detect the disability early and establish better support system with professionals. Standing on the same viewpoint of children (regardless the kind and degree of disabilities) and checking each child polygon are important to cope with their needs and difficulty of learning. In addition, the fact that the number of students who have difficulties to learn and act in normal classrooms of elementary school and junior high school is 6.3%. The coping to a development disability people that it had not been coped with enough until now was recognized as "the urgent and important problem" The contents of "inclusive policy" is "to educate you to all children with or without an obstacle equally, and to cope with individual needs besides". It is taken in Japan. Problems include upbringing of the talented person with high specialty or the review of the education system about education of physically and mentally disabled children.

Section 3: the special support systems of foreign countries

(Special support education system of Italy) "Full inclusive policy" is taken in Italy. They post a support teacher in the whole child student in the ratio of uniformity. It is said that the support teacher takes responsibility for the whole placed class. However, the development disability children does not usually learn all school hours in a class. In addition, the existing sense system special school exists before law revision, but the reverse unification that the normal child accepts is performed. There is the same grade custody.

Section 4: "taking special classrooms for learning" and its issue

I explain a system that is called "taking special classrooms for learning" which mentioned above. While students with a relatively light obstacle are usually registered at the class not a special support school and a special support class, "taking special classrooms for learning" is a system to receive the support of each subject in another room. The target obstacle class is a speech impediment, autism, emotional disturbance, amblyopia, hearing loss, an LD (learning disability), ADHD (pervasive developmental disorder), and limbs inconvenience. There is the family choosing instruction by "taking special classrooms for learning" especially because a protector is easy to feel resistance in being registered at the support class.

The merit of going to "special classrooms for learning" has the following things.

1, small number of people system

2, the students can receive support education in 1-2 a week while being usually registered at the class

3, the students can receive education in consideration for the characteristic of the child

4, the children who cannot go to school because of several reasons can use easily.

The demerit of going to it has the following things.

1, because they cannot usually take normal classes in the classes while they take a class of "special classroom for learning", learning is late

2, when a school registered at does not have "special classrooms foe learning", they will go to other schools or other facilities, and burdens increase

3, it is insufficient with around 1-2 a week authorities of grade

In late years the burdens to suffer from not only them but also the teacher without enough acceptance on "special classrooms for learning" increase because children of "a light developmental disability" attract attention.

In addition, the burden on parent and child may grow big when they move a place and must receive a class because there are many children who do "the change of the place" if it is hard as for such impaired children. After thinking, and checking how I should solve these demerits, I found what's called "special support classroom" of Tokyo.

Section 5: What is "special support classroom" of Tokyo? (literature 4-④)

They establish the special classroom supporting in all elementary schools and a teacher goes around it and does instruction. The patrol instructor goes to each elementary school from a base school and, after the consultation with the being on the register roll teacher in charge of the class, carries out instruction depending on the state of the obstacle of the child. A patrol instructor and the child move a being on the register roll class (common class) of the campus and the special support classroom. The patrol instructor observes a state of the whole classroom as well as a child receiving instruction in a common class. A member of support classroom specialty or a clinical development psychology person support it especially. It is based on the way of thinking of "the inclusive policy" that I commented on earlier.

Merit to perform a support support classrooms includes the following thing especially.

1, support comes to be received more children by carrying out the instruction by the authority of grade instruction class to this in all elementary schools (burdens of the movement decrease)

2, through individual guidance and the groupuscule instruction in the being on the register roll school, extension of scholastic ability and the ability of the child for group adaptation in the being on the register roll class is planned

3, the cooperation with a being on the registered roll teacher in charge of the class and the patrol instructor becomes close, and the improvement of instruction contents is measured

4, the opportunities when the staff of a school and a protector know the contents of the instruction increase, and understanding is planned

5, we can instruct the child with the tendency of the obstacle that does not use a support classroom especially

6, those children take a class in a class same as a normal child, and it is with a good opportunity that a child understands variety and accepts development-disability children

"Independence instruction" and "the supplement instruction of the subject" to perform depending on the state of the obstacle for a child needing the instruction that we can participate, and is almost special partly for the learning in the normal class for the developmental disabilities that the instruction to perform in particular in a support classroom is registered at the normal class.

An example of the instruction includes following thing.

The child of high-functioning autism, Asperger's syndrome cannot plan communication well and has a characteristic that it is difficult to stand in the situation of the partner, and to think. As instruction, we perform that we think about the feeling of the character of the appropriate special training and story that can talk by role playing.

It is difficult for the child of the attention-deficit hyperactivity disorder (ADHD) to continue concentrating attention, and there is an action such as leaving the seat during class. Therefore I reduce necessary information and it allows you to pay attention to a necessary thing from some information and teaches it and hears the story of the person in turn and performs instruction to allow you to act according to a rule.

3, Consideration and proposal

Development-disability children who is hard to arrive of the distinction are apt to be usually registered at the class whether they have a defect. There are some reasons of that. First, the parents resist to put their own children into the special support classrooms. Second, they cannot accept development-disabilities of their children. Third, they compare their children with others. And, we can change the types of class from normal class to special support classroom easily, but we cannot do the reversing of it easily. It will be one of the reasons that the understanding for neighboring obstacles does not advance. Thus, I spread the way of thinking of "the inclusive policy" and think that you should adopt education system such as a special support lesson carried out in Tokyo in a school education course. Development-disability children can in this way receive learning instruction and nursing in accord with the characteristic of the obstacle. In addition, we have to make the way of thinking to be liable to answer needs widely available, and we should take it in because I seem that Japan is behind with a way of thinking and the present conditions about the support in particular in comparison with foreign countries so that tidy education is received. We may realize variety in the world by touching them since the children with various characteristics were young. I consider the problem to spread and carry out "the special support classrooms" and I find the lack of fund and luck of teachers as the problems. As the proposal to resolve the lack of teachers, I came up with an idea. To increase the number of teachers is too difficult for japan to do, so all teachers should acquire the qualification or skills that they can engaged in special support education system.

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Classes on homosexuality in school education
～Creating a society that respects "love"～

5217 Natsumi Shiraishi

Abstract

Recently, we are having more and more opportunities to hear the word "LGBT". It means that a lot of people started to be interested in LGBT and have their own idea about it. But everyone is not altogether positive. Even now, there are countries which homosexuality become the cause of the death penalty in the world. According to the domestic research, bullying and discriminatory remarks at school and one's place of work are said the big problem in society. I thought that the major cause of the present situation is the prejudice of modern people comes from their stereotype. Then I decided to suggest a plan to make time which students think about variety of love at moral education class from elementary school. In recent Japan, there are few children who can't get an education at elementary school, so I think this idea is effective. Through the research, I realized that the world won't change without teachers' and guardians' understandings since they have a big influence for children. My future task is to think a plan for adults to get educated.

1 Introduction

Recently, the opportunities to hear the word "LGBT" are increasing. Especially, we often　heard about a topic of homosexuality. Though there are the pros and cons in the world, I extremely wonder why it's so controversial. What's wrong with loving someone? Is there a big difference between loving a boy and loving a girl? Is this really the society what the fair would suppose to form?

I want to suggest a new school education to make a society which everyone can love freely, in other words, a generous society which can accept everything about loving someone, including not to love anyone.

2 Discussion and implication
The present situation in the world

According to the article of NATIONAL GEOGRAPHIC on June 22, 2016, there are still several countries which homosexual acts are illegality. Especially, Sudan, Iran, Saudi Arabia and Yemen impose the death penalty on same-sex sexual activity. In addition to these four countries, there are countries that impose the death penalty in some areas.

According to a survey of the world's sexual orientation laws conducted by International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA), as of 2016, it was found that 73 countries, 37% of UN member states, stipulate that same-sex sexual activity is illegal. Through the fact that there were 92 countries which stipulate that same-sex sexual activity is illegal in 2006, it seems that understanding of homosexuality is progressing globally, but more than 70 countries are still unacceptable of it.

On the other hand, according to EMA Japan, an NPO corporation, as of January 16, 2018, the countries or regions that guarantee the rights of same-sex couples, such as same-sex marriages and registered partnerships, reach approximately 20% of countries or regions around the world.

Consideration

We are in such a situation but I can't see the movement of "getting rid of the prejudice" around me. There may be such a movement which I don't know, but in fact, I hear prejudiced remarks in my everyday life. It means that many people are starting to get interested in sexual minority, but not everyone has a positive idea. The more this topic spread, the more positive and negative opinions appear.

In the negative opinion, there is a notion that "approving homosexual marriage will cause declining birthrate advance". But I think it's quite rare that homosexual people get married with heterosexuals and have a child just because homosexual marriage isn't allowed. Recently, there are couples don't give birth to children. Compared to the past, the number of children who were born in one family has decreased considerably. It is the result of various thoughts and factors for example economic power, for giving a quality education to one person, and late childbearing. In brief, homosexuality is not the only cause of the declining birthrate. If government really wants to stop the declining birthrate, it may be a heartless way of thinking, but the best way to do it is "the citizens marry a partner determined by the government and give birth to a determined number of children". However, it is wrong, and isn't it because the individual's will in marriage is respected? Isn't it because that feelings of love are guaranteed by constitution as right to the pursuit of happiness and freedom of expression?

And also, there is a thought of "Homosexual people will be satisfied if gay marriage is admitted." Certainly, some people can be happy if gay marriage is recognized. However, just improving the social system has no meaning. Probably, they are unlikely to live as freely as male and female couples. "Strange eyes" may remain in society. I don't know if their parents will agree with marriage in the first place. Does it make sense to get married in such a situation? Even if they didn't marriage, they might feel difficulties in their lives. That's why, it is necessary that many people have right understandings.

3 Conclusion

With a full understanding of the actual conditions, I suggest that "school teacher" teach about "variety of love" at "moral education class" from "elementary school".

When I was an elementary student, I heard the word "my crush" in the conversation with my friends. Probably, it was closer to the meaning of "love" than "like". Though schoolchildren are immature about their life, there is a concept of "love" in their mind. I think that their stereotypes that it is natural that boys love girls and girls love boys are having been made since that time or before then. I want people to know what both "loving the opposite sex" and "loving the same sex" are right earlier not to let them have these stereotypes.

Now, the lecture about "homosexuality" hold at school but I think that teaching about "homosexuality" emphasize the minority of homosexuality. In addition, it prevents new discrimination due to the misconception that only gays are being treated.

The most important part of this suggestion is school teachers. Teachers are very close to students in everyday life. If teachers are prejudiced, they will not have a safe life for their students. Therefore, each teacher, especially the homeroom teacher, must have the correct knowledge.

This suggestion has two future tasks. First, I only suggested the plan for children but through the research, I realized that the world won't change without teachers' and guardians' understandings. So I will make a plan for adults. Second, it is necessary for society to draw the line between sexual orientation and sexual preference.

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<div align="center">Welcome to Japan

～Aiming for Japan's economic recovery～</div>

<div align="right">5218 Sunaga Himari</div>

Outline of research

In this study, we examined the Japanese economy and foreign tourists in detail. Among them, foreign tourists also have different types of needs, and it was found that there are customers who want what they value in their own country in Japan and those who want Japanese culture and uniqueness. The above grounds are shown because some countries cannot easily eat Japanese food due to their religion, while others like Japanese culture and prefer Japanese traditional places. In addition, it was found that the government is implementing solutions such as distributing mobile LAN at airports due to lack of wireless LAN as an environmental problem in Japan. Furthermore, when investigating what is necessary for foreign tourists to live in Japan, which is their original theme, we investigated the reasons why foreign residents started living in Japan. However, when I looked into it, there were various reasons such as overtime in Japan, international marriage, and job transferm. However, it turned out that the problem of foreign workers has given rise to major problems for both the Japanese economy and foreign migrants. And when I studied from a new point of view that there was no problem for the Japanese people who were the people, it was found that Japan hated foreign cultures and races by having walked through the independent culture of the island country. I understood. From there, there was also a problem with the internal circumstances of the Japanese people, so the issue of studying them in detail remained.

Research motivation

In the last year's synthesis, I studied the theme of Japan's economic policy and improvement of the Japanese economy as a search for Japan, and became interested in the economy. I also learned that the presence of "foreigners" would greatly change the future of the Japanese economy in the course of my research. Therefore, I thought that it would be possible to develop the Japanese economy by attracting foreigners.

Purpose of research

In the Japanese economy today, the economic effects of visiting foreign tourists are tremendous and tend to rise year by year. However, as a problem, foreign tourists felt that it would have a direct economic effect in a short period of

time. Therefore, to develop the Japanese economy into a long-term, stable economy, I felt that it was important to place emphasis on "migrating" foreign tourists and living in Japan. Therefore, the final goal of this study is to find out what is necessary to make foreign tourists migrants by facing the problems that Japan should solve now.

Research method

  Based on previous research on the Cool Japan (＊) policy conducted on the theme of "Search for Japan" the previous year.

 He also deepens research content mainly from newspaper articles and university papers on the Internet. Also refer to data from newspapers and the Economic and Tourism Agency. Clarify the citation source. (＊) Cool Japan policy: In addition to the traditional culture of Japan, new Japanese culture is disseminated to foreign countries. Furthermore, it is a government policy aimed at increasing the number of foreign tourists and improving inbound tourism. As a result of this policy, the number of foreign tourists increased from FY2000 to 20 million in FY2015.

Research content
〈The research progressed from three viewpoints.〉
1) Needs for foreign tourists visiting Japan by country
2) Causes of foreigners migrating to Japan and problems by factor
3) About Japanese understanding of different cultures
Finally, I will conclude that Japan will need it in the future.
1) First, grasp the purpose of travel of foreigners visiting Japan and study what foreigners are looking for in Japan. Therefore, we used data centered on the Asian region, which is increasing as a tourist.
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Korea：Interest in Japanese culture such as deep regions and one coin gourmet
America：Interested in Japanese historical culture such as "castle"
China：Shopping, wellness tourism, snow leisure and seafood meals are popular
India：Fruit is very popular. There seems to be a need for fruit picking
Germany：Interest in art is high and "Museums" are ranked in. Shrines, temples and cherry blossoms are also popular
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By country, I thought that what I cherish in my country is divided into a country that I cherish in Japan and a country I am interested in Japanese culture.

In India, where food is restricted by religion, fruits and fruit buffets that can be eaten with confidence are gaining popularity, so measures such as bringing them together with fruit producers can be considered. Consumption of goods is the key to China, as there is the "explosive purchase" that has been said in recent years. However, it was found that South Korea has a tendency to purchase things that Japanese people use daily and are relatively inexpensive, rather than "exploding". In summary, it was found that the needs of foreigners are "interested in Japanese culture and seeking an environment where they can live in the same way as their own country". In addition, according to an article that surveyed the most troubled foreigners during sightseeing:

It was put together.

	旅行中困ったこと(MA)	旅行中最も困ったこと(SA)
無料公衆無線LAN環境	46.6%	30.2%
SIMカードの入手、利用手続	11.9%	5.0%
ATMの利用	12.1%	4.2%
両替	10.2%	1.8%
クレジット/デビットカード利用	10.8%	2.6%
多言語表示(観光案内版等)	20.2%	4.7%
多言語地図、パンフレットの入手場所が少ない	18.8%	3.1%
多言語で表示されている内容がわかりにくい	12.2%	2.0%
施設等のスタッフとコミュニケーションがとれない(英語が通じない等)	35.7%	21.1%
空港から目的地への交通アクセス手段	11.5%	2.0%
公共交通の利用方法(乗換方法を含む)	14.8%	4.9%
公共交通の乗り場情報(鉄道駅、バス)	10.8%	1.7%
目的地までの公共交通の経路情報の入手	13.0%	2.4%
割引チケット、企画乗車券の情報の入手	14.9%	2.1%
割引チケット、企画乗車券の利用(利用出来る範囲、入手方法)	9.9%	1.5%
飲食店、宿泊施設の情報の入手	8.0%	1.2%
飲食店、宿泊施設の予約	7.5%	1.3%
観光地におけるツアー、旅行商品の少なさ	3.5%	0.2%
観光案内所の場所がわかりにくい	7.3%	0.8%
外国語の通じる病院情報の入手	5.1%	1.1%
その他	6.5%	5.9%

Among the many choices, the "free public wireless LAN environment" was overwhelming. It turned out that the inability to use the Internet in Japan was inconvenient for many foreign tourists. However, in 2017, one year after this survey was conducted, an app called "Wamazing" started a service to distribute free SIM cards at Kansai International Airport. I understood that it was responding.

2) Next, I investigated the opportunity for foreigners to move to Japan. Because it was classified into some in that, it summarized based on the contents of the interview. In addition, the advantages and disadvantages of Japan and the social problems of Japan will be listed.

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① Because I like Japanese culture

"Shogi loves video games and wanted to live in Japan."

(Greece / 33 years old / Male)

"When I was a kid, I was a big fan of Japanese anime, so I vowed myself to go when I became an adult." (France / 35 years old / Male)

"I came to Japan 8 years ago and I liked anime. I want to live in Japan all the time. Tokyo is the safest big city in the world. Food is also delicious compared to Russia." (Russia / 31 years old / Woman)

"I was interested in Japanese culture and language and wanted to experience Japanese life. I think it is a safer, cleaner, better place to live than in the UK" (UK / 31 / Female)

Merit

・ Send Japanese culture (to SNS and other friends)

・ It becomes a box office income source

Demerit

・ Migration based on cultural interests only → Can we adapt to modern Japan?

・ Can you speak Japanese?

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① From studying abroad to living

"I was already used to life in Japan when I realized that I had studied abroad in Japan. Compared to Malaysia, Japan is more convenient." (Malaysia / 31 years old / Female)

"I decided to live in Japan because of studying abroad. What I thought was better than Iran in Japan was safety and convenience" (Iran / 28 years old / female)

"Study abroad was the trigger. There are so many differences from Korea that I cannot write all, but there are both long and short" (Korea / 34 years old / Male)

"I came to Japan for study. The things that made me happy about living in Japan were safety, convenience stores, high accuracy, and convenient public transportation." (Ukraine / 25 years old / male)

"I wanted to study abroad, so I made Japanese because I could speak Japanese" (Vietnam / 36 years old / Male)

"Since Japan has advanced cancer research, I studied abroad in Japan. I am very happy to be able to study cancer in the excellent environment of Japan" (Syria / 35 years old / Male)

Merit

· Has lived in Japan once and has adaptive ability

· It will be the leader of the profession in Japan

· You can see Japan from both overseas and Japanese perspectives

Demerit

· Illegal residue

· Foreign workers

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② At home

"I started living in Japan after getting married" (Hong Kong / 34 years old / Female)

"Because I got married. Japan has four distinct seasons and it is fun with various events and attractions." (Taiwan / 30 years old / female)

"I got married to a Japanese." (Mongolia / 39 years old / female)

"I came to Japan with my parent's transfer" (Bulgaria / 33 years old / Female)

Merit

· Family → Long-term migration guaranteed from single person

Demerit

· Children's curriculum

· I have not moved on my own intention → Is it adapted to Japanese life?

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③ For work

"I came to Japan for work and lived there. Japan is safe and people are friendly" (Czech / 58 years old / male)

"I came to Japan for work. I am in Japan to continue my work" (Philippines / 35 years old / Female)

Merit

· Establish a company in Japan → Contribute to economic growth

· Send Japan to the world (if there are branches all over the world)

Demerit

· Highly educated → Take away Japanese jobs

· Long-term migration is not guaranteed

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④ Because it is a country where you can live

"Japan is safe and Japanese have good manners" (Indonesia / 36 years old / Male)

"Japan is a country where people can live and have good security. A country with a good business environment and no racism."
(Egypt / age 27 / male)

"There is little to think in Japan and you can live your own way" (China / 28 years old / Male)

Merit
・ It will tell you what to do when Japan is a livable country.
・ Easy to live = adapted to Japan
Demerit
・ A strong sense of trust in the Japanese = possibility of meeting crimes and fraud

After study (2), I found that there are various reasons why people can move to Japan. And I found out that there were many cases where I continued to move from there. Regarding the questionnaire, there were many opinions from people from Europe that moved to Japan with interest. I was impressed by the relative opinions of people from Asian countries who were migrating because of study abroad or work. In addition, among the problems that occur when foreigners migrate to Japan, various problems caused by the inability to speak Japanese and foreign labor. Problem. I was also wondering if foreign children were adequate for education. I thought that the problem related to the Japanese economy was the problem of foreign workers. Therefore, the conclusion of this study (2) is to narrow down and deepen the content of foreign labor issues.

3) Lastly, research 3 will be carried out on the theme of foreign migrants as seen from the Japanese side. As for my own experience, there is a Japanese language school on the way to school. There are various foreigners in the vicinity. Talking in foreign languages that are not Japanese and seeing foreigners with unusual clothes and large tattoos often gives rise to a feeling of fear. Also, when you see a restaurant entertaining or a convenience store cashier at a foreigner speaking a single language in a foreigner, you will feel uncomfortable. For this reason, Japanese people tend to avoid foreigners as temporary. Although the

emphasis was placed on the problem of foreign migrants, I would like to study from a new point of view whether there are any problems for Japanese citizens.

The words "foreigner dislike" and "foreign discrimination" came out in the research, so I examined them in detail.

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Background of disgusting foreigners: In Japan, 98.5% of the population is Japanese, so it is claimed that "the majority of the people are single ethnic nations composed of Japanese people" and more than 99% of residents is native Japanese. Such social uniformity is the background of the dislike of foreigners in Japan.

In addition, since the secession continued for about 260 years in the Edo period, there was very little experience of engaging with foreigners or different ethnic groups. (From the Japan Tourism Agency website)

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In this way, it turns out that Japan has hated foreign cultures and races by walking through the island country's independent culture.

There were also Japanese characteristics that foreigners were wondering about. The most popular opinions are summarized below.

① I am not confident in my country and myself

② High importance of work

③ Measure things with a Japanese ruler

④ Dislike being different from others with a focus on collaboration

⑤ Don't show your feelings

⑥ I only care about people who have a lot of bitches

In this way, it was found that the Japanese people are beautiful, and the personality of the Japanese people is not yet developed from the globally advanced country. It was also found that the historical background of Japan is building the character of the current Japanese, and that there are challenges for the Japanese to adapt to globalization.

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5219 Aino Takahashi

Introduction

  On September 28, 2018, a lecture was given by Hitoshi Hokamura who former President of Evernote Japan and Hitoshi Tanaka who is the CEO of JINS company. I was surprised and curious that UBER and *amazon go* were introduced in the talk about the difference between the world and Japan in the business and the future, and that I had realized a system that I had never imagined. On the other hand, I felt that Japan was a little behind the world in that field such as smart city because I had never heard of those things. Knowing that smart city has being promoted all over the world, I thought that the development of cashless and EC sites, which are now attracting attention, will greatly develop the Japanese economy. I wanted to study the smart city from economic perspective which I chose in some field such as traffic or environment. In recent years, the world is changing rapidly, and smart cities play a major role in enriching people's lives. If a smart city is promoted in various aspects, it will be a convenient environment not only for Japan but also for foreigners. The concept of smart city was vague before, but it was defined clearly by the Vienna Technical University. It was the "smart city model". They were classified into six categories: Smart Living, Smart Energy, Smart Economy, Smart Learning, Smart Mobility, Smart Governance .I will consider smart city based on the cashless system by using that definition as a reference. The introduction of Cashless system is expected to improve the convenience of life. I think it will contribute to the resolution of goals 7 and 17 of the international objectives of SDGs. Those international goals were adopted at the United Nations Summit in September 2015 and described in the "2030 Agenda for Sustainable Development". The main purpose of my study are to find out the problems that come out while realizing these merits and promote of cashless payments in Japan. Then I want to propose a solution. Therefore, the last goal is to consider about how the proposal can be accepted by people and what problems can be realized during implementing it. Also, I have to think what I can do now.

Methods

  The world population is 7.3 billion now. It is expected that a number of world population will reach 9.5 billion in 2050. There is concern that energy consumption will explode. In addition, the smart city began owing to the development of technology which can create imagination cities that we could not imagine like fantagic world.   The trial of making smart city in terms of to develop energy and transportation efficiently and operate social infrastructure has been spreading worldwide since around 2010. In Japan, the idea of energy supply has changed dramatically due to the Great East Japan Earthquake. It create a sustainable society.

72 欧州
165 中国
87 北米
5 中東
11 インド
24 日本
2 アフリカ
30 東南アジア・太平州
4 南米

(作成：日経BP社)
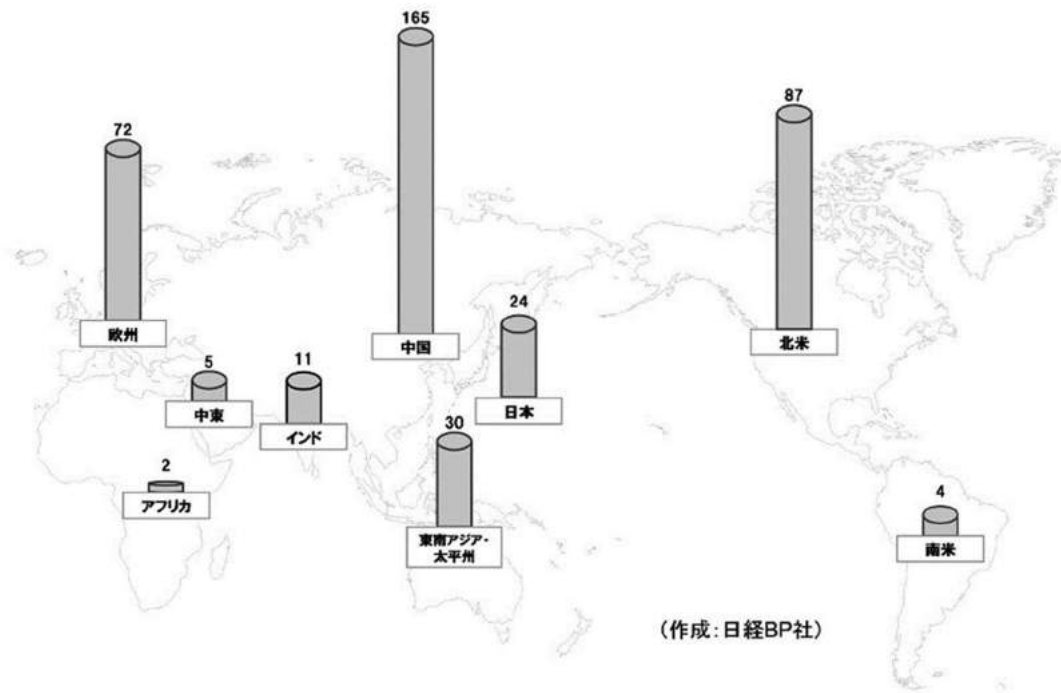
(Source: "World Smart City Directory 2012", Nikkei BP Cleantech Institute)

This is the global distribution of smart city projects. Although it is a little old document, according to the Japan economic newspaper, developed countries became 163 countries mainly in the United States. Emerging countries are becoming smart cities increasingly. Regardless of whether it is an emerging or developed country, each country is paying attention to smart cities because they see it as a powerful means to solve many problems associated with population growth, aging and urbanization.

Result

According to Hakuhodo Life Research Institute, the current situation in Japan, People's response to the question whether cashless system is good or bad is as following. The number of people who are agree to that system is 48.6%, on the other hand the number of people who disagree to it is 51.4%.
However, the woman remains it is better to be in about 40% whereas a man exists approximately 60%.
In addition, as a reason to oppose a cashless society, many women raised concerns about overuse such as "we are likely to waste our money" and "The sense of money is likely to be paralyzed".

キャッシュレス社会に「賛成」の理由　※自由回答を集計したトップ5、%は賛成した人ベースで算出

賛成の理由	全体	男性	女性	男-女	理由の具体例
1位 現金を持たなくてよいから	14.7	14.9	14.3	0.6	・現金を持ちたくない。不潔だし、財布も重くなる（女性53歳・東京都） ・現金の出し入れで次の方を待たせる場合も多いので、持ち歩かない方が便利（女性63歳・茨城県）
2位 利便性が高いから	10.7	12.2	8.7	3.5	・口座から現金をおろしたり、送金に手間がかかるより、利便性が上がりそう（男性54歳・東京都） ・キャッシュレスは便利。でも、お金を手にしないのは少し淋しい気もする（女性54歳・青森県）
3位 お得だから	6.9	5.5	8.7	-3.2	・クレジットは使うだけでポイントが貯まるし、現金のように手数料を取られず、お得（女性38歳・長野県） ・ポイントが溜まり、銀行の利息よりよい（男性45歳・和歌山県）
4位 やりとりがスムーズだから	6.3	5.5	7.3	-1.8	・通販もクレジットカードがあれば、振込や代引の手間もなくなる（女性30歳・愛知県） ・レジの待ちの時間が減りそう（男性64歳・熊本県）
5位 管理しやすいから	5.5	4.6	6.7	-2.1	・いつ何にお金を使ったかが、インターネットやアプリで管理できれば楽だから（男性39歳・宮城県） ・使用履歴が電子化され、閲覧や見直しができる（女性51歳・大阪府）

キャッシュレス社会に「反対」の理由　※自由回答を集計したトップ5、%は反対した人ベースで算出

反対の理由	全体	男性	女性	男-女	理由の具体例
1位 浪費しそうだから	10.9	7.9	13.3	-5.4	・使った感覚がない売買は湧水の如く金を使いそうで怖い（女性35歳・埼玉県） ・支払いの実感がなくなると、ためらいなく借金や浪費をする人が増えそう（男性26歳・京都府）
2位 お金の感覚が麻痺しそうだから	10.1	5.4	13.8	-8.4	・考えなしに買ってしまいそう。現金は減るのを実感でき、考えて買い物ができる（女性60歳・静岡県） ・いくら使ったかがわかりづらい。支払い可能限度から逸脱する可能性がある（男性34歳・東京都）
3位 お金のありがたみがなくなりそうだから	7.9	5.7	9.6	-3.9	・お金を稼ぐありがたみがわからなくなりそう（女性36歳・宮城県） ・お金の価値が軽いものに変わってきてしまいそう（男性37歳・香川県）
4位 現金は必要だから	6.0	8.6	3.9	4.7	・システムがダウンして混乱を招く事態になった時、やはり現金はあった方がよい（女性52歳・東京都） ・電脳世界の通貨は何らかの障害や天災が発生した際、使い物にならない（男性42歳・大阪府）
5位 犯罪が多発しそうだから	5.7	9.5	2.7	6.8	・暗証番号や個人情報が流出して、犯罪が起きる可能性がある（男性27歳・東京都） ・システムの脆弱性などで不正が行われる心配もある（女性66歳・東京都）

(%)　(pt)

博報堂生活総合研究所「お金に関する生活者意識調査（2017年11月）」

(source) Hakuhodo Institute of Life and Living Results of "Survey on Consumer Awareness Regarding Money"

カテゴリ別のカード利用＆カード払い成功率
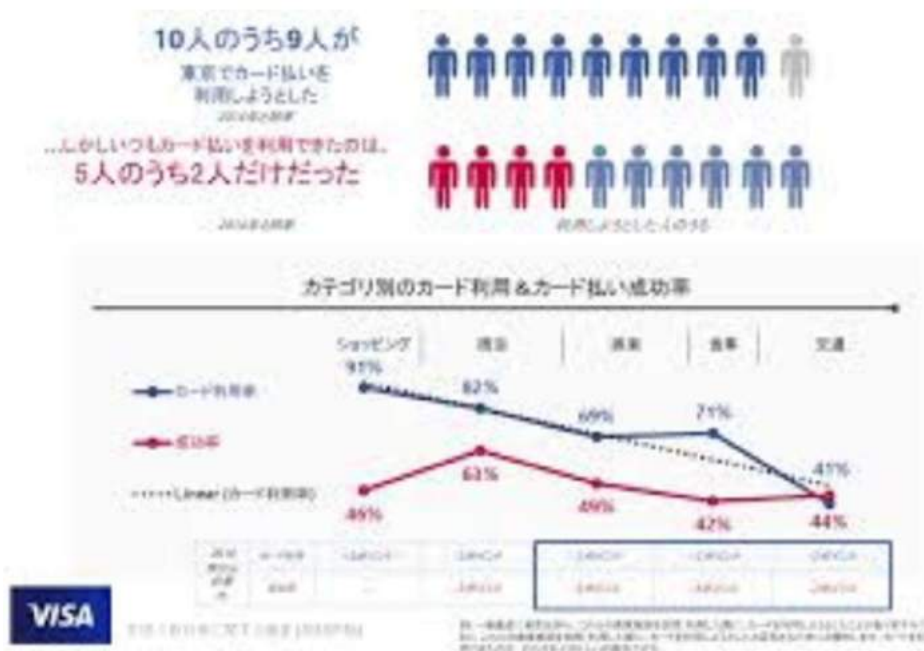
(source) Visa commissioned survey: BLACKBOX "Survey on Foreign Travelers"

This graph shows that interest in cashless system is low. Also, over 60% of retail stores ryokan businesses and so on, support credit cards in real stores, while the restaurants where we use frequently are about 30%. In this survey, it is considered that the reason why it is difficult to find out the merits of introducing credit cards in industries with relatively low transaction unit prices, such as the restaurant industry, is considered as the background of the low response rate.
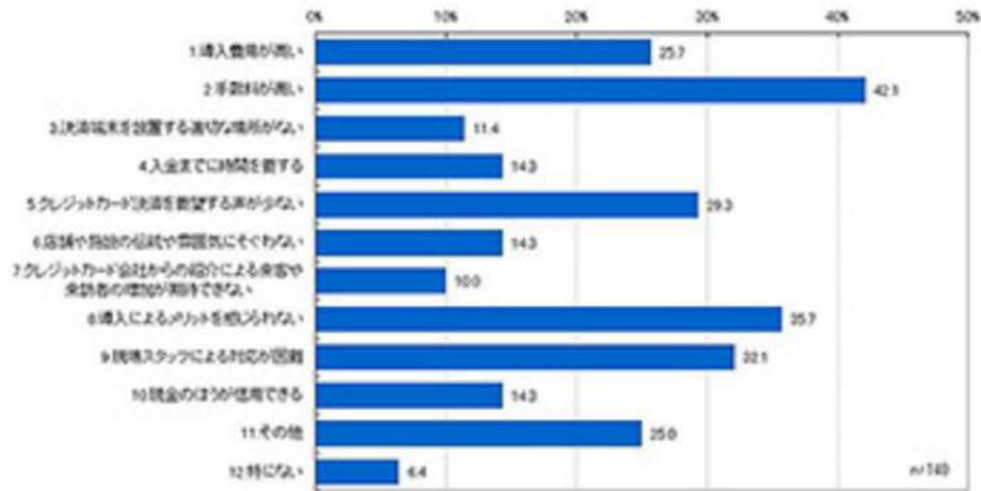
It is thought that there is a background that cashless is difficult to spread from the viewpoints of "introduction, "operation maintenance", and "funding" related to cashless payment. Furthermore, according to a 2016 survey conducted by the Ministry of Economy, Trade and Industry on the prevalence of cashless payments at tourist sites, the non-credit card-compatible stores pointed the high commission of using cashless. It is the main reason. And then, there are another reason like "not feeling the merit to introduce" or "the difficult of implementation by the located staff".   The investigation said that it is possible being a barrier to spread of cashless due to lack of introduction of incentives at actual stores and knowledge on cashless payments. The spreading of the system is getting large.
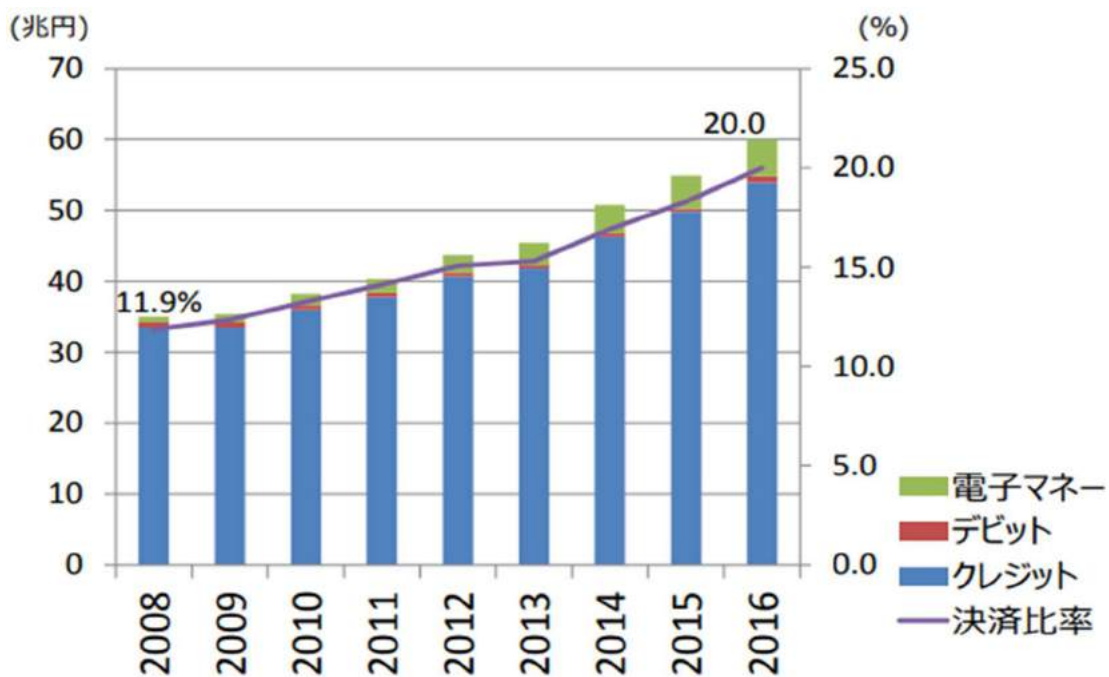
The global cashless ratio is as follows : South Korea has extremely high percentage , and cashlessness is spreading in various regions. Whereas, it can be seen from Figure 2 that cash currency is rooted in various regions. The card holding ratios by type in each country are as follows.

【図表９】各国の種類別カード保有枚数＜2015 年＞

(枚／人)

凡例：
- □電子マネー
- ■デビットカード
- ■クレジットカード

横軸（国）：シンガポール、日本、韓国、米国、中国、ドイツ、オーストラリア、カナダ、香港、英国、オランダ、ブラジル、スイス、トルコ、スウェーデン、ロシア、イタリア、フランス、メキシコ、ベルギー、サウジアラビア、インド
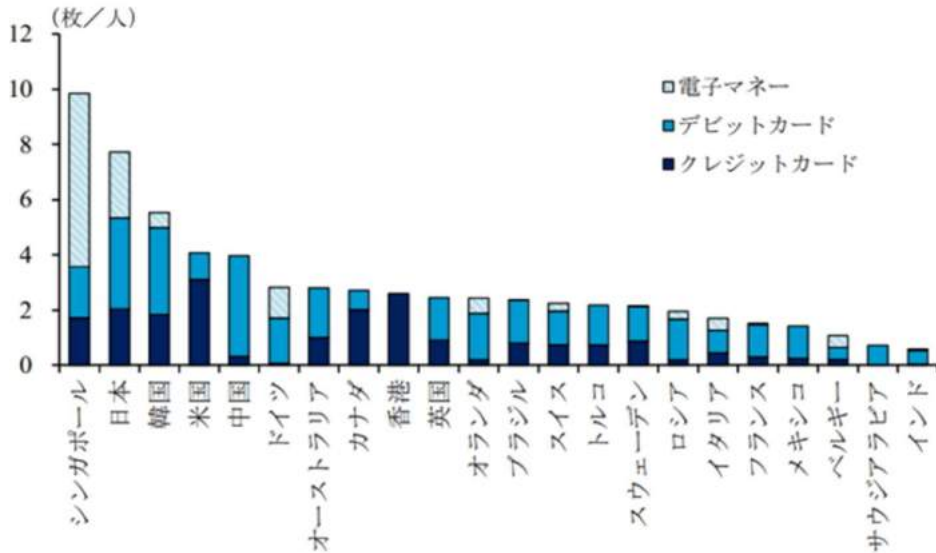
(注)1. 一枚のカードで複数の機能が利用可能な場合、重複して計上されているほか、国・地域によっては入手出来ていない一部カードの計数が欠損している。
2. 2015 年計数が存在しない場合、2014 年計数を使用。
3. デビットカードには、ディレイドデビットカードを含む。

出典：BIS「Statistics on payment, clearing and settlement systems in the CPMI countries - Figures for 2015」

We can say that electronic money is becoming popular. For e-commerce sites, Alipay was launched in December 2004 as a payment service with an escrow 18 function to deal with consumer concerns about online shopping at Taobao One, an online mall operated by Alibaba. The number of users reached 520 million at the end of 2017, and the company aims to grow into a platform that will be used by 2 billion people worldwide in the next 10 years. Alipay is evolving its offering from an electronic wallet, which simply pays, to a necessity for daily life through the provided apps. Users of the Alipay app can make taxi and hotel reservations, purchase movie tickets, pay utility bills, and purchase asset management products directly from that app.

決済アプリから生活アプリへ

様々な機能を持つAlipayのアプリは
中国の生活に欠かせないスーパーアプリになっています

金融サービス

ソーシャルツール

生活サービス

2007万を超える提携店の情報

（Source）Ant Financial Company
Review meeting presentation materials
（fifth）

アント フィナンシャルのエコシステム

プロダクト＆サービス

インフラ

（Source）Ant Financial Company Review meeting presentation materials（fifth）

In the future, Japan is facing an era of a declining birthrate and aging population and a declining workforce, and improving national productivity. That is Urgent challenges. Promoting cashless will lead to higher tax revenues due to unmanned labor saving at actual stores, easing labor shortages, visualization of opaque cash assets, liquidity improvement, and deterrence of opaque cash circulation for cash crimes such as robbery. At the same time, it is expected that there will be various benefits that will contribute to strengthening national power, such as significant added value of the payment business, improvement of convenience of consumption by utilizing payment data, activation of consumption, inbound and overseas expansion. While cashless is expected to improve not only the economic effect but also the convenience of life, excessive changes will place a burden on residents, impact on existing work, reduce the number of places for communication, and reduce cashless stores. I anticipated that responding to people with disabilities would be an issue.

【図表 11】携帯電話・スマートフォンの支払・決済機能を利用しない理由

(%)　　　日本　　　　　　　　米国　　　　　　　　ドイツ
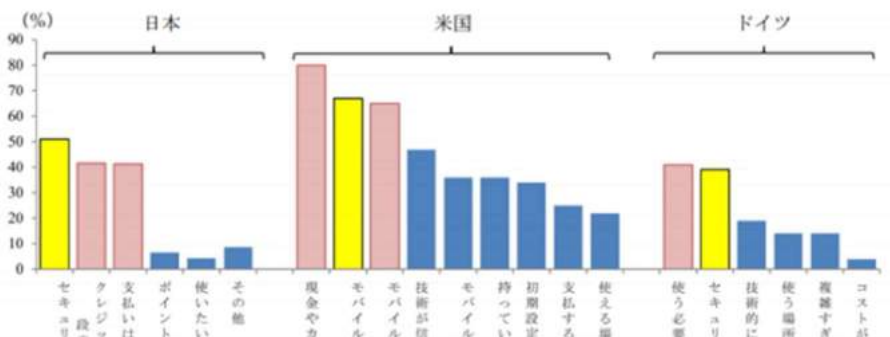
Conclusion

  The government has taken seriously relatively recently, but from various sources, I feel that the reason why cashless in Japan is difficult to progress is because Japanese people have a low awareness of problems. I thought it was necessary to make people feel cashless closer. However, cashless has possibility to make more self-bankrupt and multiple debtors. In fact, Korea, which has a high cashless rate, has many such people. I thought that this was one of the problems to get them closer. In Japan, education curriculum are conducted to prevent self-bankruptcy, but at the same time, many people have a bad impression that they are scared without cash, and many people do not resist card payment etc. I thought. I judged that this led to a low awareness of the problem as a reality. Therefore, I thought that if I became familiar with cashless from a young age, my resistance to not bhaving cash would be lessened. The concreat idea is to live on cards in schools (mostly high schools). When spending money in schools such as cafeterias and juices, it is only possible to use pre-charged card payments which charged in regular opportunities. The ability to manage small things such as cards and the ability to manage money can be developed, and at the same time, it is possible to adjust to the situation with no cash. There are two major issues in achieving this. The first is funding. It is difficult to calculate how much money it will take to introduce equipment, but it is thought that a great deal of money is needed, It needs the support from prefectures and countries. Also, it will take a long time before it is virtually introduced. Then, although it would still take some time for the national public high schools to be introduced, I judged that it would be better to start with introducing them to private high schools because private high schools have more money which can use freely than public schools have. The second is the side of approval. In order to gain the understanding of students, parents and teachers, it is necessary to clarify and promote the legitimacy, safety and usefulness of the introduction. To sum up, I think it would be better ask government to help about founds assistance such as the Ministry of Education support the project of "SGH". In order to do so, we have to find the merit of the introduction, which the government can help and also have to get approval of various people. First, though it is an experiment one at a private high school, it will not be meaningless because cashless will progress in the future. To make the effective in private high school become a new objective. Also, I thought that something which we can be used in everyday like suica is good, so I will make aggressive cashless payments at convenience stores, fast food restaurants, and family restaurants. Those are a little advanced now I think is good. Then, what I want to pay attention to is "Amazon go", a completely cashless store developed by Amazon company. It is expected that this will lead to a reduction in the time saved in urban areas and a shortage of personnel in rural areas. This is only a proposal, and it is expected that various issues will still arise in realizing it, so I would like to consider what issues may arise during the development process, and how they can be dealt with in Japan, taking into account the differences between countries with referencing to overseas (for

example, whether it is a monopoly of one company or how it evolved or whether there is any legal about cashless). Moreover I need to I also need to consider whether there is a law on electronic money in Japan and how to respond in case of disaster.

	キャッシュレス比率（※）			同期間におけるキャッシュレス化進展の施策例
	2007	2016	07年→16年	
韓国	61.8%	96.4%	+34.6%	✓ 非現金決済利用時の消費者向け税還付制度の拡充（還付率や対象の拡大） ✓ 小規模加盟店向け加盟店手数料の規制
イギリス	37.9%	68.7%	+30.8%	✓ ロンドン五輪（2012年）を契機とした政府主導の非接触決済（デビットカード）普及促進、決済インフラを担う専門組織による決済の高度化
オーストラリア	49.2%	59.1%	+9.9%	✓ 国産決済サービス（デビットカード）EFTPOSの非接触決済対応 ✓ インターチェンジフィー等の手数料規制
シンガポール	43.5%	58.8%	+15.3%	✓ 国家の電子化に早くから取り組んでいたほか、近年政府による「スマートネーション構想」のもと、キャッシュレス社会実現にかかる施策を推進中
カナダ	49.0%	56.4%	+7.4%	✓ 政府によるペニー硬貨の廃止や小切手の廃止 ✓ 低廉なインターチェンジフィー水準に関する当局と国際ブランドとの合意
スウェーデン	41.9%	51.5%	+9.6%	✓ 政府による脱現金社会に向けた法的な手当て（ex.店頭での現金決済お断り等）
アメリカ	33.7%	46.0%	+12.3%	✓ VISA・MasterCardが中心となりカード決済普及を促進、近年は非金融事業者による決済サービスが普及
フランス	29.1%	40.0%	+10.9%	✓ 現金支払い上限（1,000ユーロ）の設定 ✓ インターチェンジフィー規制の導入
インド	18.3%	35.1%	+16.8%	✓ 国産のデビットカードシステムRupay開発・普及促進のほか、加盟店手数料の上限設定 ✓ 政府主導で「デジタルインド計画」を推進中
日本	13.6%	19.8%	+6.2%	✓ 電子マネーの利用が拡大しているものの、引き続き現金志向が強く、キャッシュレス化進展せず
ドイツ	10.4%	15.6%	+5.2%	✓ 現金志向が強く、キャッシュレス化進展せず
中国（※※）	約40%（2010年）	（参考） ⇒約60%（2015年）		✓ 北京五輪（2008年）を契機とした政府主導の銀聯カードの普及促進 ✓ インターチェンジフィー・加盟店手数料等規制によるアクセプタンス促進

(source) simplife+ Create your own life

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(2019/2/15)

Audience support innovator

～ making Japanese society better by having young people watch less TV ～

5220 Yuki Nakazawa

Abstract

I started this research from my wish that I want to support people who try to suggest plans some kind of innovative one. While I study about this research, I know that Japanese young people habitalized not watching TV so much than before. So I wonder can I suggest idea multiplied by innovation and such a young peopele's trend.

I wish this research will lead to development in many occasion and can be help people who have strongly motivated to innovate.

The present situation

Section 1

Please watch the bottom graph. Weekdays, teenager's TV viewing time and actor are decrease linearly from 2012 to 2016.(except for 2015) In addition, weekend, people who doesn't watch TV are increase. In conclusion, it shows there is a tendency to increase people who doesn't watch television besides of people who hasn't television.

〈平日1日〉

		平均利用時間（単位：分）					行為者率（％）				
		テレビ(リアルタイム)視聴	テレビ(録画)	ネット利用	新聞閲読	ラジオ聴取	テレビ(リアルタイム)視聴	テレビ(録画)	ネット利用	新聞閲読	ラジオ聴取
全年代	2012年	184.7	17.0	71.6	15.5	16.1	82.5	16.6	41.0	40.0	9.3
	2013年	168.3	18.0	77.9	11.8	15.9	84.5	17.4	70.1	33.8	7.3
	2014年	170.6	16.2	83.6	12.1	16.7	85.5	16.8	73.6	34.3	9.0
	2015年	174.3	18.6	90.4	11.6	14.8	85.9	16.7	75.7	33.1	7.8
	2016年	168.0	18.7	99.8	10.3	17.2	82.6	17.8	73.2	28.5	8.3
10代	2012年	102.9	11.1	108.9	1.7	2.4	76.3	17.3	80.9	8.6	3.2
	2013年	102.5	17.9	99.1	0.6	0.1	75.9	18.7	78.8	3.6	0.4
	2014年	91.8	18.6	109.3	0.7	0.2	73.6	18.6	81.4	3.6	1.4
	2015年	95.8	17.1	112.2	0.2	2.6	75.9	16.5	83.8	2.9	2.9
	2016年	89.0	13.4	130.2	0.3	3.5	69.3	13.2	78.9	2.1	2.1
20代	2012年	121.2	14.5	112.5	2.4	8.3	78.7	16.0	90.0	10.4	5.3
	2013年	127.2	18.7	136.7	1.4	3.6	74.7	16.4	90.6	9.2	2.2
	2014年	118.9	13.8	151.3	2.4	9.4	72.4	15.4	91.0	12.0	3.8
	2015年	128.0	15.8	146.9	2.1	6.4	77.4	13.0	91.6	10.3	5.3
	2016年	112.8	17.9	155.9	1.4	16.8	70.3	18.9	92.6	6.7	5.8
30代	2012年	158.9	19.0	76.5	6.8	12.4	86.0	17.7	83.1	28.5	6.1
	2013年	157.6	18.3	87.8	5.8	17.7	83.2	18.9	88.5	25.3	7.0
	2014年	151.6	15.6	87.6	4.1	5.4	86.7	17.3	82.7	21.9	5.7
	2015年	142.4	20.3	105.3	3.5	15.3	80.5	18.9	90.7	19.3	6.4
	2016年	147.5	18.6	115.3	3.8	15.4	79.8	18.7	88.4	18.2	5.1
40代	2012年	187.4	18.7	74.6	13.3	17.6	89.6	18.2	76.1	45.7	10.8
	2013年	143.4	13.3	70.0	8.6	22.6	83.1	15.4	76.7	34.6	8.3
	2014年	169.5	14.2	82.5	9.3	19.4	87.5	17.8	80.7	37.1	8.3
	2015年	152.3	15.8	93.5	8.8	13.7	86.5	16.6	85.3	34.2	6.5
	2016年	160.5	23.2	97.7	8.0	17.2	86.4	23.3	78.4	27.8	9.3
50代	2012年	219.2	20.9	51.3	23.5	19.4	94.1	19.8	63.4	59.4	12.2
	2013年	176.7	20.3	61.8	18.6	20.2	91.4	17.4	60.5	51.0	10.4
	2014年	180.2	18.4	68.0	16.3	13.5	90.0	17.3	69.4	51.2	8.6
	2015年	219.8	18.6	74.7	17.0	10.7	92.8	15.8	68.5	48.8	8.0
	2016年	180.6	17.0	85.5	14.4	19.8	86.9	14.8	68.5	41.0	8.5
60代	2012年	263.0	14.5	33.9	35.1	27.4	93.3	11.2	42.3	65.8	14.2
	2013年	257.0	19.8	36.7	28.0	20.5	92.5	18.0	34.8	58.7	11.2
	2014年	256.4	17.8	32.2	31.3	40.3	93.7	15.2	40.5	59.5	20.5
	2015年	257.6	22.6	35.7	29.6	30.6	95.2	18.3	43.0	62.0	14.5
	2016年	259.2	18.4	46.6	25.8	23.4	92.2	15.0	41.7	55.4	14.7

〈休日*26 1日〉

		平均利用時間（単位：分）					行為者率（％）				
		テレビ(リアルタイム)視聴	テレビ(録画)	ネット利用	新聞閲読	ラジオ聴取	テレビ(リアルタイム)視聴	テレビ(録画)	ネット利用	新聞閲読	ラジオ聴取
全年代	2012年										
	2013年	225.4	30.5	86.1	13.5	7.0	86.1	23.5	69.8	35.9	4.9
	2014年	228.9	30.5	100.6	14.2	12.2	86.9	23.7	72.1	36.5	6.5
	2015年	231.2	33.9	113.7	13.0	11.9	86.6	24.5	74.2	34.9	6.7
	2016年	225.1	32.9	120.7	11.9	7.4	85.7	25.1	73.8	30.3	4.8
10代	2012年										
	2013年	140.7	40.1	151.7	0.5	0.4	75.5	32.4	80.6	5.0	0.7
	2014年	147.4	45.0	180.5	4.1	1.3	75.7	34.3	83.6	6.4	0.7
	2015年	155.8	30.6	221.3	0.4	0.6	74.1	25.2	88.5	3.6	0.7
	2016年	122.9	25.9	225.7	0.9	0.5	77.1	23.6	84.3	3.6	1.4
20代	2012年										
	2013年	170.7	35.7	170.3	1.7	0.4	77.1	26.5	93.7	8.5	1.3
	2014年	161.4	24.4	194.9	2.8	3.4	73.3	20.8	88.7	11.8	2.3
	2015年	155.4	34.6	210.0	2.0	4.4	79.9	24.7	91.8	9.1	4.1
	2016年	152.7	26.0	216.1	3.2	8.9	74.2	23.5	94.9	8.3	3.2
30代	2012年										
	2013年	221.0	23.7	93.8	6.7	2.6	87.1	20.6	86.4	27.3	2.8
	2014年	197.5	35.2	101.7	4.9	3.1	86.8	26.3	88.8	18.9	3.6
	2015年	197.1	36.9	131.3	5.1	9.2	85.1	26.2	92.4	20.0	4.7
	2016年	202.5	34.8	119.5	3.9	3.2	85.0	24.7	86.9	18.4	2.2
40代	2012年										
	2013年	204.3	28.3	73.3	11.6	11.8	84.5	24.3	78.7	37.5	4.7
	2014年	233.9	28.8	82.9	12.5	9.6	90.4	26.7	78.2	41.6	4.3
	2015年	208.6	34.9	91.9	9.8	5.9	85.5	27.7	80.0	34.2	3.5
	2016年	222.4	48.1	117.1	10.1	4.5	86.3	34.2	80.8	32.3	4.2
50代	2012年										
	2013年	254.2	38.3	50.0	19.3	10.0	91.8	25.4	56.3	52.7	7.4
	2014年	265.3	37.8	73.7	19.1	14.3	91.8	22.7	66.3	54.5	8.6
	2015年	300.1	35.7	70.4	18.0	11.3	93.4	24.5	65.0	53.7	7.0
	2016年	250.4	29.7	80.1	15.6	8.4	90.4	24.6	65.0	42.3	4.2
60代	2012年										
	2013年	305.7	24.0	29.3	31.8	11.9	93.7	17.7	34.0	63.0	9.3
	2014年	310.3	19.6	33.5	33.4	33.2	94.3	16.0	39.3	64.7	15.3
	2015年	317.1	29.7	37.1	33.2	31.7	94.0	19.3	40.0	66.7	16.3
	2016年	325.1	26.7	43.3	28.9	15.5	93.7	18.5	42.6	56.4	10.9

「from Ministry of Internal Affairs and Communications」

Teens 20s spend most of the day to use internet more than watching television .

Then what are they doing to use the internet?

H28 主なソーシャルメディアの利用率（全年代・年代別）

	全年代(N=1500)	10代(N=140)	20代(N=217)	30代(N=267)	40代(N=313)	50代(N=260)	60代(N=303)
LINE	67.0%	79.3%	96.3%	90.3%	74.1%	53.8%	23.8%
Facebook	32.3%	18.6%	54.8%	51.7%	34.5%	23.5%	10.6%
Twitter	27.5%	61.4%	59.9%	30.0%	20.8%	14.2%	4.6%
mixi	6.8%	2.9%	13.4%	9.4%	8.3%	5.8%	1.0%
Mobage	5.6%	6.4%	9.2%	9.7%	4.8%	4.2%	1.0%
GREE	3.5%	3.6%	6.9%	4.5%	3.2%	2.7%	1.0%
Google+	26.3%	28.6%	29.5%	37.5%	30.0%	25.4%	10.2%
YouTube	68.7%	84.0%	92.2%	88.4%	77.3%	55.4%	29.7%
ニコニコ動画	17.5%	27.9%	36.4%	19.5%	15.3%	9.2%	6.6%
Vine	2.9%	5.7%	7.4%	3.7%	1.6%	1.2%	0.3%
Instagram	20.5%	30.7%	45.2%	30.3%	16.0%	12.3%	1.3%
7つのいずれか利用	73.5%	82.9%	97.7%	94.0%	80.5%	65.0%	33.7%
6つのいずれか利用（Google+除く）	71.2%	81.4%	97.7%	92.1%	78.3%	60.8%	30.7%
11のいずれか利用（動画系の4つ含む）	79.4%	90.7%	98.2%	97.4%	87.5%	71.5%	43.2%

From this, in utilization time of internet, related to a kind of communication tool occupy many hours. Social media is used for more than 65 percent of utilization time of smartphone. Social media is the thing which is viewed connection to people.

× TV **vs** internet and video

○ TV **vs** social media

It is important for young people to kill time and feel free to enjoy.

Chapter2 suggestion

Section 1 application of innovation

I suggest application to make open innovation by enterprise and innovator.

① enterprise recruit suggestion from ordinary people

↓

② Post video about the suggestion who wants to make innovation. The suggestion is related to the company and one video has at most 3 min.

③ audience give comments or good button (limit the number of them per person)

↓

④ Application period is about 2 weeks and audience vote which suggestion is the best. Each person can vote only 1 time.

↓

⑤ right to vote

⑥ company,,,,,,,,,,,1

⑦ total number of audience,,,,,,,,,,,,1

Department of good bottom,,,,,,,,1

Department of number of comment,,,,,,,,,1

And so on

Company can buy or help the suggestion which selected as the most outstanding.

Section 2　the importance of innovation

1. what is open innovation?

Open innovation is approach for example technique which can beyond the flame work and create new technique to integrate human resources.

I want do approach like this.

2. To make people can feel that innovation is close

There is not few people who have image to hear about the words of innovation. However, we have benefit from innovation. For example, "iphone" Apple created innovative device because of removing keyboard. Cabinet Office said if we can innovation connect economic growth, we can expect of more strong virtuous cycle of economy.

Then, I focus on Switzerland which is better in innovation.

一人当たりの名目GDP(自国通貨)の推移(1980～2019年)

── スイス

単位: スイス・フラン

Nominal GDP per person of Switzerland is No.2 in the world. The education system named Dual education system occupy in large part of it. This system can get vocational training not only educate.

Switzerland devote 5.6 percent of GDP in education. This is No.1 in the world. In conclusion, these things leaded increase of GDP and Number of patent applications

Chapter 3　　need 3 point of element for application

It is important for application to consider situation of society, youngster's need and advertising expenses

Section1　　compare with abroad

(1)What is the feature of foreign country's TV program

「The Apprentice」

→this program is reflected to American competitive society

(2)Japanese modern society

Japanese like group behave and feel relieved when we join the group of majority people belong to. So it is important to visualization of the number of comment and viewers.

Section 2　　youth needs

The purpose of using smart phone

This application depends on youth who don't have custom to watch TV. As of the statement at first, 65percent of time is used for social media which can talk and be visualized.it is easy to kill their time. So I expected that youth need something which can kill their time easily.

Section 3　advertisement

広告費 \ 媒体	広告費（億円）			前年比（%）		構成比（%）		
	2014年（平成26年）	2015年（27年）	2016年（28年）	2015年（平成27年）	2016年（28年）	2014年（平成26年）	2015年（27年）	2016年（28年）
総広告費	61,522	61,710	62,880	100.3	101.9	100.0	100.0	100.0
マスコミ四媒体広告費	29,393	28,699	28,596	97.6	99.6	47.8	46.5	45.5
新聞	6,057	5,679	5,431	93.8	95.6	9.8	9.2	8.6
雑誌	2,500	2,443	2,223	97.7	91.0	4.1	4.0	3.5
ラジオ	1,272	1,254	1,285	98.6	102.5	2.1	2.0	2.1
テレビメディア	19,564	19,323	19,657	98.8	101.7	31.8	31.3	31.3
地上波テレビ	18,347	18,088	18,374	98.6	101.6	29.8	29.3	29.2
衛星メディア関連	1,217	1,235	1,283	101.5	103.9	2.0	2.0	2.1
インターネット広告費	10,519	11,594	13,100	110.2	113.0	17.1	18.8	20.8
媒体費	8,245	9,194	10,378	111.5	112.9	13.4	14.9	16.5
広告制作費	2,274	2,400	2,722	105.5	113.4	3.7	3.9	4.3
プロモーションメディア広告費	21,610	21,417	21,184	99.1	98.9	35.1	34.7	33.7
屋外	3,171	3,188	3,194	100.5	100.2	5.1	5.2	5.1
交通	2,054	2,044	2,003	99.5	98.0	3.3	3.3	3.2
折込	4,920	4,687	4,450	95.3	94.9	8.0	7.6	7.1
DM	3,923	3,829	3,804	97.6	99.3	6.4	6.2	6.0
フリーペーパー・フリーマガジン	2,316	2,303	2,267	99.4	98.4	3.8	3.7	3.6
POP	1,965	1,970	1,951	100.3	99.0	3.2	3.2	3.1
電話帳	417	334	320	80.1	95.8	0.7	0.5	0.5
展示・映像ほか	2,844	3,062	3,195	107.7	104.3	4.6		

Internet advertising expenses are on the rise,

It is important for advertising expenses to attract attention.

This application has benefit for both enterprise and presenter and this is good to support Japanese economic growth.

Chapter5 Conclusion

How many people know the word "innovation" ? Innovation will play very important role in the future. I want to make society which everyone can participate for innovation action.

Chapter 6 reference

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Aiming to improve academic ability

～To solve current problems～

5221 Ami Nakamura

Abstract

  There are lots of ways to improve students' academic ability, but many of them need more teachers. So, the lack of teachers connects to decline academic abilities of students in elementary school. To increase the number of applicants, I think we need to make an image that the job teaching students is great, and to be respected by students, I suggest to introduce exams for teachers.

1．Introduction

  I want to be a teacher in the future and I am interested in education in elementary school, so I started researching about education systems in Japan. I thought there might be some problems that we cannot solve with recent systems. The purpose of this study is to find problems and come up with the solution, and I want to make use of this study for my future.

2．Discussion and implications

  Nowadays, the number of people who take the test to be a teacher is decreasing. It is caused by the TV programs or newspapers, which reported how hard the job of teacher is. Also, there are many teachers around sixties because of the second baby boom, numbers of teachers are retiring in recent years. They connect the lack of teachers or the loss of education quality.

Number of examinees 53,606 (-4.0%)

Number of hires   14,699 (+2.4%)

  * () Indicates the rate of change from the previous year

  Also, since 2020, introduction of new Course of Study starts. Fifth and sixth graders have to learn English, and it means that the number of classes will increase up to 70 hours, so the burden of teachers will increase and we need more teachers who can teach English.

2012~

	Grades					
	1	2	3	4	5	6
English activities	-	-	-	-	35	35
Total	850	910	980	980	980	980

2020~

	学年					
	1	2	3	4	5	6
English	-	-	-	-	70	70
English activities	-	-	35	35	-	-
Total	850	910	980	1015	1015	1015

  Moreover, there is a difference between the urban and the countryside. At the countryside, the lack of teachers is a big problem. The shortage results in the increase of the work of other teachers, and the working hours per person increase.

Next, I thought how to solve these problems. I found three solutions.

First solution is encouraging Subject sharing system. In elementary school, Japan choose Classroom teacher system which means that one teacher teaches one class. I suggest to add Subject sharing system which is used in junior high school and high school. Both of them have each advantages and disadvantages.

	Subject sharing system	Classroom teacher system
advantages	Make use of teachers' expertise Reduce busyness Smooth connection to junior high school Find teachers that children can easily consult with Multifaceted understanding	Strong bond between a teacher and his or her classmates More involvement among subjects Easy to take care of students
disadvantages	Difficult to grasp the actual situation of children Lack of teachers to teach Difficult to teach classes across subjects Loss of information exchange time	A big burden on teacher Difference between classes Hard to take day off

Some schools use the system, but not all. I think incorporating Subject sharing system in the upper grades in elementary school enable elementary school students to learn deeply, and incorporating Classroom teacher system in the lower grades. However, Subject sharing system needs much more teachers than Classroom teacher system.

Second solution is using computer-assisted instruction (CAI). Children form their personalities in elementary school, so it is better to use CAI for supporting teacher than to use it without any teachers. For example, watching the three-dimensional structure of molecules, learning programming, watching simulation video of experiments. It can help teachers to teach easily and smoothly, but we need more teachers who have enough knowledge about computer until it become popular and many schools use it.

Final solution is encouraging small-group class by proficiency level for reducing the number of students one teacher have to take care of. In each subjects' classes, for example, one class is divided into two groups according to proficiency levels, or two classes are divided into three groups. Mainly, it is used in junior high school or high school, but I think students in elementary school also need to learn in detail. Also, students feel less stress that the curriculum in elementary school will be similar to that in junior high school. However, it needs more teachers than now.

3. Conclusion

All of my solutions need to earn more and more teachers. However, there are less examinees in recent years because of bad images, so it is difficult to hire quality teachers.

I think improving social statue or treatment helps increasing the number of applicants because it would connect the increase applicants for teachers if students respect their teachers, so I suggest to introduce exam for teachers.
1. Hold an exam once several years to check teachers' abilities.
2. If a teacher cannot pass it, he/she has to take extra training.
3. After the training, they take an exam again.
4. Finish when the teacher pass it.

I hope that this system enhances the quality of teachers and improves students avbility.

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Introduce new investigation method

～Increase arrest rate with advanced country`s investigation methods～

5222　Tamane Nieda

IAbstract

Do you know Japanese Global Peace Index? It show how peaceful each country is by evaluating from some aspects, such as domestic affair, security, peacekeeping and so on. In this year, Japan has 9th place in the world. So this data shows Japan is one of the most peaceful country in the world. But, our country has some unsolved cases. Japanese police has enough investigation skills for arrest offender. So I wonder that "why they can`t solve of all of the cases. After that I checked Japan and other advanced countries investigation method. Then I found a lot of different point, so I thought Japanese police had better adopt foreign investigation methods.

Japanese arrest rate is not so high. Of course the number of murder is one of the highest date in the world. But, the number of theft (vehicle) is only 7.8%. The reason is that Japan has so many low about investigation.

IIDiscussion and implications

Japanese increase rate of murder case is 97.9% in 2010. This date is high number in the world. But it's the rate only of "murder". Increase rate of bicycle theft is only 5.7% in 2016. A cure reason is regulation of Japanese police. Policemen couldn't do sting operation. Although there are exceptions such as drug trafficking, but sting operation's rule is strict beside other countries which introduce sting operation. Increase rate of shoplifter is 68.1%. This date shows that Japanese Increase arrest rate isn`t necessarily high.

Number of arrest rate is not increase. So we don`t continue present investigation. I think we should start new investigation. So I introduce the three methods that is done in other advanced countries.

	Japan	Britain	America	Germany	France	Italy
Interception (communication)	◯	◯	◯	◯	◯	◯

↑Number	64	3,400	3,400	24,000	secret	127,000
Interception (phone)	×	○	○	○	○	○
Temporary investigation	○	○	○	○	○	○

① Temporary investigation

This another name is"undercover operation". The policeman pretend to be common and collect crime. Investigators disguise themselves and make contact with the suspects and the people involved to collect information. It can collect important evidence and we can solve cases more smoothly.

Many Japanese TV drama`s stories apply this methods, because it is the mainstream of another countries. FBI is biggest example. They completely became the character of resident, gangster, terrorist and so on. They come up criminal with long times.

But, japan do not admit the methods now. Japanese government think it has probability false accusation equal force crime.

② Interception(phone)

Interception means there are sufficient reasons to suspect that crimes have been committed for particular crimes, such as drug firearm crimes, organized murders, and collective smuggling, and intercepts telephone calls used for the mutual communication of criminals. Otherwise, under the strict requirements such as the elucidation of the truth of the case and the identification of the criminal, it is permitted to conduct communication interception based on a warrant issued after examination by a judge.

Look at the list. It`s date shows Japan get a late start in investigation. Another advanced countries are already started it and they achieved magnificent results in these investigation methods. If we want increase arrest rate, we have to accept these methods.

③ Polygraph inspection

This method isn`t basically permitted in japan. Only case of drug dealing, case of syndicate, and case of special fraud. But not many police officers agree with the introduction of investigative methods at 30-60%.

After world warII, that started in Japan. Polygraph inspection is deeply involved in psychology and profiling of crime adopted now. However it`s as much as 75 years passed, we used this instrument only 5000 crimes. It number is very little.

III   Conclusion

The first of the Heisei period, more and more security cameras are introduced in the town. Now, we can found it very easily when we stroll in our town. It protect our life and prevent an incident. Actually in the beginning, many people were strongly against the introduction. The reason it is accepted by Japanese is some good merits for us. So I think Introduce new investigation method get people`s understanding in the same way. So the case shows if they know the new investigation method, they accept the method.

My conclusion is Japan should introduction new methods that are "Temporary investigation", "Interception" and "Polygraph inspection". Those methods should make Japan more safety.

So my finally goal is Japan should introduction these new investigation methods.

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The souvenirs which are make only Gunma
～To increase tourists with souvenirs to experience～

5223　Miu　Nieda

Abstract: I was interested in about Inbound because I have been studied about Souvenirs for 3years. I thought that I want to spread the charms of Gunma which decrease tourists to the world. I started to research about to increase tourists who come to Gunma. Focusing on why the number of visitors at the Tomioka Silk Mill decrease, and in order for Gunma Prefecture to attract attention, it is important to get the Tomioka Silk Mill to be interested. I suggest you we should make chance that will be able to experience daily life in Japan, including Tomioka Silk Mill women's clothing experiences. Also, as a souvenir, I would like to suggest that you make your own souvenir at a facility related to the silk heritage group as part of the original life of the Japanese.

Introduction: The reason why I started this research was that I was interested in inbound while studying souvenirs for three years. We decided to research aimed at increasing the number of tourists in Gunma Prefecture, as we wanted to share charms of Gunma Prefecture where the number of tourists has decreased over the recent three years. The purpose of this study is to make a plan to increase tourists visiting Gunma Prefecture which is decreasing year by year, through experiences that can only be done in Gunma Prefecture.

Method:
1. Documents, books, pamphlets
This is mainly used in this research. Read pamphlets in various areas mainly in Gunma Prefecture, and use some pages that contain special features of souvenirs for research.
2. Internet
I use it mainly with accurate information on each company's website. In addition, all of the information is compared with various information, and pursue more accurately. I use the administrative website too.
3. Prior research and statistics
Use statistics and research on consumption trends of foreign visitors to Japan.

Result:
: Introduction of my result
I noticed to "Do experience" in this research. Form the research by Japan Tourism agency (2016), "When asked about what they expected before visiting Japan (with multiple

answers), "eating Japanese food" was the most common at 71.2%. "Shopping" (54.5%), "Nature and scenic spots" (47.9%), "City walk in downtown" (41.0%), "Onsen bathing" (29.6%)."

From this, I suggest visitors come to Japan to experience the culture or mood of Japan.

In addition, form the research by Japan Tourism agency (2016), "The percentage of the most satisfied food and drink by nationality and region, South Korea and Hong Kong are "meat" (26.7% and 22.6%, respectively), Taiwan is "ramen" (29.9%), and China is "fish" (23.7%), US is "Sushi"(27.0%)."

"The percentage of the most satisfying purchases by nationality and region is" confectionery "in South Korea (20.6%), " clothes, bags and shoes "in Taiwan and Hong Kong (19.9% and 35.4%), "Cosmetics / Perfume" (24.6%) in China, and "Japanese clothes / folk crafts" (23.3%) in the US."

"The percentage of the purpose to visit to Japan by nationality and region, "tourism / leisure" is particularly high at 82.9% in Taiwan and 88.9% in Hong Kong. In Korea, China, Thailand and Australia, the percentage of "tourism / leisure" is over 70%, which is higher than other nationalities / regions." From this research, I realized visitors who came from Asia traveled to Japan to do sightseeing.

So I focused on Asia (mainly Korea, Chania, Taiwan) in this research.

: Introduction about Gunma prefecture
First, researching and thinking about charms in Gunma.

"The soaring-crane-shaped Gunma Prefecture is packed with interesting sights to visit. Scenic areas with elegant mountains and grand natural vistas that touch your heart, flowers blooming beautifully, shrines, temples and cultural assets which hold history and so on… Warm hospitality of the people of Gunma whom you encounter everywhere is another point that we proud of." This is the passage from Gugutto Gunma, the website which introduce about Gunma made by Gunma Prefecture. There are also other charms such as Tomioka Silk Mill, a World Heritage Site, Yakimanjyu, and sake grown in nature.

Next, the current trend of tourists in Gunma Prefecture was investigated. From the two researches about this, it can be seen that the number of tourists has increased with the World Heritage registration of the Gunma Silk Heritage. However, as you can see from the above changes in the number of visitors, the number of visitors is currently less than half that of the heyday. The Tomioka Silk Mill is attractive enough to be registered as a World Heritage Site, but it is the number of visitors has decreased so far. I focuse on about that,

and I thought it important to get interested in the Tomioka Silk Mill. So I decided to focus on the Tomioka Silk Mill.

: Idea

A pamphlet named "Shiruku Meguri" was an introduction to the experiential tourist facilities currently being conducted at the Tomioka Silk Mill (available on the Internet). As for the contents, it introduces experience facilities related to silk in Gunma prefecture. Among them, I paid attention to the Jida clothing store. At the Jida clothing store, you can experience the clothes of a woman called Kojyo. Why paid attention about it, according to the Japan Tourism Agency, the percentage of "satisfied as a result of asking about their satisfaction during their stay in Japan" was "Japanese daily life experience" (91.3%) , "Eating Japanese food" (91.2%), "Theme park" (91.0%), "Skiing and snowboarding" (90.8%), "Other sports" (90.5%). I thought that the event like this is necessary to take such an approach to increase repeaters. The reason why I paid attention to repeaters is when people will come for the first time, people come with purposes like their own hobbies, opportunities. According the data from the Japan Tourism Agency, based on the characteristics of the silk heritage group, we will be able to experience daily life in Japan,including the clothes experience of Kojyo. Also, as a souvenir, I would like to suggest that you make it yourself at a facility related to the silk heritage group as part of the original life of the Japanese, for example, textile experiences and indigo dyeing experiences. Of course it will be a souvenir for your family and friends, also your own memories.

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・伊勢崎市・伊勢崎市観光物産協会（平成 28 年 3 月 31 日）「まっぷる　いせさき」
・「富岡シルク食べてみよう」
・群馬いろは（平成 28 年 3 月）「ぐんまのお土産ベストセレクション」
・マイナビ（平成 28 年 8 月）「Japan-i」
・群馬県観光物産課（平成 28 年 3 月）「富岡製糸場とぐんま周遊観光ガイドブック」
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Value and demand on leaning other language

～From statistics of Japanese learning rate～

5225 Riho Yabata

Abstract

  With a world advance of Japan, the Japanese learning rate shows an expanse in each place and shows a tendency to increase overall.
  With the number of the institution of the Japanese education, the number of the teachers, the leaners, as for the Japanese learning rate, East Asia and Southeast Asia occupy overall half or more.
  Surely, there is so many Chinese, Korean and East Asian people who are good at speaking Japanese in Japan and these country and Japan have a deep relationship from economical side and culture side. Through the data searched by Japan Foundation, I wonder how can Japanese language spread and increase the rate of learning to the world.

表1-1-1 機関数・教師数・学習者数	2015年	2012年
機関 (機関)	16,179	16,046
教師 (人)	64,108	63,805
学習者 (人)	3,655,024	3,985,669

表1-1-2 日本語教育実施国・地域数	2015年	2012年
国	130 か国	128 か国
地域	7 地域	8 地域

  First, I searched the present circumstance of Japanese education in the world.
  It is the data of Japanese learning rate searched by Japan Foundation in 2015.
  Looking at the results, both the number of institutions and teachers are increasing compared to 2012. On the other hand, the number of learners has been decreased about 200,000 over this three years (Target of this data is the learner who study Japanese in Japanese education institution. So people who study by oneself is not include this data.)
  Of these three, we focused on learners and research this time.
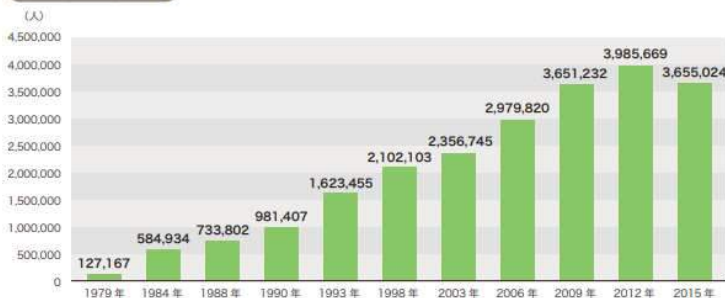
Graf 1 Leaners , teachers and institutions in the world.

グラフ1-2-1　地域別機関数の割合

東欧 2.5%
南米 3.0%
中米 0.6%
西欧 7.0%
北米 10.1%
大洋州 12.1%
南アジア 2.5%
東南アジア 24.2%
東アジア 37.0%
中東 0.5%
北アフリカ 0.1%
アフリカ 0.4%
n= 16,179機関

グラフ1-2-2　地域別教師数の割合

東欧 2.1%
西欧 4.3%
南米 2.7%
中米 0.7%
北米 7.2%
大洋州 5.1%
南アジア 2.0%
東南アジア 16.2%
東アジア 59.1%
中東 0.3%
北アフリカ 0.2%
アフリカ 0.2%
n= 64,108人

グラフ1-2-3　地域別学習者数の割合

西欧 2.3%
南米 1.0%
中米 0.3%
北米 5.2%
大洋州 10.7%
南アジア 1.1%
東南アジア 29.9%
東アジア 48.2%
東欧 0.7%
中東 0.1%
北アフリカ 0.0%
アフリカ 0.2%
n= 3,655,024人
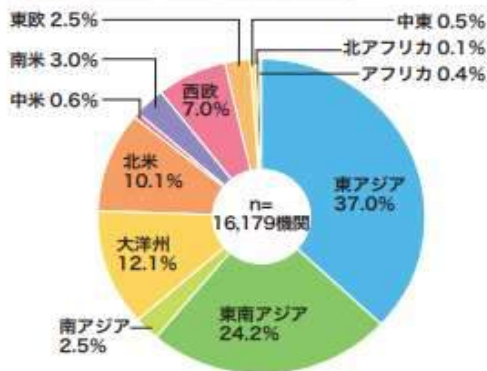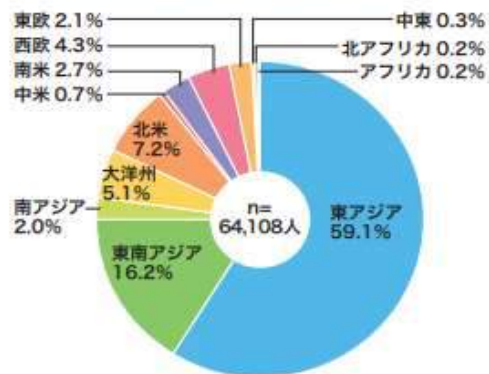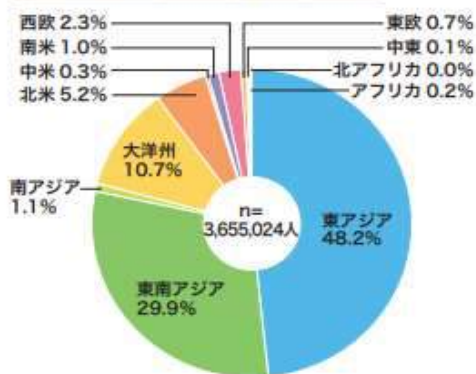
Graf 2
Rate of leaners

First, we investigated the percentage of learners in each region. As mentioned at the abstract, more than 80% of Japanese learners are in Asia. East Asia is the most common, and this region is worthy of Korea, China, Taiwan and so on.

Southeast Asia is the second highest, and this region is worthy of the Philippines, Indonesia, Malaysia, Singapore, and others.

In any case, I found that Japanese was learned a lot in Asia area.

Then, what kind of country rate is specifically high?

According to a result of statistics, China, Indonesia, and South Korea or East Asia and Southeast Asia is.

Outside of Asia, Australia accounted for 7.4%, but overall, Asia was the center, and the learning rate in Western and Eastern Europe was low.

From this, it was found that the Japanese language learning rate is high in countries such as China and Korea that are geographically close to Japan, countries that are closely related to Japan, and countries that have exchanges.

We compared the results of country learning rates in Eastern Europe, Western Europe, and North America, where the learning rate is low, and found out the current situation of Japanese language learning in different countries.

First, I examined the educational situation in Western countries.

The UK has the largest number of learners in Western Europe.

There were many learners who received Japanese language education at high schools in the UK, France, Germany, Italy and so on. In addition, comparing Switzerland and Italy, the number of institutions and teachers was almost unchanged, but the number of

Italian learners was three times larger than Switzerland. This indicates that the number of educational institutions, teachers and learners are not proportional. The reason for this is still unclear. It is famous that a lot of Japanese has been learned in France, but many of the facts are not known in Japan. It was also found that Japanese language education in Europe varies greatly from country to country. Therefore, I decided to proceed with research on the educational situation in a particularly prosperous country in Europe.

表2-8-1 西欧における機関数・教師数・学習者数

国・地域	2012年			2015年								人口*(人)
	機関(機関)	教師(人)	学習者(人)	機関(機関)	教師(人)	学習者(人)	10万人あたりの学習者(人)	教育段階の構成(学習者)(人) 初等	中等	高等	その他	
英国	308	585	15,097	364	704	20,093	31	4,814	5,957	6,423	2,899	64,715,810
フランス	205	701	19,319	222	723	20,875	32	70	4,924	10,719	5,162	64,395,345
ドイツ	193	547	14,393	181	457	13,256	16	152	1,896	6,690	4,518	80,688,545
スペイン	59	145	4,938	80	192	5,122	11	0	0	963	4,159	46,121,699
イタリア	42	154	7,420	51	193	7,031	12	0	276	5,424	1,331	59,797,685
スイス	60	158	2,037	43	151	3,709	45	297	194	845	2,373	8,298,663
スウェーデン	32	79	2,226	43	86	2,457	25	65	891	1,054	447	9,779,426
アイルランド	48	75	2,827	40	68	3,070	65	86	2,422	426	136	4,688,465
フィンランド	27	37	1,739	20	29	1,601	29	21	143	851	586	5,503,457
オランダ	8	42	1,008	15	41	1,502	9	0	7	1,156	339	16,924,929
オーストリア	21	42	1,687	12	30	1,322	15	0	52	1,067	203	8,544,586
ベルギー	15	41	1,235	12	37	1,191	11	0	0	476	715	11,299,192
ポルトガル	12	16	436	10	15	573	6	0	0	216	357	10,349,803
ノルウェー	10	18	557	10	16	505	10	0	158	296	51	5,210,967
ギリシャ	12	25	395	11	19	479	4	0	0	139	340	10,954,617
デンマーク	4	16	410	4	13	354	6	0	40	314	0	5,669,081
アイスランド	5	9	180	4	7	273	83	0	37	123	113	329,425
ルクセンブルク	6	6	209	3	3	135	24	0	75	0	60	567,110
マルタ	1	1	9	1	1	6	1	0	0	0	6	418,670
モナコ	1	1	10	1	1	5	13	0	0	0	5	37,731
西欧全体	1,069	2,698	76,132	1,127	2,786	83,559	20	5,505	17,072	37,182	23,800	414,295,206

*出典：国際連合経済社会局人口部『世界の人口推計2015年改訂』

Graf 3: Leaners, teachers and institutions in west Europe

Then I looked at statistics on learning rates in Eastern Europe that Russia and Poland deserve. In Japan, there are not many people who interested in Russia. Although the country is considered to be the closest Europe to Japan, there are not so many Japanese people interested in Russia. I think that there are some political problems such as the Siberian detention that once took place between Japan and Russia and the northern territory that is still a problem.

I think this is because the Japanese are not trying to know about Russia.

I visited Russia's Far East Vladivostok the closest to Japan this summer.

Then I felt a lot of "Japan". About 80% of cars in Vladivostok are Japanese-made Toyota cars. There are restaurants that serve sushi everywhere. One reason may be that Vladivostok is close to Japan. However, it was clear that Russia was more familiar with Japan than I had imagined.

And when I went to Russia, I was able to listen to a 15-year-old friend who was studying Japanese.

In Vladivostok it is mandatory to study a second language at school (Russia is a 12 year integrated education). The choices are Korean, Chinese, French, German and Japanese (in the case of Anastasia's school)

Not only in Vladivostok, but also in Khabarovsk and Sakhalin, Japanese is taught in many schools as a foreign language.

Recently, Japanese language schools have also been established in local cities such as Krasnoyarsk and Yekaterinburg. There are also many Japanese departments at Russian universities.

These universities have Japanese language departments.

In particular, Vladivostok Far Eastern National University puts particular emphasis on the relationship with Japan.

The campus has facilities such as dormitories for Japanese students.

Also, in response to the popularity of Japanese in Russia, the Japan-Russia Youth Exchange Center and the Embassy's Public Relations Department Japan Center also offer free Japanese language education, which boasts a magnification of seven times.

However, according to Anastasia, Japanese is not yet popular in Russia.

This is because the popularity of Korean and Chinese, which are the same Asian countries, is higher than the popularity of Japanese.

This is not limited to Russia. Now, the demand for Chinese is increasing due to the further international expansion of China. In order to increase the learning rate of Japanese in the world in the future, I thought it was important to increase demand or find value for learning and appeal to it.

Next is Poland. Many people are surprised to hear that Japanese language education is provided in Poland. However, Polish has a long history of Japanese language education, and starting Japanese language courses in 1919 is considered the oldest Japanese language education in Poland. The most famous Japanese language education in Poland is the Department of Japanese Language at Warsaw University.

Education and research are conducted at the School of Oriental Studies at the University of Warsaw as the center of Japanese studies in Eastern Europe. There are many Japanese students who have passed the N2 of the Japanese Language Proficiency Test in the third year. This corresponds to B2 to C1 under the CEFR standard, which is a high level of 785 points or more when converted in terms of TOEIC. It is said that there are more than 300 Japanese companies currently operating in Poland, and this number is one of the leading in Europe. Japanese students often find employment in Japanese companies after graduating from university, and the good relationship between the two countries appears in the economy.

表2-9-1　東欧における機関数・教師数・学習者数

国・地域	2012年			2015年				教育段階の構成（学習者）（人）				人口*（人）
	機関（機関）	教師（人）	学習者（人）	機関（機関）	教師（人）	学習者（人）	10万人あたりの学習者（人）	初等	中等	高等	その他	
ロシア	137	529	11,401	126	480	8,650	6	778	2,355	2,971	2,546	143,456,918
ポーランド	56	207	3,985	57	222	4,416	11	0	104	2,295	2,017	38,611,794
ハンガリー	28	65	1,554	32	93	1,992	20	201	267	1,007	517	9,855,023
キルギス	18	46	777	23	48	924	16	180	169	394	181	5,939,962
ルーマニア	22	54	1,905	18	41	2,052	11	53	460	986	553	19,511,324
ウクライナ	15	71	1,319	18	97	1,523	3	60	163	974	326	44,823,765
チェコ	12	44	825	17	53	1,175	11	47	54	720	354	10,543,186
ウズベキスタン	15	58	1,528	14	61	1,505	5	0	126	813	566	29,893,488
セルビア	5	14	292	11	31	533	6	99	120	246	68	8,850,975
エストニア	11	16	357	11	17	317	24	5	39	150	123	1,312,558
スロバキア	7	16	252	9	22	275	5	0	0	74	201	5,426,258
アルメニア	4	7	107	9	23	235	8	8	20	135	72	3,017,712
ベラルーシ	6	13	218	8	16	305	3	0	0	95	210	9,495,826
ブルガリア	9	36	1,570	7	33	1,245	17	467	504	207	67	7,149,787
リトアニア	9	15	288	6	10	301	10	0	35	236	30	2,878,405
カザフスタン	4	41	405	5	30	297	2	0	0	126	171	17,625,226
ジョージア	5	9	235	5	12	237	6	0	128	109	0	3,999,812
クロアチア	5	8	125	5	11	175	4	12	0	126	37	4,240,317
アゼルバイジャン	7	17	465	4	9	239	2	0	150	89	0	9,753,968
ラトビア	3	8	209	3	8	156	8	0	50	74	32	1,970,503
タジキスタン	3	9	73	3	9	77	1	0	15	62	0	8,481,855
ボスニア・ヘルツェゴビナ	-	-	-	2	2	88	2	0	13	75	0	3,810,416
スロベニア	2	9	208	1	8	275	13	0	0	275	0	2,067,526
モルドバ	1	2	82	1	2	75	2	0	0	0	75	4,068,897
トルクメニスタン	1	5	48	1	5	49	1	0	0	49	0	5,373,502
マケドニア	-	-	-	1	1	23	1	0	0	23	0	2,078,453
アルバニア	1	1	15	1	2	15	1	0	0	0	15	2,896,679
東欧全体	386	1,300	28,243	398	1,346	27,154	7	1,910	4,772	12,311	8,161	407,134,135

*出典：国際連合経済社会局人口部『世界の人口推計2015年改訂』

Graf 4: Leaners, teachers and institutions in East Europe

From this, it was found that international exchange through learning Japanese was realized.

What I learned through this research is that Japanese is still a minor language worldwide and demand is low. However, as in Poland, it turned out that international exchange through language is possible.

However, unilaterally learning Japanese does not lead to an increase in the learning rate. As in the case of Russia, the number of learners will not increase unless learners find any value, purpose, or demand for learning the language. I think Korean and Chinese are not more popular and demand will not increase.

I understand that about 80% of Japanese learners are Asian.

They are not learning Japanese just by their interest in Japanese. To study in Japan, to study Japanese to work in Japan. Learning with the purpose of learning Japanese.

If you think so, you can be convinced that the Japanese language learning rate is low in Europe.

After this research, I wanted to investigate more about learning Japanese in Europe.

The Japanese language learning rate in Europe will not increase as it is now, as Europeans know that Japan is not geographically or historically related, just as Japan does not know much about Europe. Because there is no.

I think what Japan needs to do now is to disseminate more information.

Japan is attracting worldwide attention compared to the past due to the influence of Japanese food and pop culture. It was found that from a cultural perspective, Japan is not a major economic power over China or the United States, but a relatively small number of Japanese people can disseminate the Japanese language from a global scale.

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Inquiry   Jf-toiawase@jpf,go,jp(25,26 October 2018)

International center in Keioh gijuku University

http://www.ic.keio.ac.jp/doc/warsaw_introduction.pdf (3,10 December 2018)

Making specialized applications for foreign workers
～Solving social problems by Japanese education～

5226 Jaewon Yun

Abstract

Nowadays it is said that Japan is short of labor because the aging society with fewer children. That is why government and companies are trying to hire more foreign workers. We may not know well but foreign workers have various kinds of social problems. For instance, coerced overtime working, unpaid salary, collective bullying. These kinds of social problems are difficult for foreign workers to solve by themselves. To solve these problems we have to enhance foreign worker's ability of speaking Japanese. Actually, language is the fundamental tool to have communication with others. Of course, it goes without saying that language is necessary for business. If foreign workers are in trouble, they have to appeal that they are in dangerous circumstance and they need help. But without constant level of Japanese, they will not be able to say it. So, to enhance foreign worker's Japanese speaking skill, I suggest making a matching applications which can be used by only foreign workers and Japanese teacher.

Discussion and Implications

According to Ministry of Health, Labor and Welfare, there are 1.46million foreign workers in Japan in 2018, and it is said that the number of it will increase continuously. Lately, Japanese government is trying to adopt a new policy which expands acceptance of foreign workers. What made me surprised is the miserable working environment for foreign workers. Nikkei newspaper (on January 22th in 2018) said, A Filipino technical inter trainee joined the labor union because he was not able to endure the violence at workplace. However, the supervising organization that accepted the intern trainee sent a fax to the labor union to make the trainee secede the union. This was revealed on January 21st.The labor union resorted to labor committee as unfair labor practices. Many foreign workers are suffering from violence, unpaid salary, coerced overtime working, unfair contracts, power harassment and bullying. Why do they have to be treated in immoral and unfair way and why do the employer treat them badly? The keyword to solve this problem is "language" I think. Language is the fundamental and significant tool to communicate with others. To accept foreign workers as a member of Japanese society and not to make them isolated, language is very important. It is also important to understand Japanese complex social system. But foreign workers don't have this natural and essential thing. Also, the standard of Japanese skill that foreign workers being required is not high. Foreign workers have to score higher than N4 (Japanese skill level is divided into five and N4 is second to last) in the exam

named JLPT to work in Japan. There is no need to say that N4 is not a difficult level to acquire. Moreover, JLPT is not the exam which scores the skill of speaking and reading of the candidate for it. According to National Graduate Institute for Policy Studies, the percentage the enterprises which answered that they let the foreign workers go to the Japanese school or hold group studying in their office was about 20%. This indicates that the companies don't undertake the task to care human resources and the business effort to achieve the goal of symbiotic society even though they employee lots of foreign workers.

  Finally, how serious the labor shortage will be in Japan? According to Chuo University's survey, 'Labor shortage Future estimation in 2030,' there will be the deficiency of the labor force of 6.44 million people in Japan until 2030. This is 10% of the whole demand of labor and demonstrates the seriousness of labor shortage in Japan. Therefore foreign workers are the key to solve the social problem of Japan.

Conclusion

  To solve the problem of foreign workers have, I suggest making a matching applications which can be used by only foreign workers and Japanese teacher. Now, the number of Japanese teachers are very small and about 60% of the Japanese teacher in Japan is volunteer. The advantage of Japanese education through application is practical to enhance the ability of speaking which can be trained by the function of video call. Also, many companies don't provide Japanese education to foreign workers but it is necessary to do business with them so they can entrust the task to this application. This application let the labor shortage cut because the Japanese teacher don't need transportation expenses. Besides, I am planning to hire elderly people, women, and people with physical disadvantages. This suggestion will help us to achieve the goal to break the barrier between foreign workers and Japanese. And I think it will enable foreign workers to be blended into Japanese society.

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Revitalizing the local tourism industry with green tea ~Promoting brand awareness and increasing consumer spending~

5th Grade 3-1 Ishikawa Taichi

[Contents]

○ Notes

-The tourism industry is broadly divided into domestic tourism for Japanese and international tourism for foreign visitors to Japan, but this paper deals with international tourism for foreign visitors to Japan.
-In this paper, "branding" means "by gaining a name recognition, the survival and income of the industry will be stabilized and will be properly evaluated".

○ Overview

In this study, I propose the promotion of local tourism by branding green tea. The Japanese green tea industry is now more likely to contribute to tourism compared to other agriculture. The green tea industry has problems in the form of branding, etc., but as a result of a comparative study with areas where other tea industries and tourism industries are linked, I was involved in the creation of a regional intensive tea industry form, related to the green tea industry Four proposals are made: promotion of "consumer consumption", creation and promotion of products related to green tea, and the establishment of a facility for casual drinking of green tea.

○ Research summary up to last year

Primarily conducted comparative research between Hawaii and Japan. What has supported the success of Hawaii's tourism industry is that there is a large-scale agricultural form noticed during the period of immigration and a unique cultural form. The issues that should be resolved in Japan are that there are few tourists outside Asia and that tourists are concentrated in large cities.
I propose "tea branding" as a new sightseeing element in Japan that satisfies the above conditions. Tea is a traditional Japanese crop and a drink that symbolizes Japanese culture. It also has a strong appeal as a luxury item, like coffee in Hawaii. Furthermore, Japanese tea products are increasingly exported to Europe and the United States year by year, and the recognition of overseas tea products is increasing. In addition, tea can only be produced in certain areas, and has the potential to contribute to regional revitalization.
However, tea has the disadvantage of being difficult to brand. The so-called "green tea" produced in Japan is very difficult to maintain the quality as a product, and the cost is high. There is a property that it is more profitable to process at the factory and make the quality constant.
As a future issue, it is necessary to study specific methods for branding tea

[1] Research background
In the last year's SGH Hawaii training, I was interested in the tourism strategy in the Hawaii state of the United States, a tourism advanced region, and realized the difference with Japan. Based on this experience, I think that by studying Hawaii and other regions that are developing in the tourism industry and Japan, we can discover and improve problems in the tourism industry currently being conducted in Japan. Decided to do.

[2] Research purpose
The purpose of this study is to compare the Japanese tourism industry with other tourism-advanced regions and tourism-advanced countries. The solution is to resolve green tea through tourism strategies linked to other industries.

[3] Significance of research
Currently, there are four major issues in the local tourism industry in Japan: "Nationality bias of tourists visiting Japan", "Bias of visited area", "Lack of public facilities", "Lack of souvenirs that make use of special features" It is done.
The effects of the tea industry on the above problems in the tourism industry include marketing that makes use of the green tea brand power, advertising effects that make use of the nature of souvenir culture, and regional revitalization through the branding of green tea production areas. . Therefore, the tea industry is an effective solution to the challenges of the Japanese tourism industry.

[4] Research method
1, field survey
-Learning about the awareness of Japanese tourism and green tea in countries other than Asia using overseas training.
2, Literature survey
-Investigate the basic information about Takasaki City Central Library and Gunma Prefectural Central Secondary School MML, which invests literature and tourism industry in Japan.
3, Internet
-Examine the current state of the Japanese tea industry
-Investigate world-famous teas and successful examples of tourism strategies related to them.
-Examine records of Japanese statistical surveys.
-Conduct prior research surveys.

[5] Research results
1) Current status and issues of Japanese tourism
1, Japanese tourism industry in the world
According to the latest World Tourism Statistics released in February 2019 by the NWTO (United Nations World Tourism Organization), the number of Japanese tourists in 2018 was 31.19 million, ranking 11th in the world, and international tourism revenue was 41.115 billion US dollars. 9th. Japan's tourism industry has grown rapidly since the 2000s and has shown a steady improvement over the last 15 years, but it differs greatly from France, the United States, and Spain, which were previously ranked high. While Japan's tourism industry has maintained a large growth rate in recent years compared to Western countries, the number of tourists and the per capita consumption price for the national population are low.

2, Today's challenges for Japanese tourism
As described in the section on research significance, Japan's tourism issues can be broadly divided into the following four.
[A] National bias in tourists visiting Japan

Japan will link Asian travelers' interest in Japan to actual travel to Japan. Although successful, there is still plenty of room for Western European travelers to come to Japan. Physically speaking, 40% of Westerners considering traveling to Japan are actually visiting Japan,

Similar cases to Thailand are up to 60%. There are several factors in this difference. Insufficient awareness of light resources, biased awareness that travel to Japan is expensive, benefits for users

An online tourism portal with room for improvement in terms of effective response

For example, the system for systematically collecting Komi evaluations is not perfect. (Quoted from McKinsey & Company Japan Branch Traffic, Transportation and Logistics Research Group October 2016, partially modified)

[B] Regional bias in tourists visiting Japan

In general, the Japanese tourism industry for tourists visiting Japan depends on major prefectures.

Even if you visit, the daily consumption of tourists in rural areas is 30% less than in urban areas.

Currently. (Quoted from McKinsey & Company Japan Branch Traffic, Transportation and Logistics Research Group October 2016, partially modified)
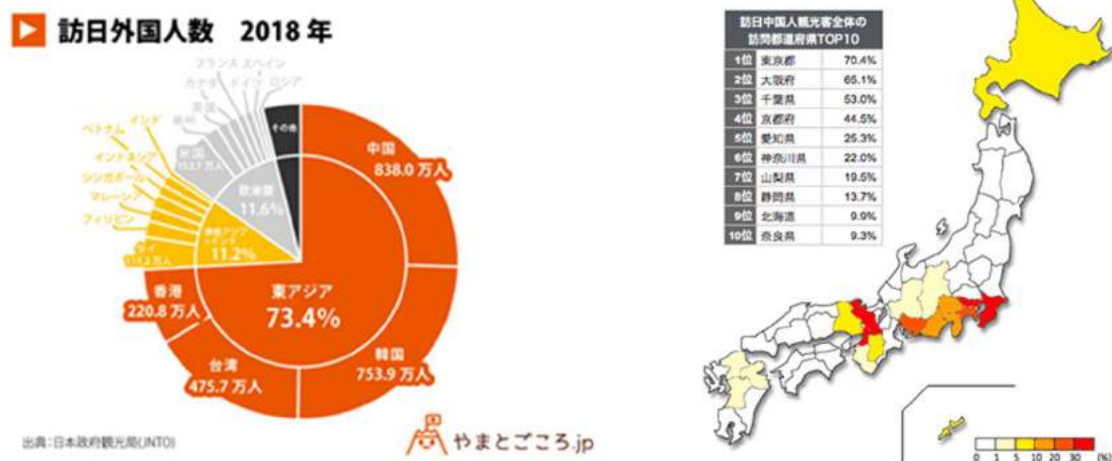
[C] Lack of public facilities

According to a survey conducted by the Japan Tourism Agency for foreigners visiting Japan in 2016, the top five items that foreigners felt dissatisfied during their stay in Japan were as follows. The numerical value can select a plurality of items.

1. Cannot communicate with staff 32.9%

2. Communication environment such as Wi-Fi is unstable 28.7%

3. 23.6% with few multilingual notations

4. Don't know how to use public transportation 18.4%

5. 16.8% where there are few places where currency exchanges and credit cards can be used

From the above, it can be seen that there are insufficient public facilities such as Wi-Fi, multilingual signs, and ease of use of transportation.

[D] Lack of souvenirs taking advantage of the characteristics

Japan has many traditional and distinctive tourism resources, but lacks souvenirs related

to commemorative items compared to other countries. For example, in the US state of Hawaii, processed products of coffee and cacao are widely sold, which has become an important force for the tourism industry.

2) Current state of tea industry in Japan and challenges in branding
1. Current state of tea industry
Currently, the Japanese tea industry is almost flat in terms of acreage and production volume.
There is a tendency. The management scale of tea farmers is increasing. Japan's agriculture is declining and aging and rural depopulation. The tea industry has not been affected much, while it has been on the decline.
Also, Japanese tea exports are increasing rapidly. Impact of Japanese food boom in the US
As a result, exports have increased fourfold over the past 10 years.
It occupies about half. The second largest export volume is to China, Germany, Australia and other countries. It is thought that the demand for green tea is growing worldwide.
As a problem, about 30% of tea gardens are old and over 30 years old, and yield and quality are decreasing. In addition, "Yabukita" is 80% of the cultivated tea varieties, and the concentration of the rough tea processing work due to the concentration of the picking period, the quality deterioration due to late picking, the tea flavor becomes uniform, etc. There are also harmful effects.

図7 緑茶の輸出と輸入の推移
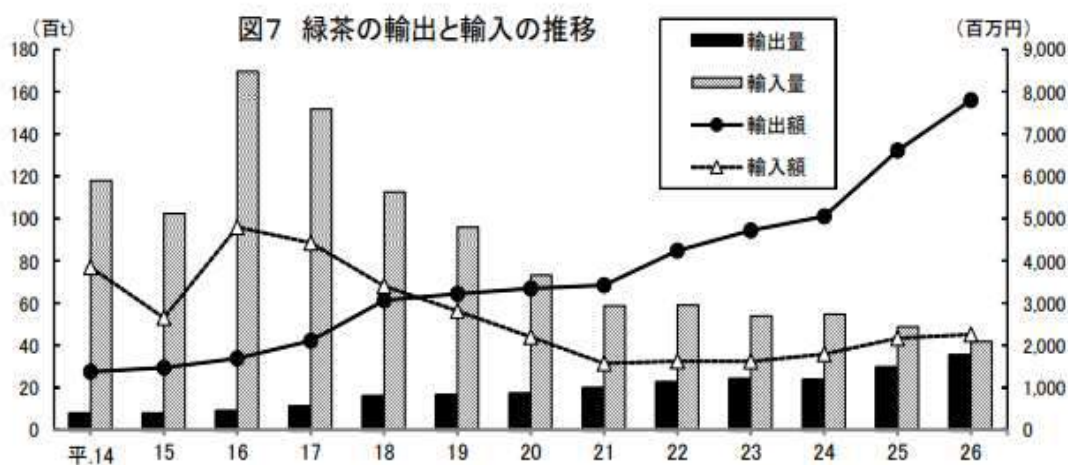
2, Issues for branding
  Some of the features of green tea industrial form are some of the obstacles to branding. First of all, PET bottle green tea accounts for the majority of tea consumption. Green tea as a plastic bottle drink is often blended with various types of tea leaves for uniform quality, and cannot be branded in relation to the production area.
Furthermore, general green tea products are named by the tea processing method rather than the tea production areas and producers such as "Gyokuro" or "Sencha", and the production methods that take advantage of local characteristics are not common. As represented by coffee and tea, the name of the tea is often taken from the name of the region, and since this sales method has been widely successful, green tea needs to be branded using the production area.

3) Examples of tourism strategies that make use of special products in other regions

1, Hawaii coffee industry in the United States

The state of Hawaii, USA, is one of the world's top tourist destinations, and souvenirs from plantation farming formed during the colonial era have greatly supported the tourism industry.

There are two main characteristics of Hawaiian agriculture. The first is the use of Hawaii's unique climate. Coffee, which is now the main agriculture in Hawaii, is made in areas close to the volcano. This is to take advantage of the climate of the plateau on the middle of the volcano and the high nutritional value of the soil formed by the volcanic ash. Cultivation of macadamia nuts and coconuts also takes advantage of Hawaii's warm and humid climate. Second, the connection with the tourism industry is very strong. Most of the agriculture produced in Hawaii is produced for souvenirs, not for imports or local consumption. Coffee and nuts are sold locally as souvenirs or processed into confectionery and beverages at local factories. Kona coffee is the only coffee produced in the United States.

In the tourism industry in Hawaii, in addition to natural tourism resources such as the sea and special ecosystems, souvenirs based on agricultural products are important tourism resources. Unlike souvenirs wherever you go, such as sweets, figurines, and straps, products that take advantage of the nature and culture of Hawaii are sold.

2, Indian Darjeeling tea industry

India has the largest production of black tea in the world and Darjeeling, the world famous tea. Darjeeling is located at an altitude of 2100 meters on the hillside of Kanchenjunga, a famous mountain in the Himalayas, making it one of India's best summer resorts. The cool altitude and frequent fog are suitable for growing tea. The landscape of vast tea fields is an important tourism resource, and there are many tours such as wilderness fields and factory tours. Afternoon tea etc. are offered at many hotels.

3, Sri Lankan tea industry

Sri Lanka produces black tea called Ceylon tea. Sri Lanka belongs to the tropical region, but there is a large difference in elevation in the country, and it is a cool and humid climate suitable for tea cultivation in the highland. In addition to being a summer resort like Darjeeling in India, there are cafes in the city center where you can enjoy various types of tea.

4, Common points of each industrial form

The following three points are common features of each industrial form.

-The tea production area itself has become a tourist destination
-There is a facility where you can easily experience tea tasting
-Consumption not only for the purchase of tea but also for services related to tea

From the above, it is considered effective to incorporate these characteristics when devising a tourism strategy that takes advantage of the tea industry in Japan.

4) Proposal for revitalizing tourism by "branding tea industry"

Based on the above, I propose the following four as specific plans for branding the tea industry.

1. Creation of regional intensive tea industry forms

In order to improve the uniqueness and attractiveness of local areas, it is necessary to establish an industrial form in which production, processing, and sales lines are completed only in local areas. As described in the section on the current state of Japanese tea industry, the main method of making green tea currently used in Japan is to process tea leaves obtained in multiple production areas in a batch at the factory. However, this type of industry is inappropriate for promoting tourism that is closely linked to the local area, taking advantage of regional characteristics like other tourist destinations. Therefore, it is necessary to create a regional intensive tea industry form. There are already places where local green tea exists. Only tea leaves from the same region should be used as raw materials, and processing should be performed locally if possible. At that time, it is also considered effective to carry out processing methods that are limited to the region, such as making a unique manufacturing method or industrializing a specific process. By doing so, the scarce value of local production can be given, and more value as a tourism resource can be created.

2, Promotion of "tourism consumption" related to the green tea industry

To gain profits as a tourist destination, it is necessary not only to "product consumption" the purchase of products, but also "tourism consumption" to pay various services for tourist destinations. As can be seen in tourist spots that are developing in tea-related industries, the appeal of products alone is not attractive as a tourist spot. In addition, consumption of goods and consumption of tourism can amplify each other's attractiveness, and a synergistic effect is created by the development of both. By enjoying the service, you can increase your willingness to purchase the souvenir, or you can increase your interest in the place of origin through the appeal of the product. Furthermore, in the modern society, it is possible to be at any place via the Internet if it is just to purchase a product, and even if the value as a product is high, it may not be possible to visit the place of origin.

3. Creation and promotion of products related to green tea

In order for foreign visitors to Japan to recognize green tea and make it attractive, it is necessary to create a local branded green tea related product. What is decisively lacking in green tea compared to coffee and tea is its worldwide reputation. Green tea is often offered at overseas cafes, but the popularity is still inferior to that of the other two. Also, since there are few opportunities to drink and it is difficult to obtain high-quality products, there are few opportunities to know the goodness. Therefore, it seems effective to create related products such as ice cream and chocolate using local green tea. Even now, confectionery products using green tea are widely sold, and packages that appeal to their origins will be created. For example, rice balls printed with "U.S. rice use" are still being sold to increase the appeal of the product, and appealing to the origin is also advantageous for the product. I think we can do it.

4, Establishment of a facility where you can drink green tea casually

 We propose the establishment of a cafe, etc. that can provide green tea as a second method for increasing the popularity of green tea to foreign visitors to Japan and disseminating its appeal. There are still several cafes that offer only green tea, but no

chain stores like STARBUCKS or DOTOUR exist. However, I think that if green tea is branded for each production area and that green tea-related drink is created, it can be developed like a coffee chain store. If there is a facility that can provide green tea like other cafes, it will be possible to increase the opportunities for foreign visitors to drink green tea.

[7] Future issues and prospects

As a future issue, it is necessary to further improve the concreteness of the proposal. Since proposals require specialized knowledge, research needs to be focused on one of the four. In addition, there is a regional difference in the green tea industry, so it is necessary to focus the production area in one area.

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5302 Imai Yuki

Founding the world naturally curly hair association

1. Overview

In the first place, I started this research because I thought that there are many people in the world who are hurt by messing with natural perms (slander slander), which is often said to be a natural perm. From there, the purpose of the research is also the philosophy of the World Natural Perm Association. One is to help those suffering from natural perms. The second is to disseminate the benefits of natural perms to the world. I studied using my experience and the Internet. And I thought about establishing and running an association. Therefore, in order to establish an association in an arbitrary group, it is basically only necessary to give a name, but it is necessary to create a code and implement it in order to distinguish it from a group. They are listed in the establishment letter of intent and the philosophy is included there. Next, you need money to run it. Therefore, we consider the membership fee as 1,000 yen per year. There are also natural perm classes and natural perm certification (after heaven par).

Therefore, we focused on creating one product as part of the first philosophy of "helping people suffering from natural perms". I thought it would be nice to be able to make a shampoo for people with a natural perm, taking advantage of the new technology of a product called LION Corporation's HADARABO. One of the main causes of natural perms is dryness of the scalp. Therefore, this HADARABO product retains moisturizing ingredients even when washed with water. I thought that if this technology was used, a revolutionary product for people in the natural par could be completed.

2. Research method

Two were mainly used.
① My knowledge and experience ... I made use of my experience and knowledge gained from being a natural perm.
② Internet… Published in the source
③Student notebook of Gunma Prefectural Central Secondary School

Using these, we conducted research to establish the World Natural Perm Association. We also considered the activities after the launch.

3. Research results

① Definition of natural perm in this association

The definition of a natural perm in this association is "If you recognize that you are a natural perm, you are a natural perm." Because it is an organization that helps people, people who are not aware of the natural perm have never had a negative experience with the natural perm, and the definition of the natural perm is vaguely defined as perception.

② To establish an association

In order to establish an association in a voluntary organization, it is basically only necessary to give a name. They are listed in the establishment letter of intent and the philosophy is included there. Therefore, the establishment letter of intent was posted below. The association itself can be easily established, but it is important to manage it. Therefore, it is necessary to make the existence of the association clear, such as the creation of the association's homepage. 5 years when operating the website for 5 years including initial costs

(60 months) x 50,000 yen = 3 million yen.

③ In operating the association

Even if you create an association, you must actually be active. So I want to confirm that step. First of all, you have to set up an association website. Therefore, I would like to request it because it is impossible for me. Next, you need money to run it. Therefore, we consider the membership fee as 1,000 yen per year. There are also natural perm classes and natural perm certification (after heaven par).

There are natural perm tests from grade 3 to grade 1, so I tried to make a grade 3 question as the first time. I also want to incorporate activities that help people who are suffering from natural perms and hair.

I attached the establishment letter of intent and the certification.

Proposal for the establishment of the World Natural Perm Association

President Yuki Imai

1 Philosophy
 Help those suffering from natural perms.
Communicate the benefits of natural perms to more people.

2 terms

I   Natural perms are proud and should never be criticized.

II   Any hair quality is accepted as a member.

III   Don't be an association where straight hair is hard to spend.

IV   If you slander someone for any reason, such as your hair quality, you may leave the association

V   A natural perm certificate will be issued if the natural perm can be proved.

VI   Natural Permanent Tests are classified into grades 1, 2 and 3 and those exceeding the specified score are
           classified by each grade.
         The certificate is issued and the qualification is obtained.
 VII   Natural Permanent Certification can be held forever unless there is Shijo.

VIII   If you are troubled with natural perms, you can feel free to call us.

IX   A monthly magazine about natural perms, TEMPER, is distributed to members once a month.

X   Once a year, you can voluntarily participate in a general meeting where all members can participate.

World   Natural Perm Association

First Grade 3

Chapter One

Answer the first chapter with ○ or ×

1. Natural perm is a dominant trait.

_____

2.　　Natural perms are caused by pores.

_____

3.　　It is better to use hot water to suppress natural perms.

_____

4　　Y o û Oizumi is not a natural perm.

_____

5. 50% of Japanese are natural perms.

_____

6.　　The cause of a baby's natural perm is how to sleep.

_____

7. Natural perms are vulnerable to moisture.

_____

8. Vitamin B1 is an essential nutrient for hair.

_____

9. Soft hair tends to become a natural perm.

_____

10. Permed hair is caused by changes in hormone balance.

Chapter II
Answer the second chapter with a description.

11. Taro and Hanako are both natural perms. If they have a child, what percentage of them are born in perm?

_____

12. Answer three full names of famous celebrities with natural perms.

_____

13. Answer the official name of the World Natural Perm Association in English.

_____

14. What is the penetration behavior inside the fluorescent dye (FITC) hair?

_____

15. What is the cell that covers the hair surface like a scale?

_____

Answer sheet

Full name   _____

Examinees' numbers   _____

Chapter One

1	2	3	4	5
6	7	8	9	10

Chapter two

11
12

13	
14	
15	

④ Logo creation of association

On the paper below is the World Natural Perm Association logo {top}. C represents curled natural perm and h represents hair. The wavy line coming out of C represents the hair. This is the logo of the National Natural Curled Hair Association. Next, below is the logo of the member magazine temper. This English word includes the meaning of temperament, and because it is a word that represents the nature of the birth, the natural perm represents the potential of birth. Of course, temper is the main meaning of heaven par.
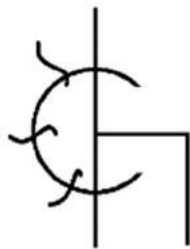
⑤ Principle of comb hair {quoted from the hair comb laboratory}

If one hair root is distorted, it will have undulating hair when it grows. Depending on the degree of this distortion, the strength of the sea urchin also changes.

The two hairs are composed of three layers, cuticle, cortex, and major, starting from the surface. The second layer, "Cortex," has two types of cortex, "A Cortex" consisting of proteins that easily absorb moisture and "B Cortex" consisting of proteins that do not easily absorb moisture. .
If the balance between the two cortexes is 50:50, the hair is straight.
If the balance between these two is disturbed, the hair becomes dry when the hair dries, or the hair becomes wet when the hair gets wet.

Since the 3 hairs are dominant, the "hair" is inherited from the parent to the child.
Then, "What happens to the child's hair if the father is a habit and the mother is straight?"
The result will be comb hair with more than 70% establishment.
However, wavy hair may not be noticed by itself, so the percentage of people who are actually conscious will change.
By the way, if both father and mother have peculiar hair, it will become hairy with over 90% establishment.

4 Additives, sebum and dirt contained in shampoos and treatments can cause undulations in the hair if clogged.
Try to keep your scalp clean with additive-free hair care products.

5 Excessive diet will result in insufficient nutrition for the scalp, resulting in poor blood circulation and uneven hair. Dieting makes your hair thinner, and rebounding makes your hair thicker. If the supply of nutrients to the hair becomes irregular, it becomes a continuous hair that is classified as a hair.

6 Have you ever heard that you had become straight hair when you were small?
This phenomenon often occurs in adolescence, and as a cause of sudden combing hair, I think that it has become a habit by changing hair from soft hair to hard hair.
This means that even if you have a strong habit, the habit is not so noticeable because the hair is soft when it is soft. When melanin is added to soft hair, it changes into hard hair.

7 If you suddenly became bruised in adolescence, your hair changed from a child's hair to an adult's hair.

If you use 8 quality shampoos or treatments, the scalp will become alkaline, waste products will be hard to come out, and the hair may be compressed and become hairy.
By making the human body weakly alkaline and the skin weakly acidic, waste products are put out.
Products made from soap and petroleum are alkaline, so use hair care products made from weakly acidic amino acids.

4. Conclusion

What I learned from this research is that bullying and harassment by natural perms do not appear in the actual numbers, but people with various hair qualities on the net transmitted various troubles with Yahoo! I found that many hairy sites were found, so I felt that many people were troubled with natural perms and hairs. So, the World Natural Perm Association I founded

In the first place, natural perms do not harm others, and natural perms are the personality of the person, so I think it should be respected.

5. Source

ヒトのくせ毛の微細構造
https://www.jstage.jst.go.jp/article/sccj/43/3/43_3_201/_pdf
くせ毛 HACK
https://www.kusegehack.com/textbook/base/306
ママの教科書
くせ毛研究室
https://www.ivanka.ne.jp/hpgen/HPB/categories/99177.html
SHARESLAB　　https://www.shares.ai/lab/houmu/1002645
Student notebook of Gunma Prefectural Chuo Secondary School

IT and society
~ Aiming for a sustainable society by IT~

12th grade 5th grade 3rd class 3rd Yuto Oki

1 Introduction

A sustainable society is the society where the global environment and the natural environment are properly preserved, development is carried out to meet the needs of the current generation without compromising what the future generation needs. Economic development and technological innovation have made people's lives more materially and more convenient, but our convenient lives made the environment which is the foundation for us to continue to live abundantly. Under such circumstances, efforts toward a sustainable society are spreading around the world.

Based on this, I thought that IT could be used for efforts toward a sustainable society. If the environment deteriorated in the process of creating technology, we thought that the technology should restore the good environment. This research mentions how to use IT in order to form a sustainable society.

Information for research was collected from the Internet.

2 Discussion and implications

First of all, I focus on the situation in the world based on data.

(1) Environment of the earth has deteriorated.

1. Biodiversity is declining worldwide.

Compared to 1970, *the living earth index fell by 58% in 2012. Especially in the tropics, the decline is 60%, threatening biodiversity.

*What is the living earth index?

An index that shows the richness of biodiversity on the planet (Living Planet Index: LPI). Based on data from more than 10,000 solid counties of about 3,700 vertebrates around the world, this is a single numerical value for the increase or decrease in species.

2. The forest is decreasing.

The world's forest area is about 3.99 billion hectares, accounting for 30.6% of the total land area in 2015. However, the world's forests continue to decline, decreasing 5.1 million hectares annually (average net change from 1990 to 2015). In addition, the forest area of 129 million hectares decreased from 1990 to 2015 is comparable to the land area of South Africa.

3. The average global temperature is rising.

The global average temperature has been increasing year by year, and it has been announced that the average global temperature has risen by about 0.85 ° C during the 132 years from 1880 to 2012. It is said that the impact of human activities is extremely high at a speed that the Earth has never experienced before. Climate change problems resulting from increased greenhouse gas emissions are causing extreme weather events such as torrential rains and high temperatures throughout the world. If global warming measures are not addressed, the global average temperature is expected to rise by around 4 ° C at the end of the 21st century.

(2)Increase in environmental impact associated with human activities

1. Earth population is increasing rapidly

By 2050, the world population will be about 9.8 billion. Since the end of the 19th

century, when the living conditions have been met, such as the development of industrial and agricultural technologies, increased food production, and decreased mortality due to advances in medical technology, the global population has increased rapidly.

2. The age of mass consumption of fossil fuels

The human society after the Industrial Revolution has entered an era of mass production and mass consumption. The main driving force behind this is fossil fuels such as coal and oil. The consumption of fossil fuels has also led to carbon dioxide emissions that exceed the capacity of natural systems.

3. Water shortage is advancing with increasing world population

The water on the earth is about 1.4 billion km3, but only 0.01% of the total water can be easily used by humans. With limited water resources, the world's water consumption has increased by about 2.74 times from 1950 to 1995, which is higher than the population growth during the same period (about 2.25%). There is a high correlation between population growth and human water use, and both population and water use are expected to increase rapidly in numerical projections up to 2025. Water shortages cause crop failures and food shortages, and can be a source of international conflicts in areas such as the Middle East and Africa, as well as environmental problems that compromise biodiversity.

4. Poverty, widening disparities, conflicts ... various problems

The number of people living in extreme poverty worldwide has dropped from 1.9 billion in 1990 to less than half in 2015. However, more than 800 million people still live below $ 25 cents a day. There are many people who live in the country and cannot use enough food, clean drinking water, and sanitation facilities. 10% of the world's richest people occupy nearly 40% of global income. The poorest people account for only 2% to 7% of global income. Taking into account the size of the population, income inequality increased 11% in developing countries. The widening gap is an unmistakable fact. There are also regions in the world that appear to be in an endless vicious circle of conflict and violence. Intense armed conflicts and growing fears not only have a devastating impact on national development, impair economic growth, but also often bring long-term conflicts between communities for generations. Sexual violence, crime, exploitation and torture are also prevalent in conflict areas.

(3)Aiming for a solution for one earth

-In 2050, support for 3 Earths is required

According to the Ecological Footprint, an index that expresses the ability of the Earth to recharge, although it was barely able to cover human activities by one earth around 1970, it already exceeded capacity in 2010 and It is estimated that 3 cultivators are required.

Next, I will introduce examples of the use of IT (ICT) for a sustainable society currently being conducted in Japan.

(1) Fujitsu Group

The Fujitsu Group has stated that "Contributing to a sustainable society through ICT services" is one of the goals of the 8th Environmental Action Plan. In 2015, "Sustainable Development Goals (SDGs)" was adopted by the United Nations and clarified as an international goal, contributing to the sustainability of society more than

ever. I aim to go.

To realize a sustainable society, not only global warming countermeasures by reducing greenhouse gas (GHG) emissions, but also resource conservation, biodiversity conservation, food supply stabilization and urbanization countermeasures, It is necessary to deal with various social and environmental issues such as disaster prevention. Information and communication technology (ICT) that brings "optimization", "efficiency", "automation", etc. in a wide range of fields has the potential to greatly contribute to solving social and environmental issues. The Fujitsu Group aims to contribute to the SDGs globally by providing ICT services.
(2)

3 references
Contributing to a sustainable society through ICT services

（https://www.fujitsu.com/jp/about/environment/society/sustainability/）

Promotion of information education in Gunma Prefecture
~ Compared with developed countries ~

5304 Seitaro Ohara

○ Outline of research

The purpose of this research is to research and propose what should be done to make the education more successful when the information education of elementary and junior high schools is started in 2020 under the new guidelines for learning. In Japan, there is a chronic shortage of highly skilled programmers and engineers, and information education is indispensable for solving these problems in Japan. In the world, the IT industry continues to expand, mainly in the United States and China, and advanced information education has already been provided in the UK and Estonia. I investigated the actual state of education in Japan or Gunma Prefecture, referring to these examples from other countries, and made proposals suitable for the actual educational site. And as a conclusion of this study, I made the following five proposals for successful new information education. "(1) Spread the importance of information education (2) Promote the development of information education environment (3) Increase the number of teachers specializing in information (4) Introduction of private teaching materials and content positively (5) Introducing "Information I" in the Common entrance to universities" If these measures are performed, it will be possible to provide a complete information education.

1.Research purpose

Today, IT technology advances rapidly in the world. These technologies are thought to have a huge impact on the economic growth of countries around the world. However, because IT engineers are currently scarce on a global scale, countries are starting to take countermeasures. Japan has begun to take countermeasures little by little, and it has been decided that programming education at elementary schools will be compulsory from fiscal 2020, but it is still unknown whether the shortage of IT engineers can be resolved. Therefore, we set a theme to study what kind of education is needed for the development of the IT field. In addition, we thought that it would become an abstract proposal if the target area was all over Japan, so we decided to make a proposal that suits the local Gunma Prefecture.

The ultimate goal of this research is to make proposals to enhance the new information education that will begin in FY2020 based on the current educational environment in Gunma Prefecture. To that end, we will investigate the actual conditions of the IT industry in Japan or the world, examples of information education overseas, and the educational environment of Gunma Prefecture.

2. Research method

I would like to proceed with my research mainly referring to the Internet and books. We will also investigate the following seven points to make more effective proposals.

○ Importance of information education

○ Current status of the Japanese IT industry and IT population

○ Current status of the global IT industry and IT population

○ Prior examples of programming education

○　A precedent case of information education in overseas countries

○　The actual situation of the educational environment in Gunma Prefecture

○　Information education and new learning guidelines for Japanese elementary and junior high schools

I considered and made suggestions based on the investigated data and examples above.

3.Research results and conclusions

<Survey results>

○　Importance of information education

　　The environment that surrounds us in modern society is changing rapidly every day. The impact of the development of civilization on humanity is enormous, and computer science in particular continues to develop at an unprecedented speed. A huge amount of information is generated on the Internet every day, and that information continues to change for better or worse. The response to information is indispensable for us living in the present age, and if we fail to do so, there is a possibility that we will be in danger. Examples include personal information leaks and computer virus infections. Education such as IT literacy and information morals is indispensable in modern times to prevent these situations.

　　Education as described above has already been conducted at elementary and junior high schools and high schools, but in addition, specialized knowledge and skills such as programming will be necessary in the future society. The field of IT is a relatively new field and is still growing greatly. Various innovations have occurred in recent years, and it is expected as a field with many possibilities. However, the chronic shortage of IT engineers continues in Japan, and in the future, the supply of human resources will not be sufficient for industrial development, and the shortage of human resources is expected to expand. Programming education has already begun in many overseas countries, and if Japan does not start responding swiftly, the IT industry in Japan will lag behind foreign countries. Therefore, in order to produce many excellent human resources from Japan, information education from a young age is very important.

○　Current status of the Japanese IT industry and IT population

　　As of 2016, the number of IT human resources in Japan (persons belonging to IT company and user company information system department) is about 900,000 (total population ratio: 0,70%) (See Figure1), and the shortage is about 170,000, which is estimated (See Figure2). The supply of human resources is expected to decline after peaking in 2019, and the shortage of human resources is expected to increase further. Furthermore, among the various IT industries and services, it is thought that demand will grow especially and there will be a shortage of human resources such as "big data", "IoT", "artificial intelligence" and other advanced technologies. However, Japan has a high percentage of non-majors in all IT human resources, and it is estimated that there are few human resources with advanced technology (See Figure3). Therefore, it is necessary to revitalize specialized IT education.
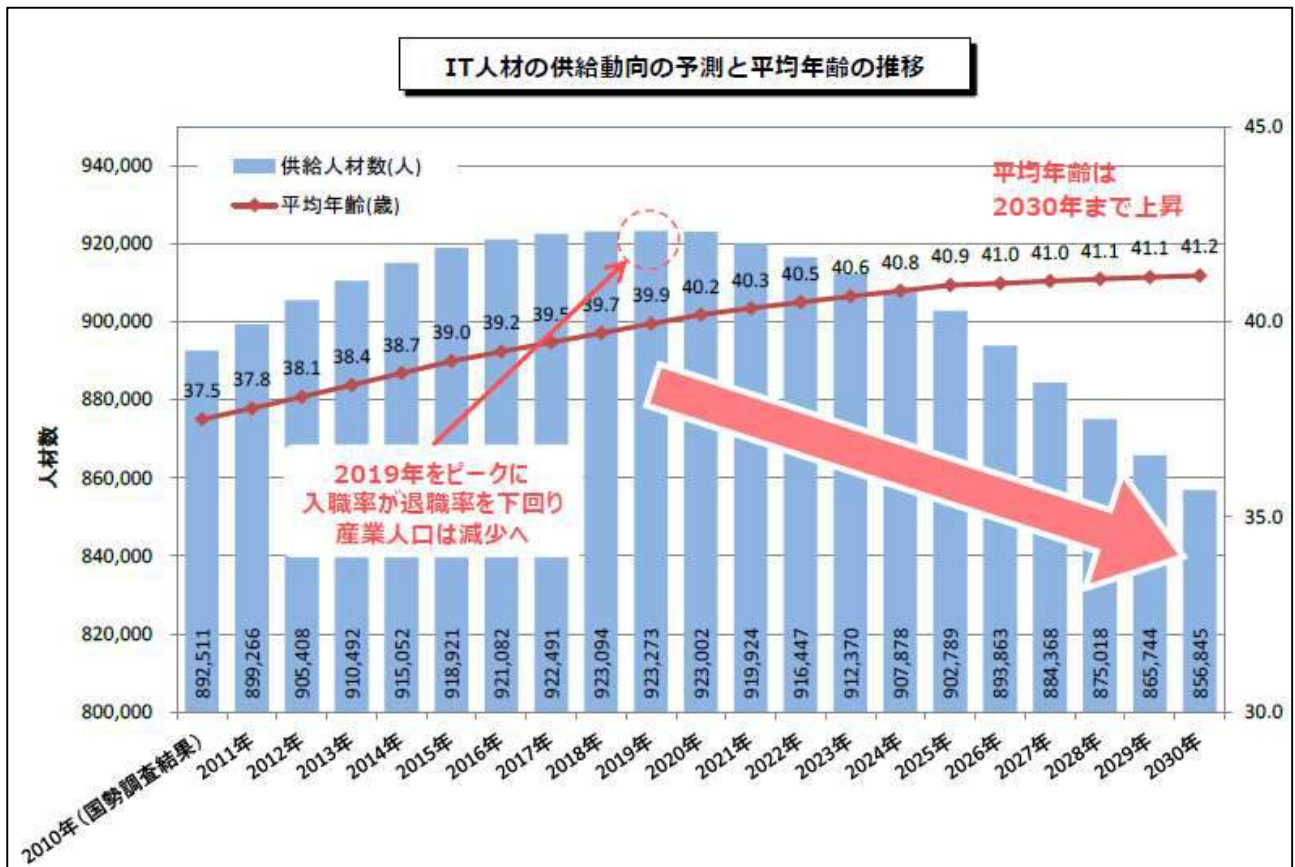
Figure1: Blue parts shows the number of IT human resources in Japan. The red line shows the average age of IT engineers in Japan. (From the Ministry of Education, Culture, Sports, Science and Technology homepage)
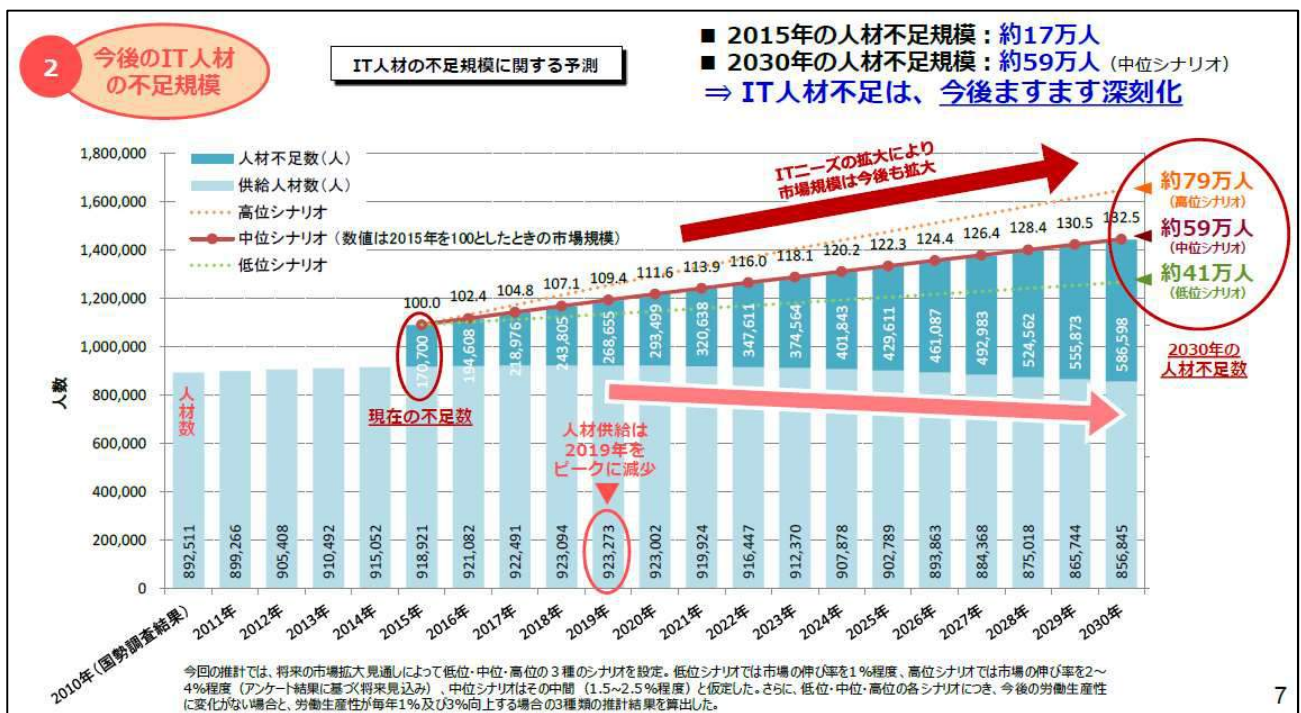
Figure2: The light blue parts shows the number of IT human resources in Japan. The deep blue parts shows the shortage of IT human resources in Japan. (From the Ministry of Education, Culture, Sports, Science and Technology homepage)

回答者専攻分野

インド (n=500)	72.0%	8.8%	6.4% ... 0.8%
中国 (n=500)	61.6%	8.8%	9.6% 3.4%
韓国 (n=500)	58.0%	5.0%	13.4% 11.8%
インドネシア (n=500)	53.8%	13.0%	16.2% 4.8%
タイ (n=500)	52.2%	6.0%	20.2% 5.6% 7.0%
米国 (n=500)	43.8%	5.2%	25.6% 6.2% 8.4% 3.2%
ベトナム (n=300)	41.3%	9.3%	22.0% 7.7% 8.7%
日本 (n=500)	23.0%	14.4% 9.6%	7.8% 19.6% 11.8% 11.4%

理系専攻者 49.4%

- ■情報工学・情報科学※
- □数学・統計学
- ▥経営学（MBA等）
- ▨人文科学（歴史・外国語等）
- ▨その他工学系
- ▤その他理系
- ▥社会科学（経済学・法学等）
- ▩その他芸術等

※「情報工学・情報科学」の割合順。
※「情報工学・情報科学」には、「計算機工学・計算機科学」を含む。
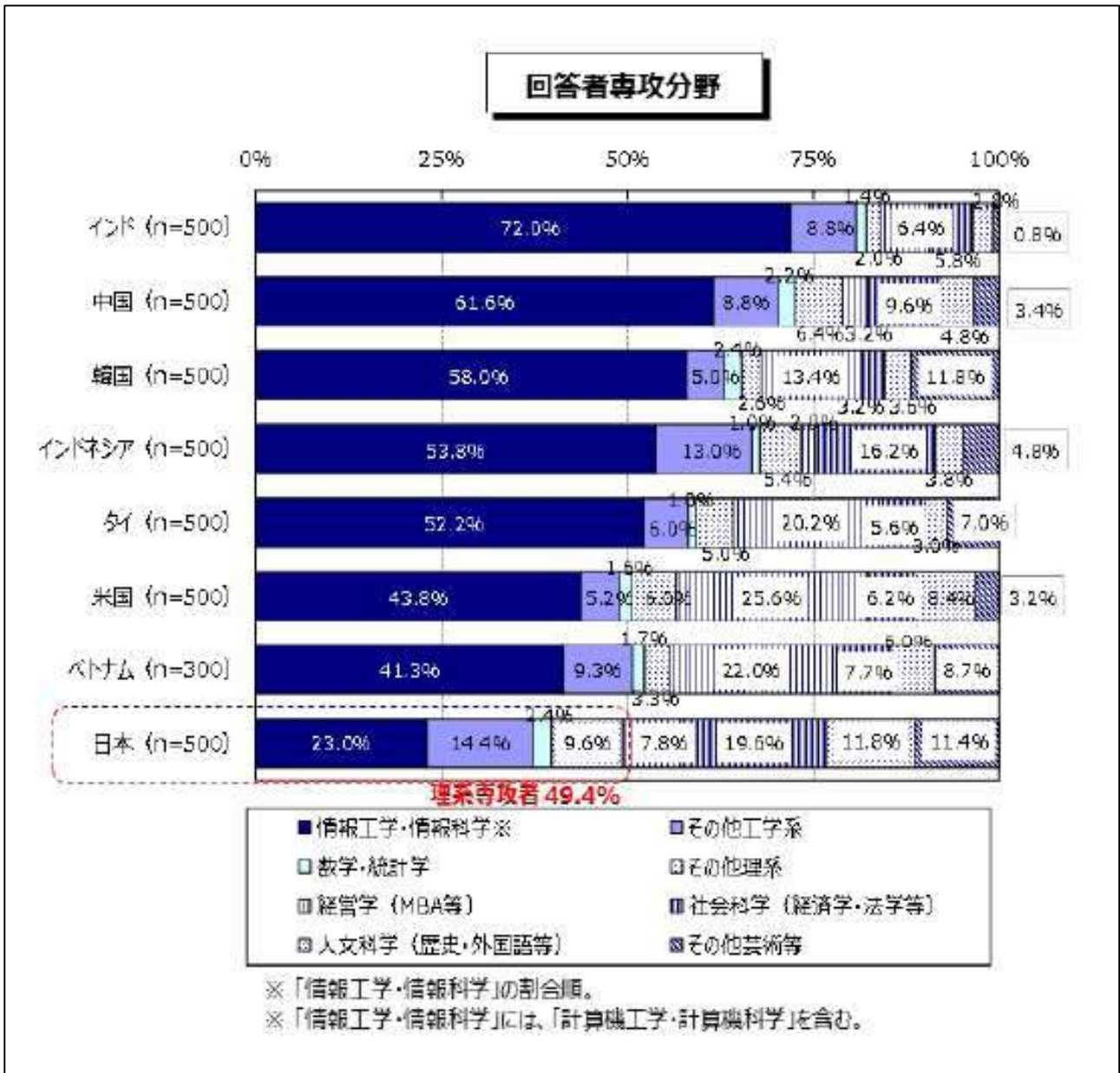
Figure3: The deepest blue parts shows the rate of information engineering majors among all IT engineers. The second deepest blue parts shows the rate of other engineering majors among all IT engineers. The light blue parts shows the rate of mathematics or statistics majors among all IT engineers. From top to bottom, rates of India, China, South Korea, Indonesia, Thailand, The US, Vietnam, and Japan are shown. (From the Ministry of Education, Culture, Sports, Science and Technology homepage)

○ Current status of the global IT industry and IT population

・America

As of 2014, the number of IT human resources in the United States (employees involved in IT services) was approximately 3.69 million (vs. total population ratio: 11,13%), and temporarily decreased due to the impact of the Lehman shock. There are some years, but it has been increasing in recent years.

・China

As of 2013, the number of IT human resources in China (employees involved in IT services) is about 3.27 million. As of 2012, it was about 2.23 million (ratio to total population: 0,23%), so it has grown rapidly over the course of 2012-2013. The number of IT human resources is expected to increase in the future, and it seems that China will become one of the world's leading IT advanced countries in the not too distant future.

・India

As of 2018, the total population of India is about 1.3 billion and boasts the world's second largest population after China.
Specific data on IT human resources in India could not be obtained, but it seems that there are as many human resources as in China. India has a long-standing caste system, and there are a certain number of poor people who cannot get free jobs. However, because the field of IT industry is not in the caste system, it is said that there are many excellent human resources in India because poor people study desperately to work under relatively good conditions.

○ Prior examples of programming education

The Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Internal Affairs and Communications, and the Ministry of Economy, Trade and Industry have set up a future Manabi Consortium to make elementary programming compulsory in 2020. The organization sponsors experimental classes and educational forums conducted by various schools, public organizations, and private companies (See Figure4&5). Various preliminary experiments were conducted regardless of whether the course of education was inside or outside the school. The future Manabi Consortium website introduces implementation examples and teaching materials used so far, and proposes various educational forms and active introduction to educational sites.

Figure4: The example of experimental classes and educational forums. (From the "Future Manabi Consortium" homepage)

○ Preceding examples of information education in overseas countries

・India

India has the second largest population in the world, but the old "caste system" hinders India's economic development. However, because the IT field is a newly created industry in recent years, it does not apply to any class of caste work, and it has become popular with many young people as they can get professions as long as they made efforts. In 1951, the first Indian Institute of Technology (IITs) was established with the model of the American MIT (Massachusetts Institute of Technology), and there are now 23 IITs in India. Each school is an independent organization, but is generally called Indian Institute of Technology, IITs. IITs have a very high reputation for their high level of education and students' excellence, and leading IT companies around the world are actively recruiting IITs students.

・The United Kingdom

In the UK, a subject called "Computing" has been implemented since September 2014. "Computing" consists of three fields: CS (Computer Science), IT (Information Technology), and DL (Digital Literacy). As for instruction hours, Key Stage 1 to 3 (equivalent to 5 to 14 years old)

takes 1 hour / week, and Key Stage 4 (equivalent to 15 to 16 years old) receives GCSE (General Certificate of Secondary Education National Unified Ability Test). Many people only take the course, in which case they take 2 hours / week. The UK previously set up a subject called "ICT", but "Computing" was newly set up to make computer science learning more active. While "ICT" focused on improving ICT literacy and information utilization capabilities, "Computing" has enhanced computer science, such as incorporating algorithms and learning programming languages. The programming language mainly uses Scratch, and Key Stage 3 uses Python. There are no textbooks or learning tools designated by the government, and each teacher introduces texts and online tools provided by private companies. Nowadays, there is a shortage of teacher skills and subject teachers.

・Estonia

In Estonia, a programming education promotion program called "ProgeTiiger" has been implemented since September 2012. The goal of this program was to make programming education available at all public schools, and teacher training and teaching materials were provided for this purpose. Currently, it is up to each school to introduce programming education. At basic schools (equivalent to elementary and junior high schools) where programming education is conducted, programming education is often conducted in the subject "Informatics", and people are interested in programming through robot programming and game programming. Many schools place particular emphasis on this. Similarly, upper secondary schools (high school equivalents) have courses for studying programming languages such as Scratch, Python, and Java. There are no textbooks or learning tools specified by the government, and many schools use teaching materials provided by private organizations. Currently, the shortage of leaders is an issue.

・South Korea

In South Korea, the necessity of information education has been appealed since the 1970s, and since 1987, information education has been introduced to first and junior high schools. However, in the early 1990s, learning about ICT literacy, which is important in real life, was emphasized, and content related to programming and information processing technology was lost from the curriculum. Later, in December 2005, the "Guideline for Management of Information and Communication Technology (ICT) Education for Primary and Secondary Schools" was revised, and programming education was revived in 2007. However, at present, the low registration rate of the subject "Information" is a problem, and the "Information" participation rate is 28% at junior high school and 47% at high school (as of 2013). The attendance rates are 8.1% and 5.2% (as of 2012), respectively. This is probably because the subject of "information" is not considered so important because it is not imposed on the university entrance examination. Therefore, the government has set up "software (SW) education for future generations", and the subject "information" of junior high and high school will be converted to "SW" in the future.

○The actual educational environment in Gunma Prefecture

The information education environment in Gunma Prefecture is an average level nationwide, but it is far from the target set by the Ministry of Education, Culture, Sports, Science and Technology, and a satisfactory education environment has not been established (See Figure6).

By item, the average number of students per one computer in Gunma Prefecture is 5.9 / unit, which is below the national average of 5.6 / unit (See Figure7). Since the target value of the Ministry of Education, Culture, Sports, Science and Technology is 3.0 people / unit, in order to

achieve the target value in Gunma Prefecture as a whole, approximately 28,000 computers or more are required by simple calculation. In addition, the average classroom wireless LAN installation rate is 34.6% in Gunma prefecture, which is almost the same as the national average of 34.5%. By municipality, Yoshioka Town, Tamamura Town, Takayama Village, etc. have reached 100%, and there are about 90% of high-level municipalities such as Maebashi City, on the other hand, the rates of Tatebayashi City, Annaka City, Sinto Village, etc. are almost 0% (See figure8). Therefore it can be said that there are disparities among municipalities in the prefecture. The target of the Ministry of Education, Culture, Sports, Science and Technology is 100%, and it is necessary to proceed with development in more than three quarters of municipalities.
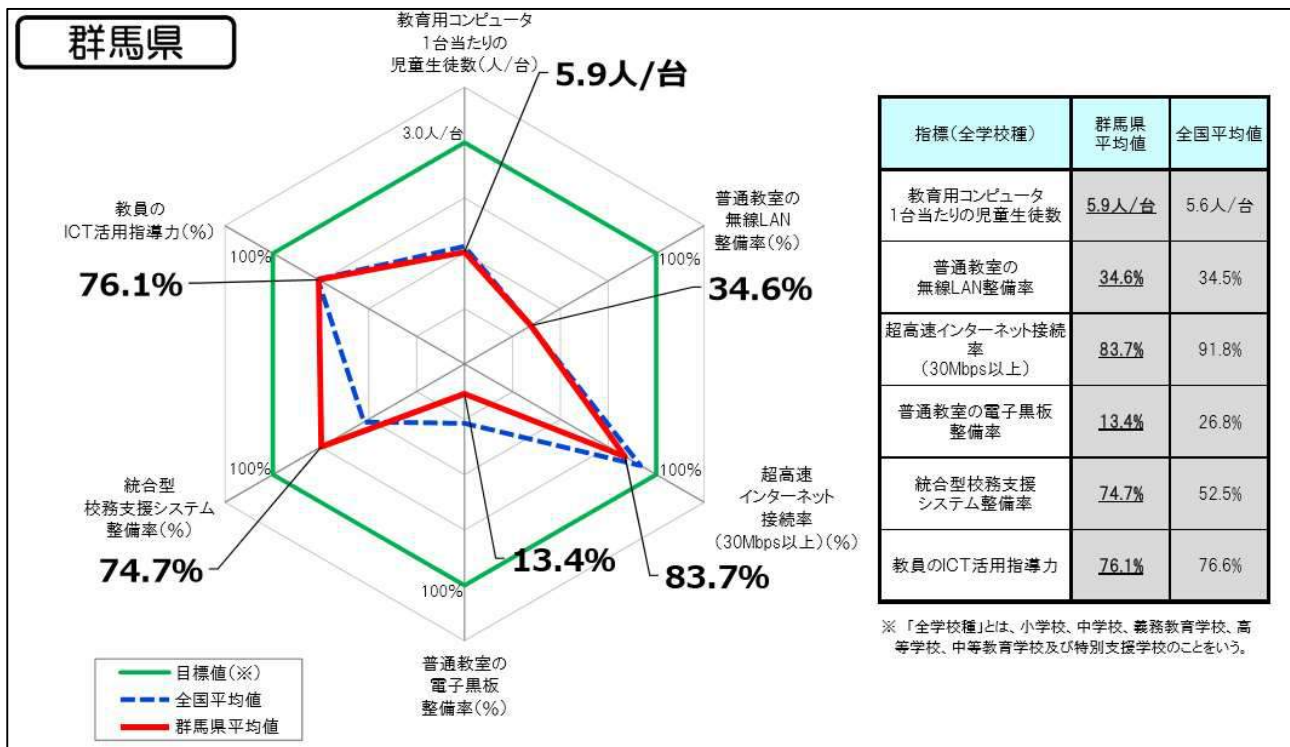
Figure6: The data of information education environment in Gunma (From the Ministry of Education, Culture, Sports, Science and Technology homepage)
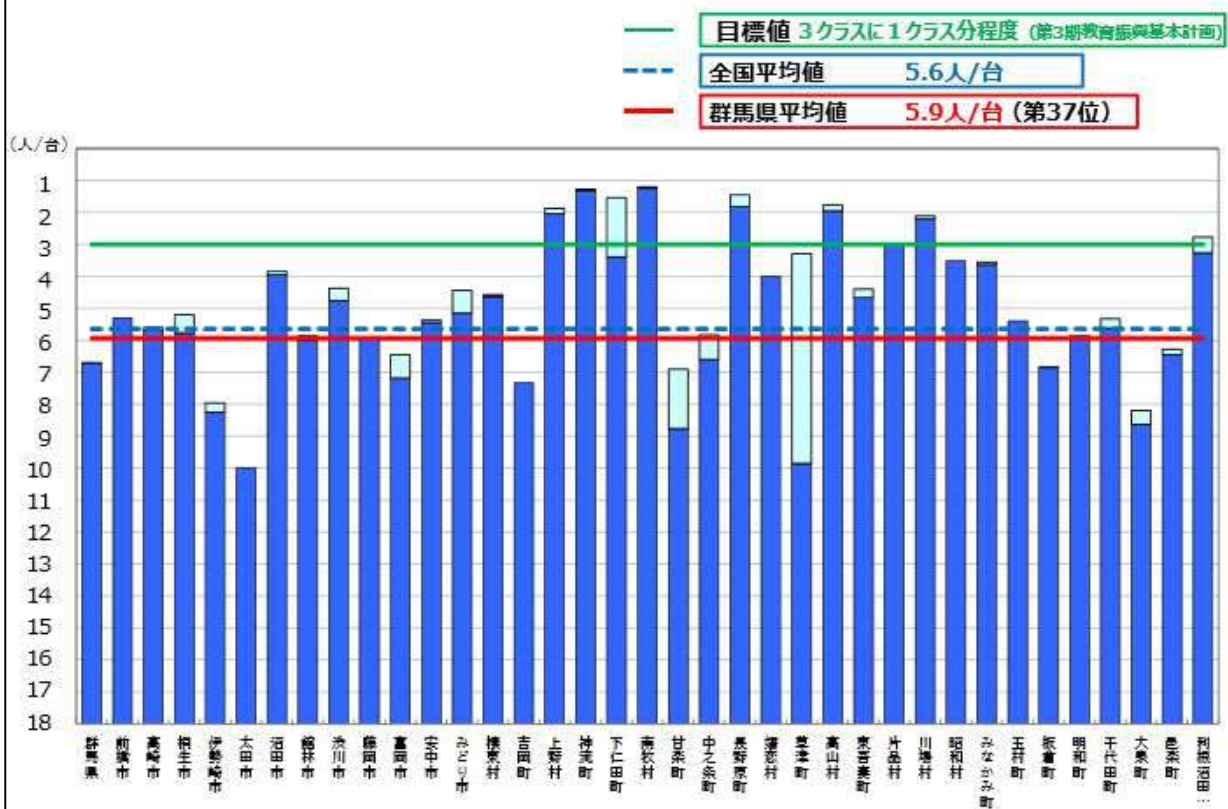
Figure7: The number of students per one computer by municipality (* Light blue part is an increase from the previous year) (From the Ministry of Education, Culture, Sports, Science and Technology website)
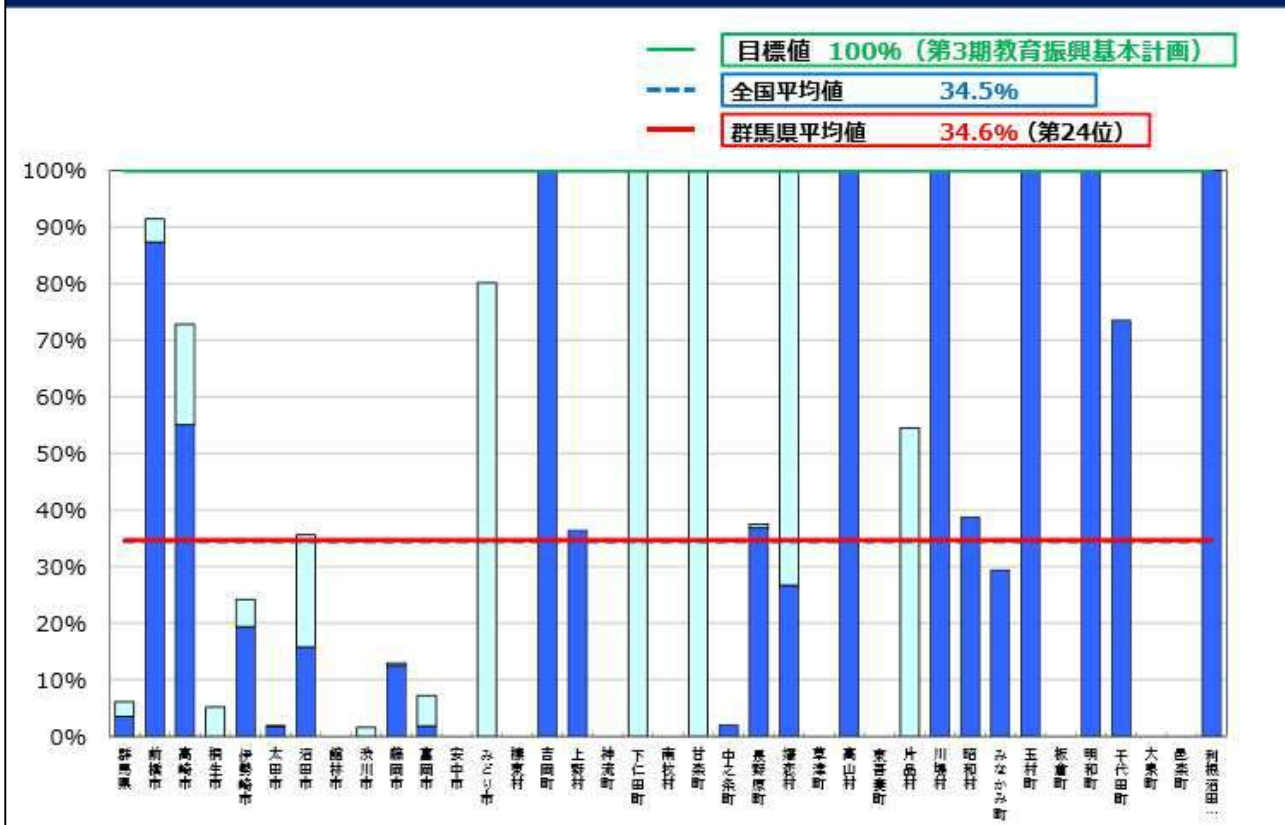
Figure8: The rate of classroom wireless LAN installation by municipality (*Light blue part is an increase from the previous year) (From the Ministry of Education, Culture, Sports, Science and Technology website)

○ Information education and new learning guidelines for Japanese elementary and junior high schools

Year	2016	2017	2018	2019	2020	2021	2022
Elementary school	Revision	Term to inform	Transition term	Transition term	Implementation	Implementation	Implementation
Junior high school	Revision	Term to inform	Transition term	Transition term	Transition term	Implementation	Implementation
High school		Revision	Term to inform	Transition term	Transition term	Transition term	Implementation

Figure9: The schedule of revising learning guidelines for elementary and junior high and high school in Japan (From the Ministry of Education, Culture, Sports, Science and Technology homepage)

・Elementary school

In the current courses of study, there is no information education, and it was supposed to be

possible at the discretion of each school. However, in the new course of study, "programming education" is compulsory, and it is clearly stated that you can touch programming in the time of arithmetic, science, and comprehensive study. The purpose of this programming education is "programming thinking", that is, "what kind of movement combination is necessary to realize a series of activities that I intend, and which symbol corresponds to each movement. The ability to think logically (from the Ministry of Education, Culture, Sports, Science and Technology) "How to improve the combination of symbols, how to improve the combination of symbols, and closer to the intended activity" The purpose is not to learn programming code.

・Junior high school

The new study guidance guidelines have greatly added language on information education compared to the current study guidance guidelines. In the technical field of technology / home economics, "D information technology" in the contents "understands the structure of the information communication network and the basic mechanism for using information, and creates safe and appropriate programs and confirms the operation. Can be debugged, etc. (excerpts from the new study guidelines), "understands the mechanism of the measurement / control system, and can create safe and appropriate programs, check operations, debug, etc. (extract from the new study guidelines) "," Finding problems, setting issues, conceiving measurement and control systems based on the flow of input and output data, and embodying information processing procedures, as well as evaluating and improving production processes and results "Think about revision (excerpts from the New Course of Study)". This will give you more opportunities to experience programming and use programming thinking.

・high school

In high school, the subject of information has been greatly reformed. In the current course of study, one course is required in the Department of Information from "Society and Information" and "Information Science". About 80% of schools choose "Society and Information", and "Information Science", which has relatively specialized content, has a course rate of about 20%, and practical information education is not perfect. Is the current situation. In the new course of study, the Information Department has two courses called "Information I" and "Information II" (the "Information I" is a required course), and "Information I" also contains information on specialized computer knowledge and skills. It was. In addition, the Future Investment Conference was held on May 17, 2018, and a policy was decided to consider introducing information subjects into the university entrance examination common test. The government wants to introduce it from the 2024 common test.

<New study guidelines>
Contents of "Information I"
(1) Problem solving in the information society
(2) Communication and information design
(3) Computer and programming
(4) Utilization of information communication network and data
Contents of "Information II"
(1) Progress of information society and information technology
(2) Communication and content
(3) Information and data science
(4) Information system and programming
(5) Search for problem discovery and solution using information and information technology

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<Current study guidelines>
Contents of "Society and Information"
(1) Use and expression of information
(2) Information communication network and communication
(3) Information society issues and information morals
(4) Building a desirable information society
Contents of "Information Science"
(1) Computer and information communication network
(2) Problem solving and computer utilization
(3) Information management and problem solving
(4) Advances in information technology and information moral

<Conclusion of research>

Currently, there is a major reform in information education in Japan, and more specialized content is planned. I generally agree with this reform because I think it would be more effective to get hands-on experience to get interested in programming. However, if only halfway reforms are made and the current classroom-oriented information education continues, I think that there are not many people who can have a concrete image of programming. Therefore, I propose the following five measures based on the investigations so far.

(1) Spread the importance of information education
(2) Promotion of information education environment
(3) Increase teachers specializing in information
(4) Active introduction of private materials and contents
(5) Introducing "Information I" to the university entrance examination

(1) Spread the importance of information education

Elementary and junior high school students and high school students are expected to deepen their knowledge and understanding of IT through future education, but it is difficult for the educated child generation to play an active role in society unless the current adult generation is aware of it correctly. Therefore, all generations need to understand the information society. To that end, the government should disseminate the importance of information education through

various media, and each local government and school should introduce actual educational activities.

(2) Promotion of information education environment

As shown in the above research results, the current Japan and Gunma Prefectures do not have an educational environment that can provide satisfactory information education. If possible, local governments should prepare the education environment before the new study guidelines are implemented. The development of computers and wireless LANs can be used not only for information education, but also for other subjects and communication between students and teachers.

(3) Increase teachers specializing in information

Currently, 23.8% of the teachers who are in charge of technical home economics in junior high school and the information department in high school have no regular license. 39.1%, which is high compared to other subjects, and it is unlikely that a full information education will be provided. The shortage of teachers continues chronically regardless of these subjects, so it seems very difficult to increase the number of specialist teachers. For this reason, we believe that a system should be created in which instructors from external private companies can be taught at school throughout the year.

(4) Active introduction of private materials and contents

As per the above research results, the introduction of private teaching materials has been actively conducted overseas. Of course, Japan should not only take textbook-based lectures but also actively incorporate private materials. However, in Japan, the ratio of teachers who do not specialize in information among teachers who conduct information education is high, and it is not effective to ask each school / teacher to judge the teaching materials as in the UK. Therefore, in Japan, we should establish a unique curriculum for information education in each municipality.

(5) Introducing "Information I" to the university entrance examination

As shown in the above research results, in South Korea, there is a situation in which the information subject course rate is low due to the absence of information subjects in university entrance examinations. In Japan, "Information I" is a compulsory subject, so it is not expected that such a situation will occur, but it is thought that students will become more interested by imposing a university entrance examination. Considering the information society in the future, it can be said that the information department is an important subject as much as the other five major subjects, so it should be introduced. However, of course, the burden on students is large, so I think it is possible to take measures such as reducing the number of local citizens and science.

<Future issues>

In this study, we planned to focus on Gunma Prefecture, but we could not find the characteristics of Gunma Prefecture. In addition, since the conclusion of the research is very lacking in concreteness, I would like to research from one of the five proposals to one or two in the future.

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Ministry of Education, Culture, Sports, Science and Technology "New Learning Guidance Guidelines -Points related to Information Education / ICT Utilization-"

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Ministry of Education, Culture, Sports, Science and Technology (MEXT)

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Future Learning Consortium: https://miraino-manabi.jp/

Promotion of computerization of MEXT education

http://www.mext.go.jp/a_menu/shotou/zyouhou/index.htm

Research on programming education in other countries

http://www.mext.go.jp/a_menu/shotou/zyouhou/detail/1408119.htm

Ministry of Education, Culture, Sports, Science and Technology

http://www.mext.go.jp/a_menu/shotou/new-cs/1384661.htm

Future Investment Conference (16th)

https://www.kantei.go.jp/jp/singi/keizaisaisei/miraitoshikaigi/dai16/index.html

The global work environment and Japan
~Improvement of working environment ~

12th Grade 5th Grade 3rd Class 5　Yusuke Okada

Research motivation

In recent years, labor productivity has been steadily decreasing due to the deterioration of the Japanese working environment and the decline in the working population. Meanwhile, Japan is trying to deal with these problems by implementing work style reform. In addition, I thought about how to improve the Japanese working environment by comparing the global working environment in Japan.

Purpose of research

The working-age population is declining due to the declining birthrate and aging population, and if this continues, labor productivity in Japan will decline significantly. In addition, work efficiency is reduced due to the deterioration of the working environment, and a negative spiral is created. Therefore, by grasping the current working environment, elucidating the cause, and working to improve the working environment, we will increase labor productivity. In addition, we considered what is possible from the perspectives of managers and workers.

Research method

Grasping the current state of the Japanese work environment and improving points in work style reform. Consider further problems and substantive problems that cannot be covered by law.

Research result

Many companies today still have a deep-rooted idea of working overtime rather than resting and ending it the next day so as not to leave work the next day. If you search for "Japan working environment" on the Internet, you will see many negative words such as "worst, crazy, abnormal" in the prediction conversion, and you will feel the thoughts of the people who actually work from there. .

海外 労働環境に関連する検索キーワード

日本 労働環境 地獄　　　　日本の労働環境 海外の反応
日本 労働環境 奴隷　　　　日本 労働環境 働きたくない
日本 労働環境 終わってる　日本人 働きすぎ おかしい
労働環境 改善されない　　　日本人 働きすぎ 嘘
日本 労働環境 2ch　　　　 ドイツ 労働環境
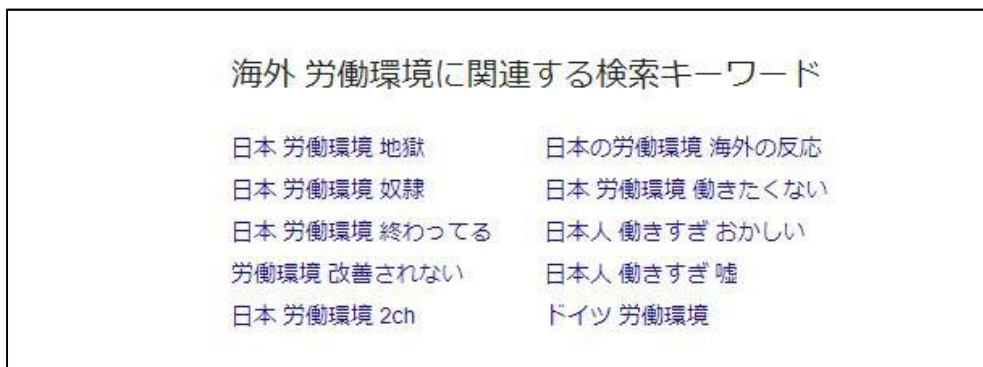
From Google searching result

The word "Karoshi" was not found in Western countries, and the word "Karoshi" was newly added to the dictionary due to the problem of Japanese labor death, and the world became an opportunity to think about death from labor.
Why has the work environment in Japan come to be called the worst?
In the first place, there seems to be two problems related to the large number of jobs that cannot be finished unless overtime work is done, along with the fact that the number of jobs per person is increasing due to the

drastic decrease in the workforce in Japan. As you can see from the chart below, the working-age population has been declining steadily since 2000, and it can be seen that the population will also decline in the future, but the working-age population has greatly decreased further. Let's go. Here, the government is striving to improve the working environment with a "100 million total active society". One of the measures is "work style reform". As a goal, "work style reform is a solution to this problem, realizing a society where people can choose various work styles according to the individual circumstances of the work people, and each working person has a better future outlook. We aim to be able to have it. The three major goals are to improve the working environment, to reduce the gap between non-regular and regular, and to promote employment for the elderly.
We focused on improving the working environment.
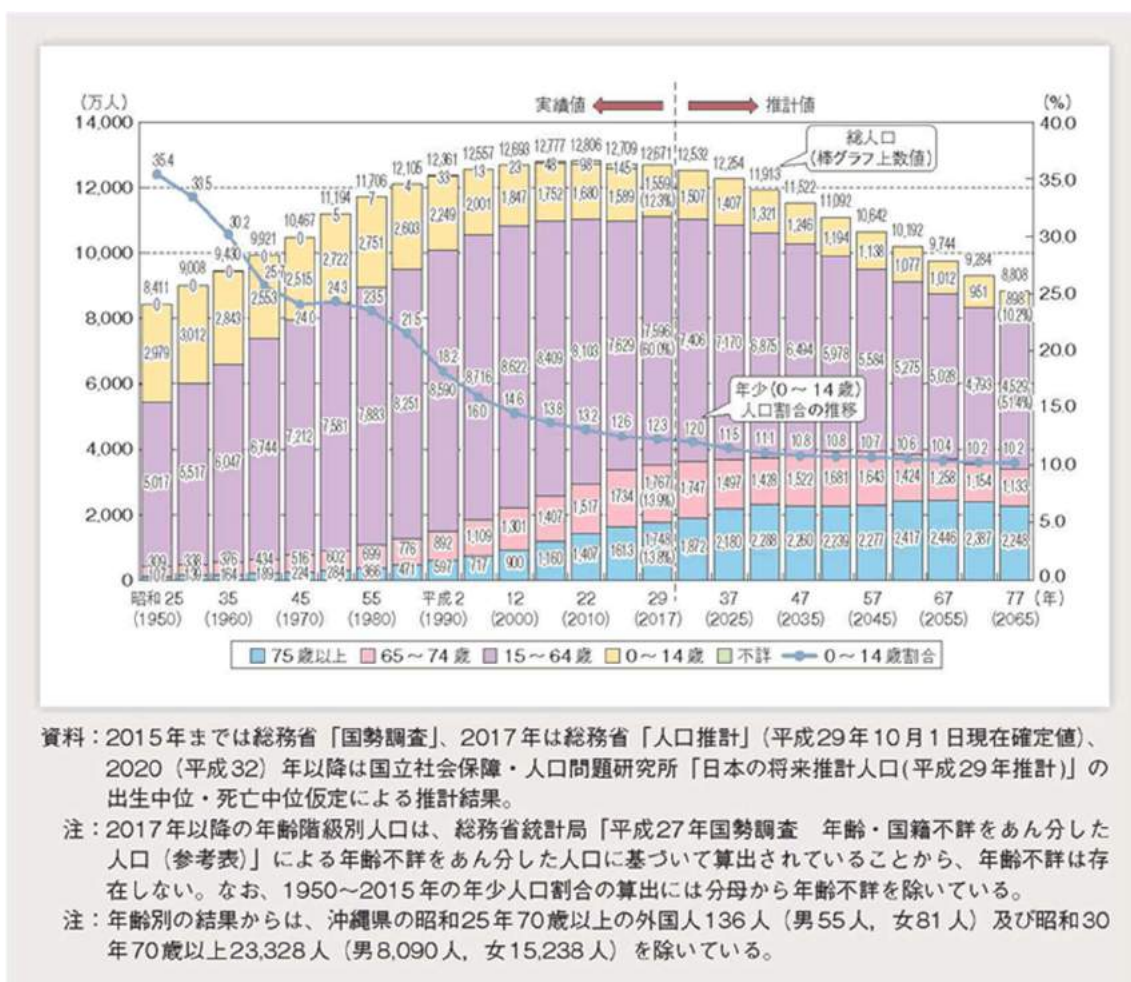
From　内閣府ホームページ

Working hours are stipulated by the Labor Standards Act, which is decided to be 8 hours a day and 40 hours a week or less. Overtime (overtime work) is a new law based on the overwork death standard. On the 28th "Working Style Reform Execution Plan", it was decided to set an upper limit on overtime hours, and the content of the 36 Agreement itself was not changed. An upper limit will be set. Within the newly set "720 hours a year", overtime work is set based on "within 80 hours" on average for 2 to 6 months and "less than 100 hours" for 1 month, Overtime over 45 hours will be up to 6 months per year, as it is today. The upper limit is expected to be submitted within 2017, discussed and prepared for implementation in 2018, and finally enforced after April 2019.

From Ministry of Health, Labor and Welfare Official web site

The problem of overtime has been improved by law, but this has led to a new problem that large companies impose work on SMEs. This only worsens the working environment of subcontractors that support large Japanese companies. We thought that the working environment would not improve except for some companies. In order to improve, the top of the company needs to move, and such movements are gradually appearing but have not yet changed the fundamental way of thinking. For this reason, I thought there was no way other than to reform the country by creating something like a "labor secretariat" that monitors the work environment.

Another idea is that the government manages the company card, checks the working hours, checks the company suspected of breach, and gives the company directors a penalty for breach. Thought. This allows the government to control working hours. I think that it will be difficult to implement because there are still many problems such as installation costs, maintenance costs, and too many to be deployed at all companies.

However, none of these solutions are practical, and companies called black companies are called black because they violate the rules. Combined with the serious national character of the Japanese people, it can be considered that this is a major obstacle to the solution.

So far, the company has considered changing the working environment. But the conclusion is difficult to change. So I thought about changing the environment from the worker side.

Currently in Japan, workers are protected by law. Japan has a very low unemployment rate compared to other countries, and the unemployment rate tends to be as low as 3% annually. This seems to be good at first glance, but seems not so good in terms of changing the working environment. First, a low unemployment rate means staying in the same company, that is, fixing in the same working environment. This seems to be the reason why the job change rate in Japan is low. Japanese people who think that changing jobs are risky do not bother leaving the company that joined the company, and will remain in a poor working environment. This prevents changes in the environment.

Then, how to change Japan, workers are guaranteed the three labor rights and the three labor laws.

Workers can make requests to employers (managers) and, of course, can raise wages, improve working hours, and improve the environment. However, this requires a procedure, and the difficulty of making a request to the superior is a barrier to doing this.

Using time cards and my number cards, the government came up with a way to manage working hours. If the time card system can be implemented in all companies, you can check corporate fraud. Also, by using a physical medium called a card, you have the privilege of being able to manage yourself and not being managed by a superior. Implementation is problematic and often difficult, but I would like to work with the government to support the working-age population.

https://www8.cao.go.jp/shoushi/shoushika/data/jinkou.html　内閣府

https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000042451.html　労働三法（厚生労働省）

https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000148322.html 働き方改革厚生労働省

https://www.mhlw.go.jp/file/06-Seisakujouhou-10900000-Kenkoukyoku/0000047221.pdf 厚生労働省健康

局

http://www.mhlw.go.jp/toukei/itiran/　厚生労働省統計調査

https://suiminkaigi.jp/library/insomnia-country　世界睡眠会議（統計データなど）

https://prtimes.jp/main/html/rd/p/000000009.000015404.html　PRTIMES

http://www.newscom.daynight.jp/suiminzikan.htm　睡眠まとめ

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How to deal with food allergies

Making a good environment for allergic patients with class and application problem

5306　Okimoto Soki

Overview

   Now, there is increasing number of patients with food allergies worldwide. In Japan, the increase in food allergies is a problem. There are many problems caused by having food allergies. Examples include lack of understanding of food allergies and mental care issues.
As a result of research, in order to solve these problems, I suggest two suggestion. First, I make "LINKER" which is an application that connects people with the same illness. Second, I suggest "learning and teaching about allergies once a year for elementary and junior high school students" Proposal of development of.
If these proposals are realized, we believe that a good environment can be created for students with food allergies. In the future, we must find a way to solve the problem.

Background

    At present, the number of food allergies in Japan is increasing. According to a paper published at the 28th Annual Meeting of the Japanese Epidemiological Association, it is estimated that there are about 350,000 to 600,000 food allergies among students. There will be more patients, including infancy and adults.
However, with many patients, the problem of food allergies has not been solved easily. I am allergic to wheat, eggs and milk as well as several other foods, but in my experience, I feel that it is not a comfortable society for people with food allergies.
Therefore, I wondered what should be done to create a society where people with food allergies can easily live. In this study, I will focus on the problems of lack of understanding of food allergies and mental care of food allergies, based on my experiences and the results of questions from acquaintances with food allergies.

Conclusion

    I have two conclusions for making a good environment for allergic patients. First, we conduct learning and classes about allergies once a year for elementary school students, junior high school students, and high school students. Second, development of an application "LINKER" that connects people with the same disease

(1) We conduct learning and classes about allergies once a year for elementary school students, junior high school students, and high school students.

    In recent years, the number of allergic patients has been increasing. The number of patients will continue to increase. In other words, I think that allergies will be more familiar than they are today. There are many schools that provide allergy countermeasures and schools that provide allergy education to teachers. However, on the other hand, few schools offer allergy education for children. Therefore, it seems that the allergy education as it is today is not enough to gain an enough level of understanding.
    That's what we do: "Allergies are taught once a year for elementary and junior high school students."
    Allergy education is important, so it is given to elementary and junior high school students. There is an example of a class on food allergies at an elementary school. At that time, the frequency of allergy education was once a year, so refer to it and set the frequency to once a

year.

Regarding class content, here is the basic class flow. We also referred to the elementary school's class on food allergies for the following: Classes are for elementary school students 1-6.

① Watch the video and think about the cause of your friend's condition.
② Tell that the cause is food allergy
③ Explain about food allergies from teachers.
④ Have students think about how to prevent accidents.
⑤ Write down your thoughts.
⑥ Look back with the teacher.

However, this lesson which in only for elementary students should spread junior high school students will result in lessons that are not suitable for junior high school students.

In order to improve such points, junior high school students distributed food allergies and booklets, exchanged opinions, etc., and made them think regularly about what food allergies were like. Also, do the following.

The following classes are given to junior high school students.

① Discuss what you know about food allergies in groups

② After sharing the knowledge, check through the quiz that you have the correct understanding.

An example of a quiz "If you do intense exercise or sports after eating, you may develop anaphylaxis.

・ There is food-dependent exercise-induced anaphylaxis, which causes anaphylactic shock

if you ingest allergens that cause allergic reactions and then perform intense exercise.
③ To understand the food allergy correctly.
④ Take up the fatal accidents caused by food allergies mentioned above in the class and think about how to prevent such accidents for each group.
⑤ Write what you know and think through the class

In addition, high school students will gain a better understanding by giving them hands-on experience such as listening to a lecture on food allergies.

There will be no special classes, but it will focus on distributing booklets and recommending food allergies and lectures.

The following is an example of food allergy education at Nagasaki Elementary School in Takasaki City, Gunma Prefecture.
"About children with food allergies"
http://swa.city.takasaki.gunma.jp/weblog/data/902/2/6/101909.pdf
In addition, we think that this method is friendly because we can learn together with students as well as teachers.

According to the paper by "The extension of English comprehensive ability by the fusion of input learning and output learning, Hitoshi Murano (Toho Gakuin University)", the input / output learning method. It has become clear that it is effective to improve English comprehensive ability.

Quote: Expanding English ability by integrating input learning and output learning Hitoshi Murano (Toho Gakuin University)

Similarly, Dale, Edgar. (1946) The "Cone of Experience", Audio-Visual Methods in Teaching. NY: Dryden Press. Shows that teaching is efficient in learning. The following is a quote.
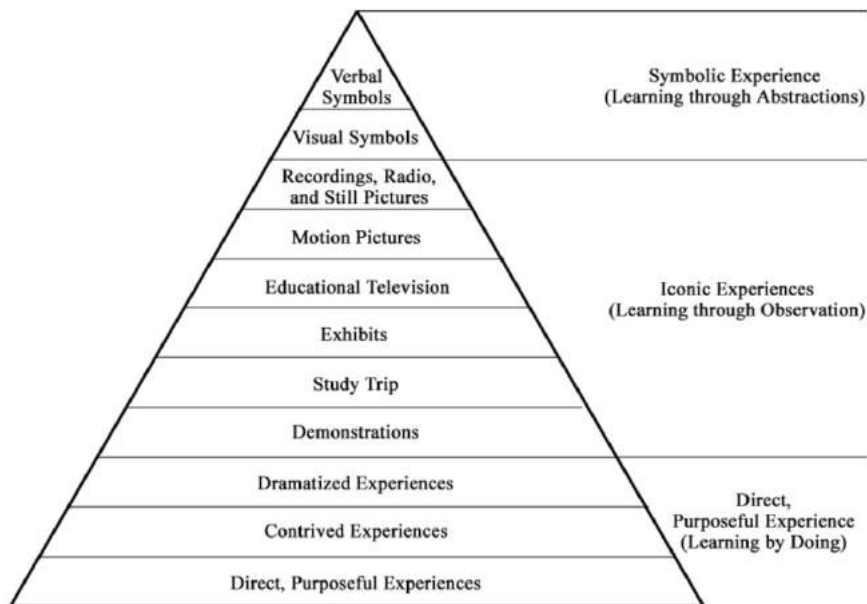
From "Dale, Edgar. (1946) The "Cone of Experience", Audio-Visual Methods in Teaching. NY: Dryden Press."

https://lidtfoundations.pressbooks.com/chapter/edgar-dale-and-the-cone-of-experience/

This is a classification of human experience and learning process, which means that you will be able to experience first, then participate and observe yourself, and finally express it in words and visuals. From this figure, it can be seen that human beings can express themselves gradually by having direct experiences and intentional experiences, and finally human being can be expressed by words and visuals.

The following "Learning Pyramid" is a little easier to understand.
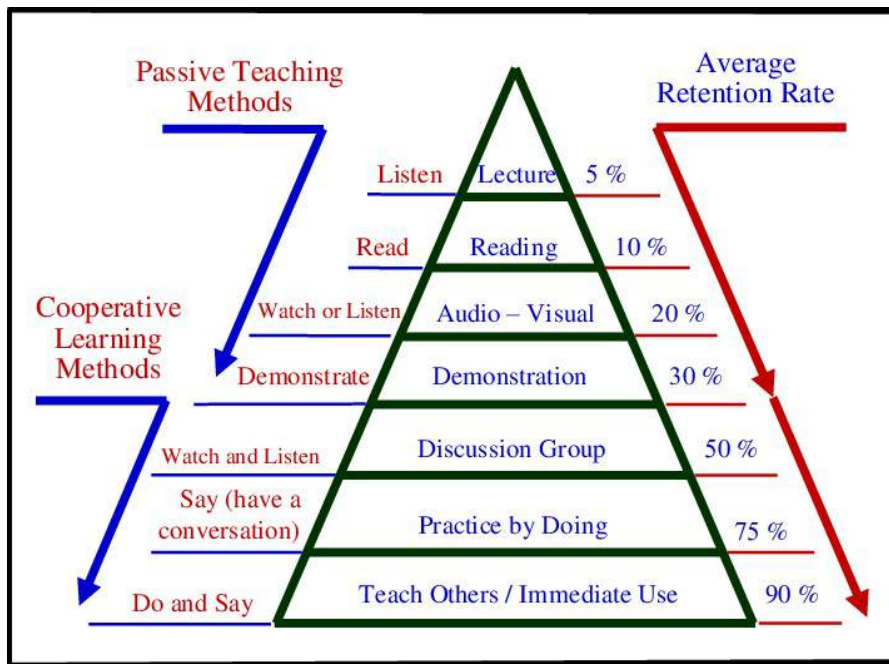
From Role of Engineering Design in Enhancing ABET Outcomes of Engineering Programs at Taif University

https://www.researchgate.net/publication/317267917_Role_of_Engineering_Design_in_Enhancing_ABET_Outcomes_of_Engineering_Programs_at_Taif_University/citation/download

According to the Learning Pyramid, learning can be divided into seven categories: "Lecture", "Read", "View", "demonstration", "Discuss", "Practice", and "Teach". It is said that learning efficiency is higher as you go down, and teaching is the highest.

Putting these things together, it can be said that the learning efficiency of teaching is good.

Can teachers and students learn together by teaching themselves about allergies?

As mentioned above, this proposal was made for two reasons: "Because of the Golden Age period" and "Because the teachers as well as the students can learn together by conducting classes."

(2) development of an application "LINKER" that connects people with the same disease

The name "LINKER" was derived from a linker meaning "connector" in English, meaning that this application would become a "connector" for many people.

There are three purposes for developing this application. *

① Provision of a place where information can be exchanged

② Provision of a place where people with the same illness can feel free to consult with people in the same position

③ Make people interested by taking food allergies as an application

I have my own experience behind this proposal.

Here is my experience.

I have been allergic to wheat, eggs and milk since infancy. From kindergarten to the current high school, I have lived without eating school meals. I ate lunch that I brought with me at school,

and I ate food I brought with me on school trips.

I didn't feel anything when I was young, but as I grew up, I felt uncomfortable with things that were different. Why do I have to eat something different from the friends around me? I gradually felt lonely.

I wanted to tell someone about this. There were family members, schoolteachers, school counselors, friends, and so on, but I couldn't consult anyone. Because I thought that no one really understood my suffering when I consulted.

The suffering caused by food allergies is only known by people with food allergies. If you are not a person with allergies at the same level as you, you will not really understand them. I thought so.

I surveyed several people on the Internet, but I got the same answers as me.

He was also studying with the aim of becoming a counselor for people with food allergies, but he said that it was actually difficult to achieve.

That's why I thought that if there was a place on the Internet where I could consult about my illness, I could help with the mental health of food allergies.

The current concept is as follows.

① Enter "name (handle name), age, address (prefectures and municipalities only), personality you have" in the application. (Here, illness is expressed as individuality.)

② The application judges the "individuality" entered in (1) and assigns it to a group formed

by those who have the same individuality.

③ If you have some personality (disease), you should be able to be assigned to groups other than those assigned in ②.

④ Conduct consultations, questions, and exchange information within the assigned group.

The "individual" part is made not only for food allergies, but also for other diseases and LGBT. This application will make society more comfortable for many people.

Problem

The main issue for the future is "to move toward the realization of classes and realization of applications".
Also, aim for more specific proposals in both.

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Access date Friday, June 18

SMEs around the world
(Preventing the decline of SMEs)

12 期生　5 年　3 組　7 番　小澤侑馬

○ abstract

This research focuses on reducing the number of bankruptcies and reducing the decline of SMEs from the perspective of SME manufacturing companies. In this research, I thought that it could finally be solved by two methods. The first is the use of media. It is thought that the recognition and popularity of the company can be increased by transmitting the attractiveness of the company by being published in the book, interviewed on the TV, and being broadcast. The second is to use crowdfunding. I don't think the crowdfunding awareness is high yet. Although this is an issue, it is possible to collect funds by performing crowdfunding, and based on the funds, develop new products, manufacture new products, PR activities in Japan and overseas, and advertise the conclusion is that you will be able to.

1 purpose

Many SMEs go bankrupt every month. In the last year, over 8000 companies went bankrupt. Bankruptcy has a serious impact on entrepreneurs, presidents, employees, and their families. We need to take measures to prevent bankruptcy, so we will consider the measures.

2 Research methods

Primarily use the Internet. For the current data on the Internet, I used the SMEs Agency and the crowdfunding that led to this research.

3 Discussion and implications

As the definition of SMEs, the manufacturing industry and others are "a company with capital or total investment of 300 million yen or less, or a company and individuals with 300 or fewer employees who are always in use" (from SME Agency) It is said that. Since the wholesale and service industries are based on the manufacturing industry, this time we will focus on the manufacturing industry.

Current status of Japanese companies

■ 休廃業・解散　　　□ 倒産

(件)

30,000 ┄

29,583

25,000 ┄ 24,705

20,000 ┄ 18,769

16,110

15,646

15,000 ┄

10,000 ┄

8,446

5,000 ┄

0 ┄ 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016
(年)
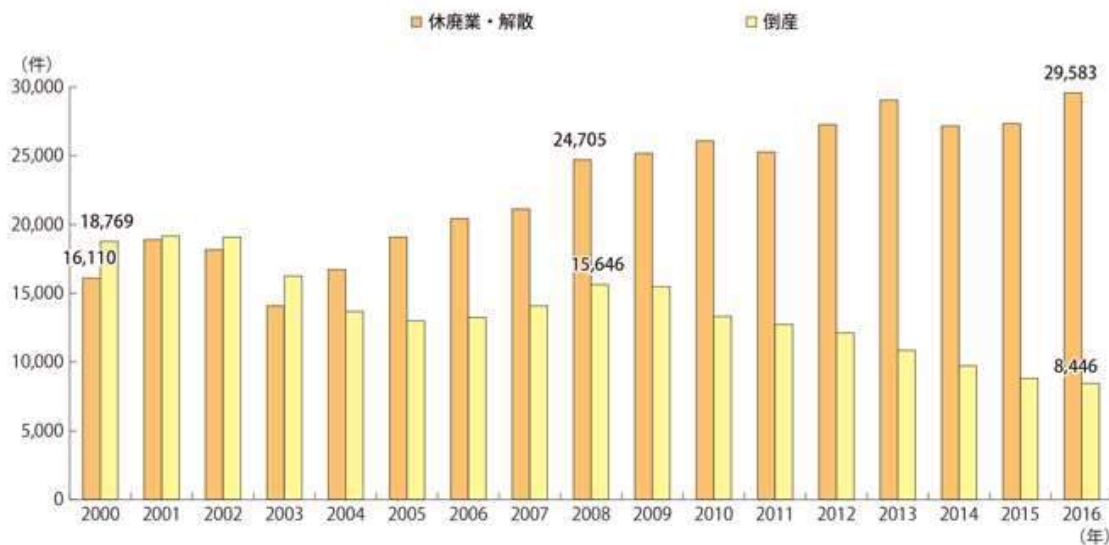
資料：(株) 東京商工リサーチ「2016年「休廃業・解散企業」動向調査」
(注) 1. 休廃業とは、特段の手続きをとらず、資産が負債を上回る資産超過状態で事業を停止すること。
　　 2. 解散とは、事業を停止し、企業の法人格を消滅させるために必要な清算手続きに入った状態になること。基本的には、資産超過状態だが、解散後に債務超過状態であることが判明し、倒産として再集計されることもある。
　　 3. 倒産とは、企業が債務の支払不能に陥ったり、経済活動を続けることが困難になった状態となること。私的整理（取引停止処分、内整理）も倒産に含まれる。

Current state of out-of-business (SME)

＜ http://www.chusho.meti.go.jp/pamflet/hakusyo/H29/h29/html/b1_2_1_3.html ＞

Although the number of bankruptcies has decreased, more than 5,000 companies are still bankrupt.

There are two types of SMEs: manufacturing and service. Large companies cooperate with each other. As a method of cooperation, there are cases where companies of the same type cooperate with each other and companies of similar types cooperate. By cooperating with the same type of companies, small companies can rely on large companies to advance large businesses. The work of large companies will be reduced, but the work of small companies can be increased. Similar types of companies can work together at the same time. It is thought that the business will be successful by gathering high-quality companies.

Issues and solutions until resolution
○ Lack of manpower
Insufficient successor is a big problem in Japan. This is probably due to the fact that the company is not interested. It seems that you should start a little new to make the company attractive to create employees. You need to advertise, but you need something that makes you feel attractive. Therefore, it is necessary to start a new business or plan.

○ Lack of funds
There are several reasons for falling short of funds.
First, what is the cause of the lack of funds? Two things happen when a business is successful and requests increase. The first is a lack of

293

employees. In this case, because the business is successful, it does not mean that the employee cannot be found. If you search or recruit, the employee will gather. However, it goes without saying that the number of employees has increased, and the salary paid to employees also increases. Therefore, in the case of starting a new business, it is difficult to receive a loan from a bank, so that unpaid salary occurs. The second is by increasing the number of requests and paying in advance on behalf of the customer. By making advance payments, you will not be able to receive a loan from a bank. In this case as well, we have just started a new project, so it is difficult to get a loan from a bank. Here, it is considered better to refrain from advance payments as much as possible.

The second is the failure of upfront investment. In the manufacturing industry, machines that make something are needed. The machine is expensive. When you buy a machine, you need money to buy it. There are cases where the funds are purchased after the funds have been saved, or are bought now in anticipation of the profit when the machine is introduced. In the case of the former, you must save it. In the latter case, you must pay a certain amount firmly. In either case, the amount of money that can be used as a company is reduced. In such cases, it may be better to rely on a small and medium-sized business SME Diagnostician.

SME Diagnosticians are specialists who provide diagnosis and advices to respond to the management issues of SMEs. Registered by the Minister of Economy, Trade and Industry as a legal national qualification based on Article 11 of the Small and Medium Enterprise Support Law. In the SME Diagnostic System, the Minister of Economy, Trade and Industry is more than a certain level in order to facilitate the selection of the person who will provide management diagnosis and management advice when SMEs receive appropriate management diagnosis and management advice. It is a system for registering those who have the ability. Under the Small and Medium Enterprise Basic Law, SMEs are positioned as persons engaged in work to secure management resources (not only public support projects, but also management consultants active in the private sector).

(From the Small and Medium Enterprise Agency)

Based on the above, SME diagnosticians are registered by the Minister of Economy, Trade and Industry, and it is considered that a certain level of trust can be obtained. By requesting a SME diagnostician, you can receive management support or develop employees.

○ Use of crowdfunding

In this research, the most usable solution is crowdfunding. Crowdfunding is derived from the words Crowd (on the internet) and Funding (discover). Companies and individuals make proposals and publish the proposals via the crowdfunding Internet website. Get support from supporters who are registered on the Internet website. Thank the supporter. This is the basic flow. A specific explanation will be given. There are several websites that are crowdfunding. Each website has its advantages and disadvantages,

so you need to investigate it yourself. Once you've decided on a crowdfunding company, contact that company and work with them on a crowdfunding plan. The plan is about how to collect funds and how to reward them. The method of reward is basically determined, such as a thank you email and a product developed with funds. There are four ways to collect funds. For examples, donation type, investment type, loan type, and purchase type. In the donation type, all the collected funds are used for donations and there is no return. In the investment type, investors receive a return in the form of dividends from the profits of the project. In the loan type, the investor receives a certain return in the form of interest. In the purchase type, the supporter receives a reward in the form of goods, services, and rights in return. Many crowdfunding companies have many types of donations and purchases. The advantage of using crowdfunding is that many people can get money. Since people who use the Internet can get money, it can be used greatly in the present age when there are many people who use the Internet. In addition, because the Internet is used, you can receive assistance not only from within Japan but also from overseas. You can also help with overseas submissions.

Explain how to use this crowdfunding. There are several ways to use it. The first is to get funds for manufacturing. It is necessary to firmly determine the target amount. If the target amount is too high, it will be impossible for those who want to support the funds, and if it is too low, it will not be possible to use their own funds. For rewards, it is better to send a letter of thanks or a product. If the funds collected during the period do not reach the target amount, there are a method for returning the money to the person who got the money and a method for not returning it, so it is necessary to think about it. Then, on the crowdfunding website, post what you want to create and its description. If the target amount is exceeded, the production plan for the product can be continued. If so, you can install a better machine or buy something other than the one associated with the plan. If funds are not collected, it can be concluded with a positive idea. Because few people were interested in the product. In other words, it is possible to think that it would not have been sold, even if it was started and sold with the funds of the last minute. The second method is to funds for PR, and to raise funds for PR events overseas.
Utilizing crowdfunding, the cost of producing a pilot film (a sample TV program sample movie that will be produced with a proposal to acquire sponsors) will be utilized.

4 References
There are several issues regarding crowdfunding, which is the center of this research. The first is that the awareness of crowdfunding is low. I also learned recently. In other words, it is necessary to advertise using famous achievements, increase the number of interested people, and increase the number of fundraisers. The second is a problem between the person who raised the donation and the person who raised it. In Japan, no such article was found, so no major trouble seems to have occurred. However, it seems that several things are happening overseas. There seems to be a problem of using the collected funds in a way different from the original purpose. Troubles on the Internet are very unreliable, so the company that is

crowdfunding needs to pay close attention to avoid such problems.

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Sharing route service to reduce traveling time
(How to utilize commonplace information)

12th   5308 Ayumu Kobayashi

Abstract

There must be many people who often feel stress related to traffic.   There are various causes of traffic stress.   Among them, congestion and traffic jams are the major causes of stress.

Various services were born due to recent developments in science and technology. A drone that facilitates flying in the sky is a typical example, and it is thought that this will change the future traffic route. In other countries, there is a lot of dispatch service. However, in Japan, we have not been able to incorporate it due to safety regulations. Therefore, as a result of taking out the good points of the dispatch service and considering that it can be used in Japan, we can use the system of information sharing even in Japan today. I thought about mechanism of that. This makes it possible to gather and share location information, destinations, times, preferred routes, and other information from cars, railways, mobile devices, etc., to propose routes, improve navigation, predict time, shorten time, etc. It is used to reduce stress and improve other efficiency, and the idea is that it can also be realized as a business through the cooperation and cooperation of multiple companies. It is considered that this makes it possible to collect information on many people and provide more effective information to more people.

Thus I thought that a new "route sharing service" could be created by coordinating companies that manage navigation, calendar, payment service and SNS with other major companies like app and web survive. The advantage of this idea is that it can create trust and merits for users, but the disadvantage is that the profits as a linked company are unclear. It is necessary to consider the creation of additional fee options, advertisements, promotions, and explanation of the benefits obtained from this service, I think.

1. Purpose

The purpose of this study is to improve the efficiency of society by relieving the stress of many people. For this purpose, it is necessary to improve the congestion/ traffic jam problem. Taking out the good points of the dispatch service that is actively performed overseas, it can be used in Japan, as a substitute plan for an aspect that is not appropriate in Japan, and to make a system that can use information more efficiently.

2. The way

I. Current status of transportation

① Possible causes of stress

② Effects and examples through stress

II. Current status of technology to make transportation more convenient

① About the dispatch service

② Current situation in Japan

③ Current situation in the world

III. Proposals for reducing traffic stress

3. result and challenges
I. Current status of transportation

① Possible causes of stress

⑴ Causes to receive as a driver

Characteristic: From the classification of emotional stress experienced during driving (bottom right)
· "Absurd and frustrated" is the most common (31%)
→ The cause is the other car's action　(example) Interrupt, Road rage

・ "Accident anxiety" is almost the same as "Angry, frustrating" (30%)

→ Accidents caused by decreased visual acuity, physical fitness, and concentration
Anxiety about accident involving people with weak traffic

・ "Impression" "Uncomfortable / Worried"

→ It is chased by traffic and time.　Also due to the actions of others.
Also risk of accidents due to reduced concentration.

・ Combined with annoyance, accident anxiety and impatience for others, 75%

・ Always stressed

→ to pay careful attention to the surroundings and repeat appropriate judgments and precise operations.
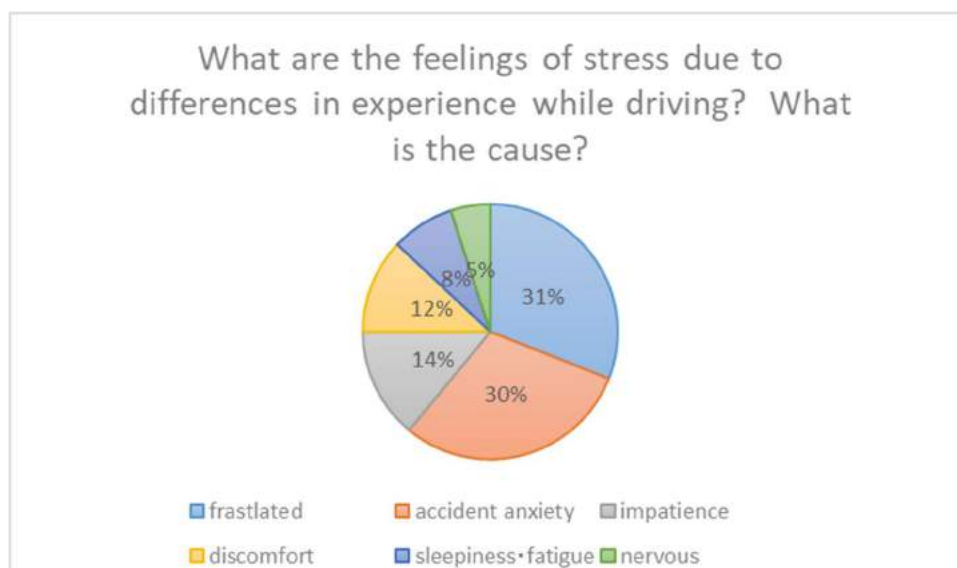
Figure: Classification of emotional stress experienced during driving

Source: International Traffic Safety Association of Japan, 2008 Research

Survey Report "Emotional Characteristics of Drivers and Impact on Driving

Source:

Mechanism of stress
Interview results with drivers of large vehicles engaged in the transportation industry
Interview contents:
About stress experienced while driving
"What are your feelings?" "What is the cause?"
Tokio Marine & Nichido
(Http://www.tokiomarine-nichido.co.jp/)

⑵Stress due to congestion

It is assumed that the difference in the congestion rate of about 20-50% may increase the stress experienced by users by about 15% per hour.　(Omitted)
Based on the analysis of this experimental data, it was confirmed that even if the stressor of congestion (stress factor, source of stress, cause) was eliminated, it was not released from the state of stress and the effect could be relatively long.　did. This fact suggests that the impact of commuting stress is not limited to the movement of trains and may have a significant impact on users' daily work and life.　Further analysis is necessary, including how the received organism is subsequently released from stress.　(Omitted)
It was suggested that the "noise" continues to act as a stressor, thereby preventing the stress associated with the decrease in congestion.

Source: Research on quantitative measurement of commuting stress
-Approach applying the technique of heart rate variability analysis-Super Takeda
(Http://ir.c.chuo-u.ac.jp/repository/search/binary/p/7200/s/5071/)

② Effects and examples through stress

○ Examples of road rage

① Collision accident

A car that relentlessly hits the car ahead without opening the distance
→ Cannot handle sudden braking in front of the vehicle
Sudden braking of the car ahead (in case of a crash)
Intentional → responsible for the car ahead
If necessary → 100% responsible for the car after not taking the distance

② A clash

It is often caused by persistent driving.

Expressway: Fast regulation speed → Sufficient inter-vehicle distance is required.

Strike forward → Collision like ① → Rearward develops into collision crushing accident

⇒Involvement of third parties, death or serious injury

③ fatal accident

Speaker → Just enjoy, drunk with driving skills, playfully with friends.

➡ No accident desire

Dangerous driving with such feelings
→ The car in front may decelerate, may not be aware that the brakes were applied, and may collide as it is, resulting in a fatal accident.　A car driver in the front, a driver in the back car, and a passenger can also die.

④ I was also injured

He beats the car for work, a mental state of trouble with a lover, and a divergence of emotions.
Continued dangerous driving, causing accidents, resulting in inconvenient cases, and being afraid of driving mentally, making it impossible to drive again, affecting work, etc.　In some cases, it would be difficult to live as before.

⑤ Involve third parties

An accident involving a person who was walking on the sidewalk by turning the steering wheel too much when the car in front of him was meandering in a narrow lane.
Despite having two lanes, he persistently hit the car ahead and neglected to check backwards when trying to overtake him.　A rear-end collision.
It was emotional because of being beaten, and the car that was driving forward intentionally stepped on the brake suddenly.　A tragic accident involving people who have nothing to do with it, such as a major accident entering an intersection to compete with a car.
Source: Minna no Money.com (https://minnkane.com/news/5574)
Mostie Place Co., Ltd.
II. Current status of technology to make transportation more convenient

①About the dispatch service

　-What is a dispatch service?
Online dispatch service.　A service that allows you to arrange taxis, hire and driving services online.　Use through smartphone apps and social services.　By arranging a vehicle close to the current location with the GPS function, the time required for dispatching can be reduced.　Mobile dispatch service.　(Kotobank https://kotobank.jp/word/)

② Current situation in Japan

　-When an unauthorized organization takes a boarding fare and provides a vehicle

dispatch service ...

  ○ Something like a paid version of ride share

  Ride-sharing is "carpooling together. Also called ridesharing. Because transportation costs can be saved by sharing vacant seats and sharing gasoline costs with others, it is an inexpensive means of transportation in the West.   With the development of the Internet, commercialization has progressed, and websites and smartphone apps that act as intermediaries for car sharing partners, paid services using private cars, etc. have also become popular.   Some countries also attracting attention from the perspective, and some governments recommend ridesharing in Japan since the first ride-share brokerage site was opened in Japan in 2007, similar services have appeared and gradually gained recognition.   However, the Japanese law prohibits private cars from carrying passengers for a fee, so passengers will pay for fuel costs and high-speed expenses as a reward.   Is limited to non-profit services that pay. "(Kotobank)

  ○ It is illegal and punishable in Japan

  According to the Road Traffic Act, it is not possible to drive without a person and charge the fare.

  Article 4 Persons who intend to run a general passenger car transportation business must obtain permission from the Minister of Land, Infrastructure, Transport and Tourism.

  Article 96 A person who falls under any of the following items shall be punished by imprisonment with work for not more than 3 years or a fine of not more than 3 million yen, or both.

  (I) A person who ran a general passenger car transportation business in violation of Article 4 paragraph 1

  (Ii) A person who has violated the provisions of Article 33 (including cases where it is applied mutatis mutandis pursuant to Article 43, Paragraph 5 and Article 72)

  (Iii) A person who ran a motorway business in violation of Article 47, paragraph 1

  (Act No. 183 of 1951)

  Effective date: April 1, 2009

  Last update: Revised on June 2, 2009 (Act No. 45 of Heisei 29).

  However, because there are many exchanges of charges on the net, it is difficult to get cleared even if you get the spot in the morning.

  ○ Taxi industry decline due to introduction

    One of the reasons that the taxi industry can be predicted to decline from a foreign country is not developing.

  Kenta Yamaguchi / IT journalist (https://biz-journal.jp/2018/08/post)

  -White taxi and white bus problem

  What are white taxi and white bus?

  A vehicle that uses a private car or a rental car (white number) without permission from the country (Minister of Land, Infrastructure, Transport and Tourism) to carry people (customers) for a fee (with money).

  Generally, vehicles other than the green number (business number) cannot carry people for a fee.

  Such vehicles are under the control of the country (Minister of Land, Infrastructure, Transport and Tourism), so the operation management system, etc. is insignificant,

and there is a high possibility of causing a serious traffic accident.   There is.
  In addition to this, the law also prohibits the use of private trucks and other means to carry luggage for a fee without obtaining permission from the government (Minister of Land, Infrastructure, Transport and Tourism).
  Source of information (http://www.keishicho.metro.tokyo.jp/)
  Metropolitan Police Department Traffic Investigation Division
  Telephone: 03-3581-4321 (Tokyo Metropolitan Police Department representative)

  -Introduction of a vehicle dispatch service such as uber
  ○ It is difficult in Japan (due to laws and regulations), and it does not make sense because it cannot take advantage of uber
  → Change shape
  Example: Uber companies ...
      Uber eat is a service in Japan that allows you to enjoy meals at various stores.

  ③ Current situation in the world

   As noted in II-②, the taxi industry is declining in countries that have already introduced uber, such as the United States.
  Cause: The price of the new service is more unstable, but more convenient than a taxi.

III. Proposals for reducing traffic stress

 ・ My proposal (initial plan)

 1. Devise a taxi mechanism
 2. Devise the transportation system
 3. "Route sharing" (Route sharing for railways, buses, transportation industry, etc./Registrant route sharing)
  About 1.2. Various companies are starting to work
  Example) Proposal of dispatch service for taxi companies of Softbank

  ・ Announcement of providing dispatch service for Japanese taxi companies

  ・ Using DiDi technology (demand forecasting with AI) makes taxis in Japan even more efficient
  Source: (Kenta Yamaguchi / IT journalist) Read on the news site (https://biz-journal.jp/2018/08/post_24556_2.html)

 3. Although there is a similar idea,there is no same thing. There is a possibility that it can be active.
  → Specific plan
  * "Route sharing" service
  Create a mechanism that can record and share location information, destination, time, favorite route and other information from various things, use it for route proposal, navigation improvement, time prediction, time reduction, etc.   Aiming to improve efficiency.

note)
1. Various things
… cars (car navigation systems), buses, transport trucks, trains, mobile devices, etc.
2. Location / Destination / Time
… Gather information on people and cars heading in the same direction and use them to avoid traffic jams
3. Specific routes and other information
… Set and share routes, considering certain customs and schedules
People move differently.   For people who have the same movement every week or who have places to pass, we aim to utilize information by recognizing, recording and sharing that route.
※Challenges point

○ Anonymity must be protected for shared information.

→ Users and administrators should not be able to check other people's information (cars, individuals, destinations, times, routes set every week, etc.).
The information to be shared is subdivided and each can be set to be valid or invalid. (Read information around you, get route suggestions, but do not share your information at all, do not share time, etc.)
Select whether each of the following information is shared (as numbers)
Smartphone and car location information
User's gender → Suggest proposals that match the gender and age of the target.
User age group
Destination
Schedule (such as costumed routes)
Exclude or points that must pass
Departure / Arrival time
Actual route result (error with route / time / forecast)

○ Effect

1. Almost all people (not only drivers but also individuals such as passengers with mobile terminals) can use.
2. If information on how many people are from when to where can be used for traffic jam avoidance, shortest route guidance, highly accurate navigation and transfer guidance.
3.… You can't cope with your current location, time and route.
Example) Can respond to requests such as those who have errands that go to multiple destinations on each day of the week, or people who have roads that they do not want to pass

○ To that end

①Use app, web

②Create a function that adds other users' information to functions such as the

existing map application and transfer application.

③You cannot handle personal information on a scale that allows individuals to expect results.

→ Considering the realization by linking the app in ② with a company that develops an app that uses reliability and location information.
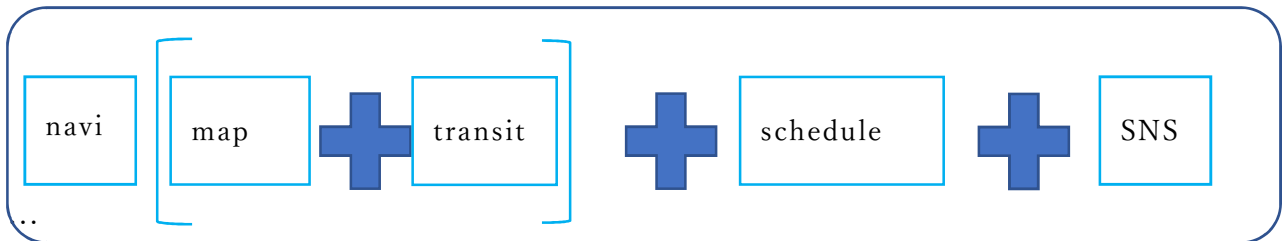
... looks the same as navigation.　By adding a map function, traffic, and by adding a transfer function, reflect the degree of congestion related to railways.　Efficient navigation is provided based on shared information (not seen by a third party. It is only used as a material for providing efficient navigation).　(Display and use information such as 000 people going to a certain destination, and 000 people who are near here among them. In Shinkansen, etc., the train after one train is so comfortable that you can sit down.)　Information is also provided.)

　It is more convenient to share specified information with specified people such as family members on SNS etc.

　Stores can cooperate to provide services such as points and coupons

　⇒　Development and maintenance costs and profits can be generated through

corporate advertising, and services to users are also possible (points, etc.), and information sharing can be promoted using this as a reward.

　◎　Conclusion

　Propose to companies (map, transfer, calendar, SNS, navigation related) so that services like the top can be done.

　◎　Issues

　There are not enough specific assumptions.　It is necessary to explain the merits as a collaborating company.　Information on whether to create expansion options and add additional charge plans to the service, use advertisements, and other services that promote the company (ingenuity for users, provision of user information, etc.)　I think it is necessary to think about groundbreaking methods and reasoning for generating profits on the enterprise side of the application without compromising the merit and safety for users.

⇨I want to incorporate a cashless/payment service into root sharing service in order to make this service famous and safety and profitable and reliable.

4. Literature

"Reducing driving stress!" Tokio Marine & Nichido
<Http://www.tokiomarine-nichido.co.jp/> (Access date: H30 / 12/17)

"Study on quantitative measurement of railway commuting stress"
-Approach applying the technique of heart rate variability analysis- "Super Takeda
<Http://ir.c.chuo-u.ac.jp/> (Access date: H30 / 12/17)

"Minna no Money.com" Mosty Place Co., Ltd.
<Https://minnkane.com/news/5574> (Access date: H30 / 12/17)

"Kotobank (Source: Shogakukan)"
<Https://kotobank.jp/word/> (Access date: H30 / 12/17)

"Tokyo Metropolitan Police Department website" Metropolitan Police Department
Traffic Investigation Division telephone: 03-3581-4321 (Representative of the
Metropolitan Police Department)
<Http://www.keishicho.metro.tokyo.jp/> (Access date: H30 / 12/17)

"Softbank says that taxi has no future", "Two-way strategy for providing taxi
dispatch service" Kenta Yamaguchi / IT journalist |
Copyright © Business Journal All Rights Reserved.
 <Https://biz-journal.jp/2018/08/post_24556_2.html> (Access date: H30 / 12/17)

Solving overuse of smartphone
-To improve academic ability-
12th Grade 5th Class 3rd Class No. 9 Sato Masaki

○ Outline of research

With respect to the issues that are a concern on the physical plane, such as to the retina and sleep, we are very concerned about the impact on the mental plane. The number of people who are not comfortable without touching their smartphones is also increasing. Research has shown that eye strain damage is difficult to recover at rest. There are actually articles that mention "smartphone brain". There is also an incredible report that 20% of 2-year-olds play with their smartphones almost every day. You can imagine that looking at the display for a long time is not good for your eyes. So-called "eye strain" is a condition in which the user feels tired not only in the eyes but also in the whole body after being in contact with a smartphone, personal computer, or TV for a long time. Eye strain is a terrible thing that can lead to somewhat serious illnesses, such as blurred vision, dry eyes, headache, stiff shoulders, dizziness, as well as glaucoma, cataracts, high blood pressure, low blood pressure, and diabetes. It is the source of all illness. However the physical effects mainly from eye strain may be resolved.

You can do everything from communication with apps such as SNS and LINE, games, appreciation of videos and music, reading, and information gathering. In addition few people bring their computers to trains, toilets, and beds, but it is normal for smartphones.

Firs you should reduce the brightness of the display. For PCs, smartphones, and TVs, adjust the display brightness. Just reducing the brightness of the display can reduce the effects of blue light. Two birds with one stone, leading to savings on electricity bills and batteries. In addition, there is a method of "finding things that you cannot take time to play with your smartphone or find something that you cannot want to play with or that you can type in" as well as "do not use it for nothing".

Ultimately, it means that you should control your smartphone without being controlled by your smartphone. If you hold down your life and use it properly, there will be no problem and the smartphone will have a lot of positive effects in many ways.

1. Purpose of research
The purpose is use properly to finally leave the smartphone

2 Research methods
Collecting information from multiple sites mainly on the Internet, assuming an official page.

3 Research results and issues
According to the Ministry of Internal Affairs and Communications' white paper on information and communications, the percentage of having smartphones in Japan is about 50%. 90% of Singapore and South Korea, although low to 70% of the United States and France, who also may be situation to say that you are using. In addition to the issues of concern on the physical plane, such as to the retina and sleep and it is also impact on the mental plane is very worried. The number of people who constantly check games and social media and stay calm all the time is increasing. It is during driving, eating and talking with acquaintances. Especially, the dependency of minors such as junior high and high school students is a problem, and the dependence tendency of 60% of high school students is getting stronger. This issue is a social issue, and specialists in various fields are alarming. Of course the mobile phone with the spread advances, games, old as television and radio was the case. Now it has also been touted adverse effects.

You can imagine that looking at the display for a long time is not good for your eyes. So-called

"eye strain" is a condition in which the user feels tired not only in the eyes but also in the whole body after being in contact with a smartphone, personal computer, or TV for a long time.

The fundamental solution is to rest your eyes as much as possible, more specifically, keep them away from smartphones, computers, and TVs. Some studies have found that eye strain damage is difficult to recover at rest, which has a significant mental impact.

Speaking of the effects on the mind and brain, a "game brain" that has been despised for a while comes to mind. Even if already the same sort of thing in a number of media preached respect smartphone, there are also articles that actually refer to the "smartphone brain". It is said that there is an adverse effect on children's academic ability.

If you use your eyes and brain in the same posture for a long time, you will lose your concentration due to eye strain. Doing something will surely take time away from something else (study and exercise). However, as the survey report mentions mobile phones and video games in addition to smartphones, it is the same regardless of the target. The fundamental measure is to limit the time spent contacting TVs, smartphones, and computers.

However, the fact that the harm of smartphones is almost the same as that of games, TVs, and PCs, and the countermeasures should not be used as much as possible. The fact that smartphones are "smart" is "multifunctional and portable" that makes it difficult for smartphones and people to leave.

Communication via apps such as SNS and LINE, games, appreciation of videos and music, reading and information gathering can all be done with just one unit. Few people bring a PC to a train, toilet, or bed, but it is normal for smartphones. Until now, people have been hard to get away from television and computer monitors, and have tended to rely on games and social networks. Smartphones that can be used for work and leisure, regardless of time and place, are powerful enough to accept the bad reputation of these traditional tools.

If an eye-friendly breakthrough occurs in the display itself, the physical effects mainly from eye strain may be resolved. Individuals can only rule on the mental effects of high dependence and the problem of time allocation. Of course, there is a method of "finding things that you cannot take the time to mess with your smartphone, or find something that you cannot want to mess with or that you can type in". Ultimately, it means "control your smartphone without being controlled by your smartphone". If you hold down your life and use it properly, there will be no problem, but the smartphone will have a lot of positive effects in many ways.

4 Literature

Reference: Ministry of Internal Affairs and Communications Information and Communication White Paper 2014

National Institute for Educational Policy 2014 National Academic Achievement and Learning Results

Abandoned school building renovation and regional revitalization
-Formulation of guidelines for aiming for promotion business-

12th Grade 5th Class 3rd 10th Ryunosuke Shinoda

○ Overview

Due to the declining birthrate and aging population, there are many closed school buildings throughout the country.　The renovation of closed school has become a keyword for its breakthrough, but its operation is not good.　In addition to considering the utilization of abandoned school buildings that bother local governments with maintenance costs, we will propose initiatives that will lead to regional revitalization.

1, Background and purpose

Currently, Japan is facing serious declining birthrate issues.　In regions that are strongly affected by this problem, there have been a series of closed schools due to depopulation, a decrease in the number of students, and mergers of municipalities.　Schools are more of a symbol of the local community than an educational space, so they just spur the decline of the region.　Among them, attempts to renovate abandoned schools into learning facilities such as cultural ones and accommodation ones to create new uses are drawing attention.　In fact, many of the closed school buildings have been reborn and managed by local governments, private companies, and individuals. However, the buildings often have handicap such as poor location and inconvenience in addition to the aging and depopulation of the area, and there are a handful of well-managed businesses. Therefore, I would like to consider businesses based on collaboration with local industries from the perspectives of "target" and "regional system".

2, Method

The final goal is to present attractive examples that can lead to regional revitalization. To achieve the goal, the important thing is the decision of the core customer and the idea of the business that suits the needs that the customer can expect. Therefore, the Internet and TV programs are used for collecting necessary data. At that time, the government office website was used to improve the integrity and reliability of the information.

3. Achievements and challenges

1) Japan's declining birthrate and increasing number of public schools closed

"Yearly Trends in Number of Births and Total Fertility Rate" (Figure 1)

出典：厚生労働省「人口動態統計」
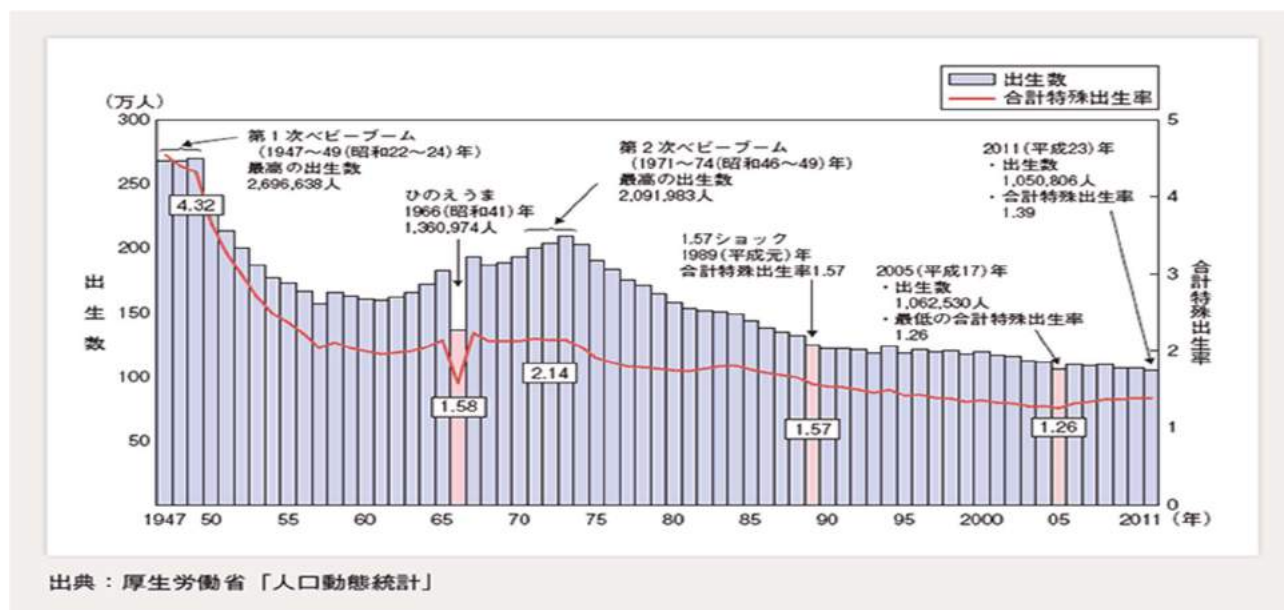
    As can be seen from (Figure 1), the number of births in Japan has been on a gradual decline since the second baby boom period, while increasing and decreasing. The total fertility rate dropped sharply after 1950 and fell to a record low of 1.26 in 2005. The National Institute of Social Security and Population Issues estimates the future population based on the national census and demographic statistics, and assumes that the total fertility rate will be 1.35 in 2060. The background of the declining birthrate is the unmarried and late marriage. Causes may include changes in the concept of marriage among modern people, the advancement of women in society, and the lack of an environment where children can be raised safely.

* Total fertility rate
The total birth rate by age of women aged 15 to 49 in that year. This is equivalent to the number of children when a woman is assumed to have children during her lifetime at the annual birth rate by age.

"Number of public high schools closed by school year" (Figure 2)

309

公 立 学 校 の 年 度 別 廃 校 発 生 数

凡例: 小学校　中学校　高等学校等

校数

年度	高等学校等	中学校	小学校	合計
H4	11	42	136	189
H5	12	43	100	155
H6	8	47	160	215
H7	11	46	122	179
H8	19	43	163	225
H9	13	50	122	185
H10	17	47	153	217
H11	18	43	123	184
H12	15	51	199	265
H13	26	64	221	311
H14	45	68	228	341
H15	66	82	273	421
H16	86	117	374	577
H17	72	71	314	457
H18	105	72	249	426
H19	114	75	276	465
H20	101	87	272	460
H21	108	88	333	529
H22	77	114	368	559
H23	58	93	323	474
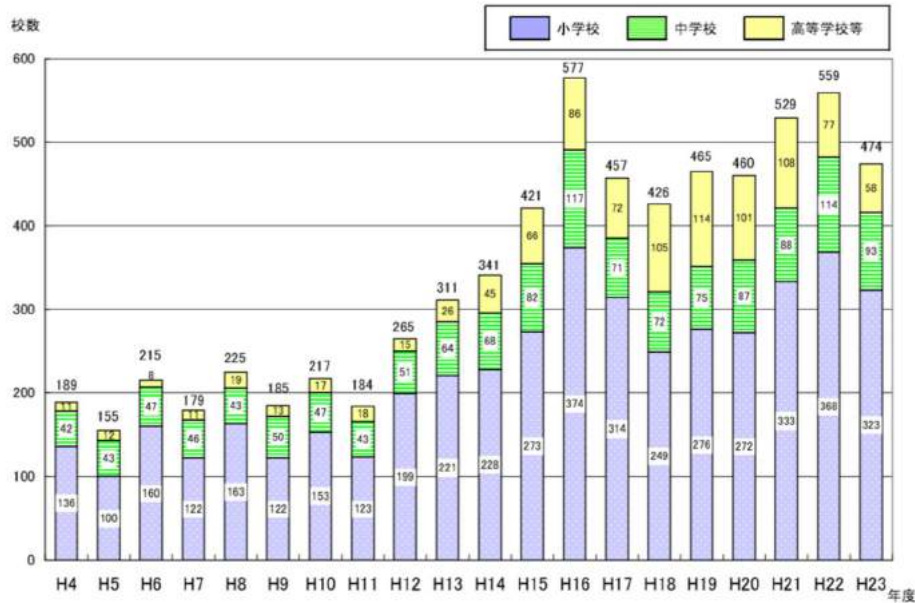
Due to the depopulation due to the declining birthrate, public schools have been closed one after another for several years. Of particular concern, 323 schools have been reported as being underutilized even if they were confirmed in 2011 at elementary schools.

2) Merits of renovation of closed school buildings
　① Large site area
　② High durability
　③ Equipment may be available as is

An example of a successful school renovation is the "Muroto Abandoned School Aquarium" in Kochi Prefecture. In addition to exhibiting countless aquariums in the former school building, the 25-meter pool is used as a huge aquarium and is attracting great attention. The topic that comes from the odd combination of school building and aquarium became a highlight, and over 10,000 days were recorded for 9 days including last year's Golden Week.

3) "Target"

The learning space using the abandoned school building has a lot of time and money, and captures the needs of baby boomers who are said to have a strong tendency to seek internal enhancement. There are many cases where closed schools are replaced with accommodation facilities, but if you want to provide accommodation services, you will need permission and operation, and the cost, cost, and risk of administration will increase. At the same time, staying can use existing local facilities to contribute to the local activity that is the original purpose.

Efforts to utilize closed schools are being developed nationwide. They have survived in various

applications such as cultural facilities, learning facilities, exhibition facilities, medical facilities, lodging facilities, and incubation offices. However, many of them are not necessarily well managed. Since it was originally closed, there are many cases of handicap such as a small population and inconvenient traffic access, and the problem that the number of users does not increase cannot be overcome. In order to reverse the situation, the existence of excellent leaders in facility management and the cooperation system of local residents are indispensable. In addition, the attractiveness of management that surpasses the nostalgic appeal of closed school is required. Now, various industries are eager to acquire baby boomers who will enter Second Life. In other words, the market is large, but competition is fierce. In order for a small business to expand into this market, it is necessary to compete in an area where large companies cannot or cannot access. It becomes a sufficiently attractive keyword such as "depopulated area" and "public facilities".

4, literature

Cabinet Office website: Current situation and challenges of measures to reduce birthrate
https://www8.cao.go.jp/shoushi/shoushika/whitepaper/measures/w-2013/25webhonpen/html/b1_s1-1.html (2018/10/28 browsing) <Fig. 1 Source>

Ministry of Education, Culture, Sports, Science and Technology
http://www.mext.go.jp/b_menu/houdou/24/09/__icsFiles/afieldfile/2012/09/14/1325788_1.pdf
<Figure 2 Source>

TV Tokyo affiliated school

Globalization of medical services

-What are the benefits and effects for developing countries-

Yotaro Shimizu

1Purpose of research

In the previous year, we collected information on medical disparities in Japan and in the last year, considered issues. Through these, it I found that "medical service" is one example of the cause of medical disparity. Needless to say, poverty and the natural environment are the biggest causes. However, these sudden improvements are not expected. Therefore, the ultimate goal of this research is to make recommendations for the development of medical care around the world from the viewpoint of medical services.

2 Research methods

Gathering information and consideration based on the Internet, books and statistical materials. And it would be better if you could get advice from a healthcare professional, but it is probably not possible. During the summer vacation, I was supposed to participate in open campuses and various events at multiple universities, so I would like to make effective use. But I couldn't.

3 Summary

In recent years, globalization and the loss of biodiversity have led to the spread of infectious diseases without borders and the spread of non-communicable diseases, and there is a growing need to support medical projects in developing countries.

Until now, support for medical projects in developing countries has been focused on individual communicable disease countermeasures, but it has a contributory effect in promoting the independence of medical projects in recipient countries due to restrictions on the manufacture of generic drugs and local political and economic conditions. thin.

Therefore, medical services such as medical tourism for wealthy people in developing countries were developed in each country, and the   called medical industry was entered. Developing countries are also actively opening up the medical services market, which creates new challenges as well as opportunities.

For developing countries, the import of medical services that aim to increase profits and reduce medical expenditures may divide the domestic medical market and widen the medical disparity. On the other hand, foreign currency can be acquired by attracting foreign medical tourists, which is an opportunity for economic growth including the medical industry.

However, since it deviates from the medical essence of equality, it seems that it is not good to promote it further in the future.

In other words, it is unclear how to solve and develop.

4 Research results

Medical disparity that progresses with innovation in the medical field. Suggest a correction system.

First, I thought about what kind of measures would be effective.

Medical research and development in recent years is based on market principles, not on the need for public health. It is a system that relies on patents for drugs and medical tools to recover research and development costs, and these products are distributed at high prices. This creates an important problem.

1． Many diseases in developing countries are overlooked

The needs of developed countries with economic power are given priority. This is because the needs of developed countries are directly linked to medical innovation. Even if new drugs are sold in developing countries, there are few cases that are suitable for the needs of developing countries. For example, the development of drugs for HIV patients in many developing countries has been delayed, and no clear measures have been established. In developing countries, there are a lot of areas where there is a shortage of medical personnel, lack of transportation infrastructure, and lack of electricity, and the development of vaccines that do not require injection needles or low-temperature transport systems (cold chains) has not progressed.

2． Drug prices are often set high when the same disease is prevalent in developed and developing countries.

In order to reliably deliver medicines to patients who need them, a system that smoothly distributes high-quality and safe products and promotes proper use is necessary. It is also extremely important to develop basic infrastructure such as medical facilities and insurance systems. The infrastructure for ease of purchase, availability, etc. has not been developed, resulting in drug access problems.

As can be seen in Figure 1, there are many foundations for improving access to medicines.

The process of improving drug access is shown in Figure 1.

Three D's are said to be important when governments, companies and non-profit organizations work together to solve problems.

Discovery

To find seeds by conducting research on medicines and medicines for diseases for which there is still no effective treatment in developing countries.

Development

Apply for development and approval for the practical application of discovered drugs and diagnostic

methods.

Delivery
Bring developed medicines and diagnostics to market and promote patient use.

As a foundation of this system, from the viewpoint of discovery, appropriate research and development is currently underway, and it will be further developed in the future.
However, the problems found at the discovery stage are classified as natural, whether they meet the needs of developed countries or the needs of developing countries, and are overlooked.
Therefore, service delivery is inevitably impossible.

WHO member countries participate in international agreements. To develop pharmaceuticals that meet the needs of developing countries
To raise funds appropriately and systematically to create a sustainable healthcare innovation system
Useful. In addition, the principle of making new medical technologies and medicines readily available can be established.
In addition, the CEWG reports that the agreement will allow:

The following describes the merits of having an international agreement.

・ Priorities can be determined comprehensively based on evidence
WHO and others already have research and development plans for multiple diseases. All through the agreement
Develop into a broader approach to meet medical needs.

・ Connect R & D priorities with appropriate and sustainable financial investments
Countries that ratify the agreement invest 0.01% of GNP (Gross Domestic Product) in research and development, of which at least 20%
Is recommended to use the pool method.

・ Funds are reliably used for research and development in the most effective way
Funding is done with the aim of maintaining a sustainable innovation model with limited funding
Should. Employ research and development models such as sweepstakes, and take advantage of low costs in emerging countries

It can also be a matter of consideration.

・ Establish principles that will ensure that R & D results are enjoyed

Currently, high drug prices are protected by patents, and people in developing countries often cannot purchase. Research and Development

It is necessary to consider the cost separately from the price of the drug as a result.

The agreement takes into account the importance of ensuring the availability of pharmaceuticals from the early stages of development,

Can help create. For example, a developer who receives investment under the agreement

It stipulates that technology and medicines must be set at affordable prices. Or price cooperation

It is also possible to include in the agreement a method for lowering the price, such as security and licensing policies.

Youth social advancement
-Irrationality of the vertical social system in Japan-

5312   Shao Yizhi

Motivation

        In Japan, there is a high correlation between family results and educational background, and the education that can be received depends on the economic power of the "born family". There are many young people who cannot go on to higher education due to rising school fees. Also, in the labor market where deregulation has been promoted, it is not easy to select a career that suits you through trial and error and re-challenges, and work in non-regular employment with low wages and unstable employment continuity. Young people and these young people have few opportunities to receive vocational training, and it is not easy to get out of unstable employment. Because of the high cost of housing, the number of young people who have left their parents and cannot live on their own has increased marriage and having children have become a risky option for young people because of lack of support for raising children. The ratio of public expenditures to educational institutions in Japan is at the lowest level among OECD member countries. Family-related social spending (in each country, family allowance, childbirth / childcare leave benefits, childcare / preschool education, other cash / in-kind benefits) Is also not a social structure that can realize the self by choosing the UK and France, and by participating in it, it will not have the willingness to face the social change that makes it difficult to live Supporting young people is limited, with only one-third of the indications. Young people are living by themselves. It is for presenting the concrete plan how we can change now. Also, I thought that one of the major factors that hindered the young people who are responsible for the next generation of talented people from entering the society and flowering talent was the vertical social system, which is also synonymous with Japan. The reason is that the extraordinary egalitarianism that can be glimpsed from the life-time employment system and seniority system is limiting the position of Japanese youth in the world.

Method
Paper
Book
Interpersonal relationship in a vertical society
Chie Nakane / Kodansha Modern New Book
Newspaper
Interview
RGF Recruitment Singapore Branch
(From Mr. Mori, Yunis and Mr. Nozaki)

Achievement
        Here mainly

・   Group consciousness that is too strong (individual thoughts <will of field integration)

- The foundation of Japanese social structure (lifetime employment system, etc.)

- Excessive egalitarianism (ideology that treats all as one)

- The illogical nature of Japanese vertical society as seen from abroad

  Considering the vertical society of Japan from these four perspectives.
  I too strong group awareness

Japanese group consciousness is biased toward "place". "Quality" here is an attribute of an individual, family characteristics, bloodline, academic background, status, occupation, difference between old, young, male, female, capitalist or labor. It means region, affiliation and occupational organization. Japanese people have a strong presence awareness in this "place", and when they position themselves socially, they emphasize the company name and organization name rather than individual attributes.

II Foundation of Japanese social structure

Social groups composed of common "places" have a higher level of consciousness and a social structure that emphasizes the "vertical" relationship. The seating order at the meeting is also a typical ordering habit. The reality of Japanese society is that even those who have the same ability and qualifications will have a difference in rank according to age, year of employment, and length of service.

In a vertical society based on rank, the relationship between the same and similar horizontal relationships is weak, and the hostile relationship between the similar types. This parallel competition has greatly contributed to the modernization and industrialization of Japan, but if anything sells, the unreasonable energy that all companies imitate and cannibalize at the same time is a waste of the whole country.

In an order-oriented society, there is no sequential employment system for differences in human abilities, and there is no habit of paying attention to the differences in the lives of ordinary people. This is because even though attention is paid to the "difference of effort" such as "hard worker" or "slacker", there is a "capability equality view" that "everyone can do it".

III Excessive egalitarianism

Mr. Nakane points out that the tendency of Japanese people who do not recognize the "capability gap" is closely related to extreme human egalitarianism. And for Japanese society who believes that the weak and the poor have the right to deal with the same as those who are not, and that taboos should not speak to those who are actually in a bad position, Lament that there are many.

Standing in the same line is a struggle, so there is only one vertical organization leader and it is difficult to change. Also, because of the premise of vertical human relationships, older people who have comprehension and tolerance for people are more suitable for leaders than genius-like abilities. This is because it is more important for the leader to demonstrate his / her subordinate skills better than the leader's own ability.

In this way, it is not easy to change because the systems such as seniority and lifetime employment are in line with Japanese values that prioritize relationships between people. In fact, no matter how much a company screams about meritocracy or performanceism, it is easy to understand how many aspects of Japanese society have

not changed in the past 50 years.

The illogicality of Japanese vertical society as seen from abroad
Nakane affirms that in a vertical society that places importance on emotions over theory, social activities based on "contractual relationships" are hopeless and negative in logical activities, as in Europe and the United States. A parliament is a good example of a parliament that fights against emotions instead of developing into a debate if it is just countered or criticized.

It is said that Japanese illogical conversations, which respect the harmony and dislike objections and criticisms, do not exist among foreigners. The defensive chat, which is just fun, concludes that it must have contributed to healing the fatigue of the nerves in a severe life, but it sounds ironically. Therefore, it can be said that Japanese illogicality leads to a lack of internationality and is a barrier to globalization and social structural change.
New employees who have dreams and goals for the future always work vaguely, feel uncomfortable, questionable, or unreasonable while looking at the structure and characteristics of Japanese society objectively This is a great book that you should definitely read to judge.

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Newly defining of studying
Introducing meta-cognitive into education

5313 Hisaga Ryo

Summary

Regarding the question of "what is learning", the universal view of people is as   if it is an act of studying, an act of incorporating knowledge into the self, etc.There are many ideas that the question is obvious. However, the question "what is learning"is a proposition that should not be answered easily.This is because "learning" involves many difficult problems (including metaphysical or human nature). Learning is the work of the brain in a material sense, but at the same time it is the work of the mind in a spiritual sense. Human cognitive activity is generally involved in both the substance and the spirit, and one of the cognitive activities is learning. Just considering the nature of one learning and cognitive activity, it turns out that the question is complicated.However, what makes this question the most difficult is the composition that the brain is trying to know the brain and the mind is trying to know the mind, that is, the act of the self telling the self. With regard to how objective the content can be, humans will never get an "objectively correct" answer forever. This is because human cognition and thought will never leave the range of human thought forms, and will always be bound by human innate thought forms and social common understanding.

However, for survival and prosperity, humans are forced to continue learning even if they are completely ignorant of their definitions, mechanisms, and processes. And humans will continue to learn from now on. However, there is no reason not to endeavor to explore the essence of "learning" as the mystery of the human heart. Therefore, research on human cognitive activities began in earnest from the 1950s. The results of this research are not remarkable enough to solve all the super essential propositions such as human ontology and idealism, but gradually raise people's view of learning to higher order.However, in education, one of the worlds most deeply involved in human learning, we are seriously asked what kind of action learning is essentially and what learning is rational. The

attitude of facing and exploring seems to be lacking. After the war, there was the Americanization of Japan, and consequent-based thought spread, and if any good results could be obtained anyway, it would depend on a method that worked empirically, and how this method is cognitive behavior It seems that there is no interest in the behavior. There are a lot of light and empirical books, such as how-to books on how to study.

The subject which have connection with my study

· brain science: physical approach

· neuroscience: study about brain and mind connected with nerve. Brain is one of central nerve system.

· cognitive science: not physical, not material. Try to explain about our cognitive theory

· psychology: try to explain about our work of mind

· logic study: traditional logic , symbolic logic

About mathematics

We have to think about the questions," what is mathematics" deeply. In Pure reason criticisms, Immanuel Kant said that mathematics is a priori comprehensive judgment. Why mathematics is a priori comprehensive judgment. a priori means that recognition and the concept that it is native and is like an axiom ahead of empirical recognition. In mathematics , we deduce, and develop an idea in probability. And we also have to do comprehensive judgment to use connecting theory. Connecting theory is combining one concept and another concept. When we do comprehensive judgment, we have to come out concept of the subject. For example, the number line and umber are connected by mapping. This is a priori comprehensive judgment.

What is Meta cognitive? What is merit?

Meta cognitive is common way to think. A men who do meta cognition target and recognize self activity, thinking and process. And get knowledge about trait of self cognition , problem ,strategy. Then, modify self thought and action. Met cognitive play important role for our cognitive activities. Introducing Meta cognitive into education will have good effect.

First , meta cognitive prompt students to make the out look on learning. Students will take more care of their own cognition, and the logic of subject which they learn. Students will be able to see school study more wide sight.

Second, Meta cognitive make students learning more efficient. If students acquire effective way of Meta cognitive, students learning will be more smooth and effective and valuable.

Third, Meta cognitive prompt active studying. A men who do Meta cognitive well have fundamental question. They are good at building fundamental question from practical theory. If students acquire effective way of Meta cognitive, students have many question about something which they learn in school, and they will learn more actively.

Fourth, Meta cognitive Improve problem solving ability. Meta cognitive make students conscious well about self way of thought and get practical method to solve each problem in natural. This ability is useful in many situation.

Fifth, it is not related with studying, effective for mental illness. In mental health study, it is said that consciousness is important to cure mental illness. The patients conscious their own situation and understand why they get disease, they can solve the cause of illness.   Getting this ability is good for mental health, self medication.

Problem of Meta cognitive

In Introducing meta-cognitive into education , we have some difficulties. First , meta-cognitive is inner event, so we do not have correct way to evaluate. This need more study about it. Second, there

is contradiction between practical theory and basic study .　Practical theory is shared between teacher and educational site. Basic study is developed by Scholar or college. Because of this contradiction, people（especially teachers and students）　have commonly misunderstanding. And also study about meta-cognitive is inactivity because study about such a theme is not practical and not useful for society.

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The possibility of biomass power generation

~using garbage effectively~ 5314 Jumpei Hiruma

1.Overview

In Japan, the waste problem is a major problem. Japan has the world's highest waste output in the world. In Japan, much of the power is currently obtained from thermal power generation. This will only lead to environmental destruction. How should these problems be addressed? Based on the current state of waste emissions and power generation methods in Japan, "biomass power generation", the advantages and disadvantages of this method for power generation using biomass as fuel are discussed, and the case and effects of a biogas project in Nagaoka City, I think that biomass power generation should be used in japan.

1. Purpose of research

In this research, I would like to focus on how to use and utilize garbage rather than how to reduce garbage in advance. We compare with other countries (mainly environmentally advanced countries) of biomass power generation, and we consider how to spread biomass power generation based on examples and current status in Japan.

2 Research methods

The following two methods are mainly used.

(1) Internet

Compare a piece of information. Used to discover new research subjects.

(2) Books

Enhance the credibility of research and learn specialized knowledge.

3 Research results and issues

According to the data released by the Ministry of the Environment, the amount of waste per person per year is 320 liters in Japan. This number is the largest one in the world. The second one is 180 liters in France. The number of incinerators in japan is the largest in the world, and the waste disposal method relies heavily on incineration. In addition, most of the way of generating power in Japan relies on thermal power generation, which emits a large amount of carbon dioxide. This is the current situation in Japan that cannot be said to be environmentally friendly in order to achieve a sustainable environment in the future. Viewing from environmental issues on a global scale, Sweden and Germany are listed as environmentally advanced countries. In these countries, many things are taken into consideration for the environment. However among them, the study focuses on biomass

power generation.

Biomass power generation is a method of generating electricity using biomass as fuel. Biomass refers to renewable resources derived from organisms other than fossil fuels. Biomass power generation can be classified into three types as follows.

(1) Direct combustion method

A method of generating electricity by burning wood, boiling water, and turning the turbine with steam. It is the same as general thermal power generation in that steam is used. Since the direct combustion method can produce a relatively low temperature, it is not efficient unless it is a large facility. However, the larger the size is, the more stable it is necessary to procure a large amount of wood, which makes the quality of the wood and conditions such as cutting, transporting and processing difficult.

(2) Pyrolysis gasification method

The gas is generated when heat-treating wood or the like at a high temperature is used as a fuel to generate electricity by turning the turbine. If wood is steamed, charcoal is produced. At this time, combustible "pyrolysis gas" is generated from the wood, and this is used for power generation, which is different from the direct combustion method. Since the combustion temperature is relatively high and the combustible components of the fuel can be utilized to the maximum, it is easy to economically create a power plant that is smaller than the direct combustion method.

(3) Biochemical gasification method

Methane and other gases are generated by fermenting sewage sludge and livestock manure that are easy to ferment. The biogas is used as fuel to generate electricity by turning a turbine. It is also possible to use garbage as fuel. It is characterized by the fact that it can be used even with biomass that has a high moisture content and is difficult to burn, that it can effectively use waste, and the generated gas has a high calorific value and is highly efficient.

The advantages and disadvantages of biomass power generation are as follows.

Advantage
・ Renewable energy and environmentally friendly.
-Unless there is a major accident, there is little risk of fuel shortage.
・ Fuel resources can be supplied from domestic forestry.

Disadvantage
・ High cost.
・ineffective.
・ Criticism of turning corn and other fuels into fuel in a global food crisis.

In discussing these good points and bad points, we will touch on the past cases. In Japan,

there are Azuma Woody Biomass Power Plant in Gunma, Itoigawa Biomass Power Plant in Niigata, and Betsukai Biogas Power Plant in Hokkaido. Although there are several power plants, the penetration rate of biomass power generation in Japan remains low. Why does this situation keep going on? The biggest cause may be the high cost of power plant construction. However, since the power plant construction will be both high and low depending on the subsequent power generation efficiency, this research will delve into the details of the power generation.

Biomass power generation can use raw garbage as a fuel in addition to wood chips. Then, what proportion of the garbage does garbage occupy? The figure on the right shows the breakdown of general waste in Fukui City, Fukui Prefecture. In this year, the total amount
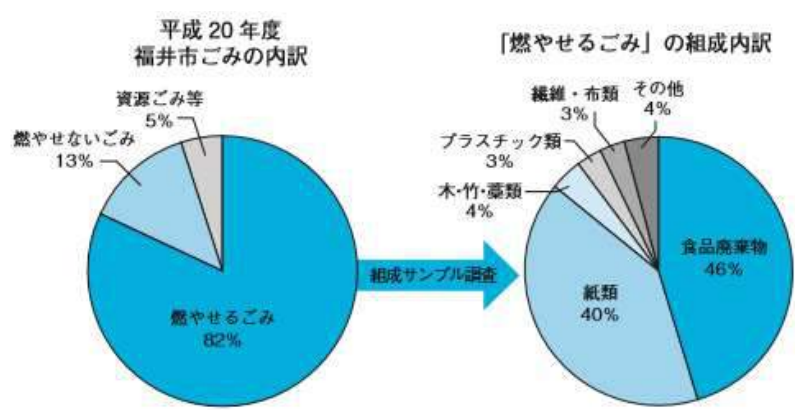
平成 20 年度
福井市ごみの内訳

資源ごみ等
5%
燃やせないごみ
13%
燃やせるごみ
82%

組成サンプル調査

「燃やせるごみ」の組成内訳

繊維・布類
3%
その他
4%
プラスチック類
3%
木・竹・藁類
4%
食品廃棄物
46%
紙類
40%

Breakdown of general waste-quoted from Fukui Prefecture

of waste in the prefecture is about 300,000 tons. Assuming that the breakdown of waste in the prefecture is almost the same as that of Fukui City, food waste accounts for about 110,000 tons. One third is garbage.

Currently, biomass power generation is mainly performed using wood chips. However, it can be said that biomass power generation using raw garbage is also effective from the amount of waste generated in Japan. As an example in Japan, a garbage biogas project started in 2013 in Nagaoka City, Niigata Prefecture. From "Nagaoka City Garbage Biogas Project and Garbage Biogas Power Generation Center", the outline of the business is to reduce the amount of garbage to burn, so that conventional disposal policies such as incineration of garbage and landfill of incineration ash have been changed to resource recycling. Conversion. The garbage is fermented and decomposed by the action of microorganisms, and the biogas generated is used for power generation. Fermentation residue is also sold to private cement factories, etc., and 100% of the waste is used without waste. It can process 65 tons of garbage per day, which is the largest in local governments nationwide. As an effect of business,

① Reduction in the amount of garbage to burn

② Consolidation of waste incineration facilities, extending the life of the final disposal site to reclaim incinerated ash after burning

③ Reduction of carbon dioxide emissions

④ Use of generated biogas for power generation * Since July 2014, the generated power has been transmitted to local power companies using the "Fixed Price Purchase System for Renewable Energy" (FIT). The amount of power transmission in 2014 (July to March) was about 2 million kWh.

⑤ Create a place for environmental education

Is mentioned. Compared with 2012, the effect of the business has come out, such as reducing the amount of garbage burned in 2017 by about 20%. In addition, as a problem that is difficult to operate, as future issues,

・ In order to ensure the stable operation of the facility, it is necessary to prevent unexpected foreign matter from entering the garbage.

・It is important to provide a system that facilitates the separation of garbage while continuing enlightenment activities utilizing public relations with citizens.

The figure on the right shows the difference in the waste treatment method before and after the biogas project. It can be seen that the garbage can be used effectively. Garbage is characterized by a high water content. For this reason, biomass with such a high water content requires a lot of energy when
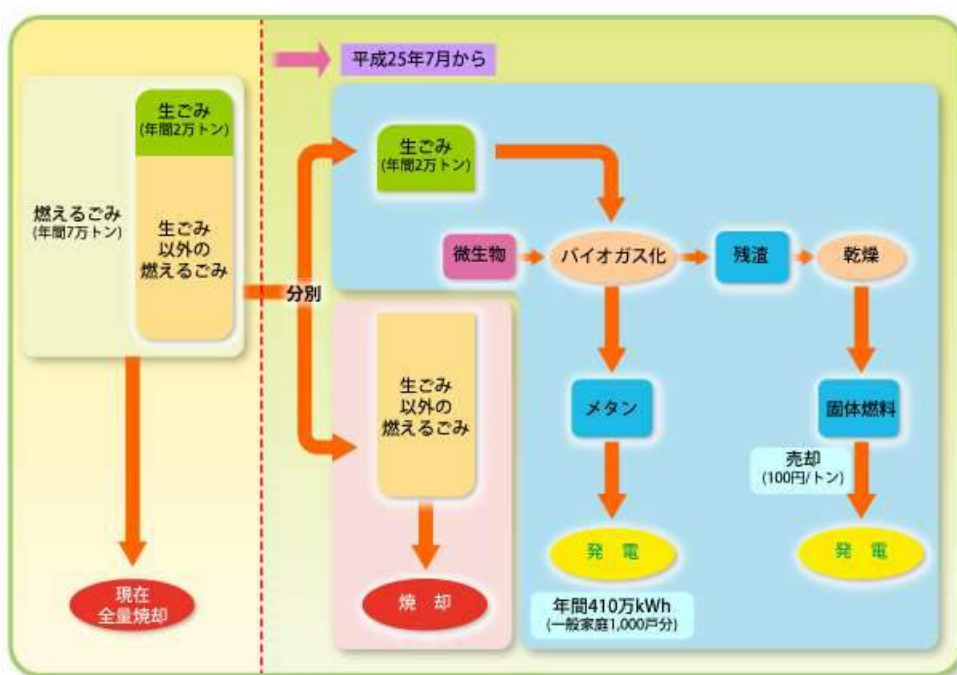
Quoted from "Garbage" Biogas Project in Nagaoka City

incinerated, and the amount of CO_2 generated increases accordingly. Therefore, by generating biogas, it is possible to generate power and reduce CO_2 emissions.

For these reasons, I recommend using biomass power more in Japan. In particular, I think that the biogas business, which is conducted in Nagaoka City, Niigata Prefecture,

which uses garbage as fuel, should be further spread. From the current situation of the waste problem in Japan, switching from "burning" to "effective use as fuel" will have a positive impact on both the waste problem and the power generation method. However, if you increase the amount of garbage just because you use it as fuel, it will fall to the end, so I think it is necessary to perform biomass power generation while watching the situation. There are also companies that produce total biogas power from construction to operation of the plant called "Aquas". According to the company, there are various problems and problems in the construction and operation of biogas power generation in Japan, but there are many advantages by utilizing the biogas power generation system handled by "Ensper" in Germany, an environmentally advanced country. It can be raised in business.

From these things, I suggest that Japan should introduce biomass power generation.

When introducing biogas power generation, it is obliged to use food waste generated in the business as fuel for efficient fuel collection. Propose to exchange for the amount of money. This secures the fuel for biogas power generation. Several waste collection stations for fuel are set up in each prefecture, from which they are transported to a biogas power plant and used for power generation. In addition, considering the damage to the neighborhood, it is necessary to choose a place with as little damage as possible as a collection place. If you create a collection place in a remote area, even if you get a lot of money, you don't feel like carrying it yourself. Therefore, it is necessary to present a reasonable amount of money and have a record of biogas power generation. In addition, if the food is left unintentionally to be used as fuel, there is no original or child, so the ethics of the provider is important in this regard.

The future task of this study is to consider the economic aspects of biomass power generation, such as construction costs, which were not touched on this time, and the setting of the amount when using the deposit system.

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Suggestion on the concrete terraforming plan
Think about the best way of terraforming
Gunma Chuo Secondary School　5315　Hirota Ryo

Abstract
  This research was started with the aim of making the Mars Terraforming Plan more specific, but there are several methods in the Mars Terraforming Plan, and one of these methods. The purpose was to consider whether is more realistic. Ultimately, the best idea is to change the warming and atmospheric components required for terraforming in two steps, using the technique described on the JAXA site. First, increase the amount of daily voyage to be taken into Mars, melt dry ice and ice in the polar cap, vaporize a part, and promote warming. The next step is to move the plant to Mars and change carbon dioxide back to oxygen by photosynthesis. I want to do various simulations in the future.

1 Introduction
  When I started this research, my teacher was involved in the university entrance examination, so I was encouraged to make it relevant to my interests and future dreams. At that time, the "universe" first appeared in my brain. A lot of interesting story keywords were found when conducting a survey on the theme of the universe. The research began with the selection of terraforming. There are several reasons for choosing terraforming. The first is the influence of the movie "Tera Formars" I saw before. At that time, I had little knowledge of terraforming and it was strange but I felt it was an interesting movie. During the survey, I found the keyword terraforming and gained a better understanding of the contents of the movie while understanding its meaning, and increased my interest in terraforming. The other is that I saw a video on YouTube saying "I tried to force terraforming". It's about terraforming various planets with a space simulation app. I saw this video and found terraforming more interesting. In this research, I would like to think of the Mars Terraforming Project and make the best proposal. Terraforming can be considered on various planets, but this research focused on Mars because Mars is relatively close to the earth in terms of temperature, gravity, and the survival of humankind because we have all the resources we need.
  Two sites were used in this study. One is "Utilization of the space environment and the future of humanity (II) – Living in space, seeing Earth from space". The supervisor of this site is Hiroo Iguchi of the Japan Aerospace Exploration Agency (JAXA). The other is the "SPACE INFORMATION CENTER". This site is operated by the JAXA Space Education Center. JAXA is a research and development organization responsible for Japan's aeronautical development policy. It is an independent administrative corporation under the jurisdiction of the Ministry of Internal Affairs and Communications and the Ministry of Education, Culture, Sports, Science and Technology. The research was advanced while comparing the above two sites. Information was collected mainly from "Space Environment Utilization and the Future of Mankind (II)-Living in Space, Looking at the Earth from Space", and collation and deficiencies were compensated from the "Space Information Center".

2 Discussion and implications
First of all, it became clear about the planet called Mars, which was selected for

terraforming. Mars is the fourth planet in the solar system and is just outside the earth. As mentioned in the research purpose, the environment such as temperature and gravity is relatively close to the earth, and we have all the resources necessary for the survival of humankind. Therefore, it can be said that Mars is the final destination for living in space. Mars, which has been called the "Red Planet" since ancient times, has been the star of human imagination. In the old days, it was believed that there was a canal on the surface, and it was thought that "Martians" with advanced civilization lived. However, unmanned exploration, such as the "Viking" spacecraft, which landed on the surface in 1976, revealed that Mars is a planet with a reddish desert-like landscape. As a result of life exploration, it was unlikely that at least the surface of the two landing sites seemed to be a life form. As a result of scientific exploration, knowledge about the atmosphere, surface materials, etc. was obtained, and it was suggested that Mars once had a thick atmosphere and ocean. If life occurred on Mars just as it did on Earth, life forms and their traces may still exist underground, even after Mars gradually lost its atmosphere and became a dry planet. One major goal of current Mars exploration is such life exploration. Our big dream for Mars later is a terraforming project that changes Mars like Earth. The plan is nothing but the creation of a breathable atmosphere and a sea of water on the surface. Mars is about half the size of the Earth, and is orbiting in the same direction on an orbit with a radius of 1.52 AU (astronomical unit: the distance between the Sun and the Earth is 1 AU) outside the Earth. For this reason, the energy of sunlight received in the Mars orbit is about 43% compared to the Earth orbit. The year of Mars is about 687 earth days (one earth day is 24:00), and there are four seasons because the earth's axis is inclined 25 degrees. As is clear from the speed of rotation, the length of the day on Mars is about 24 hours and 40 minutes, much like Earth. Those who will live on Mars in the future will need their own calendar.

Next is the living environment on Mars. Gravity on the surface of Mars is about 0.38G (1G is the acceleration of gravity on the Earth's surface), and it feels light and jumps high when jumping. However, a number of physiological effects that humans will suffer in about 0G of space may be mitigated on Mars. The average temperature on the surface is minus 60 ° C, but it can exceed 0 ° C depending on the location and season. This temperature range is not a harsh environment for humans. However, the atmosphere of Mars is about one-hundred compared to the Earth, and you cannot walk on the surface without wearing a space suit. Incidentally, about 97% of the atmosphere is carbon dioxide and about 3% is nitrogen. In addition, radiation and ultraviolet rays that are protected by the thick atmosphere on the earth fall on the surface of Mars without much attenuation. In order for people to live on Mars for a long period of time, measures to protect against these harmful radiations are necessary. To live, resources such as water and oxygen are required. On Mars, they can all be obtained. In other words, you can live a self-sufficient life. Water is almost certainly known to exist on Mars. First, it is contained in the atmosphere as water vapor. Although the amount is as low as 0.03%, water vapor is saturated due to the relationship between temperature and pressure. Next, among the parts called polar caps that appear white in the polar regions, the polar caps in the Arctic, in particular, contain a lot of water ice as well as dry ice frozen in carbon dioxide.
It is also adsorbed by the sand on the surface and is thought to be contained in large quantities in the form of ice and water. Oxygen is a gas necessary for humans to breathe. On Mars, this can be obtained by electrolysis of water or conversion from carbon

dioxide, the main component of the atmosphere. The surface material of Mars is thought to be composed of volcanic rocks and clay minerals that are weathered. These substances can be used as radiation shielding materials, building material production materials, and plant cultivation media for food. Elements such as phosphorus, sulfur, iron, and magnesium are essential for the growth of animals and plants, including humans, but most of these elements have been detected by spacecraft in surface materials.

Next is life exploration on Mars. The most important scientific exploration of Mars is the Mars life exploration. Life exploration assuming microorganisms in the Vikig project in the 1970s did not give positive results. In the 1990s, a paper appeared that there was evidence of the presence of microorganisms in the Martian meteorite ALH84001. However, these issues have not yet been concluded. The direct target of the exploration is the life forms that may have manifested in the past and the possibility of their remains in the basement. However, it is also an indirect exploration to investigate the current Martian environment, evidence of past Martian seas, past atmospheric temperatures, and so on. There are several reasons why we humans are aiming for Mars. The first is for scientific exploration. Mars is a planet that resembles the Earth, and by studying the climate and geology, it also leads to knowing the formation of the solar system and the Earth. In addition, life may have once manifested, and traces and surviving life forms may remain in the ground, and Mars's life exploration provides valuable insights into the mechanism of life generation in the solar system. Bring. The second is as a new resource development base. Mars resources are useful when humans extend their sphere of life on Mars and beyond. Carbon dioxide, argon, water, etc. in the atmosphere could be used as rocket fuel for navigating outer space. In addition, water and atmospheric components are indispensable for humans to live on Mars. In addition, rare resources on Earth may exist on Mars. The third is as a forward base for space development. If humanity goes beyond Mars into space, Mars will serve as its base camp. The asteroid belt orbiting the outer orbit of Mars is considered as a treasure trove of iron, nickel, platinum, etc., and Mars has an important position for their development and use on Earth. When exploring outer planets, Mars will function as a relay station or oasis. The fourth is as the "second earth". It is important for humanity to secure a place where humankind can live, assuming that an unexpected situation will occur on the irreplaceable earth. In order to know the formation of the Earth and Mars, it is meaningful to conduct experiments to make Mars Earth. The fifth is as a place to form new values. New frontiers have always formed unconventional values, just as people who moved to the Americas became independent with their own culture and ideals. The human race who will live on Mars for a long time will create a new system of culture, religion, politics, etc. that does not exist on Earth, with the children "Martians" who were born on Mars. Next is about manned exploration of Mars. If you are thinking of starting to live on Mars, the first step is the manned exploration mission. First, the primary purpose of the mission is to "land humans safely on Mars and safely return to Earth". Adopting the optimal Hohmann orbit to save energy and costs would take six months to less than one year with a one-way move, staying on Mars for more than one year, and returning to Earth for about three years. For this reason, not only technologies such as propulsion systems and navigation, but also experiments, tests and developments in various fields such as life support technologies and group psychology are necessary. Also, in order to increase knowledge about Mars, many unmanned

explorations for surveys must be conducted in advance.

Next is about Mars residence. Because Mars is far from the Earth and the timing of returning to the Earth only once every two years assuming the Hohmann orbit, humans who live on Mars for a long time while repeating manned exploration eventually. Will appear. Then it becomes necessary to think about the living and living environment on Mars. For material replenishment, water and oxygen can be secured using Mars resources. Considering life over a long period of time, it is necessary to build a mini version of the ecosystem that makes the material circulate almost completely, that is, it is established on the earth. There, a system must be established that bundles various factors such as food production such as plant cultivation and animal breeding, waste treatment, water purification and regeneration, and gas circulation. Thus, a self-sufficiency system that does not require material supply from the earth is completed. How can we get energy on Mars? Coal / oil, natural gas, hydropower and geothermal are all unlikely to be found on Mars. As natural energy, only solar and wind energy can be considered. On the Mars surface, solar energy is attenuated by about half compared to the Earth. Also, once every two years, there is an all-Mars-scale sandstorm. Then, the idea of transmitting a solar power generation satellite to Mars base by floating a solar power generation satellite in the geostationary orbit of Mars has come out. In addition, although the atmospheric pressure on Mars is low, the wind speed is as strong as an average of 5 meters per second, so wind power generation as an auxiliary energy source is also considered practical. In order to conduct scientific exploration on Mars, a means of moving the surface of Mars is necessary. Mars Rover can be used at short distances, but for long-distance movements, gliders that use the atmosphere of Mars and airships filled with gas lighter than carbon dioxide, the main component of the atmosphere, will be used. Up to this point, I have described many things that have become clear about Mars from various angles, but from here it is about the Mars Terra Terrain Project. First, regarding terraforming, terraforming is a word that means "form" for "Terra". By remodeling Mars and Venus, humans don't wear space suits like Earth. It's a plan to make life possible.

The idea itself has been around for a long time, but as planetary exploration reveals the environment and constituent materials such as Mars, it has become an object of interest for planetary scientists. Mars, which is relatively similar to Earth, is a prime candidate for terraforming, among other things. However, even if it is remodeled, the method of shifting the trajectory or changing the earth's axis is not realistic, so the surface material is warmed to increase the vapor pressure, the atmospheric greenhouse effect is used, or the plant to be transplanted A method of creating air that can be breathed by humans by combining methods that are technically possible even if it takes time is considered.

The environment in which humans can live without wearing space suits is not limited to the environment that resembles the Earth. It is only necessary that the environmental conditions are within the range where human beings can finally survive. The human viability conditions are relatively well tolerated. In general, it produces an atmosphere that can breathe over Mars in two stages. The first stage creates a warm environment with a thick carbon dioxide atmosphere and the associated greenhouse effect. Along with this, a sea of water is formed. In the second stage, plants capable of photosynthesis are transplanted on the surface of Mars, and the atmosphere of carbon dioxide is finally changed to the atmosphere of oxygen. The first step was to create a thick, warm atmosphere by accelerating the greenhouse effect by triggering a positive feedback

mechanism, triggered by some method. More specifically, a method of melting and vaporizing carbon dioxide by increasing the absorption of sunlight by sprinkling the top of the polar cap, adding a greenhouse gas such as CFC produced using Mars resources to the atmosphere. A method for raising the temperature was considered. In this way, the positive feedback of rising temperature → dissolving and vaporizing carbon dioxide at polar cap → increasing greenhouse effect → rising temperature ... was made to create a warm atmosphere with thick carbon dioxide. . However, it has been found that these methods do not provide the required amount of carbon dioxide and that it is difficult to form the sea in a short period of time.

There are two problems. In order to form a sea or transplant plants in the second stage, the temperature of the atmosphere must be 0 ° C or higher. In order to obtain this temperature, the greenhouse effect is used, but a carbon dioxide atmosphere with a pressure of 0.2 MPa is required. By the way, this amount of carbon dioxide cannot be obtained from the polar cap. This carbon dioxide cannot be obtained from carbonate minerals unless it is heated to 600 ° C or higher. In addition, the water that forms the sea needs to be obtained from groundwater and ice from the ground, but it has been found that it takes millions of years before the sea is formed by the conventional method.

In order to solve these problems, it is necessary to adopt a more intense method in the first stage. Possible methods are (1) nuclear explosion, (2) floating a huge mirror in space, and (3) crashing into the surface of comets, satellites, and asteroids. By concentrating these enormous energies on thick formations of carbonate minerals, it is believed that a thick carbon dioxide atmosphere and an ocean of water are formed. In the second stage, creatures that cause photosynthesis, such as plants, are introduced to Mars, and the atmosphere of carbon dioxide is converted to a breathable atmosphere containing oxygen. There are a few things to note here.

First, when carbon dioxide is converted to oxygen, it is necessary to treat surplus carbon atoms. As a countermeasure, it is necessary to harvest plants that have absorbed and accumulated carbon in the body during photosynthesis, and to embed these biomasses deep underground. It is also necessary to monitor the activity of microorganisms in the ground that will proliferate as the ecosystem becomes naturally rich during the terraforming process. Using these buried biomass as a carbon source, it is necessary to avoid returning atmospheric oxygen to carbon dioxide. Secondly, an atmosphere consisting solely of oxygen is dangerous. Like Earth, the atmosphere after terraforming on Mars requires the presence of inert gases such as nitrogen. However, Mars lacks enough nitrogen. For this purpose, for example, it is necessary to import nitrogen from Saturn's moon Titan. The terraforming concept described so far is based on new knowledge about Mars. Similarly, it is greatly influenced by the knowledge and ideas we have cultivated about our planetary ecosystem. In this way, thinking about the terraforming plan is based on the theme of Mars, and eventually the earth's ecosystem, using a wide range of disciplines such as planetary science, planetary atmospheric science, ecology, botany, and physiology. It is also about thinking about the future of the earth. The actual Martian terraforming plan should be planned and executed for the first time by the "Martians" after we have lived on Mars, gained further knowledge about Mars, and created a new cultural sphere. right. At that time, it must be carefully implemented as a long-term, non-reversible plan. Some researchers use an ethical warning to remodel the planet's natural creation by human hands. Should humans live on Mars when past Martian life is discovered? There is also the idea. Borrowing the

subject of Mars, it is present on an irreplaceable planet, Earth, while thoroughly discussing the relationship between nature, ecosystems and humans, symbiosis with other creatures, and so on. It is also important to think about humans.

The best Martian terraforming plan I think is the same as the one in "Use of the space environment and the future of mankind (II)-Living in space, seeing the earth from space-" and creating a warm environment due to the greenhouse effect. Then, the plant is able to transplant photosynthetic plants and eventually change the atmosphere of carbon dioxide to the atmosphere of oxygen.

3 Conclusion

The best Martian terraforming plan I think is the same as the one in "Use of the space environment and the future of mankind (II)-Living in space, seeing the earth from space-" and creating a warm environment due to the greenhouse effect. Then, the plant is able to transplant photosynthetic plants and eventually change the atmosphere of carbon dioxide to the atmosphere of oxygen.

4 References

"Use of the space environment and the future of mankind (II)-Living in space, seeing the earth from space-"

63895000.pdf

SPACE INFORMATION CENTER

http://spaceinfo.jaxa.jp/

<div align="center">To success TOKYO Olympic
~Easy to understand the pictogram~</div>

Chuo Secondary School 5316 Matsuoka Gen

1. Introduction

   In this study, foreigners have visited Japan for sightseeing to understand pictograms deeply. A pictogram is not a letter, it just has a picture, so that you can understand what it means faster than looking at the letter. However, there is a drawback, which means that Japanese and foreign cultures are different. What is common in Japan is not common in foreign countries. The fact that foreigners cannot understand pictograms immediately does not make sense of pictograms. The mural found in Chauvet's cave, 23,000 years ago, has been handed down as a pictogram. The process of making a pictogram is to visualize the concept of what you see and simplify it more. In order to create pictograms that seem simple and not easy, we are now training human resources for pictogram creators during the period related to pictograms such as LIG.
   *LIG:Life is Good(web production company)

2. The purpose

   The government aims to double the number of foreign visitors to Japan in 2016 statistics to 20 million by the 2020 Tokyo Olympics. As the number of foreign visitors to Japan increases, there are many things that need to be improved in Japan. For example, interpreters, English notation, and food ingredients used for religious believers. The pictogram notation that I have determined needs to be improved. If foreigners are unable to understand the pictogram notation, it may lead to incidents and accidents. Therefore, through this research, I think and propose myself to make pictograms that foreigners can understand and how to make them known by foreigners. I will continue this research with the goal.

3. Method

   In order to continue research after last year's research, I think based on last year's research. Investigate the pictogram relationship mainly using the Internet.

Research achievements and issues
The pictogram has a long history. The pictogram was originally said to have spread in 1964, but it has been found that it has a longer history.
Suppose that pictograms are expressed as visual figures instead of letters, it is believed that the history of pictograms has continued for about 32,000 years. At that time, the following horses were drawn on the murals in Chauvet Cave.
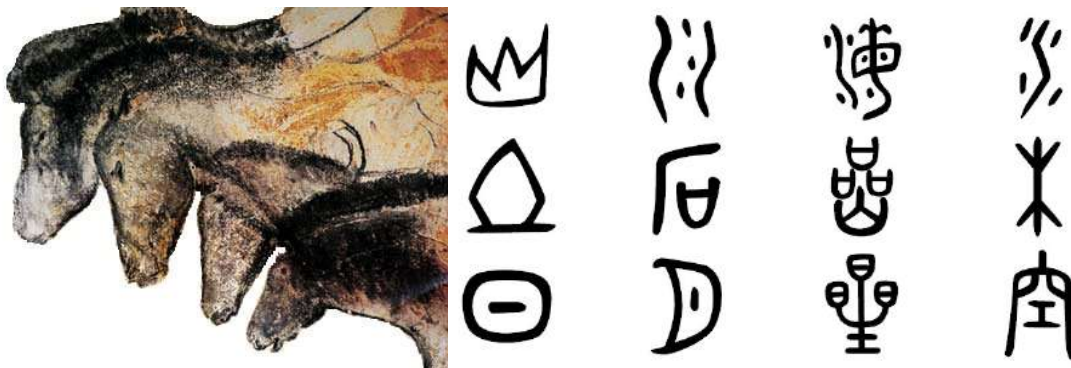
From this era, the culture of painting and communicating my intentions may have started. The same can be said for hieroglyphs, which are also based on pictures. The pictogram may be a result of returning to the primitive way of human transmission.

Pictogram and Tokyo Olympics
The pictogram spread at the 1964 Tokyo Olympics.
It began to be used to communicate with foreigners in Japan at the time when communication in English was difficult. Information display for foreign tourists not to be lost was a big issue even in the 1964 Olympics. "There are thousands of family crests in Japan, so make use of traditional heritage to make things that anyone can see, so that foreigners do not have trouble." 11 designers who were active in the world gathered and produced.
It took about 4 months to produce, and now 39 kinds of pictograms, including familiar toilets and canteens, have been completed.
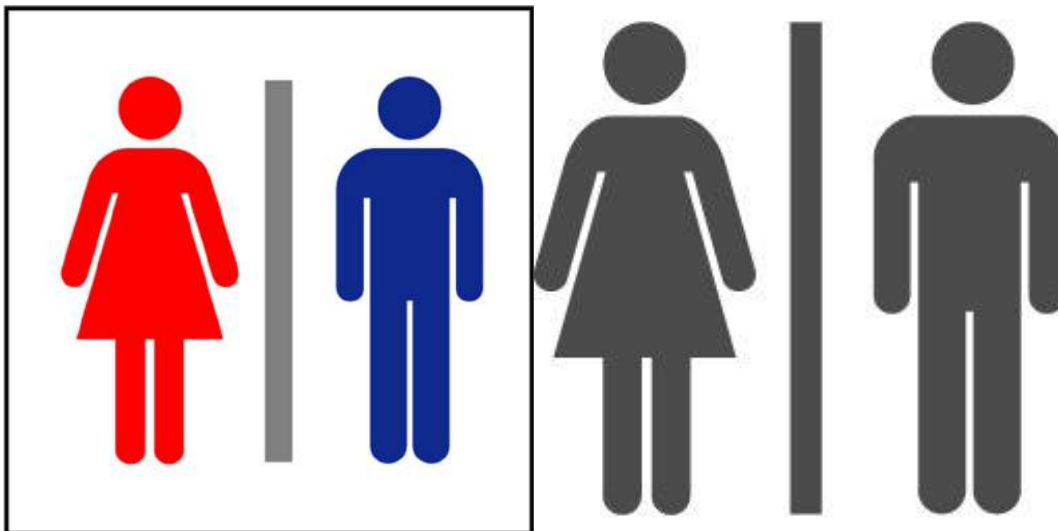
(Left is red, right is black) (Left and right are black)

The country where the pictogram was spread to the world the earliest in the world was Japan, which was the time of the 1964 Tokyo Olympics. The first pictogram is the "toilet" mark above. At that time, the marks were all black and white. However, there are various countries in the world. Therefore, because there were opinions that women wore long pants and men also wore skirts, now red has changed to women and blue has changed to men. Some people are wondering why red is female and blue is male, but here red is female and blue is male.
When visiting foreigners, there may be some marks that foreigners do not understand at all.

In the past, competition (Pictason) was held to improve skills in creating pictograms for Japanese creators. What is Pictason in the first place? LIG Co., Ltd., which held Pictason, wrote as follows.

Hackathon where engineers compete for ideas and programming skills. It is hosted by various companies in Japan as well as in Silicon Valley. "Pictathon" is a combination of this hackathon and a pictogram that is now indispensable for navigation of websites, applications, and public facilities. The first meeting was held on July 27, 2013, and has been held regularly thereafter.

When the Tokyo Olympics are held in 2020, in Japan, the JIS-approved marks used in the past

will be changed to ISO-approved marks, and new marks required by foreigners will be created. It is needed.

  Taking advantage of the Japan-Korea World Cup soccer in 2002, a new JIS Z8210 "Guide for Guidance" was passed through a visibility and comprehension test for smooth movement guidance of not only Japanese but also foreign visitors. Symbol "was established. This time, it was decided to revise the JIS because it was decided to hold Tokyo Olipara in 2020, and it was an opportunity to invite many foreign tourists. On July 4, 2016, the JIS revision committee for information symbols was held for the Tokyo Olympics and Paralympics. There are two main discussions.

① Add new graphic symbols

  In addition to the 140 types of pictograms currently certified by JIS, additional pictograms required by foreigners visiting Japan in 2020 will be added. (Example: ATMs for overseas cards, wireless LAN, prayer rooms, etc.)

② Consistency with international standards

   The existing JIS graphic symbols are discussed from the viewpoint of harmonization with international standards.

*

Conclusion

  In order to develop human resources to create pictograms that are easy for foreigners to understand, it is necessary to incorporate more competitions like Pictason in Japan. It is necessary to raise the awareness of pictograms by foreigners by posting the created pictograms on the web.

http://www.mlit.go.jp/sogoseisaku/zukigou/zukigou01.html
https://news.mynavi.jp/article/20150217-a145/
https://www.weblio.jp/content/pictogram

Self-driving for all the people

~Making convenience and safety for the world~

Chuo secondary school　5317　Takumi Miyagawa

1. Introduction

  Can you imagine how we can move easily and convenient if the self-driving car realize. I think self-driving make convenience for older people and people who cannot move easily. However, there are some news that a car that had been tested for self-driving had a fatal accident. On the other hand, according to the Subaru survey, accidents with vehicles with a collision-reducing brake were reduced by 60% compared to non-equipped vehicles. The practical application of self-driving will greatly affect the reduction of traffic accidents. However, only about half of the people are interested in self-driving, and it's certain that many people need to be realized that fact in order to make it popular. In addition, since the cost is a major factor in the spread, consumer expectations and costs must be balanced. There are several issues to disseminate in this way, and in order to have many people understand the practicality and safety of introducing self-driving, the opportunity for the general public to experience self-driving it is necessary to provide.

Purpose: self-driving system make our life convenience and reduce the number of death people from car accident. However, some people don't understand the promise of self-driving system. My first purpose is provide transportation for older people. Recently, traffic accidents by elderly people have occurred frequently in various places. If we restrict driving by certain age, it become difficult for them to go everywhere. Self-driving system solve this problem and reduces traffic accident by old people. Second purpose is to reduce traffic jam. The cause of traffic jam is the difference of the speed of each car. If the computer controls the speed of all cars, traffic jam won't occur.

Method: I used internet sites of Ministry of Land, Infrastructure, Transport and Tourism, Metropolitan Police Department, Toyota Company, Mitsui Sumitomo Insurance.

2. Discussion and implications
i.   Level of self-driving.
 Lv.0 ... Driver controls everything
 Lv.1... System performs vehicle control either front / rear or left / right
 Lv.2... Automatic operation function under specific conditions (level 1 combination)
※Drivers are responsible for the system in case of an accident when using the

automatic driving function（Level1~2）

 Lv.3... Automatic driving function under special conditions (high performance)
 * Automatic driving mode function on highways
 Lv.4 ... Conditional automatic operation
 Lv.5... Fully automatic operation
 (* Source: Ministry of Land, Infrastructure, Transport and Tourism)

ii.   For realization of automatic driving

Semi self-driving (realization of Lv1 and Lv2) by 2017, advanced self-driving on highways (Lv.3 or higher) by 2020, fully self-driving (Lv.5) by around 2025. When using a system of level 3 or higher that aims to be achieved by 2020, there is no need to think about driving at all, but if there is a problem with the system and there is a request from the system to the driver, we have to change modes and drive. The Tokyo Olympics and Paralympics are aiming to commercialize self-driving buses in the Tokyo waterfront area.

iii.   Self-driving for old people

※Source   Metropolitan police department HP
「http://www.keishicho.metro.tokyo.jp/」

The number of license holders over the age of 75 has been increasing year by year, and 5.13 million elderly people have licenses in 2012. When you are away from the suburbs or in the city, you can't take action without a car, so you have to drive it more often. As you age, your ability to judge, recognize, and eyesight will decrease, increasing the number of scenes where driving becomes difficult. Especially in country areas, there are some places with poor visibility, so driving at night is very dangerous. Looking further to the left, the

※Source   Cabinet office HP
「http://www8.cao.go.jp」

number of elderly traffic accidents is increasing. As the number of traffic accidents at all ages is decreasing, it will be important how to reduce the number of traffic accidents caused by elderly. In general, risk discovery tends to be delayed due to changes in physical functions such as a decline in dynamic visual acuity and reaction time with age. It is important to reconfirm the correct rules and skills and drive with moderate tension.

iv.   Realization of the system
● Social purpose

・A significant reduction of and traffic casualties

・ Support for elderly people

- ・ Reducing congestion

- ・ Convenience improvement

- ● Technical purpose

- ・ Accident avoidance and advancement of safe driving support systems

- ・ Realization of next-generation transportation systems using ICT
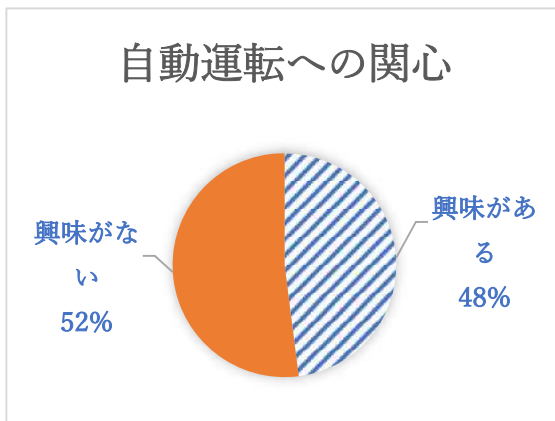
- ● Industrial purpose

And automotive, improve the competitiveness of the ICT industry

- ・ Creation of new industries and new markets

-Transportation system package export (* quoted from the Cabinet Office website)

自動運転への関心

興味がない 52%

興味がある 48%

v. Recognition of self-driving technology

In recent years, the development of self-driving technology has been remarkable, but what kind of impression the Japanese people have about a self-driving?

The graph on the left shows the results of research conducted by Mitsui direct general and Professor Nishinari of the University of Tokyo. It turns out that there are fewer people who are interested in self-driving than those who are not interested. Many respondents answered that they were interested in "expectations to reduce accident risk and driving load". However, many of those who answered that they were not interested answered that they were "anxious or dissatisfied with self-driving". For partially self-driving (semi-automated driving) technology, many of the respondents answered that purchasing Levels 1 and 2 would add up to 10,000 yen as an option. Many people say that they want to purchase Level 3 purchases if they are (average) 2.219 million yen. Regarding the level after that, there were many people who answered about 2.5 to 3 million. Many respondents said that manufacturers and drivers should be responsible for accidents. From these results, it was found that no one was interested in self-driving. Although there is no negative opinion on the advancement of self-driving technology, many people think that it is better to drive by themselves for those who have a low driving reliability and a long driving history. . Of the functions of partial automatic driving, the most famous collision mitigation brake was shocked by 11.1% of people who didn't want to wear it even if it was 0 yen.

vi. Event planning

Place and content are in demand for event planning. There are many people who are thinking about buying a car in their 30s to 40s, so if you advertise frequently on CM and SNS, more people will be interested. In SNS, people who are interested in the event page can share event information with their followers and friends, and in commercials, they can be interested in advertising methods with impact. Event organizers need to

constantly check the response of events and use the engagement function in twitter, etc., and always study what events are interested.

3. Conclusion

　Although there are various problems in self-driving and it is not yet put into practical use, the improvement in daily self-driving technology is remarkable, and in 10 years I think that self-driving cars are running in town. Currently, there are various support for partially self-driving technology, but people's recognition of it is weak, and it was found that the system was not used well. In conclusion, even if the technology is developed, it is difficult to spread the self-driving technology as long as people's consciousness about self-driving does not change. For this reason, there are still a lot of information about self-driving in news programs, etc., so more information on self-driving has been sent than ever until now, only people related to automobiles can experience it. It is proposed to provide opportunities for the general public to experience self-driving technology at leisure facilities such as amusement parks. In addition, at shopping malls and at this stage, it is important to understand the safety and practicality of semi self-driving, and to reduce the number of accidents as a problem by allowing many people to ride on-board models. I think that it will be necessary in the future to change the recognition of self-driving little by little.

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http://www.toyota.co.jp
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Prtimes
https://prtimes.jp/main/html/rd/p/000000118.000002355.html
Zurich insurance
https://www.zurich.co.jp/car/useful/column/mj-takane/02/
Panasonic corporation
https://www.panasonic.com/jp/corporate/technology-design/technology/radar.html
Jidounten-lab
https://jidounten-lab.com/y_5386
Subaru corporation　"Accident rate of *EyeSight*"
http://www.itarda.or.jp/upload/1535701892AEB-press.pdf

Studies on animal collective embryos
〜 Thinking about effective research methods〜

12th Grade 5th Class 3rd 18th Hirotaka Mochida

○ Outline of research

On July 20, 2018, it was permitted to create animal children by using animal collective embryos. An animal collective embryo is an animal embryo that is injected with human IPS cells. By using this, an organ made of human cells can be created in the animal body. I thought that it was very useful to know this, and I wanted to study how it can be used more widely. Also, because I was interested in the medical field, I set such a sub-theme. There are three main uses for animal collective embryos. Research on organ transplantation, IPS cell pluripotency, and elucidation of disease mechanisms. When we consider how to use such utility value, we have come to the conclusion that it can be used in graduate school.

1．Purpose of research

By doing this research, I would like to think about the effective use of animal collective embryos whose use was lifted and to propose to many people how to use it. Animal embryos became available on July 20, 2018, due to a revision of the law. I was interested in knowing this, so I wanted to study how to use it for medical applications. Therefore, research was advanced with this as differentiation ability.

2．Research method

I conducted this research mainly using the Internet. Since there are many cases where wrong information is posted on the Internet, research was conducted by comparing various information.

3．Research achievements and issues

　①What are animal collective embryos?

Animal collective embryos are non-human embryos (ES cells, iPS cells, etc.) injected into human animal embryos (fertilized or cloned embryos).

　②Useful value of animal collective embryo

I wondered what animal collective embryos are useful,

It turns out that there is such use value.

　・Confirmation of differentiation potential of pluripotent stem cells

Pluripotent stem cells such as ES cells and iPS cells make the same cells as themselves (self-replication)It is considered as a cell having the ability and ability to become (differentiate) various types of cells such as blood cells, muscle cells, and nerve cells. To confirm what kind

of cells the pluripotent stem cells created in the research can become, and to what stage in the process of growing into cells, tissues, and organs, etc. It is considered that when an animal collective embryo is grown, the human cells injected into it grow together and eventually become human tissues and organs in the animal body. For this reason, it is considered that the differentiation ability of pluripotent stem cells can be confirmed by transplanting animal collective embryos into the uterus of animals and growing them in vivo. In addition, it is thought that the mechanism of organ formation can be clarified through this.

・Elucidation of the cause of diseases and development of drugs

Currently, when investigating the cause of diseases and developing drugs, research on experimental animals is conducted before research on human subjects. However, because the mechanisms and functions of animals are different between animals and humans, data obtained from research on animals may not always apply to humans. For this reason, methods for reproducing and researching human tissues and organs in the body of animals using animal collective embryos are being considered. In addition, this method is thought to be able to elucidate the causes of natural diseases.

・ Production of organs for transplantation

The shortage of organs for transplantation is a serious problem worldwide. One solution to this problem is to create human organs in the animal body using animal embryo technology. In order to realize this, it is necessary to confirm whether a human pluripotent stem cell becomes a target tissue or organ.

③Permission status for production of animal collective embryos overseas (as of 2018)

Prohibited in France.

Part of the US is prohibited.

Permitted in the UK and Germany.

・ U.S. laws and systems regarding animal collective embryos

NIH (National Institutes of Health) guidelines Prohibiting the introduction of human pluripotent stem cells into primate blastocysts other than humans

・ Regulations and contents of animal collective embryos in the UK

Although there is no system that prohibits preparation, approval by the Ministry of Home Affairs is required based on the zoological treatment method when the animal is implanted in the animal womb for more than half of the pregnancy period.

・ Regulations and contents of animal collective embryos in Germany

There is no prohibition system.

・ Regulations and system details regarding animal collective embryos in France

The creation of human chimeric embryos is prohibited by bioethics method 3, but animal collective embryos are not positioned as human chimeric embryos

④ Opinions of ordinary people and researchers on ethics

In 2016, a survey was conducted for the general public and CIRA researchers to answer questions on the Internet. (Regarding the general public, responses are completed when the number of respondents reaches 520)

Production of animal collective embryos: More than 80% of the general public and 90% of researchers answered that it can be.

Production of animals with human organs: Over 60% of the general public and over 80% of researchers answers that it can be.

This suggests that more than half of people are ethically positive about animal collective embryos.

It is thought that the use of animal collective embryos may have been lifted due to the idea.

・ Requests against the deregulation of animal collective embryos

The next item is a request for animal collective embryos posted on the net by organizations that oppose deregulation of animal collective embryos.

Do not transplant animal collective embryos into animals

Working on how the country regulates animal testing in general

The screening system should be strengthened without excluding animal collective embryos from the scope of the Clone Regulation Act.

In discussions, conduct field surveys on animal testing facilities and provide guidance for improvement.

Discussion of animal fetal protection

Making the final goal of technology that does not sacrifice animals

⑤ Effective research methods

Research at a famous university research institute

Reasons… Young people such as students in high school are interested in university research.

Because it is expensive, the younger generation can learn about animal embryos and

Research on physical property embryos can be carried out continuously and on a large scale. Also animals

Making sex collective embryos costs a lot of money,

Research can be carried out more stably than in a corporate laboratory.

⑥ Future issues

There are mainly three future issues. The first is the amount of information. Since the law was revised recently, so much information was not posted on the Internet, so it was not possible to collect much information. Therefore, if I can do this research after a while, I would like to collect more information. The second is the accuracy of research conclusions. In this study, we came to the conclusion that research at a research institute at a well-known

university was effective, but it is not certain that the result of this study was really the best. Therefore, I thought it was a challenge to think about this over a long period of time.The third is the accuracy of information. I have been doing this research mainly using the Internet and have used only accurate information, but it is still not definitely correct. Therefore, it is the subject of this research to actively use other methods in addition to the Internet. The above three are the subjects of this research. If you want to continue this research, please keep this in mind.

4.Literature

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http://www.lifescience.mext.go.jp/files/pdf/n1341_04.pdf

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https://ja.wikipedia.org/wiki/%E7%A0%94%E7%A9%B6%E6%89%80

http://www.lifescience.mext.go.jp/files/pdf/n1673_01.pdf

http://www.ims.u-tokyo.ac.jp/imsut/jp/

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http://careergarden.jp/kenkyuusha/katsuyaku/

Urban greening

-Strengthen greening at the individual level-

12th Grade 4th Grade 4th 15th Shunji Yasuki

*

1 Outline of research

Plants have not only environmental and disaster mitigation measures, landscape formation, but also a refreshing effect, an air purification effect, a fire and heat prevention effect, and so on. However, the greening area in Japan has been decreasing at present. The reason is that although the greening area as a public project has increased, the greening area of private land has decreased. The reason why the greening area of private land has decreased is that not only the green has been shaved for development, but it is difficult to care for and manage the plants, and to a certain extent This is because the cost increases, and in the first place, the number of newly built properties has decreased and the number of properties that have been greened has decreased. In order to reinforce the greening of private land and increase the area in response to such a current situation, the promotion of cooperative greening activities in the region and the creation of indicators similar to those who are new to greening, and the current subsidy we think that review is necessary.
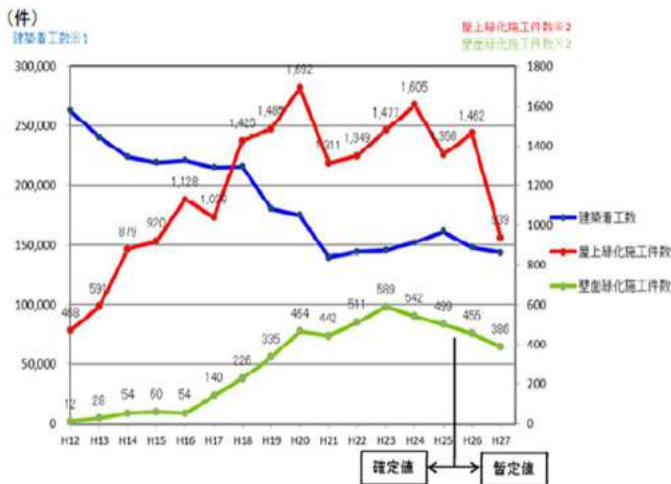
2 Research background

The reason I started this research is that although Japan has been focusing on greening activities in recent years, there are many differences in the greening area between rural areas and urban areas, and I want people to feel green in the urban areas. Because.

3 Purpose of research

The purpose of this research is to overcome the current situation where the greening area is decreasing in Japan, and to make nature more accessible in more places. .

4 Research methods

Mainly researched using the Internet.
The main reference materials are research papers and Internet newspapers published on the Internet.

Since statistics such as materials often differ from site to site, try to use as new as you can trust. Since there are places where statistics are collected, we will focus on one as much as possible.

5 Research results

Plants provide us with various benefits such as energy-saving effect, mitigation of rainwater runoff, building protection effect, air purification effect, fire and heat prevention effect, educational effect, fruit space creation effect, carbon dioxide reduction effect, etc. ing. In addition, simply placing a simple plant in the room can improve the feeling of peace and reduce stress due to the aesthetic effect of greening, aromatherapy action due to the pharmacological effect of the volatile components of the plant, a feeling of comfort, and nurturing and caring for the plant. By doing so, you can get the leisure effect and the refreshing effect of mind and body.

Next, greening activities are mainly carried out for disaster mitigation measures to prevent disasters such as landslides, environmental measures such as prevention of global warming, and the formation of urban landscapes. In particular, when rooftop greening is performed, not only the heat insulation effect of the greening soil and the plant itself blocking solar radiation, but also the effect of reducing the temperature rise in the outdoor space by the transpiration of the plant is expected, as well as the effect of plant transpiration it can.
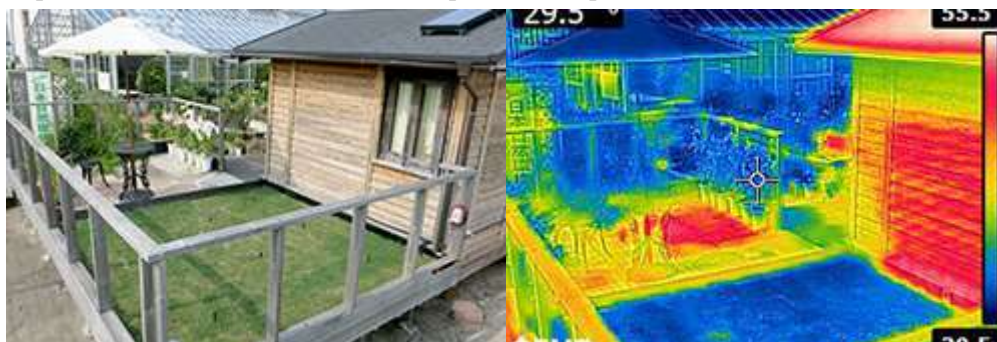
Measurement of environmental greening effect
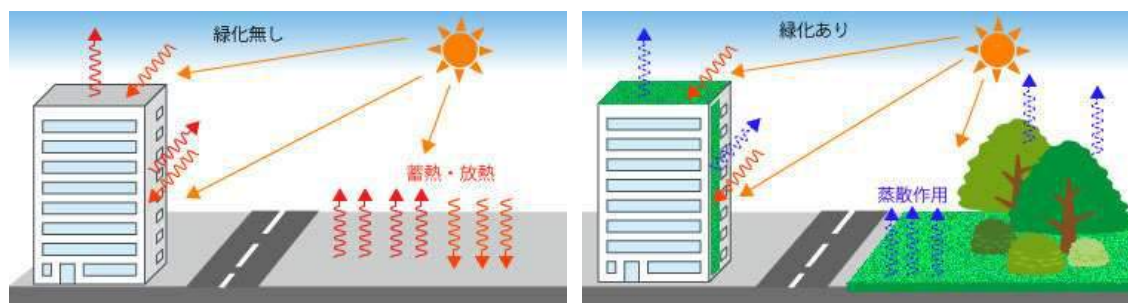
In recent years, Japan has been focusing on greening activities, but the greening area has been decreasing year by year. The reason for this is that although the area of greening activities as a public project has increased, the greening area of private land has greatly decreased. This is due to the difficulty of managing plants on private land. The plants to be taken are not only time-consuming to manage but also to some extent, and it is difficult to do it individually.

6 Conclusion

The greening of private land has declined as I mentioned in the research outline and purpose. In response to this situation, I would like to make three proposals: promoting joint rooftop greening activities, creating indices for greening activities, and reviewing the subsidy system.

The promotion of the first common rooftop greening is that the residents living there cooperate with each other to nurture plants, although similar things have already been done. In most cases, only managers of apartments take care of plants. I think that this activity is not just about greening, but also reduces maintenance costs, and for residents, it is part of the creation of local communities and leads to opportunities to get out of the elderly.

The second is the creation of an index for greening activities. Even if there is a consciousness of greening, there are cases where, when trying to get started, sometimes we do not know what to do and eventually give up. In order to eliminate such a situation, I think it is necessary to create indicators for beginners, including the introduction of plants that are easy to care for, and points to note when taking care of them. Also, because there are few people who know that there is a subsidy system, I thought it would be nice to introduce them.

The third subsidy system review is to subsidize by greening a certain area. However, the subsidy system differs in area, amount of subsidy, and other top-and-bottom systems from region to region, and it is very difficult to find out if the area where you planted is in line with the subsidy system in that region. Therefore, we propose the introduction of the same subsidy system nationwide. This is not to eliminate the existing subsidy system for each region, but also to receive a subsidy system common throughout the country. As for the contents, although the subsidy amount is small, I think that it is possible to apply for a small area and loosely regulated. By implementing this, people who have planted private land with few people who have applied so far will be able to receive subsidies, and from now on, they will try to plant trees in a limited area such as urban areas I think it might be a boost for people.

4 Literature
特殊緑化の効果効用 ｜ 公益財団法人都市緑化機構
https://urbangreen.or.jp/tech/green-plathome/tokusyuryokka-koukakouyou
屋上緑化の効果 国土交通省屋上庭園
www.mlit.go.jp/crd/park/shisaku/gi_kaihatsu/okujyo/kouka.html
屋上緑化で期待できる 10 の効果 ｜ 屋根コネクト
https://yane-connect.com/rooftop/gardening-effect/
[PDF]
みどりの政策の現状と課題 - 国土交通省
www.mlit.go.jp/singikai/infra/city_history/city_planning/
2015 年の「屋上緑化」面積は東京ドーム約 3.7 個分！～全国 ...
https://www.homes.co.jp/cont/press/report/report_00158

Reassessment of plantation

-Balance between economy and work environment-

5th grade 3rd class   Yoshizawa Kazuki

1．Abstract

In this study, we propose a plantation production system. Plantation is a production system used in the colonies of the powers before the Second World War, and its influence remains persistent even after independence. In this paper, we propose a new production system to promote economic independence in such countries.

2．Introduction

There are not so many people who can give a concrete explanation of plantation. However, there are some people who have a bad image. At first I want you to know what kind of plantation is.

According to an excerpt from the encyclopedia マイペディア（maipedyia）

Plantation is a large farm that the capital of certain developed countries and imperialist countries grows special craft crops such as tea, coffee, sugar, cotton and rubber in the tropical and subtropical regions of Africa, Asia, Latin America. "Strictly abused indigenous people and slaves and workers transferred from abroad under poor working conditions. For the purpose of single crop production (monoculture) for export purposes, the colonial economy is further destabilized. This form is declining with the independence of the colonial countries, but remains influential after their independence, making economic independence difficult. "

As a result"somewhat bad image" is not completely wrong, but is associated with these facts. In this research, we are not limited to such preconceptions, but we find the advantages and weaknesses inherent in plantation and search for improvements.

3．1   What is plantation?

Plantation is a form of farming that involves the mass production of a few kinds of crops on a vast farmland, and processing for export at a factory attached to the plantation. The crops are mainly called commercial crops, and the main ones are coffee, bananas, and natural rubber. Most of these, if not all, are exported and cashed. Plantation crops are traded at a very low price due to mass production, and this is partly due to the fact that workers' income is never high.

2   Formation

Originally, in the regions that became colonies due to the advancement of Western countries, it was impossible to produce the high-demand items such as good products in the sectarian country, but they were produced and exported. For this reason, spices such as pepper, fiber such as cotton, iron and gold were produced in the early plantations. These were produced under the leadership of the sovereign state, and the local people were forced to work halfway under cultural and economic repression.

3   Modern plantations

When World War II ended, various countries became independent, especially in the Middle East and Africa. Many of the countries had made their own finances through plantations before independence, and many of those countries still have not been able to escape from plantation. However, in Japan, the name and recognition are not

widespread, only written in textbooks.

4　　Background

　I used to study SDGs before. The SDGs are the 17 sustainable development goals set by the United Nations. Among these goals are "to eliminate poverty" and "to eliminate hunger". These are also listed in Goal 1 of the MDGs, which was the predecessor of the SDGs, and it has been regarded as a problem for many years. The reason for this is that it is not effective unless it is a long-term effort, and therefore it takes time to judge whether a solution is good or bad.

In short, the problems of poverty and hunger are shortages of goods. It's about money and food, but poverty seems difficult to define. According to the UN, 169 targets are those who live on less than $ 1.25 a day as poor people. This is the same as the data of the World Poverty Line for the international poverty Line before October 2015. The SDGs were adopted in September 2015, which is different from the current international poverty line of $ 1.90.

地域	貧困ライン (PPP、ドル/日)	貧困率 (%)	貧困ギャップ (%)	2乗貧困 ギャップ率	貧困層の数 (百万人)	総人口 (百万人)	調査対象 割合(%)
東アジア・大洋州地域	1.90	2.32	0.46	0.16	47.18	2,036.62	97.57
ヨーロッパ・中央アジア地域	1.90	1.47	0.40	0.18	7.15	487.04	89.86
ラテンアメリカ・カリブ海地域	1.90	4.13	1.54	0.92	25.90	626.57	89.84
中東・北アフリカ地域	1.90	5.01	1.28	0.50	18.64	371.65	64.63
その他高所得国	1.90	0.68	0.49	0.42	7.32	1,083.59	71.71
南アジア地域	調査データが限られているため、結果表示なし						21.35
サブサハラ・アフリカ地域	1.90	41.10	15.79	8.24	413.25	1,005.57	52.69
世界全体	1.90	10.00	3.10	1.49	735.86	7,355.22	66.71
世界全体(高所得国を除く)	1.90	11.62	3.55	1.67	728.54	6,271.63	65.85

（↑ Quoted from THE WORLD BANK ↓）c
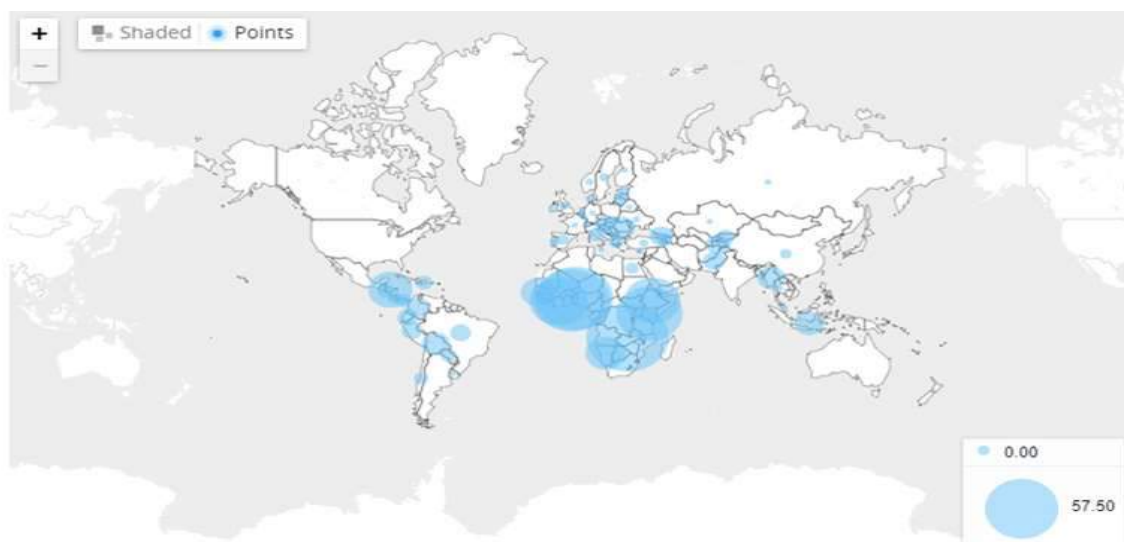
Area	Poverty Line	Poverty Rate (%)	Poverty Gap (%)	Squared Poverty	Number of The Poor	Total Population	Survey Target

	($/day)			Gap Ratio	(million)	(million)	Ratio (%)
East Asia Oceania	1.90	2.32	0.46	0.16	47.18	2,036.62	97.57
Europe Central Asia	1.90	1.47	0.40	0.18	7.15	487.04	89.86
Latin America Caribbean Sea	1.90	4.13	1.54	0.92	25.90	626.57	89.84
Middle East North Africa	1.90	5.01	1.28	0.50	18.64	371.65	64.63
Other High-income countries	1.90	0.68	0.49	0.42	7.32	1,083.59	71.71
South Asia	Lack of data						21.35
Sub-Saharan Africa	1.90	41.10	15.79	8.24	413.25	1,005.57	52.69
World	1.90	10.00	3.10	1.49	735.86	7,355.22	66.71

Both tables show that poverty is concentrated in the Sub-Saharan Africa region. Of course, the survey target ratio varies from region to region, so it can not be said that the data is completely reliable. Would hope. Compared with the hanger map by WFP (http://en.wfp.org/content/hunger_map-2015.pdf), the ratio of the hungry population in Africa is very high.

Now, it can be inferred from these facts and the fact that the monetary economy has spread almost all over the world, that hunger and poverty are closely related. The relationship is irreversible because poverty causes hunger. In other words, poverty resolution leads to hunger resolution.

 Most of the poverty in Africa is caused by the collapse of the living base due to conflict and the instability of the economic base. As for the former, the world should be peaceful as long as I can conclude, and no matter how much I think, it has not left an empty field, so I will take the latter solution.

   In the first place, many of the economic problems in Africa depend on the fact that the influence of colonial rule remains strong. Specifically, it is mass production by "plantation". The mass production of a single crop not only caused a decline in the unit price of goods and the resulting decline in wages, but also caused an extremely unstable monoculture economy in which one commodity supported the national economy. The solution of the plantation problem could solve the hunger and

poverty problems in Africa.

5   Method

There are three types of information gathering methods in this study.

Internet search

Book

Field survey

About Internet survey

In this study, information was collected mainly using this method.

Mainly used sites are World Bank WFP Google Scholar OEC GLOBAL NOTE 世界経済のネタ帳MEMORVA.

About books

The Britannica International Encyclopedia was used.

Field survey

If possible, I should go to the site to check the current situation, but because it was not possible
for me (in terms of safety and money), I went to the Plantation Museum on the Island of Hawaii to
get information about the lives of the workers at that time. It was.

6   Results and discussion

6.1 Current status

　『OEC GLOBAL NOTE』『 世界経済のネタ帳』 　『MEMORVA』 　Nominal GDP, Nominal GNI, Nominal GDP per
capita, GNI per capita worldwide ranking is 145th (out of 180-200 countries) from information
obtained from these three sites, and on the primary industry and its extension in export Industrial
goods (canned goods, etc.) accounted for 54% or more in a single item, and the countries located in
the Sub-Saharan Africa region were Comoros, Guinea-Bissau and Malawi. Details are as follows.

Country	Item	Export ratio	Nominal GNI	Nominal GDP	Nominal GDP/person	Nominal GNI/person
Guinea-Bissau	Nuts	77.2%	191	175	168	170
Comoros	cloves	54.8%	189	182	169	173
Malawi	Tobacco	59%	158	148	186	177

In particular, Guinea Bissau is a highly unstable economic state with high dependence on nuts.
Malawi is a very poor country with a nominal GDP per capita of 186 out of 188 countries.

　2   solution

What I propose in this study is the establishment of an agricultural mutual aid association in
Africa. The idea of using plantations was soil conservation in previous research, but as far as I
investigated, there was no economic reuse of plantations. Specifically, what it means is that the
farms work together to produce completely different crops. This makes it possible to escape from
monoculture caused by agriculture. Also, when there is a certain product that cannot be sold due to
some reason, as in "mutual assistance" There will also be a system that can help through unions.

These efforts will solve the problem of an unstable economic base.

3   Expected problems

The crops to be produced vary from plantation to plantation, and the form of assisting when there is a recession can greatly disrupt the power balance of the farm and create new problems.
 Changing the crops to be produced requires a large budget.

4   Answer to the problem

The fact is that we can't do anything about the lack of budget. In the first place, I feel a contradiction when I need money to get out of poverty, but in terms of funds, I can only raise donations and crowdfunding. However, it is possible to take measures against the former problem. This is quite natural, but the top of the union is a third party. If possible, the top should come from a country that was not involved in colonial rule.

5 Discussion

This proposal is expected to be difficult due to the creation of a so-called "JA" overseas, also in poor areas. The possibility of becoming a hotbed for vested interests cannot be denied. However, if this is possible, each country will be able to live with its own power.

6 Conclusion

 Today's hunger is closely linked to poverty, and the resolution of poverty will be the solution to hunger. Poverty in the African region is due to an unstable economic base, which is due to a monocultural economic mechanism by plantation. I believe that an organization that is a mutual aid association is necessary to solve these problems. Funding problems arise in the establishment of a union, but a stable economic system can be established if it is solved.

8 Thanks

People at the Plantation Museum on the Big Island The secretary in our library Other people who are related to research Thank you for sharing various information and valuable experiences.

9 Quote

ブリタニカ国際大百科事典

百科事典マイペディア

OEC   URL;https://atlas.media.mit.edu/ja/

THE WORLD BANK URL ; http://www.worldbank.org/ja/news/feature/2014/01/08/open-data-poverty

WFP URL ; http://www.worldbank.org/ja/news/feature/2014/01/08/open-data-poverty

プランテーション・ウォッチ URL ; http://plantation-watch.org

The fear of shale gas

-How to dig out shale gas from China-

12th Grade 5th Grade 2nd Class 21st Yoshida koki

○ Summary of research

The shale gas revolution was occurred in the early 2000s. Some people may know about the shale gas revolution without knowing what shale gas is. This study is about the problem of the shale gas. The People's Republic of China is currently filled with 36 trillion cubic meters of shale gas, but at present, there are almost no actual outcomes. Therefore, this research investigated why shale gas was not excavated from China. In addition, based on the results of the previous research, we conducted research to propose what measures should be taken. However, although this research has investigated global warming and decided on a theme, the results of the research are not related to global warming. China has problems such as the lack of underground pipe technology, the inability to secure a large amount of water, and the shale gas itself being buried deeply. So I suggest that you import technology from the US, the second largest shale gas reserve, and procure water from the Grand Canal that crosses the north and south of China.

1. Purpose of research

There are two main reasons for starting this study. The first is the encounter with a manga. When I was in sixth grade in elementary school, I read a comic book called "Merchant". Roughly speaking, the manga has a subordinate and a boss who go looking for shale gas. I didn't know what shale gas was in the first place. Secondly, when I became a first year high school student, it became the theme of World Exploration, and when I was investigating global issues, I knew that global warming was one of the world's major problems. It is. Then, when we investigated global warming, the word "natural gas" came out. At that time, I was connected to shale gas. It turns out that China's reserves are the best in the world in examining it. However, it was found that there is almost no reserve available. So I came up with the question of how shale gas could be excavated from China. So I started this study. The goal of this research is to solve the question of why shale gas is not emitted from China, and to propose a method of how shale gas can be emitted from China. The subject of the study is the world, but as I was investigating, China was the number one reserve, and the United States was the second largest reserve, so I will focus on these two countries.

2 Research methods

There are two main methods of this research. It is an Internet survey and a comic survey.

① Internet

Improve credibility while comparing multiple information.

② Cartoon

Use as a reference for Internet surveys.

3 Research results and issues

* What is the shale gas revolution?

In the late 2000s, new technologies were developed in the United States to drill oil and natural gas contained in a layer of rock called "Shale" and were able to drill at an economically reasonable cost. It was. As a result, the production of shale gas (natural gas from the shale layer) has started in earnest in the United States. Production volume increased significantly, import volume decreased, and domestic prices also decreased. This is the "shale revolution". This "revolution" has led the United States to export natural gas. Exports to Japan started in January 2017 from Sabin Pass, Louisiana. Japan has been importing natural gas from Alaska since 1969, but it was the first time to import natural gas produced in the United States except Alaska.

○ Current situation of shale gas in China

Reason (1) From drilling to gas extraction is technically different strict in China and USA

Shale gas drilling technology was cultivated in the United States. If the US can catch up with China with shale gas technology, it will not be interesting in terms of energy policy. It seems that they are quite nervous about keeping the Chinese away.

In addition to the technology of digging deep up to 3,000 meters, the production of shale gas requires the technology of "digging up this shale layer" and the technology of extracting gas by crushing rocks. Shale gas is in the rock at the Nano level. And each of these technologies is a little disadvantage for China.

Reason (2) A large amount of water cannot be secured in inland Sichuan and northern dry areas

China's shale gas is said to be buried in large quantities in Sichuan, for example. The problem is that it is "inland". In order to extract gas in shale gas production, it is necessary to use a large amount of water at high pressure.

This means that a large amount of water cannot be secured inland. It uses a lot of water so that it is disadvantageous if the sea or river is not nearby. In China, shale gas is also present in the northern dry areas, but again, the water shortage seems to be serious.

Reason (3) China's shale gas is buried deeper than the United States

In addition, China's shale gas is sleeping much deeper than the United States, which is one of the reasons that China is disadvantaged in shale gas production. Especially in Sichuan, the stratum is complex, and it is also important to dig up various hard layers. The deeper it is, the greater the risk that the strata will be complicated.

Furthermore, "digging" is still a hurdle. Roads must be maintained so that a large number of transport vehicles can go back and forth, and the mountainous and dry areas are difficult to access.

Reason (4) Shale gas production that cannot ignore environmental problems

It is said that various environmental problems are caused at each stage of drilling shale gas.

To excavate shale gas, a large amount of water is required. Drunk, subsidence due to pumping up groundwater, pollution of rivers by wastewater, etc. are cited as environmental problems. In fact, in the shale gas production stage, a large amount of chemical substances and methane gas are used in addition to water. Therefore, there is a risk that groundwater and river water will be contaminated. There is concern that shale gas drilling will be quite dangerous if not properly managed.

○ Current status of shale gas in the United States

Factors behind the successful US shale gas development

There are three reasons why the US successfully developed shale gas.

In 2011, world natural gas production was 3.3 trillion cubic meters, a 3% increase from the previous year. In particular, US production was 650 billion cubic meters, a 7.8% increase over the previous year. The United States accounted for 20% of the world's natural gas production, surpassing Russia, the natural gas kingdom, and became the world's largest natural gas producer.

This number is supported by the fact that the United States has succeeded in developing shale gas, but it is said that there are three reasons why the United States has succeeded in developing shale gas.

The first is the steady innovation of small and medium-sized shale gas development companies. Due to many years of technological innovation by small and medium-sized enterprises, the latest shale gas drilling is excavated by combining the techniques of "horizontal digging", "hydraulic fracturing" and "micro seismic".

The second success factor is the gas pipe network that is spread throughout the United States. The existence of the conventional natural gas pipe network in the United States led to a real-time supply system for shale gas.

The third factor of success is the existence of abundant water resources in the United States.

Shale gas mining requires abundant water. In particular, a large amount of water is required for "hydraulic fracturing", which is essential for shale gas drilling.

These facts highlight the problem that China needs a large amount of water but cannot procure the water. Original sin China has more than a billion people and is economically is a developing country. Therefore, I thought that technical development would be done. However, the problem of water shortage did not change even as the population increased, so we thought that it was necessary to solve the water cultivating problem. What I propose is the formation of the Grand Canal. The Grand Canal is a man-made river connecting Beijing from the north with Hangzhou city in the south, which was built by the Emperor from 605 to 610 years when China was in the drought. We thought that extending the Grand Canal to the inland part of China or making a new one could solve the lack of convenient pressurized water when shale gas was exploited in the inland part.

4 Literature

May 2018, natural gas produced by the "Shale Revolution" arrives in Japan | New article ...
www.enecho.meti.go.jp/about/special/johoteikyo/shalegas.html

Why shale gas mining requires a lot of water

https://www.e-shalegas.net/tairyounomizu (December 17)

The Introduction of animal assisted therapy into Japan
Find the best way to introduce AAT into Japan

Gunma Chuo Secondary School Inoue Tsumugi

1 Abstract

The present study considers how animal-assisted therapy, a professional medical treatment for people with the help of animals, can support medicine in Japan. Results show that Japan should   make standards for AAT in Japan which meet international AAT standards and found an organization which support to introduce AAT and develop social understanding of the activity. In this study, the target of animals is only dogs.

2 Introduction

As described in the experiment by Erica Friedman [1980s], contacting with pet lowers both of highest and lowest blood pressure. As described in the investigation by American National Institute of Health, people who have pets go to hospitals 1.75 times fewer than those who do not in a year. These finding indicate that contacting with animals has good effects for people
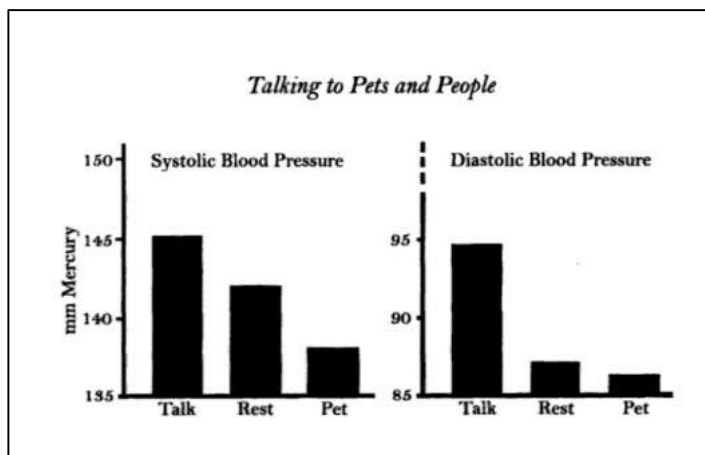
Talking to Pets and People by Erica Friedman [1980s]

Now, in the US, there are many training centers and more than 40 dogs become AAT dogs a year in one training center. Because of that, there are hospitals that cooperate with AAT and many dogs work at hospitals as AAT dogs.

In Japan there are some organizations which try to introduce AAT, and some of them, including university professors, cooperate with each other. Today there is one organization in Japan that meets international standards of AAT. It was founded to save children with serious disease. It is called Shine on Kids. It executes the AAT program called the facility dog program. The detail of the activity is based on AAT activity carried in the US. The facility dog and its handler walk around the hospital, meet patients and contact them. It has effect to make patients smile and give them a motivation to treatments.

However, there is only one organization, only 4 facility dogs, only 3 hospitals operating facility dog programs in Japan. Because all three hospitals are children's, only children can receive AAT in Japan now.

3   Discussion & Implications
I suggest making an organization to support introducing AAT into Japan. It supports the introduction of AAT from three aspects.

First, the organization makes manuals. Currently, there are no formal common rules in Japan. There are many organization operating AAA*[1]. That is why it is necessary to establish manuals.
*[1]AAA [Animal Assisted Activity] an activity to contact with animals, often conducted in the nursing home or kindergarten. It is different from AAT in that it does not involve doctor.

Second, the organization establishes facilities to train animals and handlers. Facility dog program imports the system of AAT from the US, so all of the facility dogs are from the US and handlers have to get training. If AAT were introduced widely into Japan, to get training abroad would be burden for handlers, hospitals and dogs. So founding training facilities in Japan is necessary.

Third, the organization supports to match hospitals with dogs and handlers. As showed by Shine on Kids, some people want to be a facility dog handler but few hospitals want to accept the program since it explains and shows what the program is and connect the hospitals and handlers. Also it supports to introduce into general hospitals and private hospitals to provide it for everyone, children to elderlies.

As Morita Yuko, the first facility dog handler describes the effect of AAT in the TED Talks' event "TEDxShimizu" held in 2015. When she worked as an ordinary nurse, she saw many children with negative feelings. One day the patient's mother said to her "here is like a prison". She was shocked. Since she works as a facility dog handler, she have seen many children smiling and many children encouraged by the dog. Also, she said that "For kids, Bailey*[2] is a teammate with a tail who fight against their illness". "Dogs easily understand what people are thinking about them. Because there are many people who love him, Bailey loves the hospital very much. Both a dog and people are mutually affected; that is where the facility dog belongs. This is why non-sentient toy dogs cannot make this happen. A robot dog cannot make this happen." [Why we need more dogs in hospitals TEDxShimizu by Yuko Morita March 2015]

Bailey*[2] the first facility dog in Japan. Handled by Morita.

4 Conclusion

In conclusion, to introduce AAT is effective for both of human physical health and mental health. To introduce it, we have to establish an organization to support the program.

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    Alan M. Beck、 Aaron Honori Katcher

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Shine On! Kids Facebook

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    https://asaet.org/

 National Institute of Health(US)

Open unmanned store in the world

～how to spread unmanned business～

5323 Uchida Momoko

Overview

I have heard that "47% of current jobs will be automated in the future" and "65% of people will be in jobs that do not currently exist", and I think that work at stores will eventually be automated. Therefore, I decided to study with interest in how jobs would be automated and if there were any new jobs born out of jobs. IC tags are attracting a great deal of attention in store automation, and they can be used to read IC Tags of a large number of products at a time and manage products easily. However, although there are stores that currently introduce, it is costly, so it is difficult to introduce them at supermarkets and convenience stores. Major convenience stores and the Ministry of Economy, Trade and Industry have declared "Declaration of 100 billion convenience store IC tags" and are aiming for cost reduction and introduction by 2025.

Purpose

The reason I set this research theme was because I was interested in vending machines. Last year, I researched on vending machines. Among them, "Vending machines are very popular only in Japan and Europe and the United States, and it is only about Japan that thwy are them so vulnerable on the roadside." I understood that. The reason is that it is difficult to install it due to various factors such as security. Therefore, I first tried research on the theme of "How can we spread vending machines to the world?"

However, it was found that there were too many problems and no merit to disseminate the vending machine in the world at the information gathering stage.

Therefore, I decided to study "Unmanned Business" with a broader perspective.
"There is a prediction that in the next 10 to 20 years, about 47% of jobs will be automated." In fact, as of 2018, unmanned cash registers have been adopted in most supermarkets. Considering this example, humans are basically working as usual except for the cash register. However, in the future, it is considered that work other than cashiers such as shelving and merchandise management will not be handled by humans.

In addition, Duke University researcher Kathy Davidson said in an interview with the New York Times in August 2011: Sometimes I'll get a job that doesn't exist now. "FY 2018, seven years have passed since then, but new professions such as "YouTuber", "Affiliator" and "Smartphone App Engineer" have already been established. The same can be said in Japan.

From the above, I expect that there will be no more work in stores such as cash registering from the world, and research how unmanned business will spread and what new occupations will be born from there Decided to do.

In order to spread the unmanned business, we thought that it was necessary to spread them in developed countries such as Japan, Europe and the United States, considering the penetration rate of vending machines.

Research method
The research was mainly conducted as follows.

① Internet
Research progressed based on information obtained from the Internet. Information obtained on the homepage of the Ministry of Economy, Trade and Industry and the website of the company that made the machine system was basically considered to be reliable information and was incorporated into the research. Information on pages such as personally created blogs and sites that anyone can write on was not used much because of its low credibility. If you feel that it is necessary as a starting point for research or material you want to use, you should use it after confirming that you can trust its content to some extent by comparing it with other information.

② Last year's research
Last year, I researched on vending machines, and some of them were useful for this research. The source of the information is mainly the stories we heard during the visit to the Vending System Industry Association. The information was confirmed and verified before it was incorporated into the study.

③ Books
I also used books on unmanned business. Although there was not much connection with research, I was able to incorporate various opinions about unmanned business.

Research results
As a result of the research, we found the following.

As for the significance of store automation, I think that solving problems such as a shortage of workers is the best for Japan, but when considering other countries as well, it says, "How can I make shopping more efficien and pay?" I thought the point would be important.
So I tried to draw this conclusion by focusing on the technology that is possible now or in the future.

First is about unmanned cash register. There are two types of unmanned cash registers, one that you can read through a bar code that you see in a supermarkets and one that uses an IC tag. I especially paid attention to this C tag.

What is an IC tag?
・ ・ ・ ・ By attaching an IC tag, things and people can be identified electronically. The entire system including the network and computer that manages the information registered in the IC tag is called an IC tag system.
IC tags are now being introduced in stores such as UNIQLO and GU.

❶ Product management becomes easier
The IC tag functions as a memory for storing electronic data. Therefore, it is possible to manage the time of arrival in detail and accurately. You can easily know how quickly your products are sold because you can easily and quickly pay for them with a reader when you have a problem with a product that has become out of date. This system is a little breakthrough, but this system is also used at libraries, and it is a revolutionary one that has been able to finish the work in an hour.

Understand the route to display products (it will be difficult to disguise)

For this reason, it is possible to record what kind of flow has resulted in the display. Moreover, the information can be protected. For example, as described above, an IC tag can write data. There seems to be an example in which domestic fish and domestic fish are disguised as domestic when the domestic one sells higher. IC tags are useful for preventing this. The place of production and the origin of the feed can be described for livestock. And even if it tries to rewrite this, it is protected and cannot be rewritten. It is very useful when you are concerned about the safety of the product.

❸ detect many tags at the same time
The point is attracts the most attention as a buyer. An IC tag can read multiple tags simultaneously. In the GU example, the product can be read and paid by placing the product in a dedicated basket in the shelf containing the leader. This allows you to check out very quickly.

The above is the feature of the IC tag. From the above, supplementing the benefits

  · We can finish accounting quickly
  · Product management is easy
  · Distribution can be traced

However there are problems with this IC tag too. The following can be cited as problems.

❶ Expensive
❷ Not very famous
❸ Tagging work

❶ Expensive
Currently, the cost is about 10 yen per piece. If this is applied to all products, it will be a considerable expense. Although clothing is reasonably priced, if it is introduced into a supermarket, it is necessary to attach on to a 10-yen product, etc., resulting in a considerable cost over.

❷ Not very famous
Currently, IC tags are not very popular. And the method of accounting is unique compared to ordinary cash registers, such as the method of putting it in a shelf as it was in the example of GU. When I first used an unmanned cash register at GU, I was confused because I didn't know how to use it. At that time, there were two staffs at the cash register, so I managed to finish the cash register. In this way, someone's guidance is required for the findings.

❸ Tagging work
When introduced at supermarkets or convenience stores, Tags need to be attached to products one by one in order to return them with IC tags instead of barcodes. Labor force is generated for this work.

In terms of the cost of ❶, there is a "Declaration of 100 billion convenience store electronic tags" jointly announced in April 2017 by the Ministry of Economy, Trade and Industry and five major convenience stores. By 2025, attempts are being made to reduce the cost of IC tags to 2 yen or less.
If this attempt is realized, unmanned cash registers using IC tags will become more widespread.

There are already stores that have introduced such a system. It is "Amazon GO".

It is a method of registering an Amazon Go dedicated application, entering the store, putting the product in a dedicated bag and leaving the store without stopping by cashiers. This makes shopping very successful.
I hope that such a system will spread in the future.

In this way, there will be no more work to hit the cash register in the future. New professions (work) that emerged in this study included self-checkout instructors and IC readers.
In any case, it will be easier and cheaper to work at the store in the future.

In Japan, cash is often bought and sold, but the use of electronic money for payment has been progressing globally. In Japan, there are scenes where credit cards are used, but most of them are used for big purchases and special cases such as train fare. However, now that they are spreading all over the world, they will eventually use electronic money for daily shopping such as supermarkets and convenience stores, whether they are near or far.

One of the reasons why electronic money is spreading overseas is safety. In the United States, buying a large amount of food and living materials at a time is the mainstream, so it takes some money to purchase. Therefore, you have to carry a lot of money for shopping. Because security is not as good as in Japan, it is dangerous to carry a large amount of money easily, and you want to avoid it because you can carry it with you. If it is not electronic money, you can settle with one card, so you don't have to have a lot of cash. This is the reason why it is popular in Africa and China. In Africa, it is surprising that Japanese people have an overwhelmingly higher percentage of electronic money accounts than cash accounts.

In this way, electronic money is prevalent in the world.

One of the merits of electronic money is that you can finish accounting immediately. This also leads to automation of the store, and considering the future store based on the IC tag, it is very convenient to read the sacrificial product with the IC tag that selects the product and complete the accounting immediately with electronic money. It is thought that it becomes.

5 . Source
Orange page （https://orange-operation.jp/posrejihikaku/pos/10156.html）
〈12／6〉

経済産業省（http://www.meti.go.jp/press/2017/04/20170418005/20170418005.html）
〈12／6〉

富　　　　　士　　　　　通　　　　研　　　　　究　　　　　　所
(http://www.fujitsu.com/jp/group/labs/resources/tech/techguide/list/ictag/p02.html)
〈12／ 6 〉

日本自動販売システム機械工業会（https://www.jvma.or.jp/）
（12／6）

<div align="center">Medical intervention with childbirth

～How to associate childbirth with medical care～</div>

○ Outline of research

Currently, about 830 pregnant women die each day due to preventable causes associated with pregnancy and childbirth. Maternal deaths are especially high in poor countries such as developing countries, and many of these causes are not available in poor countries such as developing countries. That is. In poor countries, there is a shortage of food, and maternal women are not able to get enough nutrition, which often affects pregnant women and fetuses.

On the other hand, "excessive medical intervention" may be a problem. Examples of medical interventions for pregnancy and childbirth include cesarean section. Appropriate medical intervention for cesarean pregnancy and childbirth specified by WHO includes cesarean section. Some countries have performed cesarean sections at a much higher rate than cesarean section rates. Appropriate cesarean section rates are set by the WHO and other countries. However, there are many cases where excessive medical intervention, such as doing it, has led to the death of a pregnant woman, even though there is no need for a caesarean section. It is important to build an appropriate relationship between childbirth and medical care.

1. Purpose of research

Currently, there are many birthing methods in the world, such as painless delivery including natural delivery and medical practice, and birth locations are diversified. However, there are currently no pregnant women due to excessive or insufficient medical intervention. Japan is one of the countries with the lowest maternal mortality and maternal mortality rates in the world, where birth and medical intervention are balanced. In developed countries including Japan, birthplaces and methods are diversifying with the development of medical care. In Japan, maternal mortality and maternal mortality are decreasing year by year, and in recent years Japan has the lowest maternal mortality in the world. However, in the world, many pregnant women, especially poor countries, die from preventable causes associated with pregnancy and childbirth. On the other hand, there are areas around the world where caesarean section is performed for about 50% of births, such as Brazil and coastal areas of China. In this way, there are pregnant women who have not been balanced in medical interventions for childbirth and have died due to excessive or insufficient medical interventions. In some countries, there are far more cesarean sections than the standards set by the WHO, so excessive medical intervention is a problem. Therefore, on April 10, 2015, WHO warned against an easy cesarean section, saying that a cesarean section should be performed only when medically necessarily. Since the WHO recommendation in 1985, the appropriate cesarean section rate has been 10-15%. However, most developed countries now exceed that level, and this percentage will be revised to take into account changes in medical and social factors.

First, why are there excessive medical practices? Why are there more cesarean sections than the cesarean section rate set by WHO and other countries? Why shouldn't you do excessive cesarean section? I wanted to study how to lower the maternal mortality rate.

In this study, we will focus mainly on the appropriate cesarean section rate and

excessive medical practices, not on how to raise countries with low cesarean section rates. The ultimate goal is to think about the proper relationship between childbirth and medical care, define an appropriate cesarean section rate, and find a way to approach it.

2．   Research method

   Check the birth method and place on the Internet. In addition, we examine the merit and demerit of cesarean section from the physical aspect of the baby and the physical and physical strength of the pregnant woman, and consider why excessive cesarean section is not possible. In addition, since the possible and recommended delivery methods differ depending on the place of birth, we will study the correlation between the place of birth and the delivery method. Investigate the current situation of cesarean section and the public impression of it in newspapers, books and papers. In recent years, the number of pregnant women who wish to have a cesarean section is increasing, and there is a problem that a cesarean section is accused by the natural birthing group.

3．   Research achievements and issues

   <Maternal mortality rates around the world>
   The following data are as of 2015, maternal mortality statistics published in a report published in 2018 by the World Health Organization (WHO). This is the same as published in the World Health Statistics 2016 and 2017 editions.

<Percentage of birth rate due to caesarean section> Regions with higher numbers are colored red and regions with lower numbers are colored blue compared to the average for the target country or region.
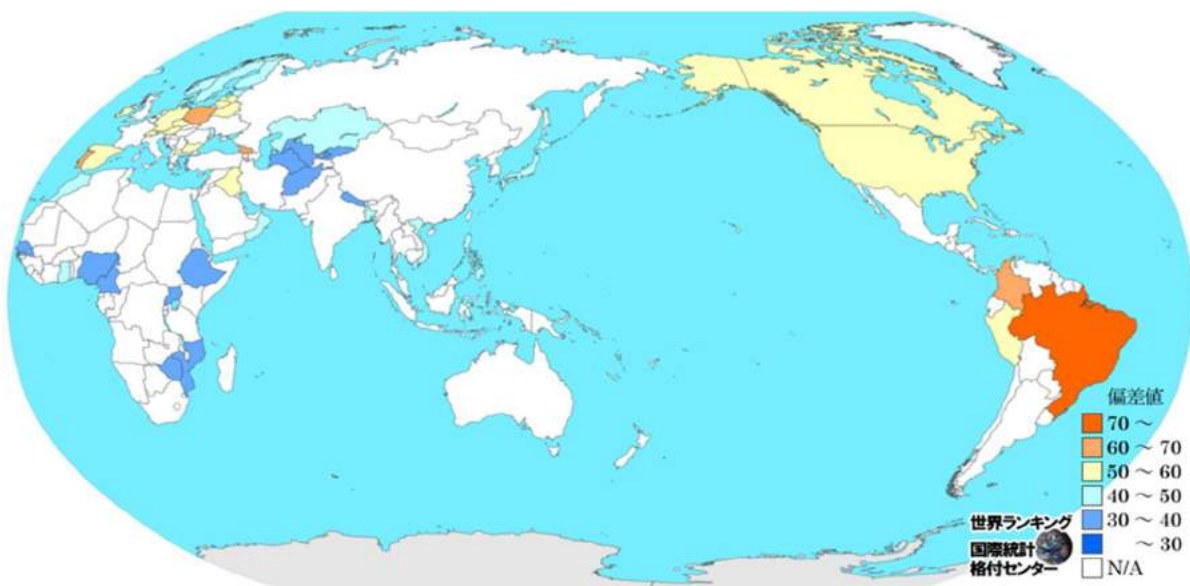
Next, the advantages and risks of cesarean section
<Advantages of cesarean section>

The primary benefit of cesarean section is improved baby safety. Although it is said to be risky for mothers, there are advantages for the mother as well (but cesarean section is more risky than vaginal delivery). For example, pelvic organ prolapse, such as uterine droop, uterine prolapse, bladder prolapse, and rectal prolapse, is less likely to occur than vaginal delivery, and the frequency of urinary incontinence in the first year after delivery also decreases. Also, if for some reason the fear of giving birth is strong (such as death from previous childbirth or traumatic experience of vaginal delivery), avoiding

it can reduce the mental burden of pregnant women and hospitalize・ Because you can

get a rough estimate of delivery and discharge (only for scheduled Caesarean section), it is also a great merit that it is easy to schedule.

<Scheduled Caesarean section>
The scheduled cesarean section is mainly in the following cases.
First, the maternal side is that the last delivery was a cesarean section, the baby's head is larger than the mother's pelvis (child pelvic imbalance), and the placenta is close to or close to the uterine ostium (front (Placenta), pregnant with twins or more (multiple pregnancy), have an infection that affects the baby, have had uterine surgery, have uterine fibroids (uterine fibroids), have a disease in the mother For example, there are elderly births (medically over 35 years old). Next, the reasons for the baby are that the baby's head is not facing down (reversed), the baby is not in a prone position, the baby is large, the baby does not grow well, the baby has some illness, etc. Is mentioned.

<Emergency caesarean section>
The reason for the mother is that the feeling of labor is long, it takes 30 hours for the first-born mother and 15 hours or more for the part-time woman (weak labor), after the water breaks, germs enter the uterus, and pregnancy leads to severe hypertension. The placenta can be removed before the baby is born (premature detachment of the placenta), and the uterus may show signs of rupture. Possible reasons for the baby include a suspected baby condition, a umbilical cord that has been lowered or emerged earlier, a premature baby with a few weeks of pregnancy, and the placenta may be removed before the baby is born Can be mentioned.

わが国の妊産婦死亡率(出産10万対)の年次推移
(1982年以降)
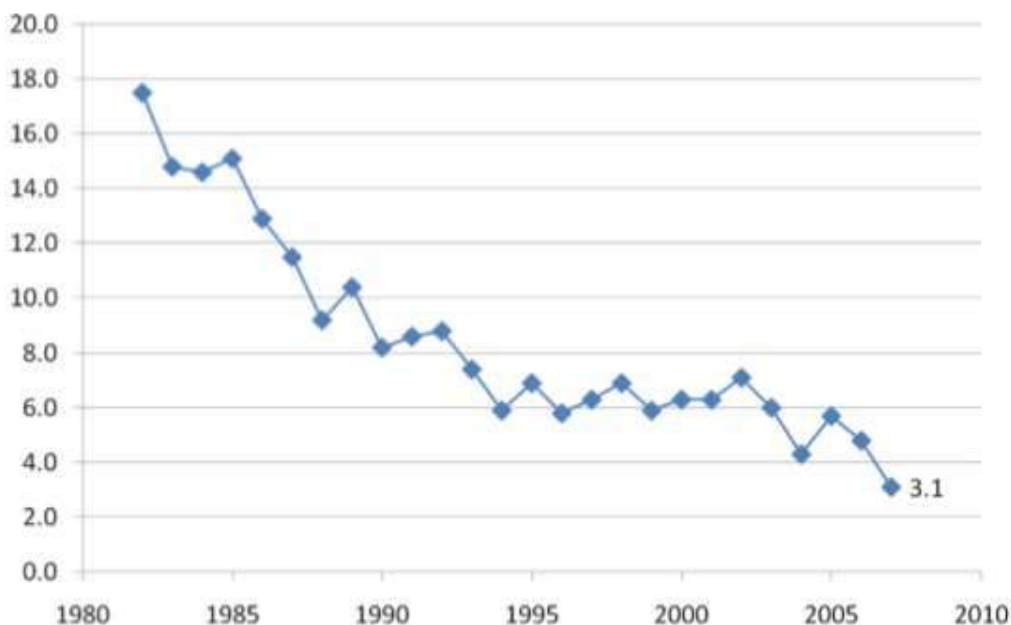
Figure 1 Transition of maternal mortality rate (100,000 births)
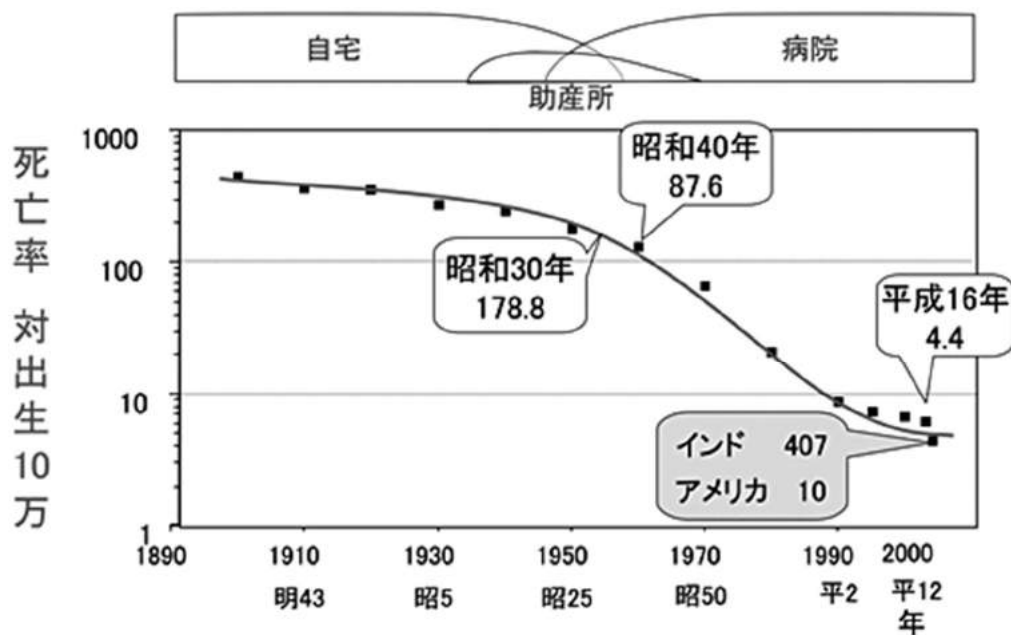
図1. 妊産婦死亡率推移（出生10万）

As can be seen from the above two figures, the maternal mortality rate began to decline sharply around 1965. This coincides with the time in Japan when the birth was switched from a natural birth at home to a hospital facility managed by a doctor.

<Natural delivery>
Natural delivery includes underwater delivery, sitting delivery, freestyle delivery, leave method, and sophrology. Underwater delivery is a method of giving birth in a dedicated bathtub or pool. Sitting position delivery is a method of sitting in a delivery chair and giving birth. Freestyle delivery is also called active berth and is a delivery method that allows you to choose your favorite posture such as standing or crawl on all fours. Leave method is a delivery method that incorporates Chinese medicine Qigong method and what is sophrology? It is a delivery method that incorporates yoga and meditation.

<Reason for increase in caesarean section>
Medical factors include elderly births, pregnancy after infertility treatment (even if advanced reproductive medicine such as in vitro fertilization is performed and pregnancy occurs, if the cause of infertility is a problem such as the uterus or fallopian tube, natural delivery is difficult. It is determined that a caesarean section will occur), high-pressure pregnancy such as pregnancy-induced hypertension syndrome (which develops hypertension when pregnant), gestational diabetes mellitus, and uterine fibroids. As a social factor, the birth date is determined in advance against the background of women's social advancement, and an increasing number of expectant mothers want to have a planned cesarean section for easy planning. In some countries, such as Brazil, where cesarean section has become a boom and celebrity birth is known, societal factors are deeply involved in the rapid increase in cesarean section in recent years. In addition, there are also problems with medical institutions, and pregnancy and childbirth involve risks, so if you think that there is some risk in advance, cesarean section is often recommended. In addition, many people in the United States do not go to the hospital because of high medical expenses, etc., and they visited for the first time a few weeks before childbirth. Among developed countries, maternal mortality is particularly high.

<Cause of maternal death>
1st   22% Obstetric crisis bleeding
2nd   14% cerebral hemorrhage
3rd   12% amniotic fluid embolism
4th   10% Blood vessels
5th   8% lung disease
6th   9% Infectious disease
7th   7% incidental
8th   9% Other
9th   9% Unknown

Maternal death report project (Extracted from Japan Obstetrics and Gynecologists Association
www.jaog.or.jp/wp/wp-content/uploads/2018/09/123_20180912_1.pdf)

Obstetric critical bleeding and amniotic fluid emboli often get angry at cesarean section. Therefore, it is said that the risk of cesarean section for pregnant women is seven times that of natural birth.

<Generic cesarean section>
In Britain and the United States, a new surgical style called gentle C-section "natural cesarean section" or natural C-section "natural cesarean section" has begun to permeate. Safe and affordable, this "gentle caesarean section", which values family intent, gives mothers a greater satisfaction and increases the rate of breastfeeding.

<Pseudo experience of vaginal delivery>
Speaking of traditional cesarean section, the maternal woman received half or general anesthesia, and the lower half was partitioned by a curtain and could not be seen (even if conscious). After being pulled out, the fetus was taken to a separate room for each treatment, and sometimes it was only a few hours after it was met.
The gentle cesarean section uses a transparent vinyl curtain that allows the mother to see the moment of birth. Also, move the equipment such as an electrocardiogram monitor to open the mother's chest and one arm so that the child can be hugged immediately. Breast feeding on the spot is also possible. Furthermore, instead of the doctor pulling out the fetus as in the past, he will help the fetus get out at his own pace through a small incision. NPR reported two years ago that this new surgical style that was already gaining popularity in the UK to make it more like natural delivery. About 25% of pregnant women in the UK and 32% in the United States have a cesarean section for some reason. They are dissatisfied with the overall birth experiences due to the feeling of defeat and guilt that most women were unable to vaginal delivery, and lack of memory of birth and birth moments.

<Relationship between caesarean section and maternal mortality>
From the graph above First, look at maternal mortality in countries with high cesarean section rates. Brazil's maternal mortality rate, which ranks first in the world for cesarean section, is 99th, and 0.044% of maternal women are gone. (The maternal mortality rate is ranked first in this order, beginning with the number of maternal women losing, so the lower the ranking, the lower than the maternal mortality rate.) In addition, Mauritius, who has the second cesarean section rate, has a maternal mortality rate of 93th place, about 0.053%, and Columbia, which is third place, has 86th place, and about 0.064% of pregnant women are gone. Similarly, Maldives, which has a high cesarean section rate, ranks 83rd and 0.063% of pregnant women die annually. Other countries with high cesarean section rates, such as San Marino, Portugal, cannot say that maternal mortality is low. Therefore, if the cesarean section rate is higher than necessary, the maternal mortality rate tends to increase. Next, let's look at the caesarean section rates in countries with low maternal mortality rates. Poland, which has a cesarean section rate of 178, has a maternal mortality rate of 3%, which is very good worldwide. The cesarean section rate in Poland is 35.2%, which is unexpectedly high

at 6th place. Iceland and Finland, which also have a maternal mortality rate of 0.03%, also have cesarean section rates of 36. 16.6% and 37. 16.3%, respectively. Spain, which has a maternal mortality rate of 167, 0.05%, also has a caesarean section rate of 20. In Japan, the rate of cesarean section is 31. 19.2%, which is not so high. By the way, the world average is 21.5%, and countries with low maternal mortality rates have maintained this level of caesarean section. A certain amount of caesarean section is essential for safe delivery.

In addition, cesarean section is increasing rapidly in recent years in Brazil and China. This is not a physical problem, but it is called a "celebrity birth" and has become a boom. Is big. However, cesarean section is dangerous. The idea of choosing a caesarean section in case of an emergency is also widespread. However, instead of choosing caesarean section because of the maintenance of body shape after birth and the boom, you should carefully choose caesarean section after examining the fetal and maternal conditions.

In the future, it will be difficult to find a specific method for achieving an appropriate caesarean section rate.

4. Source

・日本 WHO 協会　https://www.japan-who.or.jp/act/factsheet/348.pdf

・WHO（世界保健機関）World Health Statistics（世界保健統計）2018 年版

・産婦死亡報告事業　日本産婦人科医会

www.jaog.or.jp/wp/wp-content/uploads/2018/09/123_20180912_1.pdf　）

Suggestion to save lives from yraffic accidents
To reduce the number of people who die in bicycle-related accidents

5325 Ozawa Wakaba

Abstract

The ratio of traffic accidents occurred in our prefecture per person is high in all prefectures in Japan. The effect of wearing helmets while driving bicycles is shown by Institute for Traffic Accident Research and Data Analysis, I researched what is the reason students don't wear helmets. From the questionnaire for high school students, I found that it is important to set an obligation of helmet wearing.

1 Introduction
● Background and Goal

On January 9th, there was a traffic accident in Maebashi. Two high school students were hit by a car driven by an old man, and one of them died. When I heard that, I came up with a question, "Why did not the students wear helmets? The situation would   have been changed if they had worn helmets." I decided to introduce helmets to reduce the number of people who die in those kinds of accidents.
● Method
A) Internet
 i.   About accidents occurred in our home.
 ii.   Effect of helmets
iii.   Effort of prefectures for reducing the number of accidents
 B) Questionnaire

In July of 2018, I performed a questionnaire to all 199 students in the fourth grade in our school. I investigated the wearing proportion of helmets and the factors that influence wearing / non-wearing.

2 Discussion and Implications
 A) Internet
 i.   About accidents occurred in our home.
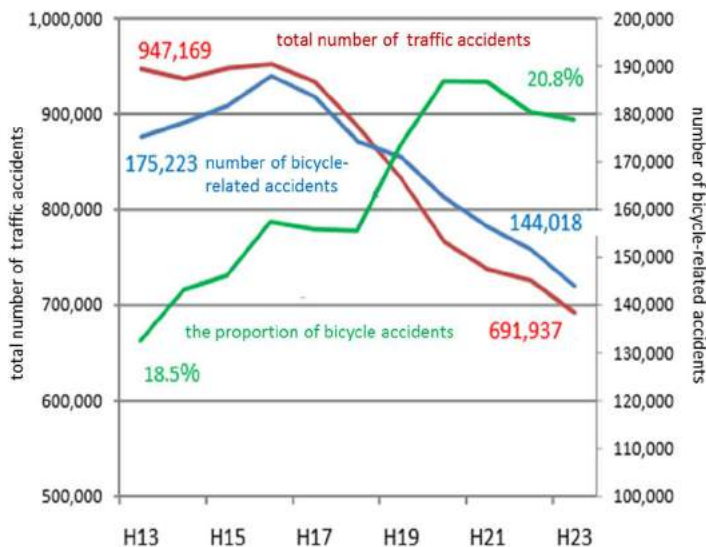
According to National Police Agency, though the total number of traffic accidents has decreased significantly from 2001 to 2011, the proportion of bicycle accidents is increasing.

According to Institute for Traffic Accident Research and Data Analysis, the frequency of accidents per thousand people by age group is relatively high, with the highest frequency being 5.6% of high school students, followed by 4.1% of junior high school students, and 2.4% of elementary school students. On the other hand, although the rate of traffic accidents involving older drivers is increasing, the accident rate for those 55 years and older is lower than that for students.

Frequency of bicycle accidents

AGE	Frequency
~6	0.3%
7~12	2.4%
13~15	4.1%
16~18	5.6%
19~24	2.0%
25~54	1.1%
55~64	1.2%
65~74	1.4%
75~	1.0%

➢ Frequency of bicycle accidents per thousand people by age]
Source; Institute for Traffic Accident Research and Data Analysis

According to Bicycle Safety Committee, The number of accidents per 10,000 people is the highest in Gunma Prefecture for both junior and senior high school students.
To this result, this committee described the reason for the high number of accidents in Gunma Prefecture as follows.
Gunma Prefecture has the highest number of private cars (per 1,000 passengers) nationwide. In other words, it can be said that this is a region where car traffic is thriving. For this reason, there are many car accidents, and the number of traffic accidents is fifth in the country per 100,000 population. Bicycle accidents account for 84.4% of car accidents. Because of this, it is thought that there are many bicycle accidents that account for the majority of accidents with cars. In addition, the number of bicycle accidents per 10,000 people is the fourth in the country, so there are many bicycle accidents. From this, the number of traffic accidents involving junior high school students and high school students tend to increase. Furthermore, the number of

junior and high schools per 100 km is 7.65 and 3.56, and the number of schools is lower than the national average. For this reason, it is considered that this is a region where junior and high school students go to school by bicycles because the distance to school is high. For these reasons, it is thought that there are many accidents when going to school.

	Prefectures	Number	Per ten thousands
	Japan	2720	9.7
1	Gunma	236	41.1
2	Saga	77	28.7
3	Kagawa	77	27.1
4	Tokushima	47	22.6
5	Okayama	122	22
6	Miyazaki	64	19.5
7	Shiga	72	16.7
8	Mie	85	16
9	Kochi	28	14.1
10	Yamagata	41	12.8

	Prefectures	Number	Per ten thousands
	Japan	9545	28
1	Gunma	522	97.7
2	Shizuoka	828	81.9
3	Miyasaki	199	59.7
4	Saga	138	53.7
5	Kagawa	124	46.8
6	Yamagata	142	44.5
7	Saitama	791	44.3
8	Nagano	245	41.5
9	Okayama	229	41.4
10	Aichi	800	40.2

➢ Number of bicycle accidents per ten thousand junior high school students by prefecture

Source: Bicycle Safety Committee

Percentage of deaths by helmet wearing condition
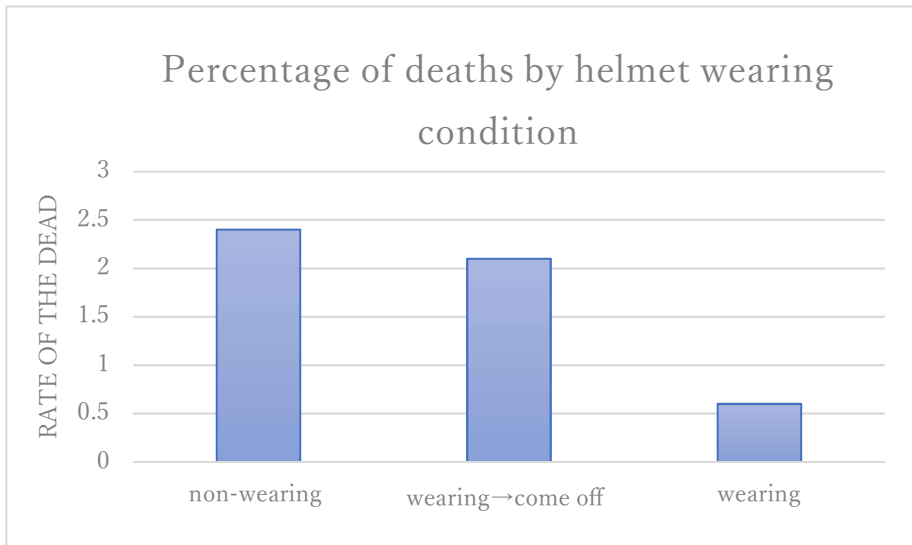
➢ Number of bicycle accidents per ten thousand high school students by prefecture
Source: Bicycle Safety Committee

i.   Effect of helmets

According to Institute for Traffic Accident Research and Data Analysis, Wearing a helmet reduces the proportion of deaths from head injury to about 1/4.Out of a total of 1981 deaths while riding a bicycle from 2009 to 2011, more than 60% died of head damage. Looking at the graph comparing the proportion of deaths with and without a helmet at the time of the accident, the proportion of deaths decreased in the order of "non-wearing", "wearing → come off", and "wearing".

➢ Percentage of deaths by helmet wearing condition
Source: Institute for Traffic Accident Research and Data Analysis

iii.   Effort of prefectures for reducing the number of accidents

Mandatory to wear helmets for students going to school by bicycle at all prefectural schools in Ehime Prefecture started on July 1st, and before that on June 30th at each school about 30 thousand students helmets Was distributed free of charge. The prefectural high school associations and others decided to make it mandatory after a

series of deaths from high school students on bicycles. School officials expect to prevent bicycle accidents and improve manners. The requirement to wear a helmet last year was triggered by two traffic accidents that killed a high school student from a bicycle, and a request from a guardian to be worn. The Ehime Education Promotion Association distributed helmets to all students free of charge, and the prefecture subsidized about 30 million yen out of about 90 million yen in expenses.

The purpose of wearing helmets

- to protect llife
- under the guidance from parents
- other

6%
33%
61%
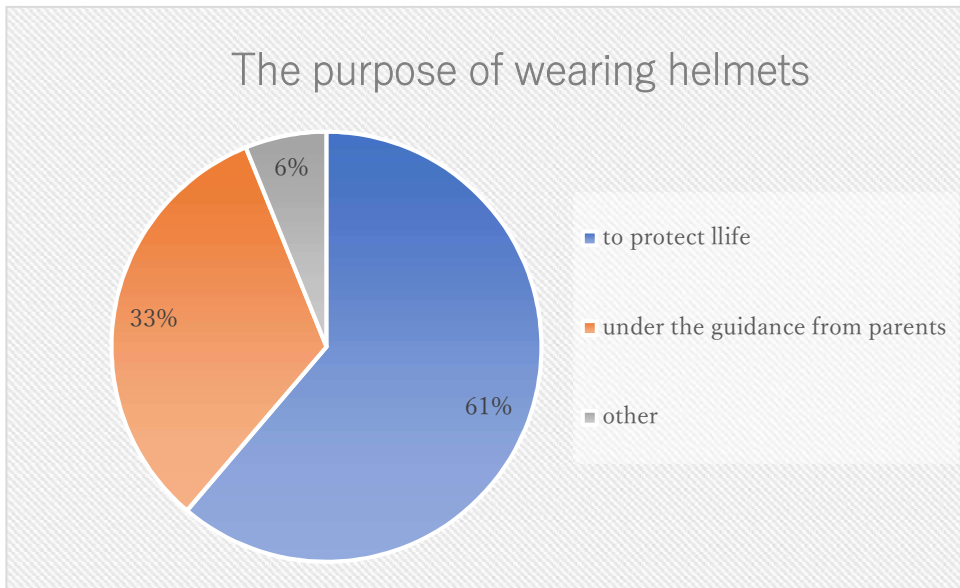
B) Questionnaire
● More than ninety percent of the students always use bicycles
  In response to the question "Do you usually ride a bicycle?" most of the students (92%) use bicycles in dairy lives.

● Ten percent of the students wear helmets
  Of the 105 people who use bicycles in daily lives, about 10% answered that they always wear a helmet, about 10% said that they sometimes wear it, and the others don't wear it at all.

the rate of using bicycles

- yes
- no

8%
92%

378
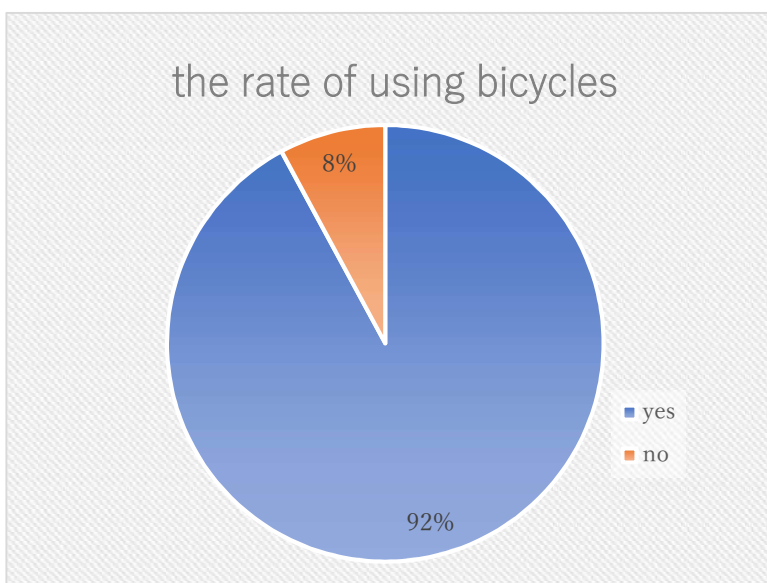
● The purpose of wearing helmets of a half of the students is "to save life"

When asking the person who answered that he / she wears a helmet (including "sometimes") about the purpose to wear helmets, about 60% answered "to protect their lives", about 30% answered "under the guidance from parents" and the rest responded "other".

the rate of wearing helmets

- always
- never
- sometimes

10%
77%
13%
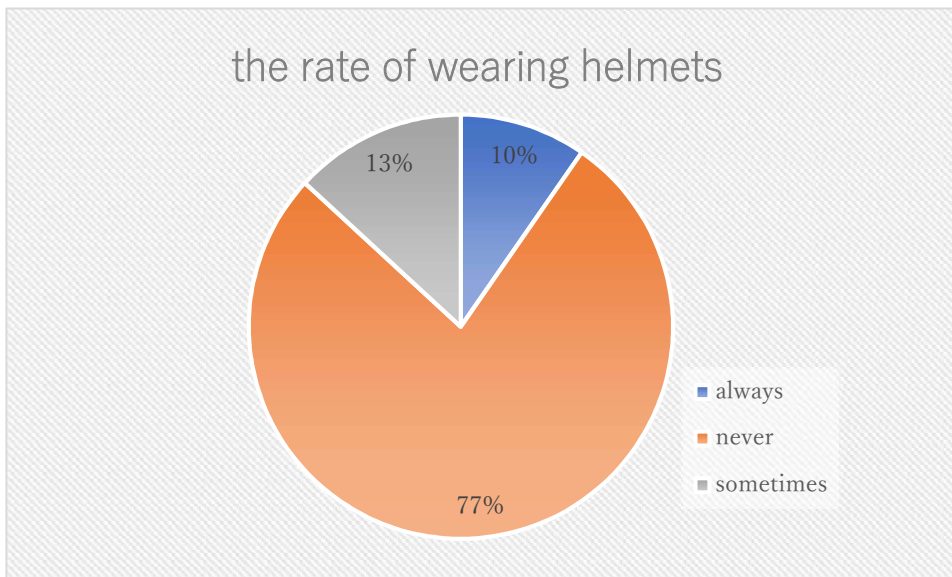
● There are various reasons for non-wearing

I received responses from those who answered that they don't wear helmets at all. I asked them about what is the reason for their not wearing helmets, giving six options, "obligation", "avoid heat", "keep hairstyle", "appearance", "design", "price" and "other". "obligation" and "avoid heat" were the largest at the same rate of 22%. However, there was no significant difference between other factors, and it was found that there were various reasons for non-wearing.

The reason for not wearing helmets

- obligation 22%
- avoid heat 22%
- keep hairstyle 16%
- appearance 19%
- design 13%
- price 8%
- other 0%
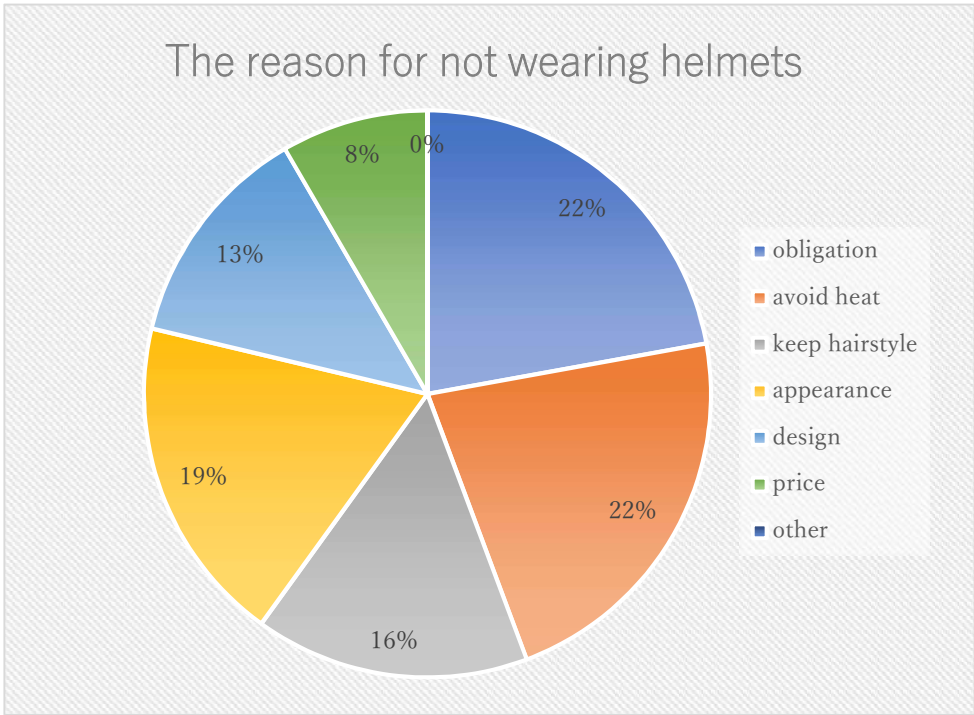
● For wearing helmets, obligation occupies a lot

I got answers from those who answered that they never wear a helmet. The items of "law" and "school rules" indicate whether or not there is an obligation, and it was found that the obligation is indispensable for wearing a helmet.

The chance for wearing helmets

- law 25%
- school rules 21%
- avoid heat 18%
- keep hairstyle 14%
- design 12%
- free 10%
- other 0%
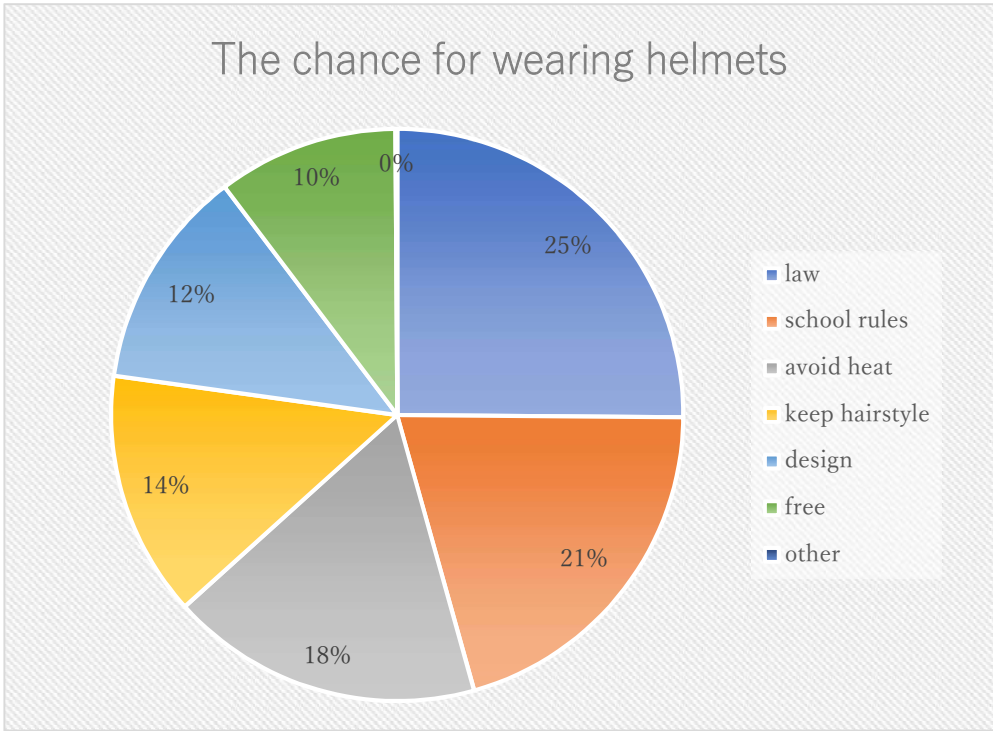
3 Conclusion

Through this research, it was found that obligation is necessary for helmet wearing. From the information of the Internet, bicycle accidents are paid attention as a serious problem in Japan. As Gunma especially accounts for large percent, it is important to set obligation. Looking at the whole country, as in this prefecture, there are many prefectures where helmets are required to be worn by junior high school students, but there are places where government agencies are also obligating high school students. In Gunma Prefecture, although there is an opportunity for high school students to think about obligation, there is no actual movement toward obligation. What I can do is to actively collect information and send it to the government, taking advantage of being able to listen to students' opinions from the standpoint of being a high school student, like the questionnaire conducted in this study. For the future research, I would like to think about how to conduct and send out more detailed questionnaires to make it mandatory.

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Improve the quality of health in hunger area

~The introduction of seaweed as food aids~

Saito Ami

Abstract and Introduction

"Sea Vegetable"=Seaweed foods. This came from that Judith Cooper Madlener whose job was a seaweed scientist advocated in 1977. Why did she advocate that sea vegetable is seaweed foods? It is because that seaweed has a high level of nutrition and variety of food culture. In fact, seaweed includes rich mineral and vitamin. The component resembles that of vegetable. The history of the relationship between human and seaweed is very long. Seaweed have been involved human life as a food. Japan isn't exception and it has been deeply intimated as a traditional food. In particular kelp is necessary for Japanese food because it includes Glutamic acid which has *Umami*. These days seaweed is focused on as a healthy food and it is utilized for like supplements. However, they seem to be just "immediate" effects after all. Is there any ideas to pull out of the potential of seaweed and leverage for the world? It is suggested that how to make seaweed solves the lack of nutrition and improve the quality of health based on the effect of the seaweed in hunger area.

Discussion

1. Nutritional Value and Ingredients of Seaweed

As mentioned earlier, seaweed contains more than 30 percent to 60 percent dietary fiber and around 20 percent minerals. Because of many amount of dietary fiber and mineral, the energy per 100g of seaweed is less than 200 kcal, so it could be used as low calorie material.

Potassium constitutes the largest of the seaweed mineral, followed by sodium, calcium and magnesium. Other seaweeds contains almost minerals which are need for people to live like iron, zinc, copper, sulfur and iodine. Therefore, seaweed can be said as an excellent source.

Mineral is necessary to live, however there are also harmful effects of excessive intake. In particular, the risk of high blood pressure for excessive salt. On the other hand, potassium is involved in regulation of osmotic pressure, acid-base balance, cardiac function and muscle regulation. Also its opposition to sodium to prevent hypertension and stroke caused by sodium overdose.

Seaweed proteins are also nutritious. As with seaweed, the amino acid score (index used to determine protein: evaluated on a 100-point scale) of vegetables with high dietary fiber and minerals and low total calories is only in the 50s range, but seaweed has a score of 91, *kombu* : 82, *wakame*: 100 and the numbers are reasonable. Seaweed lipids also contain a good balance of both omega-3 polyunsaturated fatty acids (PUFA) and omega-6 PUFA, but such foods are rare.

According to a paper published in Food Chemistry in 2009 (food chemistry characteristics of pasta with added *wakame* powder), when seaweed powder is used as the principle of flour products such as noodles and confectionery, the nutritional value

and physical properties are It became clear that it could be improved. For example, when 10% of *wakame* powder was mixed during pasta production, the overall taste did not change, but the amino acid score was improved, and the ratio of omega-3 PUFA to omega-6 PUFA in the lipid was almost the recommended value of WHO. The main components of seaweed powder are dietary fiber, minerals, proteins, and various products manufactured from a mixture of these ingredients and wheat flour have also been observed to have various changes in physical properties compared to those without the addition of seaweed powder. The product value can be expected to increase by preventing the growth of noodles and improving the ability to retain moisture and bubbles in bread and confectionery. And for the ingredients necessary for human survival, the ingredients of seaweed (dried *wakame* and *makonbu,* boiled and dried) were tabulated in accordance with the Japanese Food Composition Table (Retrieved Ministry of Education, Culture, Sports, Science and Technology).

	Seaweed (dried seaweed: boiled and dried)	Seaweed(Makonbu: Niboshi)
Energy	117	145
Protein	13.6	8.2
Lipid	1.6	1.2
Carbohydrate	41.3	61.5
Dietary fiber	32.4	27.1
Sodium	6600	2800
Potassium	5200	6100
Calcium	780	710
Iron	2.6	2.0
Vitamin A (β-carotene)	7800	1100
Vitamin A (Retinol)	650	95
Vitamin E	1.0	0.9
Vitamin B1	0.39	0.48
Vitamin B2	0.83	0.37
Vitamin C	27	25

2. Global Hunger Situation and Food Assistance
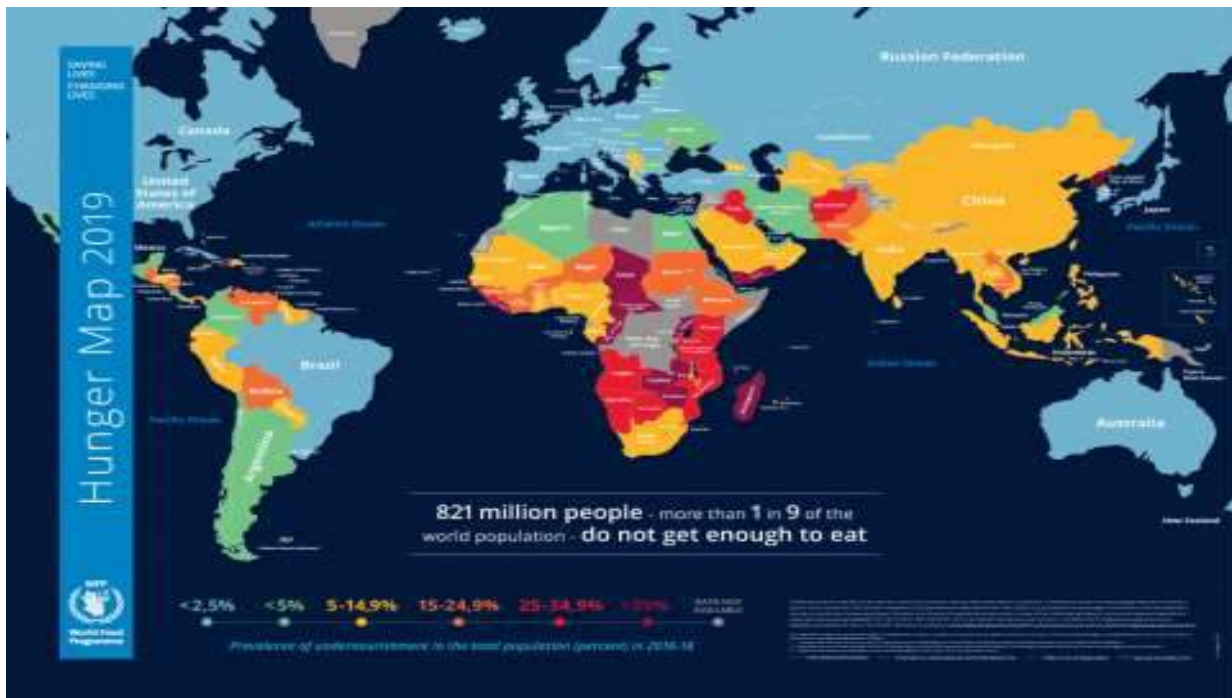
As you can see from the hanger map above, hunger is a serious international problem.

In addition, the 2018 edition of the "Current Status of Food Security and Nutrition in the World" published in Rome on September 11, 2018, it shows that the world's hunger population continues to increase, and in 2017, there were 822 million people. 1 out of 9 people suffer from hunger. Various forms of malnutrition improvement, ranging from child stunts to adult obesity, are limited and endanger millions of people's health. While the situation is worsening in most parts of South America and Africa, even the trend of improving undernutrition that was characteristic of Asia has slowed significantly. According to the UN Annual Report, climate variability that affects rainfall patterns and crop growing seasons, and extreme weather events such as droughts and floods are one of the main causes of increased hunger along with conflicts and recessions. did. "The signs of the alarming increase in food insecurity and various forms of malnutrition are still significant efforts to ensure that no one is left behind to achieve the goals of the SDGs on food security and improved nutrition. The United Nations Food and Agriculture Organization (FAO), the International Agricultural Development Fund (IFAD), the United Nations Children's Fund (UNICEF), the United Nations World Food Program (WFP), and the World Health Organization (WHO) The heads of each agency warned in a joint introduction.

"To realize a world free of hunger and all forms of malnutrition by 2030, to strengthen the resilience and adaptive capacity of food systems and people's livelihoods against climate variability and extreme weather events more action must be taken, said each director.

Implications

As mentioned in Chapter 2, hunger is an international issue that must be resolved quickly. And international organizations such as WFP are working to create a sustainable environment. I would like to focus on the food assistance that is being carried out as part of this. Can current food assistance guarantee the complete health of people living in hungry areas? Certainly food assistance is supporting their lives.

However, it will be difficult to get enough nutrition because the main cause of hunger is conflict and food assistance is not easy and regular. Therefore, my proposal is to use seaweed powder as one of the foods provided for food assistance. When seaweed is dried, water evaporates and the volume decreases significantly, but not so much change in nutritional value. Rather, the nutrients obtained by eating 100g of wheat and 100g of seaweed powder by the amount of the reduced water volume are overwhelmingly higher in seaweed powder, including minerals. However, since seaweed powder has less energy compared to wheat, etc., it is not necessary to convert all of the food support into seaweed powder, but as a part of food support (for example, instead of vegetables), as a food, Nutrients that cannot be covered by food support in hungry areas will be possible. It can also be preserved by drying, so it can be used as a final emergency food in a crisis situation.

Conclusion

This time, it is focused on the high nutritional value of seaweed and that it can be preserved by drying, and aimed to support the health of people in the hungry region, but this eventually improved the health of people suffering from the international problem of hunger. It will be a health aid that surpasses the situation to improve the quality of life in hunger area. The world should be one day where the international problem of hunger is solved and seaweed powder is used to make health even more certain. For the realization of such a world, have a wide field of view, such as look to the international community, it is important to seriously have each person the attitude, such as committed to the settlement of international issues.

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How to treat dementia by using medical psychology
~Effect to introduce the system~
Gunma Chuo Secondary School ID 5327 NAME Saito Miyu

○Abstract

In recent years, the number of patients with dementia has increased dramatically in the world, and to find better way to treat patients with dementia becomes one of the issues to be solved in the medical field. The WHO (World Health Organization) estimates that the number of patients with dementia is 35.6 million now, but it will become 205.7 million by 2030. It can be considered that the burden on the people around the patients will increase because of taking care of them, and as a result, serious incidents may happen. In addition, many researchers have investigated the improvement of symptoms caused by "placebo effect". Recently, the expression site in the brain has been visualized by data, and the phenomenon has inevitably occurred. I believe that symptoms can be improved or relieved without treatment when we associating the treatment of dementia with the active site of the brain by placebo effect,

1 Introduction

1⁻1 purpose

The reason I decided to study the treatment for dementia by using placebo effect was my grandmother. She was suffering from dementia, and combined with other diseases and it became an intractable disease that could not be treated with current medical technology. At that time, I had already have a little knowledge about the placebo effect, so I thought if we could use it to treat dementia or to make symptoms milder.
Currently, despite the high credibility of the placebo effect, it is not being used in actual medical practice or treatment. And also, the number of patients is increasing every year. From these reasons, I decided to create the new way of treating dementia by using placebo effect in this research.

1-2 method

The Internet will be the primary use of this research. I compared a lot of data announced by many researchers such as brain scientists, philosophers, and psychologists to avoid bias in thinking. I also look for support methods which people who are not related to medical can support easily. I investigate the blain where placebo effect are usually occur, and linked the brain related to patients suffering from dementia by searching placebo effects that are not directly related to medical care in order to find effective way of treatment for dementia,

2 The results and Future issues

2-1 What is a placebo?

The placebo effect refers to a phenomenon in which a disease recovers or a symptom recovers despite administration of a drug that is not originally effective as a drug. In Japan, it is also called a placebo effect. You may think that a doctor should not use a placebo, but the doctor's law stipulates that the doctor may use a placebo if

necessary for the patient. .

Placebo is based on Latin and has the meaning of "pleasing and giving joy", and it is said that it also includes the meaning of "accepting and moving forward". It has been known for a long time as a magical or magical type, and many researchers have studied it. In 1784, doctors surveyed a treatment called mesmerism in France, and in the medical dictionary, the definition of the placebo effect is "to please patients suffering from diseases that are difficult to treat and to relieve suffering." It became.

In 1955, American anesthesia professor Henry Beecher published a paper called "The Powerful Placebo," which changed the view of the placebo effect. His study reports that about one third of patients who received placebo for over 10 drug types had improved symptoms. Although more than half of the subjects who conducted experiments in this study were Mr. Beecher's patients, and there was a lot of lack of objectivity, such as not considering the possibility of natural healing during the experiment, It can be said that it was proved by a legitimate scientific research that it is not a phenomenon that happens by chance.

2-2 Advantages and disadvantages of placebo

The greatest merit of using the placebo effect is that it can repair incurable diseases without specific medicines, or can recover or relieve symptoms. For example, in countries and regions where even mild illnesses such as Africa cannot be sufficiently treated due to lack of technology, etc., rituals and handed down spells that have been practiced among ethnic groups for a long time have been used to improve and recover symptoms. I am trying. However, in reality, we are trying to solve it by "believing" by performing rituals and spells, which can be said to be a kind of placebo effect. This is expected to have an effect by trusting them through time-consuming rituals and spells.

Current research shows that the effects of placebo are greatly influenced by the shape of the placebo, the method of taking it, and the price. An example of the difference in format would be tablets <injection <surgery. As a cause of the difference in the magnitude of the effect in this way, it is considered that the feelings expected of medical practice caused the placebo effect.

Disadvantage is the non-placebo effect, which is the opposite of the placebo effect. For example, it may be necessary to receive treatment such as drugs or surgery administered as a placebo by the patient. This is likely to occur when the brain assumes that "does not take medicine = worsens" due to the result of "drinking medication = getting better". Since the placebo effect is finally acting by deceiving the brain by prejudice, once it is considered bad, it is difficult to make it better again. Even if a healthy person is told that the life expectancy will be three months due to terminal cancer due to a doctor's diagnosis mistake, it is expected that it will soon become weak.

In fact, in 1978, we investigated whether the placebo effect might have just been effective in an American dental surgery experiment, or whether it actually changed the body. In the experiment, it was said to patients that this is an analgesic, and as a result of administering placebo (saline in the case of this experiment), many patients said that analgesic effects were observed. In addition to psychological changes in this way, it is said that other than this experiment, it is known that physical changes to the body actually occur when the person is not aware.

In order to give such a large action to the body, there is a point that the placebo effect is dangerous if one step is wrong. It is also suspected that there may be a

recurrence within a few years or decades even if the symptoms are once recovered by placebo. In order to expect a placebo effect, it can be said that it is important to "continue thinking", but it is difficult to keep on thinking because of each patient's thoughts and personality.

2-3 Increase in number of patients with dementia and issues

　　In recent years, an increase in the number of patients with dementia has attracted attention worldwide. According to the World Health Organization (WHO), there are currently about 35.6 million people with dementia in the world. WHO estimates that the number of patients will continue to increase, with 65.7 million in 2030 and 115.4 million in 2050. In Japan, it is estimated that the number of patients with dementia is on the rise, and the number of patients over 65 years old was about 4.26 million in 2012, but is expected to reach 7.3 million in 2025. . This is worth 1 in 5 people over the age of 65.

(万人)　Future estimation of people suffering from
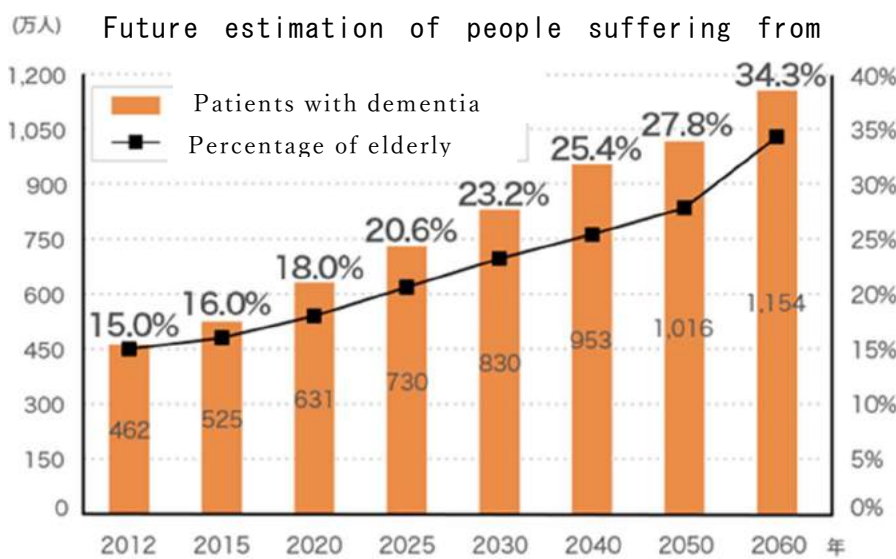
　　"Estimation of the future when the prevalence of dementia at each age increases"
https://www.tr.mufg.jp/shisan/mamori/dementia/02.html　Mitsubishi UFJ

In addition, there are many difficulties in the care of patients with dementia, and now that the burden on the caregiver is too heavy, leading to suicide and killing cases is not limited to the care of patients with dementia. Generally not a few.

Number and number of over 65 year old cared patients
killed by relatives

65 歳以上の被介護者が
親族により殺害された件数と人数

https://www.minnanokaigo.com/news/kaigogaku/no78/

In the case of this survey, caregivers are limited to those over 65 years of age, and in fact, it can be expected that an incident has occurred among younger generations. It is said that there are actually more case.

The ratio of "caregiving / nursing" was 2.7% in the motives for murder by non-elderly people, whereas 19.7% in the motive for murder by the elderly. Many elderly perpetrators among relatives seem to be killed because they have no experience in nursing care or are pessimistic about the future due to the difficulty in balancing daily life and nursing care.

Motivation for homicide by the elderly {L}

Motivation for murder by non-elderly people {R}

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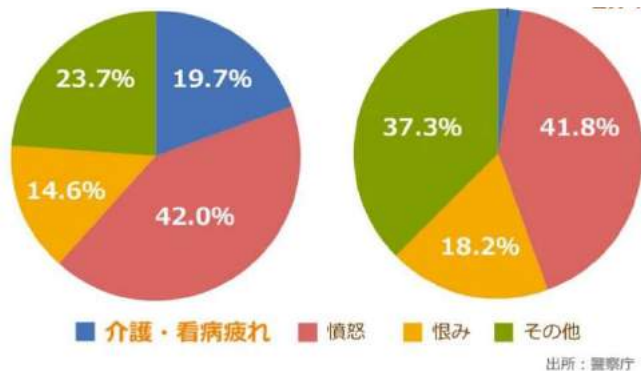
By increasing the number of patients with dementia who need nursing care, it is possible to fully predict the increase in the number of incidents as mentioned above. However, currently prescribed drugs for dementia can only slow the progression of symptoms slightly, and the development of more effective dementia treatment is attracting attention as a problem to be solved in modern medicine. In the first place, it is often said that care is the leading role in treating dementia rather than improving symptoms. This is often aimed at treating dementia, and the focus is on helping the

person to live an independent life.

 * 4 major dementias

 1. Frontotemporal dementia
Frontotemporal dementia is caused by atrophy of the frontal lobe that controls personality and the temporal lobe that controls language. Symptoms such as changes in personality, behavior as desired, or inability to understand language. Abnormalities are easily seen in the frontal and temporal lobes. Major causes include Pick disease (Pick type), frontal degeneration, and motor neuron disease type. Among them, more than 95 percent of patients with frontotemporal dementia are caused by Pick's disease. The number of patients with frontotemporal dementia is about 7 percent who visit a dementia specialist outpatient, and compared to other dementias, the probability of developing at a young age is high, and juvenile dementia that occurs before the age of 65 is vascular Dementia, Alzheimer's disease, and frontotemporal dementia. For this reason, many patients with frontotemporal dementia will develop disease by the age of 70.

 2. Dementia with Levy bodies
Levy body dementia occurs when the blood flow deteriorates and functions decline in a wide range from the hippocampus that controls memory to the occipital lobe that controls vision. Early symptoms often complain of hallucinations, and sleep disorders are often the first symptoms.

 3. Cerebrovascular dementia * Here is the general term for dementia caused by cerebrovascular abnormalities
Cerebrovascular dementia is caused by abnormalities in blood vessels in the brain such as cerebral infarction and cerebral hemorrhage. Most patients with cerebral infarction develop illness, and the magnitude of cerebrovascular disorder is strongly related to the degree of dementia.

 4. Alzheimer type dementia
Alzheimer-type dementia affects the parietal lobe, mainly in the hippocampus that controls memory. It occurs when the brain contracts over a wide area. Symptoms such as memory impairment, disorientation (function of recognizing date and time), and poor judgment become observed.

* Placebo effect and frontotemporal dementia
Recent research has identified the reaction site of the brain due to the placebo effect. Although we knew how many people were improving with the placebo effect, we could not prove it physiologically, but this study shows which part of the brain is more active It was visualized by experiment.
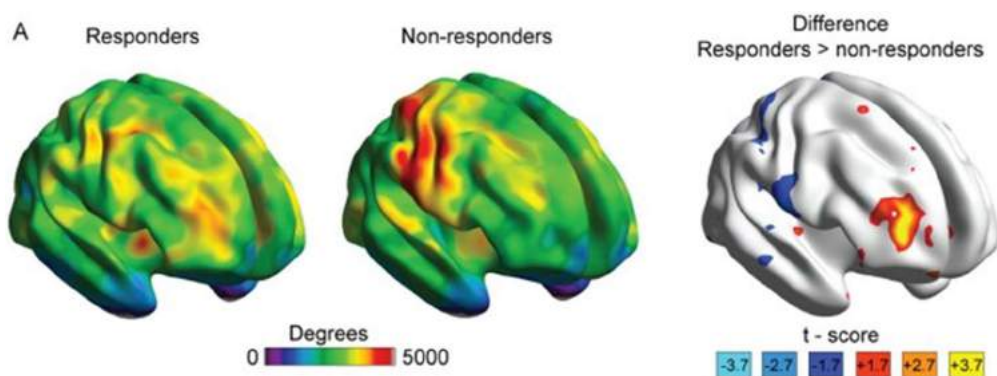
This experiment was announced by researchers at Northwestern Medicine and the Rehabilitation Institute of Chicago (RIC) on October 28, 2016 in the online science journal "PLOS Biology". For patients suffering from chronic pain originating from the inside, such as back pain, headache, and shoulder pain, stop the pain with the placebo effect, and identify the brain part of the placebo effect that is related to stopping the pain The purpose is that.

In the first study, 17 patients with chronic knee arthritis pain were subjected to brain activity measured by fMRI when taking placebo. When patients who showed an analgesic effect with placebo and those who did not respond to placebo were sorted and compared, a significant difference was found in a part of the frontal lobe called the right middle frontal gyrus. At the same time, the brains of 20 healthy subjects without chronic pain symptoms were also measured as controls.

From this experimental result, it seems that this is a chance to change the idea that the placebo effect is simply a belief.

3 Conclusion

I will proceed with dementia treatment by associating a part of the frontal lobe called the right middle frontal gyrus, which is the reaction site of the brain, with frontotemporal dementia, which is said to be caused by atrophy of the frontal lobe etc. suggest. Based on the research data on placebo effects so far, recovery can be fully considered by activating and stimulating the part of the brain related to disease symptoms etc. by placebo, and the state of recovery is actually Because it is seen. Symptom recovery can be expected by activating the atrophy site of patients with frontotemporal dementia by placebo administration. This makes it possible for patients to relive their daily lives, even if there is a possibility of recurrence, and it is also sufficient to support the person's independent life, which is the purpose of dementia treatment. I think I can contribute.

However, the experiments by Northwestern Medicine and the Rehabilitation Institute of Chicago (RIC) researchers mentioned here are only studies targeting "pain", and the placebo effect is actually applied to the atrophy of frontotemporal dementia patients. It is not known whether or not the expression brain site appears. Still, a number of experiments have shown that there is a symptomatic improvement over what the placebo is intended for, and this can be supported by the patient's confidence in the placebo that was administered. I think I can expect the effect of the use.

In this study, we focused on the placebo effect and frontotemporal dementia, but the

number of patients with frontotemporal dementia is about 7% of those who visit a dementia specialist outpatient clinic in Japan. You can see that the number is very small. For this reason, it is difficult to say that the number of patients with dementia will increase, and it will be difficult to say that it will be useful for other dementias such as Alzheimer-type dementia.

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Postpartum mental state

~ To reduce the burden before and after childbirth ~

Gunma Chuo Secondary School　ID 5328　NAME　Haruka Takei

○ Abstract

As painless delivery and cesarean section are not so popular in Japan, I think it is necessary to change the way of thinking about birth. It is important to respect the opinions of various people because in the future, medical care will be developed and the adverse effects on the body will be decreased. Recently, supplements have been marketed for postpartum because of hormonal imbalance. It can take up the deficient estrogens. However it is suggested improving the meal. The Japanese food should be spread once more, telling that it is impossible to get enough ingredients from the meal. It is also suggested opening a cafe to create a place where people can understand your feelings.

1. Introduction

Previously, when I watched a drama called "Kounodori" in the department of obstetrics and gynecology, I was very impressed with the struggle with postpartum depression. Some were frustrated, crying, and serious people were trying to commit suicide. I wondered what caused such symptoms, and couldn't prevent them before they developed depression. I decided to become a nurse in the future because I wanted to help those who became postpartum depressed and those who were driven by stress and worries. Therefore, I decided to investigate the care of mental condition so that I could get closer to my future dreams by doing this research. As I proceeded with my research, I found that hormone balance was one of the causes. Therefore, I would like to propose a method for ingesting hormones that tend to be deficient by knowing what effects and side effects are included in supplements sold at stores, etc. At the same time, I would like to disseminate ideas on how to relax and give birth to the environment.

2. Method

<Procedure 1>

① Use the Internet, newspapers and books to examine the merits and demerits of painless and natural labor

② Show how many people have given birth

③ Suggest what we should do now

<Important point>

・ Tell the cesarean section or painless delivery that 100% pain does not always go away

<Procedure 2>

① Know the cause of postpartum depression

② To know the role of hormones related to disruption of hormone balance

③ After investigating what kind of food contains hormones that tend to be deficient, it is proposed that it as a dish

<Important points>

・ Clarify the benefits of taking from meals rather than supplements

・ Propose after telling that it is not enough to eat from meals

3. Discussion and Implications

"Before childbirth"

Painless delivery: A delivery method that uses anesthesia to give birth in a state of reduced labor.

Cesarean section: A method of inserting a scalpel into the tummy and incising the uterus to remove the fetus.

* Both do not necessarily eliminate pain.

There are individual differences.

○ Whether or not to have painless delivery

According to information from AI Business, 80 to 90% of childbirths are painless in the developed countries of Europe and the United States. In many cases, painless labor was found. On the other hand, painless delivery is not popular in Japan. The reasons for this are that, first, epidural anesthesia can be used when moving from epidural painless delivery to caesarean section, and that the cost is covered by insurance in the United States. In Overseas, the idea that "it is better if the pain of childbirth can be removed" has become widespread, while in Japan, the old prejudice "It is natural to hurt the stomach and give birth" remains. In China and Korea, cesarean section and painless delivery are received rather than natural delivery.

   By the way, caesarean section is a method in which the abdominal wall and uterine wall are cut open to remove the fetus. The advantages of cesarean section including planned, short-term, and supportive troubles during childbirth, and disadvantages including slow recovery of the uterus, back labor, and high costs. Painless delivery is a solution to the problem of caesarean section where uterine recovery is slow. However, painless labor has complications such as hypotension, catheter intrusion, neuropathy, epidural hematoma and abscess.

This pie graph shows delivery of maternal death cases.

As you know, cesarean section has a higher mortality rate.

No delivery 16%

Caesarean section 37%

Normal delivery 24%

suction 14%

christirel 9%
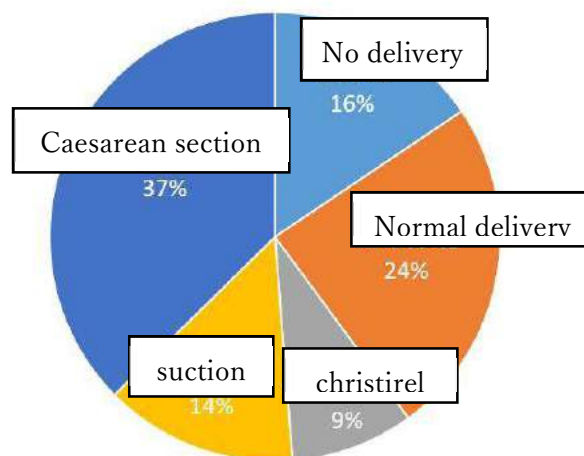
"After delivery"

○ To avoid postpartum depression

-Physical aspect-

First of all, the cause of postpartum depression is disturbed hormone balance. Disturbances in hormonal balance decrease estrogen and progesterone in the body and increase prolactin. Estrogens, also called "Hormones that create women," helps promote the development of female organs, develop secondary sexual characteristics, and proliferate the endometrium. These hormones will be decreased with age. Due to hormonal imbalances often cause stress in childcare and dilution of human relationships.

Estrogen supplements are sold in stores. This can temporarily restore hormonal balance disturbances, but the balance is poor because it is taken alone. This supplement is mainly components such as soybean isoflavone, black cohosh, pomegranate, maca, and placenta.

Soy isoflavones have the effect of secreting estrogen and are abundant in natto and soybeans. In addition, a component called boron also has an action of secreting estrogen, increasing the blood concentration. Boron is vulnerable to heat, so it is often found in raw cabbage and hazelnuts. Progesterone deficiency leads to iron deficiency, and vitamins are needed to consume iron.

However, as a problem of ingesting from the diet, there are few soy isoflavones and boron contained in the food. No matter how much it is consumed, it tends to be deficient because it is discharged outside the body before it enters the blood.

~ Environment~

The change in mental state caused by hormone balance is very large. Currently, NPO corporations, public health nurses, nurses, midwives, childcare professionals, and psychologists provide support services for prenatal and postpartum. For example, home visits and day services. They aim to reduce anxiety and worries by listening to and snuggling with

the word "safety" as a keyword, and reducing the sense of isolation by encouraging mothers to make friends. Many obstetrics and gynecology departments give lectures on childcare and nutrition intake.

<Conclusion>

"Before childbirth"

I ist necessary to change the way of thinking about childbirth methods. Surely, adverse effects on the body and complications from cesarean sections and painless deliveries have been clarified at this stage. Being in a difficult environment afflicts many people. Thus, each person should have the right knowledge about cesarean sections and painless deliveries and respect the opinions of others. Therefore, It should be handled in the health class of junior high school, which is a compulsory education course, so that everyone regardless of gender will face it seriously.

<h2 style="color:red; text-align:center">Spreading learning in health classes</h2>

"After delivery"

-Physical aspects-

I decided to propose a meal using ingredients that are low in fat and sugar, rich in vitamins, minerals and dietary fiber. Before that, the superiority of Japanese food is examined. Then, it is low fat. It was found that diet, fiber, vitamins and minerals can be taken in a balanced manner with carbohydrates, proteins, fats and side dishes with three soups. Recently, it has changed from Japanese food culture to Western food culture, but I think that the way of thinking about Japanese food should be changed for health. And please try to eat a seaweed chilled seaweed in a Japanese set meal.

<h2 style="color:red; text-align:center">Spreading of Japanese food</h2>

~ Environmental ~

I suggest opening a cafe in a large facility. It is important for nurses and public health nurses to be close to the patient, but it is also good to share empathy by talking with people in the same situation. In addition, I thought that moving the body moderately and improving blood circulation, such as through a stretch class, would also lead to a change of mood.

<h2 style="color:red; text-align:center">Spreading of cafes</h2>

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Skin cancer and sunscreen
~ To maintain both health and environment ~

Chuo Secondary School, 12th 5329　Haruka Tanaka

○ Overview

Sunscreen cream is one of the good ways to protect our skin from skin cancer. However, many products contain "octinoxate" and "oxybenzone" which have a risk to an environment harassment. In the US state of Hawaii, on July 3, a bill which prohibiting sunscreens containing harmful substances on coral reefs has been passed. To protect coral reefs along with their own health, it is impossible to continue using the recent products. So I focused on a sun cream called "Eco Conscious". This product is different from the conventional ones, and it does not contain harmful ingredients against coral reefs. However, this product has the disadvantages of high price and low distribution. This is because there is no statements to restrict the bringing sunscreen cream in Hawaii of the bill, if tourists bring in the conventional products containing harmful substances, the problem is not solved. Therefore, what is needed now is to convey to the customers the advantages that "Eco Conscious" has over the disadvantages. Oxybenzone and octinoxate is not harmful to people's skin. In addition to the indirect benefits of environmental conservation, protect their skin, it is possible to promote the direct benefits that would solve this problem.

The purpose

According to the 平成 29 年(2017)人口動態統計月報年計(概数） の概況""produced by the Ministry of Health, Cancer is the most common cause of death among Japanese (The ratio of cancer deaths to all deaths is 27.8%). In other words, about one out of 3.6 people died of malignant neoplasms, although not one out of two. However, this disease is often (Except those are hereditary such as breast cancer) caused by lifestyle, it is possible to reduce the risk by our behavior. The skin cancer that I focused on this time is caused by `` ultraviolet rays ''. So in order to reduce the risk of skin cancer, block the ultraviolet rays from the skin is important .But sunscreen has negative impact on the environment. July 4, 2018 article of CNN's news site reported the article,

(https://www.cnn.co.jp/usa/35121917.html) "ハワイの日焼け止め規制法が成立、サンゴ礁に有害な成分を禁止"David Ige signed a bill banning sunscreens containing harmful substances on coral reefs on July 3rd (　take effect on January 1, 2021) . The reason that led to this bill was the protection of coral reefs. However, the coral reef is the there is a finding that there is a possibility that killed by components of the sunscreen.

When Craig Mr. Downs belonging to the same Institute to investigate the water quality of Hanauma Bay in November 2017, oxybenzone level of coral reef bleaching is suspected has been detected. In addition, the results of 10 samples taken from coral reefs around near the beach, it was found to be that contains oxybenzone of 4,661 nanograms in seawater per liter average of Hanauma Bay.

.

2 Method

·Newspaper article

Ex. Nikkei website and CNN news site.

Internet survey

Ex.　Cosmetics manufacturer sites.

Dr. Kaneko Kaneko, a doctor who works at the Naganohara-machi remote clinic advised me to use PUBMED, a database of medical papers that we can view freely.

Books

Used this in Takasaki Comprehensive Health Center, Central Library (Takasaki Takamatsu-cho, 5-28).

Interview Survey

2018 December 24, were interviewed in Mishima Keiichiro, the doctor working in Gunma Saiseikai Maebashi hospital (Maebashi, Gunma Kaminitta-cho, 564-1).

3 Research Results and Issues

①　About skin cancer

 I asked about skin cancer to Mishima Keiichiro, the doctor working in Gunma Prefecture Saiseikai Maebashi hospital.

 1What is skin cancer?

The skin cancer is the disease that our skin cell turn into cancer cells. In addition, like other cancers, skin cancer can be transferred to lymph flow and bloodstream and metastasize, and at worse, we die.

 2 skin cancer mechanism

 First, sunlight is divided into visible rays and infrared and ultraviolet rays.

As can be seen from the figure posted on the Stanley Electric Co., Ltd. site, the wavelength of ultraviolet rays is shorter than infrared rays. So, when ultraviolet rays exposed to sunlight, more rays enter the skin. When the large amount of light passes through skin cells, the normal cells become cancer cells.

② Sunscreen cream

 It is important to avoid UV rays to combat skin cancer. Many sunscreen on the market has the effect of blocking ultraviolet rays

③ Hawaiian sunscreen cream regulations

 Sunscreen cream is effectives to avoid skin cancer by ②. On July 4, 2018, David Ige,

Hawaii (USA) governor signed a bill banning sunscreens containing harmful substances on coral reefs on July 3 (Scheduled to take effect on 2021). A non-profit academic organization says that coral bleaching and genetic damage is caused by oxybenzone and octinoxate which flow down from the skin and into the seawater. It seems to have shown the result of the investigation to kill corals. Coral reefs is not only environmental resources but also the tourism resources. Local people in Hawaii agree with the idea of protecting the tourism industry, which is their source of income.

④ Reef Safe, or Eco Conscious

Sunscreen cream called "Reef Safe" or "Eco Conscious" does not contain oxybenson or octinoxate, so it does not attack coral reefs. We are allowed to sell and buy this sun

cream in Hawaii.

(From https://lanikaibathandbody.com/product/naturalsunscreen/)

An example of "Reef Safe" sun cream is "Natural Mineral Sunscreen" sold by Lanikai Bath and Body. This product is rich in vitamins and antioxidants derived from Hawaiian plants and does not use chemicals. It is also made of vegan ingredients that are hypoallergenic and friendly to coral reefs.

However, there are two problems with "Reef Safe" and "Eco Conscious". The first is price. Sunscreen creams using oxybenson and octinoxate are cheaper. For example, "Natural Mineral Sunscreen" introduced earlier, it costs 4.5 ounces, or 127.573 grams, 13.5 US dollars, or 1,456.25 yen according to the current rate on July 5, 2019 at 14:27. However, Amazon   second top-selling sunscreen, skin aqua skin (SKIN AQUA) Super Moisture Gel is 110 grams for 586 yen (tax included) It is. Even if this is converted to the same number of grams as "Natural Mineral Sunscreen", it is (586/110 x 127.573 =) 679.42598 yen. In other words, "Natural Mineral Sunscreen" is 776.82402 yen more expensive than SKIN AQUA. (La Roche-Posay, which was chosen as the top ranking in Amazon [Tone-up UV sample set] was not displayed in grams, so it could not be treated as a comparison target.)

Second is the lack of supply. There are few companies that manufacture "Reef Safe" and "Eco Conscious", and it is making it difficult to purchase them. "Natural Mineral Sunscreen" cannot be purchased directly in Japan as of July 5, 2019 at 14:43 because there is no Japanese store, and is not available on the Japanese version of the site. (Http://shop.lanikai-bab.jp/?mode=cate&cbid=2120787&csid=0)

As a result, I thought that there is a merit that many people would like to purchase the product. And that is less stress on the skin than conventional products. The first thing I mentioned as a good feature of this sunscreen was that it was "environmentally friendly". However, the purchaser will not choose and purchase something that does not benefit them. Therefore, if we promote this "skin-friendly" point and recommend it to many customers, we will be able to realize a lot of consumption.

⑤　To convey the benefits　・　Limitation

  It should be promoted "Reef Safe" and "Eco Conscious" to many people by using SNS such as Twitter and Face Book, and also having many kinds of events, such as product briefings. As an issue for the future, I raised the idea of the advertising method as a solution this time, but I do not know whether that will increase the consumer's willingness to purchase, so from now on, I will create a poster for normal products and "Eco conscious" items, and by that, I want to investigate which one is more popular, on SNS or street survey.

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The way to raise the rate of emergency life saving

＾　　　　　～Compared to other countries～

Chikamitsu Mai

It is well known that Japan maintains the highest level of medical care in the world. However, among developed countries, the emergency lifesaving rate is low compared to the Seattle city in the US and the countries in Scandinavia, which will be described later. Therefore, we started research to study how to increase the emergency lifesaving rate.

Research methods are the Internet and questionnaires.

1.　Research results

①　Japanese lifesaving situation

Survival rate and rehabilitation rate after 1 month of Japanese cardiogenic and general witnessed cases

The number of cases where cardiopulmonary arrest was witnessed by the general public was 25,569 ← B, the survival rate after 1 month was 13.3%, and the rehabilitation rate after 1 month was 8.7%. Among B, the number of first aid given by the general public is 14,354 ← C, and the survival rate after 1 month is 16.4%, compared to the case where no first aid was given (9.3%) 1.8 times higher. The rehabilitation rate after 1 month is 11.7% when first aid is given, which is about 2.4 times higher than when no first aid is given (4.9%).]

The emergency life-saving rate is greatly increased by the lifesaving of ordinary citizens.

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(各年中)

②Initiatives in other countries

○ USA (Seattle)

In Seattle, the average lifesaving rate is 30% to 40% per year, which is very high compared to Japan. In Seattle

The "bystander CPR" (the person who is present on the spot performs cardiopulmonary resuscitation) and the high emergency lifesaving rate is based on the citizens' "high attendance rate for lifesaving classes".

Approximately half of Seattle's total population are lifesaving students, and one in every two citizens are qualified to provide first aid.

From the Tokyo Fire Department's 2011 Public Opinion Survey on Firefighting, the reasons for not making such first aid in Japan are as follows.

• I don't know what to do (71.9%)

• Worried about worsening (56.3%)

• If you take a wrong first aid, you will be liable (18.8%)

• Concerned about infection (9.4%)

③ Causes of a low emergency lifesaving rate

* There are many ambulance dispatches

The number of ambulances dispatched [Convenience store consultation] "In general, it is behavior of mild patients who are not urgent to visit an emergency outpatient on a holiday or night time when they are not outpatient." By In fact, [Current status and issues of emergency medicine]

"It is pointed out that a major problem with emergency medicine is that emergency patients are not

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collected promptly in medical facilities. One of the reasons for this is the large increase in the number of emergency transport personnel. Is written. "

However, in order to create an environment where ambulances can be used safely and easily, the direction of raising the emergency lifesaving rate by reducing convenience store visits is the last resort.

図表1　救急搬送人員数と患者数の推移
（万人）　（万人）
600　2,000
500
400　1,500
300　1,000
200
100　500
0　0
84 86 88 90 92 94 96 98 00 02 04 06 (年)
患者数(右目盛)
救急搬送人員数
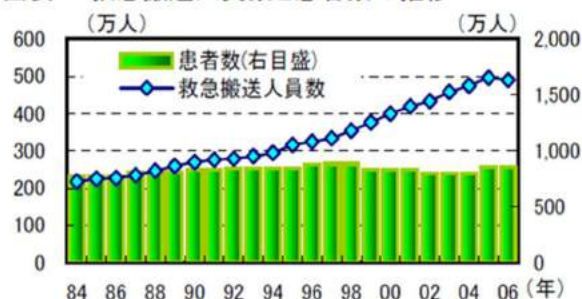
図表2　年齢層別にみた患者千人当たり救急搬送人員数（救急利用率）の推移
（人）
2.2
2.0　小児救急搬送人員
1.8
1.6　成人救急搬送人員
1.4
1.2
1.0　高齢者救搬送人員
0.8
96 98 00 02 04 05 06 (年)

図表3　患者数と救急搬送人員数の推移「小児」
（96=100）　（万人）
140　60
130　50
120　40
110　72%　76%　30
100　20
90　10
80　28%　24%　0
96 98 00 02 04 05 06 (年)
救急搬送人員数(指数)
患者数(指数)
軽症救急搬送人員数(右目盛)
中等症以上救急搬送人員数(右目盛)

図表4　患者数と救急搬送人員数の推移「成人」
（96=100）　（万人）
140　250
130　200
120　58%　63%　150
110
100　100
90　42%　37%　50
80　0
96 98 00 02 04 05 06 (年)
救急搬送人員数(指数)
患者数(指数)
軽症救急搬送人員数(右目盛)
中等症以上救急搬送人員数(右目盛)
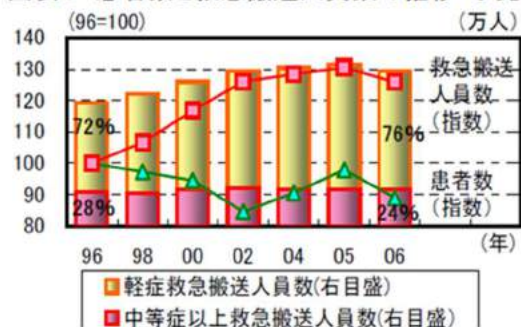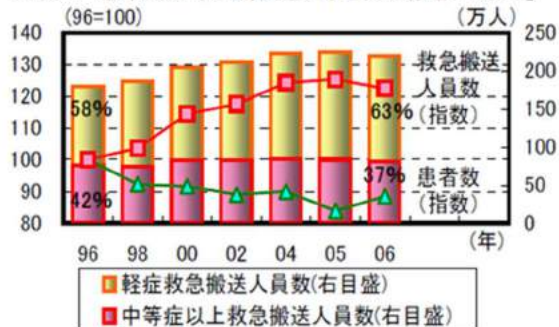
○It takes time for the ambulance to arrive at the hospital.

The time it takes for an ambulance to arrive at the hospital is called the ambulance's hospital time.

The average and the hospital accommodate time-average site arrival time by emergency vehicles, extending year by year. Hospital accommodation time, by extending, emergency survival rate is lowered. In the world, what corresponds to the patient's pathology in the hospital staying time in Japan is the patient's pathology at a time called "response time". Response time is the time it takes for the medical staff who receives an emergency call to rush to the patient and arrive at the scene.

In Japan, the initial treatment begins after arrival at the hospital, so the hospital accommodation time is one measure that determines the patient's condition.

However, in many countries, the initial treatment is performed as soon as the patient falls to the scene, so the response time is one measure that determines the patient's condition.

From here, "Special Labor Sciences Labor Sciences Research Project"

Emergency medical care and time reference - the world major countries response time and its significance -

By referring to Wataru Nishikawa http://www.hemnet.jp/databank/file/2010120901.pdf

Most major countries in the world (USA, Germany, UK) have a response time of 15 minutes at the latest and 8 minutes at the earliest.

In Germany and France, doctors go to patients, and in the United States and Britain, paramedics (first-aid workers) first perform initial treatment on-site and bring patients to doctors.

If a doctor visits the patient, in the case of a life-threatening trauma or sudden illness, full-scale treatment can be started immediately on the spot, and medical treatment can be continued during transportation. Even if British and American paramedics are allowed to receive a considerable amount of treatment at the emergency site, they must wait until they meet a doctor before starting full-scale treatment, including transport time to the hospital. The UK and the United States are slightly faster than Germany and France in terms of the time before hospital arrival.

With regard to the Japanese emergency system, the system does not start when an ambulance arrives at the site. Compared to countries around the world, it takes more than twice as long as the world.

Almost all emergency lifesaving is due to ambulances and paramedics, so initial treatment is more than doubled compared to other countries.

* The public does not actively provide first aid

Compared to the United States, etc., first aid is not actively provided.

*few AEDs

AED 販売台数（累計）

	H16 2004	H17 2005	H18 2006	H19 2007	H20 2008	H21 2009	H22 2010	H23 2011	H24 2012	H24 2013	H26 2014	H27 2015	H28 2016
消防機関	108	2,179	4,061	5,097	6,304	7,345	9,022	10,452	11,690	13,300	15,151	17,220	19,240
医療機関	5,946	15,766	26,659	35,927	51,100	60,478	67,878	75,296	83,639	93,412	104,721	115,737	127,810
PAD	1,307	10,961	45,417	96,545	164,343	218,050	264,165	310,075	364,959	428,821	516,135	602,382	688,329

AED累計販売台数／田邉晴山他、日本心臓財団

he installed number of approximately 59 units is the second largest in the world after the United States.

The increase in the number of AEDs installed in Japan is dramatic, but the actual results are not yet sufficient.

According to the Fire Department's announcement, 25,569 of the cardiogenic cardiopulmonary arrest victims who were urgently transported in 2016 were witnessed by the general public. Of these, 1,204 were defibrillated by the general public. This rate is 4.7%, and only 4.7% of those witnessed by the general public are defibrillated.

"The number of AEDs installed is the highest in the world, but it has not been fully utilized.

Causes include not knowing how to use the AED, or not knowing where the AED is located.

3. Conclusion / Discussion

Due to the long time to initial treatment in Japan, the emergency lifesaving rate is low. In this regard, it is difficult to shorten the hospital accommodation time.

Therefore, Japan should adopt the same system as the world.

In Germany and France, doctors go directly to patients. In the United States and Britain, emergency crews carry out initial treatment at the scene and carry patients to doctors. In Japan, emergency crews make initial treatment. It is important to be able to go.

This is because in Germany and France, ambulances are located in fire stations in Japan, so it is necessary to pick up a doctor at the hospital and then go to the patient.

Next, although there are many AEDs installed, the reason for not being able to use them enough was that they didn't know how to use AED, and they didn't know where AED was.

With regard to how to use the AED, we are responding to emergency 24 hours a day, so you can be defibrillated while listening to explanations with confidence even when you actually use it. In addition, there are many people who are unable to perform first aid because of fear of negligence if the patient's life is held even if the explanation is received. However AED instructions of use seems difficult to use are those quite simple, if you use an AED in accordance with the procedure, it is a simple machine for all to whether to give an electric shock the AED us to judge. Therefore, anxiety about how to use AED is alleviated by knowing this. Next, with respect to the fact that AED do not know where it is for, such as the map of the iphone and smart phones, and the AED installation location, by posting the nearest of the AED, it can be solved. With regard to the large number of ambulances carrying ambulances, it is difficult to reduce the number of convenience store visits given the increasingly aging society.

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<div align="center">Emergency transportation and medical care
~Quick transportation for reducing patients who suffer from after-effects~</div>

<div align="right">5331 Noshiro Sakika</div>

Abstract

In the scene of medical care, there are much lives which saved by quick treatment, but it should be considered the patient who is suffering from after-effects by delayed treatment and transportation. As ambulance has a role which connects the patient and treatment faster and faster, so I decided to do this study has done. In recent years, the number of patients who are transported is increasing. In addition, the sudden sickness patient occupied 64.0% of all transported patients in 2018. However, depend the number of transportation is increasing, the number of transportation which aren't needed is increasing rapidly. Therefore, the risks which some patients can't be transported enough faster and accurately become high. On the other hand, there is an organization which support people who have questions about ambulance, and there is Doctor Car which are docking cars with ambulance for earlier doctor's diagnosis. From this example, each of transportation is endeavored for earlier transportation. Aspects of technology are developing during recent year, but aspects of general system seem to delay to develop. To get rid of the defect, I think transportation system needs introducing latest technology such as AI and reforming it.

1．Introduction

I am currently interested in medical profession. Therefore, in this study, I wanted to investigate medical care, and since I had seen my grandfather suffer from stroke and after-effects from the disease, I mainly studied stroke. At that time, I knew that there was a medicine for melting blood clot called t-PA as a treatment for stroke. It have to be administered to the patients within three hours since they had become the stroke. Therefore, we must arrive at a medical institution as soon as we can. If the transport is delayed, there are cases which the after-effects remain or the patient would die. In order to reduce the number of such patients, I would like to devise a method to shorten the time from report of emergency transportation to examination as much as possible in this study. In addition, this study is based on the premise that it was discovered immediately after the onset, and the reduction in the number of patients due to early detection such as medical examinations is not considered.

The ways to execute this study are Internet (use only reliable information and sources) and medical documentary programs occasionally broadcast on television

2．Discussion and Implications

The t-PA is useful for the treatment of stroke because it acts on the thrombosis by enhancing the action of plasminogen, an enzyme that dissolves the thrombus in our body originally. However, t-PA is a drug that improves the flow of blood flow, so if rapid improvement occurred during observation or if symptoms are originally mild, there is a risk of brain hemorrhage, so it is not administered. In addition, as death rate increases due to cerebral hemorrhage which is administered of t-PA after 3 hours from the onset of cerebral infarction, the case of cerebral infarction must arrive at the hospital within 2 hours after onset, including examination time. Therefore, prompt transportation is essential for patients' lives.

In recent years, the number of emergency transporters has been increasing year by year. According to the Fire Department data in 2018, it was found that 64.0% of

transported patients in a year were suddenly illness.

Recently, however, it is certain that there are unnecessary emergency transportations due to intoxication, minor injuries, and mischief. Previously, the news also reported that a man who called ambulances several times by intoxication was arrested for obstructing public service. Unnecessary transportation may prevent people who really need transportation for going to the hospital. If you cannot understood whether you should report to the emergency transportation, it is necessary to have the ability to make correct judgments. If you encounter such situations, try to contact 7119 (Tokyo Fire Department Emergency Consultation Center), and an emergency consulting correspondent, emergency consulting nurse, or emergency consulting doctor will help people. However, it is not possible to consult about health information or pharmaceutical information, etc., and it is necessary to be careful because it only gives advice on how to deal with an emergency when someone is in a hurry illness.

Even if an ambulance arrives, it may take time to decide where to accept it, so when you request an ambulance, you may need to write down your chronic illness, your hospital, and the medicine which you are currently taking.

In recent years, there is also an emergency vehicle called a doctor car. An ambulance is a vehicle in which emergency crew members get on and take care of the transporter, while a doctor car gets on board by an emergency specialist or nurse to perform lifesaving treatment. An advantage of this doctor car is that it can save lives quickly. As in the case of an ambulance, in the event of an emergency, the roadway can be passed as an emergency vehicle, and treatment by a doctor can be obtained quickly by heading to the docking point at the shortest distance from the ambulance. People can also rush to the spot. In addition, although the doctor helicopter is a visual flight, the doctor car can run in rainy weather, so it can handle all situations.

One of the overseas efforts related to emergency transportation is Obama Care in the United States. Conventional American insurance can only be applied at hospitals affiliated with your insurance company. If a hospital with the most advanced technology for a specific disease is excluded, there is a need to go to another country and receive treatment. Obama Care, on the other hand, is a system created with reference to the Japanese universal health insurance system. Regardless of the insurance company, insurance is applied at all hospitals and treatment can be obtained. As for ambulances, the specific costs were not known before the implementation of Obama Care, and low-income people were hesitant to report. However, this system has made it possible for anyone to use ambulances with peace of mind. However, due to the sense of security, unnecessary reports due to mild symptoms etc. tended to increase. Some people say "I don't want to pay for low-income earners who don't pay taxes." In addition, it was abolished by the Trump administration.

As a problem in emergency transport, there are a number of incidents in which the patient is killed due to a delay in transport on the road. There are many problems related to car navigation with regard to errors in the road, and on October 21, 2016, when an ambulance transport outside of their rescue team's control without using car navigation, the time of mileage to the hospital took 6 minutes before the start of transportation. In some cases, the distance of transportation without using car navigation was 3 kilometers longer than the shortest distance.

3. Conclusion

In this study, what I thought for faster transportation is that making the ambulance parking more. Ambulance parking is usually adjacent to the fire station, but the

ambulances in the fire station are scattered by interspersed with ambulance-only transport facilities. There is a possibility that it can be transported from a place close to the site. This is because it is a small facility with only an ambulance, it is thought that it does not cost much to be scattered. In addition, emergency transport may be life-threatening if some mistakes are made on the road, so I think it is possible to use "Voice-responsive navigation" that is currently in practical use in mobile devices, home appliances, and car navigation systems. When requesting an ambulance, call 119 and inform the disaster emergency information center whether it is a fire or an ambulance, and then the ambulance will appear. Therefore, I thought about omitting the fire or first aid judgment time by creating a number for emergency transport, but I thought it was unlikely to be remembered in an emergency when the fire and first aid numbers were different. In addition, when the fire is appeared, there may be some people who need transportations. In that case, one number of requesting the help is really efficiently. For these reasons, I thought it would be a good idea to standardize to No.119.

As for future work, I would like to investigate the latest emergency transport technology used in the world and how fast it can be transported, and study whether it can be introduced into Japan. In addition, I would like to consider ways to make ordinary vehicles effectively avoid the transporting vehicle in traffic jams and waiting for traffic lights.

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Scientific approach of anti-aging medicine

~The necessity of anti-aging medicine in declining society

5332 Hosokawa Yui

1. Abstract

Anti-aging medicine is ultimate preventive medicine. The purpose of this medicine is to improve people's quality of life through we look over life-style. The reason why I examined anti-aging medicine is to involve in the awareness to prevent disease of Japanese people. The government is concerned about low motivation of preventing be diseased in Japanese. In addition, the whole medical costs is increasing rapidly. In the future, the population of Japan will decrease gradually and the population will be aged rapidly. It should be noted that the importance of Anti-aging medicine. Therefore it is suggested that the government should raise the selfexpense for acute disease from 30% to 50%. If we had to pay more medical costs, people would not want to go to see a doctor and prevent disease.

2. Introduction

Have you ever heard the word "Immortality"? In the newspaper I read when I was an elementary school student, there was an article titled "Developing Immortal Medicine". I was attracted to the headline. The content was not an article that would actually develop a drug that could achieve immortality, but a drug that would be effective in preventing aging, which is a major step in medicine. I was interested in the unknown, immortality, and decided to pursue research on "immortality". However, as we gathered information, the definition of immortality has not been established, and we realized that there was a difference in concept depending on each religion and way of thinking. I started researching and examined aging. What surprised me was that I have not yet found definitive evidence that causes aging. I felt the mystery of life that the mechanism of aging has not yet been elucidated as to why all living organisms age regardless of human beings in the development of all technologies. Therefore, it is difficult for me to find the cause of aging under the research theme of "science of aging", so I pursued a social background about anti-aging medicine that resists the phenomenon of aging, so-called anti-aging medicine. I decided to go.

This is because Japanese lack of awareness of prevention is regarded as a problem. In Japan, an increase in medical expenses is currently a problem. I thought that it was necessary to spread anti-aging medicine to solve the problem. In this paper, we propose a new medical system for the spread of anti-aging medicine based on the current state of medical forms in Japan.

3. Discussion and Implications

(1) What is Anti-aging Medicine?

<Definition>

Anti-aging medicine intervenes in the biological process of aging, lowers the onset probability of age-related diseases such as arteriosclerosis and cancer associated with aging, and promotes healthy longer. The definition of anti-aging medicine is "Theoretical and practical science aiming to enjoy a

long life." This is not just to extend lifespan and increase the number of elderly survivors, but to improve the quality of life. There are two types of age: "Calendar age" based on the date of birth and "Biological age (Real age)" representing the state of health including physical and mental functions. The importance of academic age is important, and keeping the body young and maintaining health is the foundation of the idea.

<Concept>

What does anti-aging medicine do? In addition to conventional human dogs, blood vessels, hormone levels, sensory organ aging check, active oxygen and antioxidant capacity balance check, etc., and early detection and early treatment are possible by examining signs and symptoms of aging Become. Furthermore, prevention of illness due to aging is realized by providing life guidance. It is most important to treat thoroughly from an early stage.

Tests aimed at realizing disease prevention and early treatment are specifically biomarker tests and early detection of quality of life (QOL) degradation. In order to improve QOL fundamentally, dietary guidance including supplemental guidance and stress care are the basics of anti-aging medicine. Preventive medicine not only aims to prevent illness but also includes a broader concept. In other words, preventive medicine is said to be the chemistry of disease prevention, injury prevention, life extension, and physical and mental health promotion. Based on this, the field of preventive medicine is divided into (1) Primary prevention, (2) Secondary prevention, and (3) Tertiary prevention.

(1)Primary Prevention: People improve lifestyle habits such as nutrition, exercise, and rest during health, and living environment and health education, etc. Furthermore, we prevent the occurrence of diseases by vaccination and the occurrence of injuries by preventing accidents.

(2) Secondary Prevention: Early detection of illnesses and injuries that occur through screening and measures such as early treatment and health guidance will be used to prevent seriousness.

(3) Tertiary Prevention: Take measures to prevent recurrence and return to society by considering quality of life (QOL), such as rehabilitating functions through health guidance and rehabilitation in the course of treatment.

The significance of the spread of anti-aging medicine is that the effects of increased medical expenses are serious. Japan's overall national medical expenses are rising year by year. National medical expenses represent the expenses required to treat illnesses that can be the subject of insurance treatment at medical institutions. The problem of increasing medical expenses, not limited to national medical expenses, has become a serious problem that is often taken up by the media recently. The reason for this is that the ratio of self-pay for medical expenses is relatively low. In Japan, the medical expenses we pay are only 30% of the total. The remaining 70% is covered by taxes and insurance. In Gunma Prefecture, there is also a system in which the prefecture pays all medical expenses for children under the age of 15. This system is kind to low-income people. However, this system lowers Japanese awareness of disease prevention and increases hospital visit rates. In other words, the hurdle

to going to the hospital will be lowered.

(2) Japanese Present Situation

    ①   Current state of Population Decline

Japan is now in a rapidly declining society. According to a study by the Ministry of Health, Labor and Welfare. It is predicted that the total population of Japan will fall below 100 million by the year. As a result, the working-age population decreases and the labor force falls. Furthermore, the proportion of elderly people over the age of 65 is increasing year by year. These social flows can be enormous in health care costs and can be a financial burden because there are no young people to support them.

    ②   Current State of Medical form

The medical services are provided by the Japanese medical insurance system are almost "diagnosis" and "treatment".The current situation is that there is limited support and little support for prevention and maintenance. In addition, lifestyle-related diseases that are common in Japan often have multiple symptoms that affect each other. However, it is said that it is difficult to provide medical care related to prevention because it is divided vertically by medical department as a Japanese medical form. Therefore, Japanese awareness of prevention is low worldwide.

    ③   Current State of Medical Costs

Overall national medical expenses are rising year by year in Japan. National medical expenses represent the expenses required to treat illnesses that can be the subject of insurance treatment at medical institutions. The problem of increasing medical expenses, not limited to national medical expenses, has become a serious problem that has been often taken up by the media recently. In Japan, the medical expenses we pay are only 30% of the total. The other 70% is covered by taxes and insurance. Furthermore, Gunma Prefecture has a system in which the prefecture pays all medical expenses for children under the age of 15. This system is kind to low-income people. However, in the US, all medical expenses are self-paying. Therefore, there is a high awareness of preventing illness and the business of preventive medicine has been developed unlike Japan. The disadvantage of Japanese medical care is that the self-pay amount is small, so awareness of disease prevention is low, and the hospital visit rate increases. In other words, the hurdle to going to the hospital is lowered. This vicious circle is serious.

    ④   Preventive Medical Care in Japan

In Japan, the importance of preventive medicine is increasing due to the fact that the main cause of death has changed from infectious diseases to lifestyle-related diseases and the aging society with a declining birthrate. I think people are more aware of their health than before. However, globally, the market size of the healthcare industry is 15 or 6 trillion yen in Japan, but there is a large difference of

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about 160 trillion yen overseas. The healthcare industry refers to prevention, health management, enhancement of life support services, and advances in medical and nursing care technologies.

The product business for anti-aging includes medical devices that emphasize quality of life, treatment technology development, supplements, and health equipment. Dormancy Therapy with an emphasis on QOL is not an aggressive treatment such as removing or hitting cancer in cancer treatment, but rather suppressing the growth of cancer cells and allowing them to coexist in the body. Supplements (Health functional foods and dietary supplements) are said to be effective as a part of alternative medicine. However, the credibility is low because the quality standards are ambiguous. Comparing the consumption of supplements per capita between Japan and the United States, it was found that the United States is using supplements more than 10 times that of Japan. Most of the health devices are close to you, such as blood pressure monitor, heart rate monitor, and thermometer.

4. Conclusion

In Japan, we are currently in a super-aging society and facing a population decline. As the population continues to decline, it is predicted that the proportion of elderly people will continue to increase and medical expenses will continue to increase. If this is the case, Japan could become a financial failure. Therefore, It is proposed to raise the ratio of self-pay for medical expenses to 50%. Japanese people rely too much on hospitals. "It's only Japan that catches a cold and goes to the hospital." If we had to pay more medical costs, people would not want to go to see a doctor and prevent disease.

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E % E3% 83% 99% E3% 83% BC% E3% 82% BF% E3% 83% BC% E3% 81% 9F% E3% 81% A1%
E3% 81% 8C% E8% AA% 9E% E3 % 82% 8B% E4% BA% 88% E9% 98% B2% E5% 8C% BB%
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Opposite effect that cosmetics give

～DO NOT add to four essential things～

12ᵗʰ　Grade5　Class3　Number33　Maria　Moki

1 Abstract

I researched four cosmetic composition table; Liquid Foundation, Powder Foundation, Concealer, and Face Powder. The Japanese skin is characterized by a thin stratum layer, a thick dermic layer, and a high ability to produce melanin. You must not use much surfactant and don't need to use the component which not make wrinkle and need to make the cosmetic what quality of covering the skin is high level when you make based cosmetic for Japanese. In case of concealer, you should choose the concealer that contain not synthetic polymer, tar pigment and paraben but collagen, hyaluronic acid and royal jelly. In case of liquid foundation, you should choose the liquid foundation that contain not preservative but ceramide, butylene glycol and Vitamin C Derivatives. In case of face powder, you should choose the face powder that contain not Mukurossi Peel Extract but silica. In case of powder foundation, you should choose the powder foundation that contain not natural mineral and nanoparticle but ceramide.

2 Introduction

・Background

I have been studying cosmetic allergies since last year. Then, I still want to study about cosmetic so I decided to continue to study.

When conducting research aimed at the world, I could researched on concealers and liquid foundations, so I would like to investigate face powder and powder foundations. In addition, I wanted to research situation in the world each products.

・Purpose

My goal is to answer the question that whether we can use the cosmetic currently in the world and the cosmetics at their hand.

・Significance

By conducting this research, we can meet the needs of people all over the world in existing cosmetics.

3 Fundamentals

Research until last year revealed that there are two types of cosmetic allergies. One is contact dermatitis by irritation and the other is contact dermatitis by allergy. In addition, it was also found that ethanol, propylene glycol, and petroleum-based surfactant do not fit the skin of many people.

Combination skin that the T-zone; the forehead and nose along the T-shape is oily skin, but the U zone around the cheek is dry.

There are four kind of foundations. They are liquid foundations, cream foundations, and powder foundations. The liquid foundation has a fresh finish and is moist and

comfortable to use. It can also be finished naturally. Cream foundation has excellent covering power and high moisturizing power. The powder foundation has a light finish and saves time. In addition, we also have a concealer. It can conceal the bad point, for example, pimple, chloasma, and so on.

4 Methods

  I mainly used investigation of last year and the Internet. On the Internet, I would like to incorporate basic information about cosmetics using the official website of cosmetic companies and statistics on cosmetics.

The process

① Examine about face powder and powder foundation.

② Examine ingredients according to the climate and genetics of various parts of the world.

5 Discussion and implications

  ・the Japanese quality of skin

  The Japanese skin quality is characterized by a thin stratum layer, a thick dermis layer, and a high ability to produce melanin.
  When making based cosmetic for Japanese people, make sure that you do not use a large amount of surfactant, do not need to contain ingredients that not easily wrinkle, and that they have excellent covering power as a foundation because they tend to cause pigmentation. Surfactants tend to break the stratum layer. However, it is desirable not to add a large amount of surfactant to Japanese based cosmetic with a thin stratum layer. Japanese people are less likely to get wrinkled. This is because the time spent in sunlight is shorter than in other countries. The thing to do with top priority is to make a based cosmetic that is gentle to the skin without adding any extra ingredients, so there is no need to add ingredients that are less likely to wrinkle. In addition, the Japanese have a high ability to produce melanin, which is likely to cause pigmentation. Melanin pigments are mass-produced to protect the skin, but it cannot be completely removed, resulting in pigmentation. So pigmentation such as spots, acne scars, and injuries is expected, so it is expected that the covering power is excellent even in the role of the foundation.

  ・product description for each detailed product

Concealer

×   Synthetic Polymer

  Synthetic polymers are chemically synthesized polymer compounds. It is a very large classification unit, and they are synthetic resin, synthetic fiber, synthetic rubber, and so on. When a synthetic polymer is put into a cosmetic product, it can be easily added with a "thickness", and after being applied to the skin, the skin can be immediately made into a smooth texture. If you use cosmetics with synthetic polymers, the skin will be covered with vinyl, so you will feel as if it has become slippery. It has an obstructive property to cover the skin with vinyl, which may make it easier to break

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the skin condition. Synthetic polymers are not good for skin resident bacteria because they do not pass sweat or oil. The amount of ceramide, which is the natural moisture storage is reduced, resulting in weak skin that cannot be moisturized by itself.
In addition, synthetic polymers have high adhesion to the skin and are difficult to remove, so it is difficult to remove them unless they are strong cleansing agents.

× Tar pigment

It becomes a raw material for cosmetic pigments. It is inexpensive, stable and stable, and has good color development, therefore it is used not only for cosmetics and foods but also for many purposes such as pharmaceuticals and industrial products. It is said that if you use a makeup containing tar pigments, it will deposit on your skin and cause stains. Tar pigments cause melanin, which creates spots, to deposit on the skin. In addition, the cells of the epidermis are destroyed by the action of dissolving the protein. Each makeup is different, but it stays on for more than 10 hours every day, so the synthetic ingredients gradually permeate the skin. Especially Red 202 is included in many lipsticks.

× Paraben

Paraben is safely, and has antimicrobial activity for a wide range of germ. In fact, parabens have been reported to have found no abnormalities in studies where parabens were administered to human skin. Even if they are contained in a small amount, they exhibit a high effect, can be expected to have an effect that is not influenced by ph, and they do not burden the skin since they are water-soluble, and can be expected to be effective as a preservative for a long period of time. The description does not show the disadvantages of parabens so far, but it also shows some bad points. Although it is a rare example of about 3 out of 1000 people, there are people who cause allergic reactions. In addition to allergies, it is said to cause spots and wrinkles as side effects.

○ Collagen

Collagen is a type of protein, and about 30% of the protein that makes up the human body is collagen. About 70% of the skin is collagen. Collagen works to keep the skin fresh and healthy by giving firmness and elasticity.

○ Hyaluronic acid

Hyaluronic acid is between cells and protects cells by holding water and acting as a cushion. The surface of the skin can be moisturized for a long time because of the moisture.

○ Royal jelly

Royal jelly that is biosynthesized in the body of bees that ate pollen. Decenoic acid is a unique component found only in royal jelly in nature and characterizes royal jelly.

Incorporating royal jelly activates the cells that cause the body to work, and controls the autonomic nerves to adjust the hormone balance.

Liquid Foundation

✕ Preservative

This is the same explanation as the paraben above.

○ Ceramide

Ceramide is one of intercellular lipids. Intercellular lipids can shut out external stimuli by accumulating moisture to moisturize the skin and filling between cells without gaps. Moisturizing effect can be brought about by putting this ceramide in cosmetics.

○ Butylene glycol

BG mainly has antibacterial and moisturizing effects, and is often used for the antibacterial of cosmetics rather than sterilizing the skin. BG is smoother than glycerin and has better moisture retention.

○ Vitamins C derivative

Vitamin C derivatives are water-soluble and oil-soluble. When used in cosmetics, the whitening effect and penetration into the skin are well suited to cosmetics.

Face powder

✕ Mukurossi peel extract

Mukurossi peel extract is an extract that can be extracted from the skin of the Mukurossi unit. Main effects include antibacterial action against bacteria caused by acne bacteria, yeast, dandruff bacteria, etc., moisturizing barrier improving action, anti-wrinkle / anti-aging action, and the like.

○ Silica

Silica is an inorganic silicon compound that is naturally derived from quartz, agate, and diatomaceous earth, and is synthesized by dry and wet methods. This has an anti-inflammatory effect by adsorbing urokinase and works to protect the skin.

Powder foundation

✕ Mineral

There is a public opinion that mineral foundations are good for the skin. However, mineral foundations are not generally good. For people who are allergic to metals, it is not good because the metal melts with sweat and ionizes, so it binds to skin proteins and changes to new proteins.

× Nanoparticle

Nanoparticles increase adhesion to the skin, but on the other hand, they tend to remain in pores and skin gaps, increasing the possibility of causing an allergic reaction.

○ Ceramide

This is the same explanation as the liquid foundation above.

・climate around the world

Being based on these data, I connected these data and climate. I examine three countries; Singapore, Japan, and Russia.

Tropics-Singapore
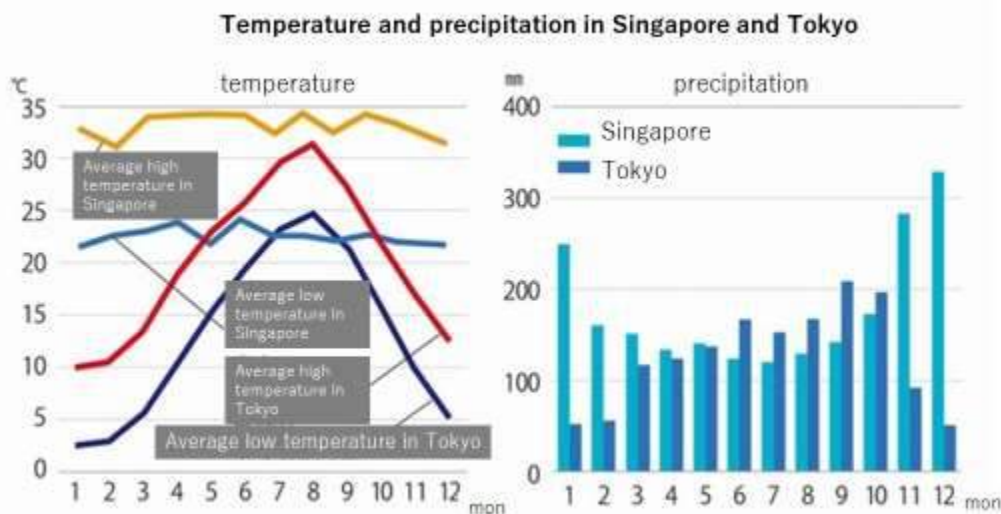
↑ graph①

According to （地球の歩き方 https://www.arukikata.co.jp/weather/SG/）

From above graph, we can know that Singapore has high average temperature and rains harder than Tokyo. From that, Singapore is humid and suffer squall. To spend comfortable life, they should prevent that cosmetics come off skin. So people in Singapore have to use waterproof cosmetics. The best shape is liquid foundation. They should include silica and ceramide because waterproof cosmetics make bad effect so they need the ingredients prevent our skin.

The Temperate zone-Japan

From graph①   and as you know, Japan especially Gunma is dry area because of

monsoon. So they need the foundation with humidity retention power. In general, it is

said that the best shape to have humidity retention power is liquid foundation, but that's not true. The best shape is powder foundation. They must include ceramide and oily foundation is better than water foundation.

Subarctic-Russia
 As you know, Russia is located north in the world.

According to 　（地球の歩き方

https://www.arukikata.co.jp/weather/SG/）

モスクワの月別平均気温と降水量
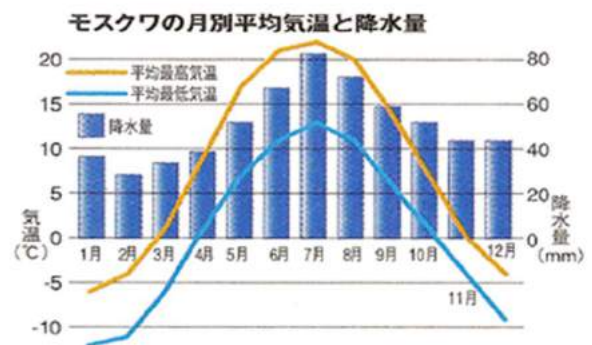
In Russia, December and January's temperature is minus 10 degrees.
So Russia is so cold because of low temperature. To spend comfortable life in Russia, they need to feel as much as impossible. So people in Russia need foundation with thermal insulation power. They should include water-soluble collagen. Collagen is a type of protein and is made up of amino acids.
It accounts for about 30% of components other than water in the human body, and is contained in skin, muscle, internal organs, bones, etc., and works to keep those cells intact. Collagen is inherently hardly soluble in water, but by slowly dissolving it at low water temperatures, collagen that does not destroy its structure can be obtained. This is called water-soluble collagen. Then the best shape is liquid foundation.

4 Conclusion
  As for the face powder, it was found that the mukurossi extract was not good but silica. In the powder foundation, natural mineral components and nanoparticles were not good, and ceramide was good.
  In addition, there is the foundation each country has. Every countries has its own cosmetics.
  If I have opportunity to study more, I will study about arid zone.

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肌に優しいコンシーラーのおすすめ人気ランキング7選【敏感肌さんにも最

適！】

mybest

ミネラルコンシーラーのおすすめ人気ランキング 10 選【ニキビにもやさしい！】

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「合成ポリマー」って肌に悪いの？

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9 Must-Have Waterproof Makeup Products　Makeup.com

Education in developing countries
~ How to learn efficiently with tablets ~

Aiko Yamamoto

○Abstract

There are more than 67 million children who can't go to school in developing countries, because of less school, less teacher, less money. Now, UNICEF tries to support people in developing countries. For example, to collect money, to give schools and teachers. However it isn't enough and sustainable, so I thought we should suggest new supports. My idea is to deal tablets as one of the education in developing countries. To study with tablets can solve many problems. For example, the shortage of school or teacher or money, the waste of time to go to school, so I think it can change the education more efficiently. The fuse project in America developed the tablet which is very cheap and useful. However it is not spread in developing countries, so I will think the solution about the education with tablets.

I. Introduction

First, I would search merits and demerits about education with tablets, and I would compare the education which people need in developing countries. Second I would think the merit about efficiently education with tablets.

The way is
1 To search with literatures, Internet, interview.
2 To think how the education with tablets help children in developing countries.

Ⅱ. Discussion and implications
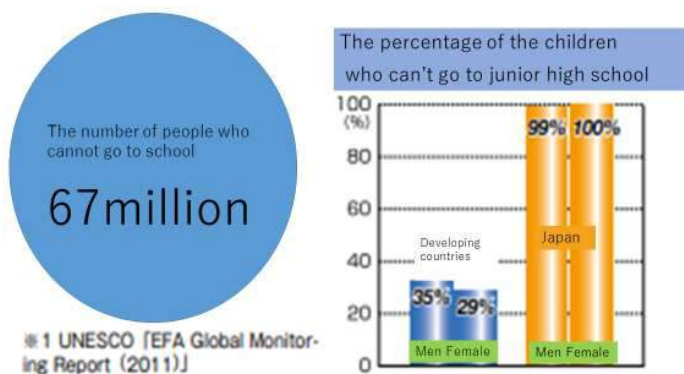
From JICA, there are many children who cannot go to school all over the world. The number is more than 67 million. Most of them are very poor.

What is the reason why they cannot go to school? There are four reasons.

First, there is no school near by their houses. If they go to school, they have to take so long time to go to school, but they have to work or take care of their brothers or sisters, so they cannot. Second, the lack of teachers. There were few people who got enough education and who can teach in each languages. Third, they do not have enough money to pay tuition fees. There are many people who have to live on fewer $1. Fourth, they have to help their families.

If they could go to school, they had a lot of problems. First, there is no school nearby children's house. To teach adults to become teachers and to hire teachers cost a lot, so it is too difficult to have teachers enough.

Second, there are many materials in school, so they have a big risk which they are stolen by someone. Before the accident, they run on few materials, so they cannot continue to work after the accident. Therefore, it is important not only to found the school but also to support administration is important.

Therefore, I think the support which is doing now is no enough to help children in developing countries. So I suggest the education which study with tablets.

First, I will introduce the education with tablets. The education is based by the education in the US.

The way is
1 To provide a tablet each one.
2 To teach how to use the tablet and to study.

← "The circumstances of each tablet device" in the United States

http://www.chieru-magazine.net/magazine/2014-junior-magazine/entry-3857.html

However it is very difficult to provide tablet one by one, so I want to suggest xo-3 tablet. The tablet was made by fews project in the US.

It designed by Eve Beart and distributed to developing countries around the world. This is a low power device that not only saves power but also saves money. Low-cost tablets are pre-installed with a shortened version of Wikipedia, which is sure to be properly trained even in places where you don't have access to the Internet. OLPC also provides compatibility with other offline content applications developed by third parties. This tablet has a USB port (both full size and mini) and a camera embedded in the front and back, and it also has headphones and earphone jacks. This electronic device has a bright silicon cover to protect against impact and damage. OLPC has also developed a case with an embedded battery pack and 4 watt solar panel, which collects energy from the sun and charges the tablet in a clean and environmentally safe manner. You can also charge your mobile computer with the help of a handheld charger.

I thought that this tablet could be proposed as a support method, but this tablet has been considered as a support method for developing countries since 2012. However it is not well known and is not used as a support method. Possible reasons for this are that children in developing countries were not accustomed to learning with tablet devices, or resell tablets that can be sold at high prices because they live in a very poor environment. In order to spread this tablet as an educational method for children in developing countries in the future, we must think about a new method.

Also, I thought about collecting and donating tablets that could be used in developed countries but not used instead of donations. However, in Japan, you can buy a tablet. If you take it to a thrift shop, so it is still unknown how much support will be established. Therefore, I would like to investigate the recycling status of tablets in Japan using data and consider new support methods.

Ⅲ.Conclusion

To spread the education with tablets can change the future in developing countries. Therefore I think education with tablets is the best way to children in developing countries.

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Aviation industry and inbound tourists

～Preparing for 2020 and the future～

Chuo Secondary School, class5-3, Yokohama Erina

Abstract

It is important to prepare the Aviation Industry because most spectators use airplanes to come to Japan. Japan should not miss this big commercial chance.

At first, I wanted to make a special plan for 2020 Olympics, but I noticed that it is difficult for me to make the plan by myself when I researched former plan for 2016 Rio de Janeiro Olympics. The plan was so clear and made in detail. Therefore, I decided to change the direction of my study. Then, I tried to focus on the materials of airplanes. SiC fiber was the most fascinated one for me. SiC fiber has some types for own purpose, but SiC fiber which can make use of producing airplane is made by only 2 companies in the world. Both of the companies are Japanese, so I want to expand the market for the purpose of increasing the number of inbound for Japan.

1 Introduction

The opportunity of my study is from my interest and social problems. Last year, I also studied about the airplane and LCC [Low Cost Carrier]. I wanted to utilize the consequence and my knowledge, thereby I decided my theme for this. Also I wanted to solve the problem which occurs at aviation industry. For instance, the lack of pilots and cabin-attendants, the price of fuel, and so on.

I researched the common point between aviation industry and our school's theme. Then I reminded that 2020 Olympics and Paralympics will be held in Tokyo, Japan.

Japan is island, so athletes and spectators who come from foreign countries make use of airplane to come to Japan. It means that aviation industry is significant for Tokyo Olympics. Many people will come to Japan absolutely. Based on this, I came up with my study's theme.

The first purpose of my study was that we will be able to finish the 2020 Olympics completely, so I wanted to resolve the problem of traffic jam. It is serious problem that spectators feel bad because of the traffic jam or congestion. Some delays may occur even if we pay attention, so we should prepare for and demonstrate the Olympics as much as we can. Of course, IOC [International Olympic Committee] and JOC [Japan Olympic Committee] make some plans for avoiding the panic, however I wanted to contribute to the Olympic in my own way.

I did my study by utilizing the Internet and articles of Newspaper Company.

At first, I tried to research the articles of 2020 Olympics and other aviation company. The articles are based on the fact which was informed by official organizations, so I was able to guarantee the sufficiency.

Second, I tried to utilize the official site of airports or aviation industries. They had own homepage, even if the size is not big. They informed me of a lot what was useful for my study.

2 Discussion and implications

First, I investigated the issues in the aviation industry and thought about what could be improved in conducting this research.

In the aviation industry, there was so many problems. For instance, shortage of pilots and crews, long-term requirement for pilot development, multi-language support, customer acquisition competition among a large number of airlines, revenue acquisition, and domestic revenue decline due to Japan's population decline, and so on. I wanted to resolve the problems as much as I could through my study.

By the way, coming to the Tokyo Olympic Games costs a lot of money, such as tickets for competitions, accommodation, transportation, and food in Japan. I wanted to keep the cost low and to make more people come to watch the game, so I thought it would be nice to be able to reduce the cost of airline tickets. Last year, I was doing research on LCC, so I wanted to make use of that knowledge to utilize LCC for this study.

I came up with the idea of using local airports to avoid traffic jams. Therefore, I decided to think independently about a plan to land at a regional airport, send it to the tournament hall, and tour Japan.

What was important in preparing for the Tokyo Olympics plan was which airport to use and securing secondary traffic after arriving at the airport? I thought that major airports such as Haneda Airport and Narita Airport would be very crowded during the 2020 Olympics. Also, I thought that secondary traffic would also become a traffic jam and waiting queue. As soon as inbounds arrived in Japan, I thought it would be a shame because of traffic jams, so I would like to focus on local airports in some regions, but not in major airports such as Haneda and Narita. After checking the list of venues on the official site of the Tokyo Olympics and considering where the venues are relatively close, Niigata Airport, Ibaraki Airport, and Sendai Airport were raised.

Furthermore, comparing these three airports, Ibaraki Airport was originally a base of the Air Self-Defense Force called Hyakuri Air Base, and since it was made privately owned in 2010, it could not be denied that it was a military base. In addition, Ibaraki Airport was canceled because I felt that the scale was quite small.

Niigata Airport was larger than Ibaraki Airport, and I thought it would be good because international flights were also flying, but I felt that the venue for the Tokyo Olympics was not nearby and secondary transportation was not well developed.

Although it was not an elimination method, local airports that focus on Sendai Airport were narrowed down. In Sendai, the subway ran from east to west, north and south, and there are many bus lines and numbers. There were more LCCs in service than the other two airports and the terminal was wide.

Moreover, the Miyagi Stadium near Sendai had a soccer game, and the Fukushima Azuma Stadium has a baseball and softball game. There was no need to take the Shinkansen from Haneda or Narita, and inbounds could go to the venue at a lower cost. I thought this was the only local airport for my study, so I started my study based on Sendai Airport.

I would like to touch on Sendai International Airport in detail.

Sendai International Airport was the only country-controlled airport in the Tohoku region

in Natori City, Miyagi Prefecture. Operations were transferred (privatized) to Sendai International Airport Co. on July 1, 2016. Therefore, it was operated by Sendai International Airport Company.

First, what airport in which country would inbounds partner with to take inbound at Sendai Airport?

The first suggestion was Brisbane Airport in Australia. Australia was closer to Japan than Europe and America, and it took about 8 hours to reach Brisbane Airport. When using LCC, long-distance operation was expensive, and it was beneficial to fly a short distance in a short amount of time, and it was suitable for LCCs that operate many medium-sized aircraft. It could be said that the international track line currently operated by LCC was clear from China, Korea and Taiwan.

Based on this, why would you propose to enter Australia? Australia had sporting power and the number of players participating in the Rio de Janeiro Olympics held in Brazil in 2016 was the fourth following the United States, Brazil and Germany.

As many as 416 players participated. It could be said that the fact that there were so many participants is that people's interest in sports was high. High interest could be expected to lead to more people visiting the Olympic Games. In other words, many passengers could be expected. If you are planning to expand your business, I thought that it would be better for LCCs to gain as many passengers and profit as possible, so I chose Australia as a candidate.

The second suggestion was China. Making a special plan with China had various advantages.

First, there was already a route. If you connect to new airports, problems may occur, but if you are in service in China, you would be able to understand the situation and offer a plan. China was also close to Japan and could be easily visited, not to mention Australia and European countries. I thought that many Chinese would come to Japan if there is an Olympics. Chinese might have a wealthy image due to the explosive purchases etc. That were talked about before, but if there is a special cheap plan for the Olympics, some passengers could be expected.

In addition, according to the data on the number of participants in the Rio de Janeiro Olympics, which was the same as Australia, China was ranked 5th in the ranking, so I thought we could expect a lot of inbounds.

So far, I had made a plan for the Tokyo Olympics, and if I looked at whether there was such a plan in the past or if it could be used as a reference, JTB was actually operating at the 2016 Rio de Janeiro Olympics. The pamphlet showed the introduction of Rio de Janeiro, the schedule of each competition, and then the plans that met the detailed needs from B to R, and very detailed explanations and notes of each plan. JAL, the leading airline industry, is a JTB shareholder.

As you know, there are a wide variety of competitions and events in the Olympics, so it was impossible to meet the wishes of all inbound people who want to use the tour. I thought it was important how customers could be attracted to the plan and the price so that the number of days and the number of meals would differ depending on the plan.

I tried to find out the actual plan and refer to it, but it became clear that it was very difficult to make a plan like JTB by myself. There was a need to approach the purpose of this study in a different way, rather than making a concrete plan based on subjectivity. Therefore, I focused on the SiC [silicon carbide] fiber by technical approach. SiC fiber is a material that is expected to play an active role mainly in the aviation and space industries. At present, only two companies, "Nihon Carbon" and "Ube Industries" have succeeded in producing SiC fibers. The advantages of silicon SiC fibers are wear resistance, high thermal conductivity, corrosion

resistance, and heat resistance. Yet it is a dreamlike material that is lightweight and strong.
No aircraft using this material has been made yet, but if it could be produced, it should be able to operate with lower fuel consumption than the current aircraft. Even if the initial purchase price of the aircraft is high, I thought that it would be a good purchase if we consider reducing fuel in operation.

Although there were not many materials and research on SiC fiber, and I was not able to known it in detail, I thought that this fiber would lead to the development of the aviation industry.

3   Conclusion

In conclusion, while considering the patent rights and the profits of each company, I hoped to develop the aviation industry by producing more SiC fiber in collaboration with other companies, expanding the industry, and using it for aircraft. What I can do to achieve that goal is to learn about aeronautical engineering, tell people about the appeal of SiC fiber, and do crowdfunding.

Future tasks are to learn more about SiC fiber, which is considered difficult to process, and to see what is actually being done to alleviate traffic congestion and airport congestion at the Tokyo Olympics. .

Although it has deviated from one of the original objectives of preventing the crowding of the Tokyo Olympics, it had become a form of approaching the fuel problem, which was a problem in the aviation industry.

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<center>Sky noise problem in Japan

Noise problem and air traffic growth compatibility</center>

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○Abstract

The conclusion from these studies is that airlines should gradually introduce new models which are less noisy and better for the environment. In Japan, because the country is small, it is not possible to make major repairs to the airport, and there are many areas where houses are densely populated. However, introducing a new model is very costly because an airplane costs about 10 billion yen. To encourage this, it may be effective to make a difference in airport landing fees depending on aircraft noise. In addition to the news mentioned above, we also see the news that the development of aircraft that operate on electricity is also underway, so it is necessary to proceed with research to see if there are any effective means for noise control.

1.　Introduction

　①　Purpose of research

The reason I set this research theme is that I love airplanes and subscribe to a lot of airplane magazines, but as the number of arrivals and departures at Haneda Airport increases, the flight course is closer to a residential area I found an article about flying. This might be nice for an aviation fan like me, but I thought it wasn't good for nearby residents living nearby. By studying noise problems at airports around the world, Japan's noise problems can be improved, and the economic effect of increasing the number of takeoffs and landings can be expected.

　②　Research method

　①Books

The books used for this research were mainly "Airline" published by Icarus Publishing. Even though it is a magazine specializing in aviation, there is a possibility of mistakes, so we used it against the Internet site.

　②Internet

Since the book introduced earlier is a magazine, we feared the authenticity of the information and used the Internet to collate the information. When using it, I used an official website with relatively high information reliability. Some blogs were used to check the reputation of airlines.

2.　Discussion and implications

In carrying out this research, I have been focusing my research on three things.

　①　Noise countermeasures at airports

First of all, the noise is generated by airplanes, but the noise problem is caused by the

airport, so we investigated the noise problem at the airport. There are many airports in Japan, but the most popular noise countermeasure is the time limit for taking off and landing. This time limit is a method of reducing noise by prohibiting late-night flights. However, this method may make the surrounding residents feel less noisy, but the ban on late-night flights at the airport does not lead to an increase in the number of takeoffs and landings. Therefore, another noise countermeasure is to make it in the mountains or the sea with few houses, not in the city center. However, this method also has problems. That means access from the city center will be very bad.

◎Example

    Narita Airport···About an hour from Tokyo Station by limited express.

    Kansai Airport···About an hour from Osaka Station by limited express.

    Hiroshima Airport···About an hour from Hiroshima Station by bus.

As a result, many airports have green spaces around them. By greening the area around the airport, it is possible to leave a space between the residential area, reduce noise from the airport, and use the green area as a place for citizens to relax. Examples include Sakuranoyama Park at Narita Airport and Itami Sky Park at Itami Airport, which are popular with locals and aviation enthusiasts, and are well-known as major tourist destinations. In this way, it is considered to be a very effective measure to create a facility that will be appreciated by people as well as noise countermeasures. A possible disadvantage of this measure is that it requires a lot of land around the airport and it is necessary to proceed with the development of the green space.

② Noise countermeasures during takeoff and landing

On the other hand, at overseas airports, there are many places where noise countermeasures are taken due to noise regulations that are applied to airlines from the airport. London Heathrow Airport has introduced a noise fee in addition to the airport usage fee paid at the airport. This encourages airlines to introduce new equipment. There is also an example where noise is reduced by changing the takeoff and landing methods. One of them is the power cutback take-off method. In this method, the engine output is not increased after takeoff, but is limited within a safe range, and the engine output is increased after passing through a residential area. However, this method may increase the noise damage of distant houses, and may increase the noise damage in densely populated Japan. When landing, a delayed flap method may be used. In this method, the vehicle is approaching at a gradient of 3 degrees, but by approaching at a gradient of 6 degrees, the flap lowering and gear lowering timings are delayed, and landing without increasing the engine output. The flap is a high lift device that uses this to prevent the aircraft from stalling. Currently, these two methods are mainly

implemented in Japan.
　③　Noise countermeasures at manufacturing companies
3．Conclusion

The conclusion from these studies is that airlines should gradually introduce new models that are less noisy and better for the environment. In Japan, because the country is small, it is impossible to refurbish the airport, and there are many areas where houses are densely populated. However, introducing a new model is very costly because an airplane costs about 10 billion yen. To encourage this, it may be effective to make a difference in airport landing fees depending on aircraft noise. In addition to the news mentioned above, we also see the news that the development of aircraft that operate on electricity is also underway, so it is necessary to proceed with research to see if there are any effective means for noise control.

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Encouraging generic drugs to become commonly used

~How to introduce reference pricing system ~

5402 Shion Iino

○Abstract

   I started this research because I want to reduce Japanese medical bills by introducing reference pricing system. I`ll introduce reference pricing system. The reference pricing system encourages the use of generic drugs at low prices by setting a reference price for the drug and allowing the patient to pay the excess. However, there is a risk that the reference pricing system will increase the burden on patients and new drug research. In order to prevent such demerits, I thought that the introduction should be promoted while watching the progress by partially setting reference prices for some drugs and setting the reference prices loosely.

1. Introduction

Gathering information is mainly done via the Internet or books. In addition, it is expected that there will be problems in introducing the reference pricing system, so I would like to examine it myself.

   I thought that the reference pricing system would be effective in making generic drugs more popular. First of all, according to the "Reference price system of Medical Policy Memo Q & A", the reference pricing system encourages the use of generic drugs at low prices by setting a reference price for the drug and allowing the patient to pay the excess. I thought that by introducing this reference pricing system, patients would hate to pay for medical care and would choose generic drugs. However, I thought that various problems will occur due to the introduction of the reference pricing system, so I would like to consider solutions to these problems.

2 Discussion and implications

   First, generic drugs are drugs that are manufactured using the same ingredients as new drugs (original drugs), and have the same quality, efficacy and safety as the new drugs. According to Jennifer S. Haas, MD, MSPH; Kathryn A. Phillips, PhD; Eric P Generic drugs are typically less expensive than brand-name drugs, and prices for generics have historically increased less than those for brand-name drugs. In Japan, some people have distrust about the safety of generic drugs, but generic drugs have passed rigorous testing which are approved by the Minister of Health, Labor and Welfare, and are manufactured and sold in accordance with national standards and laws. Therefore, it can be said that safety is

recognized. Some generic drugs have improved size, taste and smell to make them easier to take. The development costs for generic drugs are much lower than that of new drugs, so the price become lower, about 70% of the new drugs. Furthermore, the revision plan of the Ministry of Health, Labor and Welfare plans that the price of generic drugs become about 50%.

The used rate of generic drugs in Japan is increasing gradually. From 2005 to 2011, it was 30%, but it rose to 47% in 2013, 66% in 2017, but the rate in japan is lower if it be compared with that of other countries. While the used rate in Japan is less than 60% (FY2017), it is over 60% in other developed countries, especially in the United States, over 90%.

Why is the used rate low in Japan? The reason why the used rate is low in Japan can be divided into two aspects: patient awareness and equipment such as pharmacies. First, there are many people in Japan who have a bad image of generic drugs. Why do many people have a bad image of generic drugs? Because generic drugs have the image of "the second decoction of the original drug" and the confidence in the generic drug is weak. Some patients have the distrust that "the price is cheap" = "the quality is not good". For this reason, many people tend to choose original drugs.

Next, in terms of pharmacies and hospital facilities, there are sometimes too many types of generic drugs. If there are too many generic drugs, pharmacists will not be able to prepare all of them at the pharmacy and they will need to choose one. This decision can be a daunting task for pharmacists, and some they will decide not to handle it.

A reference pricing system has been introduced in Germany, where generic drug penetration is high. In Germany, it is a terrible issue that the government to reduce the medical costs and drug costs. So it was introduced by for solving the problems. Furthermore, the alternative preparation was introduced in Germany. Pharmacist is possible to change prescribed drugs to generic drugs if there is not the special cases, so it is easy to change by the hope of the pharmacist and the patient.

What is the reference pricing system in the first place? In simple terms, a reference price is set for medical expenses, and the patients pay money if the sum of medical expenses is over the reference price. The reference price varies depending on the treatment. The government pays the full amount of medical expenses that are within the reference price,

but the patient is responsible for any excess of the reference price. Therefore, generics whose price is lower will be selected and the penetration rate will increase

Various demerits will appear if the reference pricing system. Many Japanese organizations such as the European Business Association Pharmaceutical Committee and the Japan Pharmaceutical Wholesalers Association disagree it.

① Appropriate price cannot made by free and fair market competition.

② The value of the drug must not be reflected in the market price.

③ The grouping will not reduce the price of the original drug and the patent rights will not be fully evaluated, thus hindering the research and development of new drugs and making it difficult to provide a stable supply of drugs and provide information.

④ Access to useful new drugs may be hindered due to patient burden disparities, and appropriate drug selection may not be performed.

⑤ For drugs that exceed the reimbursement limit, the patient burden must be increased further.

I think ③ and ④ are the most important of these problems. Even if a new drug that is expensive and exceeds the reference price will not be sold, the new drug research will be reduced. Moreover, even if there is a new drug effective for treatment, there is a concern that if the reference price is exceeded, there may be cases where the new drug cannot be used due to patient financial problems. Therefore, I thought that it would be better to set a reference price for drugs for which generic drugs had not yet been developed, but in Germany, the manufacturer raised the price of drugs that did not have a reference price system for one year. In some cases, the cost of drugs increased more than before the system was introduced.
In other words, there was no point in introducing the reference price system. Therefore, in order to introduce the reference price system in Japan, I think that it is better to take a method that does not set a reference price for new drugs after creating a system that prevents pharmaceutical manufacturers from excessively increasing the price of drugs. . However, manufacturers that develop new drugs will be disadvantaged, and conversely, sales may flow to generic drug manufacturers, so generic drugs will not be set without strict

reference prices to prevent it. I think that the system should be introduced first because of the price setting that allows you to choose new drugs if you pay a little. In conclusion, we should start by setting the reference price loosely, setting it only for some drugs, and introducing a new drug without setting a reference price.

○ Research issues

Still, there are still uncertainties in the conclusion, so I wanted to collect more information so that I could solve them. What I think about in the future is how much the price can be set to reduce medical expenses without increasing the burden of gratitude. In addition to these problems, I think that there will be more problems as we continue research in the future.

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<center>The ideal end of life with video games</center>
<center>～Achieve *pin-pin korori*～</center>

5403　Taiki　Uchida

◎Abstract

In one book, I met the word "Pin-Pin Corori". I was worried about the meaning, and when I looked into it, it seems that it means "I live energetically and I die without suffering. Recently, life expectancy has increased due to advances in medical technology, and more elderly people live longer. However, there are people who are bedridden, people with dementia, and people who don't even have meals and are full of tubes around their bodies using gastrostomy. In fact, there are elderly people who said, "I've lived enough. How can you live well and die quickly? I thought video games were good.

◎Introduction

When a patient's chances of being saved are generally referred to as "end-of-life", the choice of medical care at the end-of-life will, of course, respect the intention of the person if the person is conscious. However, at the end of life, many patients are not conscious or often have little consciousness but no judgment. In that case, it is usually left to the family to judge, but there are some problems. Many families are not discussing how to meet death, and even if patients and families receive an explanation from the doctor about the end-of-life state, it is difficult to understand the details of treatment, its meaning, and the possibility of recovery. As a family, it can be mentioned that the mental burden of determining subsequent actions on behalf of patients is great. Including such problems, the purpose is to think about a method to realize the ideal end of the terminal stage patient based on the video game. I carried out this research by using the literature and the Internet, I focused on the thoughts of elderly people and the relationship between Pin-Pin Corori and TV games.

◎Discussion and implications

In the first place, "Pin-Pin Corori" is "a slogan which means that you can live long without illness and die without suffering" (by wikipedia). This word originated in a paper published in 1979 at the Nagano Physical Education Society. It is stated that the commentary on Daijirin 3rd edition includes "healthy longevity" or "exercises for enlightenment of health promotion and physical fitness for the elderly". This word, also abbreviated as "PPK", has a "pop" or "positive" image, so it may be easy to say. And there are so many people who actually want "Pin-Pin Corori". There is the word "Nen-Nen Corori (= NNK)" in the opposite of "Pin Pin Corori", and it seems that there is even a movement like "Let's aim at Pin-Pin Corori!" Is "Pin-Pin Corori" really the ideal end for Japanese people? According to a survey conducted by the Dai-ichi Life Economic Research Institute in 2003 on 792 men and women (aged 40-79) nationwide, the most common answer to the question "What do you think is the ideal end?" "They suddenly die on the day of myocardial infarction" (64.6%). The result shows that there are many people who want "Pin-Pin Corori". (In fact, the same survey was conducted in 2010, and it seems that the percentage of those who want this "Pin-Pin Corori" has increased to 75.9%.)

Another thing that worries me is why I chose that answer. In this survey, 85.9% of those who answered "Pin-Pin Corori" was the ideal because "I don't want to bother my family". Next, "I don't want to suffer" (62.3%), followed by "I can't help living if I'm bedridden" (54.3%). Regarding this statistic, Professor Shigeaki Hinohara, Honorary Director of St. Luke's International Hospital, said in his blog "I think the change has brought about these statistics". In addition, Shinichi Sato, professor at the Graduate School of Human Sciences at Osaka University, said, "Pin-Pin Corori feels a potential negative consciousness that he does not want to be that kind of person (so-called Nen-Nen Corori)" Is throwing.

In the previous survey, the second most common answer was "Because you may fall asleep because of illness, etc., you will gradually die" (31.7%). I think that "somewhat" is the point, but "Nen-Nen Corori" seems to be just this. Certainly, the percentage of "Pin-Pin Corori" is higher, but it is clear that there are not a few people who want "Nen-Nen Corori". The most common reason for choosing this answer was "I want to build my heart to die" (67.9%).

Certainly, it suddenly dies, so there is no inconvenience for family members.

- • "But it's sudden death!"
- • "If two or three days continue to be dangerous, relatives will be able to gather in the bed. So you can make a farewell time at the end. "
- • "I wanted to meet again before I died!"

Many elderly people have made such voices. After all, elderly people have strong feelings toward their families, such as the desire not to bother their families.

In order not to inconvenience the family, what I propose is a video game. One of the causes of Nen-Nen Corori, that is, the need for nursing care, is dementia. According to a 2016 survey by the Ministry of Health, Labor and Welfare, dementia is the number one cause of need for nursing care.

In recent years, TV games have been attracting attention for the prevention of dementia. Regardless of the elderly, playing games has shown various effects such as improving concentration and attention. Among them, the positive effects on the elderly include "improvement of reflexes", "good effects on the brain due to fingertip movement", and "communication". When you play an action game or the like, you will definitely increase your reflexes, and by playing the game over and over again, you will have better responses to reflexes and things. Moreover, since the game must be judged instantaneously, the judgment ability is also activated. There are games that you can play intuitively using your body, and while you are playing the game, you can move your body, arms, and legs to train your reflexes and get a fitness effect.

In addition, the game controller has a number of buttons, and you use your fingertips a lot to operate the buttons. The brain is activated by using the finger. In addition, modern video games can be played by multiple people, and at the same time, enjoying the game and having the same interests creates new communications. Video games also have a network function that uses the Internet, and you can talk to players far away using the network. If the network is connected, you can enjoy conversations with players from all over the world, so even if you don't have a game right next to you, you can enjoy the game while having conversations with those who play the same game all over Japan and around the world.

Conversation activates the brain and leads to prevention of dementia. The 3D game is especially recommended among TV games. It is said that 3D games are more effective for the brain than 2D games because they play in front, back, left, and right spaces.

◎Conclusion

I think that it is necessary not only for elderly people but also for the whole family to think about "Pin-Pin Corori", which is ideal for many Japanese. I recommend TV games so that the whole family can aim for a pin-pin collar. Many TV games can be enjoyed by the whole family, and I encourage you to incorporate TV games into the environment of senior citizens, both in terms of promoting pin-pin Corori to prevent dementia and to communicate with family members.

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How to deal with complainers

～The danger of coping with complainers～

5404 Takumi Uchida

○Summary of my research

   The purpose of this study was to prevent the problem from deteriorating by thinking about the response to the claims from the characteristics and responses of other countries. The number of complaints in Japan and their breakdown were easy to understand and information was easy to obtain, but detailed data was not available. In addition, although I was able to obtain materials for each company, it was difficult to compare because the items that were divided were so different that they could not be used. For this reason, I considered a method for dealing with claims that can be used regardless of the characteristics of the country or company. It is the way to deal with complainers and by AI. However, this was not possible in modern times, so I thought that it would spontaneously become such a society in the future, so I canceled this idea. After that, based on the opinions I found on the Internet site, I thought I should separate what was said to be a claim from what was originally meant by capturing the original meaning of the claim.

 1 Purpose of my research

  The reason for this research is that I read an article about claims on the Internet. Recently, I have heard many complaints and criticisms such as contamination. As a result, many things such as corporate fraud were improved. On the other hand, I felt that many problems such as excessive complaints occurred due to self-centered reasons of consumers and other claimants. From these things, I thought that I should not make the problem big by thinking about measures against claims.

 2 The ways how to investigate

  The Internet was mainly used as a research method. Note that information on the Internet uses reliable information. I also referred to articles in newspapers and news.

 3 Achievement and task

  In this research, the characteristics and responses of Japanese claims are compared with those of other countries, and the response to claims that are often considered in Japan is considered.

Japan

  According to a survey of customer service workers (1,000 people) who heard of inconveniences they had received from consumers at work, the most common response was

"screaming rants" (33.1%). "Take attitude" (28.5%), "take an authoritative attitude such as sermons" (19.2%), "repeat the same complaints over and over" (16.7%), "restrain employees for a long time (10.4%) followed. In addition, "Sexual harassment" (3.5%), "Use violence" (3.3%), "slander on SNS / Internet" (2.3%), "Force prostrate" (1.7%) Was also slightly seen. "Nothing applies" was 43.1%, and the percentage of those who had received any of the nuisances was 56.9%, more than half. By type of employment, the percentage of people who have suffered any nuisance was 64.3% for regular employment and 55.5% for non-regular employment. We found that regular employees such as full-time employees and regular employees of companies and organizations tend to be more annoying.

Looking at the percentage of people who have suffered any nuisance by industry, "Public affairs" was the highest at 79.4%, followed by "Information and communications" at 69.6%, "Transport and postal mail" at 66.7%, "Finance / Insurance" followed at 61.9%.

According to a survey of how 569 respondents who had received nuisances from consumers responded to each question, authoritative, such as [abuse], [intimidation] and [preaching] "Attitudes" were the most common responses, "Apologize 47.4%, Intimidation 44.2%, Authoritative 43.2%" The most common response was "I clearly explained what I can and cannot do" (repeated claims 50.9%, long-time employee restraint 47.1%).

England

UK is a country with many complaints and complaints. It is natural for consumers to complain and complain in Japan, but producers sometimes complain.

I also gathered information about claims from the US and China, but I couldn't get information on the number of claims and details.

From this, I thought a plan that could handle any situation. That is artificial intelligence handles claims. However, this was considered impossible with modern technology. I thought artificial intelligence couldn't understand what complainer was saying when he was screaming. In addition, it is said that artificial intelligence will make a dramatic evolution from now on as in the 2045 problem, so I thought that such a situation would inevitably occur. In addition, in many cases, it is only described that the complaint does not capture the original meaning of the claim in (the "right of complaint" rights and complaints, and their equal relationship), and the complaints are classified by type and considered for each response. It was. From this, I thought that it was necessary to investigate from a detailed point of view, such as complaints, and improve the company and body, rather than making a survey and statistical data in a single claim

4

「The secret of claims」 Equal relationship between right and complaint

(https://www.british-made.jp)

About Complaint analysis results‐Ministry of Internal Affairs and Communications

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Survey on consumer behavior－Japan Trade Union Federation

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Leftover medicine

～Reduce leftover medicine～

5405 Yugo Onishi

Abstract

These days, medical technology is advancing. But leftover medicine is a problem. Medical cost is increasing every year. Some of the people forget to take medicine. Especially, senior citizens. Pharmacy dispensing medical expenses occupies about twenty percent. All medicine are not used properly. Now aging is progressing, so one in two are senior citizens. If we did not do anything, leftover medicine would be increasing. Expansion of medical expenses does not catch up economic growth. It is caused of squeezing health insurance finance and National finance. This is the present condition.

1. Introduction

I wanted to learn about pharmacy in the future, and now I was investigating whether there are any problems related to medicine. The word "remain medicine" came up, so I decided to study it. Drugs are intended to help people with illness, but I do not think it is too much, and I felt the pharmacist's work wasted and it was very problematic. In addition, there are drugs left in my house, so I would like to make sure that the value of the drug is fully understood through this research, and that I first try to eliminate the remaining drugs in my house.

2. Discuss and implication

Surplus medicine goes to the pharmacy

If you throw it away, you will be involved in the remaining medicine problem, so go to the pharmacy and put it in the collection box. Do not overdose just because you have left over. Also, do not leave as much as possible. Because even if you have the same illness, the situation may be different and side effects may occur. Just as food and drinks have a shelf life, medicines have a shelf life. If it is unopened, it is said that it will last from six months to one year. This includes tablets, capsules and powders. Use liquids as soon as possible. On the other hand, medicines prescribed in hospitals often have no expiration date. This is because only prescribed dates are prescribed. So use within the indicated period.

For this reason, when I go to the doctor to get rid of the remaining medicine, I want to take it to the end when prescribed. I also want to know who is taking medicine in my family so that I do not forget to take it.

Remaining drug is a name that refers to the leftover of medicine prescribed by medical institutions. It occurs when a patient forgets to take a medicine or

when a patient is prescribed many kinds of medicines and cannot take them
properly. The government is strengthening efforts to optimize the use of drugs
in cooperation with doctors and pharmacists, as leftovers in medicine will lead
to worsening of patients' medical conditions and increased medical costs.
(From Koto Bank)

○ Impact on medical expenses
Medical expenses have been increasing rapidly every year since the Showa 50s.
Medical costs in FY2014 have risen to 39 trillion yen. Among them, the cost of
medicines for medical supplies and medical fees for pharmacists is about 8
trillion yen, accounting for about 20% of the national medical expenses.
However, not all prescribed medical drugs are taken appropriately, and there is
a problem that there are drugs left in large quantities.

Dispensing medical costs, including "technical fees" and "pharmaceutical
fees" such as basic dispensing fees and dispensing fees, have increased at a
pace that has exceeded the overall growth in medical costs over the past few
years. There are two factors.
▽ The number of prescriptions increased due to an increase in patients with
aging and an increase in medical institutions that issue out-of-hospital
prescriptions
▽ Unit price per prescription increased due to rising technical fees and drug
fees
As you can see from the graph below, FY15 was the biggest increase in the past
10 years.

調剤医療費の推移

2015年度
7兆8743億円
前年度比9.4%増

厚生労働省「調剤医療費の動向」をもとに作成

○ Current status of remaining medicine
In 2013, a survey of 998 pharmacies nationwide conducted as a commissioned survey by the Ministry of Health, Labor and Welfare was conducted on patients with "residual drugs".
Often ... 17.1% Occasionally ... 73.2%
90% or more in total applies.
The patient survey
There was a lot of surplus ... 4.7%
There was a surplus ... 50.9%
It can be seen that more than half of the patients have residual drugs.
The cause of this remaining drug is forgetting to take. If you miss a dose and do not take medicine, it will be a long-term prescription. He points out that this is a cause of residual medicine and worsening of the disease.
Current measures include a pharmacist visiting the patient's home and giving instructions on how to use the drug, and taking compliance according to the patient's condition, such as packaging and using a drug calendar. There has been a significant improvement. The remaining medicine per patient at the time of the first survey was 8.0 items, 8,435 yen, but the pharmacist actively took measures such as taking medication instructions to the patient according to the situation of the remaining medicine and requesting the doctor to adjust the prescription. As a result, after 2.5 months, it decreased to 6.0 items, 3,690 yen, and the total amount was reduced from 2,227,704 yen to 945,735 yen.

http://www.seikatsusyukanbyo.com/calendar/2015/002920.php
Japan Association for Prevention of Lifestyle-related Diseases

○ Why do I forget to drink?
Nippon Dispensing Co., Ltd. (location: Chiyoda-ku, Tokyo, President: Hiroshi Mitsuhara), which operates dispensing pharmacies in 47 prefectures nationwide, conducted a "Consciousness Survey on Unpreserved Prescription Drugs". This survey was conducted from July 25 to 28, 2014, targeting 1,021 men and women in their 20s to 60s and over who have been prescribed medications for more than a month. Conducted in an Internet survey and summarized the results. The most common reason why leftovers occur is "forgetting to take it" 65.8%. Next, "It is no longer necessary to drink due to physical condition recovery" 30.0%, "I think I do not have to drink as directed" 10.9%.
Both men and women occupy the top two reasons for "because I forgot to take it" and "because I no longer need to drink because of physical condition recovery", but especially in women over 60, "I forgot to take it" "It will be 90.9%".
(Figure below)

[表4]飲み残し薬が生じる理由

	回答者数	％
TOTAL	550	100.0
薬の種類・量が多く飲みづらいから	18	3.3
指示どおりに飲まなくてもよいと思うから	60	10.9
体調回復などにより飲む必要がなくなったから	165	30.0
副作用が怖いから	20	3.6
薬の形状（カプセルや粉薬など）が飲みにくいから	6	1.1
服用するのをつい忘れてしまうから	362	65.8
薬を余らせておきたいから	31	5.6
その他	30	5.5

[図4]性年代別・飲み残し薬が生じる理由

	回答者数	薬の種類・量が多く飲みづらいから	指示どおりに飲まなくてもよいと思うから	体調回復などにより飲む必要がなくなったから	副作用が怖いから	薬の形状（カプセルや粉薬など）が飲みにくいから	服用するのをつい忘れてしまうから	薬を余らせておきたいから	その他
TOTAL	550	3.3	10.9	30.0	3.6	1.1	65.8	5.6	5.5
男性20-29歳	7	0.0	14.3	57.1	14.3	0.0	57.1	28.6	0.0
男性30-39歳	18	16.7	27.8	33.3	11.1	5.6	61.1	11.1	0.0
男性40-49歳	68	5.9	13.2	27.9	1.5	0.0	64.7	4.4	7.4
男性50-59歳	93	3.2	6.5	25.8	3.2	0.0	67.7	2.2	7.5
男性60-99歳	150	1.3	10.7	18.0	2.0	0.0	74.7	6.0	4.0
女性20-29歳	13	7.7	23.1	53.8	15.4	7.7	46.2	7.7	0.0
女性30-39歳	37	8.1	8.1	56.8	0.0	0.0	54.1	5.4	2.7
女性40-49歳	60	1.7	15.0	41.7	5.0	5.0	46.7	8.3	6.7
女性50-59歳	60	1.7	5.0	40.0	5.0	1.7	56.7	8.3	6.7
女性60-99歳	44	0.0	11.4	18.2	4.5	0.0	90.9	0.0	6.8

○ World remaining drug status
In Japan, in addition to the damage to patients' health due to multiple medications and interactions, the increase in dispensing medical expenses is a problem in that it is putting pressure on the government's finances. It was found that the points of the remaining medicine problem differ depending on the system.

[In the US, environmental pollution and drug abuse are problems]

Although the health insurance system (commonly known as Obama Care) started in January 2014, low-income earners who cannot join a public or private insurance

company bear the full amount of medical expenses in the United States where free medical care is still fundamental. Therefore, the following two are the focus of the remaining drug problem in the United States.

▸ Environmental pollution issues
In the United States, it is customary to throw unused prescription drugs into the toilet, and environmental pollution caused by this has become a serious social problem. The US Geological Survey conducted water quality surveys nationwide in 1999 and 2000, and found that low levels of pharmaceutical ingredients (antibiotics, hormones, contraceptives, steroids) were detected in 80% of rivers.

[In the UK, the remaining drug problem of 300 million pounds]

In the UK, there is no self-pay or NHC (National Health Service) can receive medical services for a small amount, so as in Japan, residual drugs are a problem from a cost perspective. According to the NHS, the remaining medicine for the year in the UK (including not only medicine left at home but also medicine returned to the pharmacy from the patient and residual medicine generated at the care home) is converted to 300 million. It will be pounds. NHS operates the website "medicinewaste.com" with a tag line of "Only Order What You Need" to reduce remaining medicines ① Order prescription drugs as much as needed ② Drugs that have been prescribed once cannot be recycled. (3) Remaining drugs can be a risk in safety (expiration of remaining drugs, misuse of children, etc.). In addition, the following explanation is given regarding the cost of the remaining medicine "3 pounds".

If it costs 300 million pounds,
・ 80906 hip replacements possible
・ 101351 total knee replacement is possible
・ Drug therapy for 19799 breast cancer is possible
・ Employment of 11778 nurses possible
・ Pharmacotherapy for 300,000 Alzheimer's is possible

In 2012, NHS proposed a 100 million pound reduction plan to collect and reuse prescription drugs in PTP packaging, but the Royal Pharmaceutical Society "It may be more costly to recycle rather than dispose of prescription drugs," and the drug has not yet been reused.

In Japan, the remaining medicines for elderly people alone are as much as 50 billion a year, so you can spend money on other medical treatments like the UK.

○Surplus medicine goes to the pharmacy
If you throw it away, you will be involved in the remaining medicine problem, so go to the pharmacy and put it in the collection box. Do not overdose just because you have left over. Also, do not leave as much as possible. Because even if you have the same illness, the situation may be different and side effects

may occur. Just as food and drinks have a shelf life, medicines have a shelf life. If it is unopened, it is said that it will last from six months to one year. This includes tablets, capsules and powders. Use liquids as soon as possible. On the other hand, medicines prescribed in hospitals often have no expiration date. This is because only prescribed dates are prescribed. So use within the indicated period. For this reason, when I go to the doctor to get rid of the remaining medicine, I want to take it to the end when prescribed. I also want to know who is taking medicine in my family so that I don't forget to take it.

Pharmacists, being compensated through the new dispensing fee, are required to educate patients on their adhesion to the use of prescribed drugs, and to inventory the levels of leftover drugs in outpatients. Recently, Fukuoka City Pharmaceutical Association started a campaign for regulating leftover drugs (Setsuyaku Bag Campaign). Thirty-one pharmacies joined the campaign. Pharmacists distributed convenience bags, called 'SETSUYAKU-BAG.' The patients put their leftover drugs in the bags and brought them to community pharmacies. The pharmacists inventoried the returned drugs and reported their results to the doctors. The doctors adjusted the prescriptions accordingly. We counted and analyzed old and new inventories. The number of leftover drugs was 252, for a total value was ¥839,655. Cost of leftover drug prescriptions could be reduced by ¥702,695, and the value of drugs thrown away was ¥94,801. In total, we could reduce the amount of leftover drugs by 83.7%. The cost of leftover drug for one dose package (ODP) is higher than that for non-ODP. However, there were no significant differences in results per age, sex, number and kinds of drugs, prescription days and premium contribution rate. These results suggest that prescription regulation by inventory of leftover drugs in community pharmacies could significantly reduce overall medical expenses. Further studies are necessary in order to account for patients' health, and to establish more efficient patient education to raise outpatients' adherence to the new programs.

３．Conclusion
 If the patient and the hospital were well coordinated, I thought that the remaining drug problem had not grown so far. In addition, medical care has developed so much that elderly people have long lived. Older people spend a lot of medical expenses before they die. This is unavoidable, but I thought that if people lived in the first place, there would be no medical expenses and no problems with remaining medicine. As I mentioned earlier, it has become a long life now. On the other hand, what about healthy life expectancy? Healthy life expectancy refers to the life expectancy of being healthy. In other words, if the difference between the lifespan and the healthy lifespan is large, medical costs are also incurred, so it is most important to live healthy so that it does not cause this problem. Even if you are ill, it is important to follow the doctor's instructions and prescribe.

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To face the stammer

~ to reduce the damage caused by stammer ~

5406 Reiya Ohashi

Abstract

First of all, my motivation to do this research is largely related to my own stammering.

I think research on this subject can only be done by the same stammer. It means that the

suffering of stammering is hard to understand for those who are not stuttering. In fact,

there are essential things such as suffering and mental damage caused by stuttering that

can only be understood by a stutterer.

In addition, I started this study because I thought that it would be possible to reduce the

mental damage of other stutterers because the same stutterers could understand the

stuttering.

1. Introduction

The purpose of this study is to devise a solution to reduce as much as possible the mental

damage of people suffering from stuttering, and to propose or disclose it.

However, since I am not an expert and do not have specialized knowledge, as a stuttering

person, I devised my own solution to alleviate the troubles caused by the stuttering of

many stutterers. I want to go.

This research will mainly use the Internet.

In the future, I will also search for related documents, but I want to use the latest

information as much as possible, so I will not use it if it is not found or it is old.

Since there is a variety of information on the Internet, always compare it with other

information before using it. If there are few information sources and it is difficult to

compare, hypotheses will be established and used.

2. Discussion and implications

Symptoms

(i) Language symptoms

Stuttering is one of the utterance disorders where the spoken language does not come out smoothly.

The non-fluency characteristic of stuttering is that one or more of the following three can be seen:

- Repeating initial characters (sequential).

- Initial letter expansion (progression)

- Let's speak without words (difficulty, block)

(ii) Concomitant symptoms

An action to get out of the stuttering state is to be worn. There are various things depending on the individual, such as blinking, swaying the body, shaking hands and feet. Even if there is an effect at first, the effect gradually fades and other actions are sought. There is a high possibility that only the motion will eventually remain, causing the motion to occur every time the sound is stuttered, and causing the person to suffer more than the sound.

Classification and cause, prevalence, prevalence

(1) Developmental stuttering

It begins suddenly without any obvious cause in early childhood

(2) Acquired neurogenic stuttering

Caused by brain damage such as cerebrovascular disorder or head injury

(3) Acquired psychogenic stuttering

Expressed by psychosocial causes

About 90% of the stuttering is said to be developmental stuttering.

Characteristics of developmental stuttering

- Easy to express when an infant begins a complex utterance of two or more words

- Most cases develop between 2 and 5 years old (may occur after elementary school)

- The incidence is about 5%

- It is said that there is no difference in incidence by country or language

-Prevalence (probability of stuttering people in the entire population) is about 1%

- The male / female ratio is about 4: 1, which is common among men, but there is not

much difference between men and women in early childhood.

Factors of onset (hypothesis)

○ Constitutional factors

○ Developmental factors

○ Environmental factors

In the following, stuttering is referred to as developmental stuttering.

Development and development of developmental stuttering

- Many developmental stuttering begins with a light repetition.

- Characteristics are that there are times when you can speak well (sometimes say "there is a wave").

- It is said that about 70-80% will be cured naturally.

- Symptoms gradually become fixed in the remaining 20-30%, and the time to talk comfortably decreases.

- If the symptoms progress further, the first word often does not appear even if you try to speak.

Treatment

Currently, speech therapists and clinical psychologists advocate various treatments on the Internet. Some sites have detailed treatment procedures. However, since it is a reality that the actual effect is not described in detail, it is not known whether the effect is present.

However, why are treatments proposed to have a certain effect like this? Even with modern medical care, the cause of this stuttering disorder has not been elucidated. There are so many treatments that are considered to be less credible on the Internet, and they cannot be quoted, so I will not list them here.

Problem

• suicide by bulling

3. Conclusion

Is there anything that can be done when people who are worried about stuttering exist not

only in Japan but also in the world? However, I think that the heart of a stutterer can be saved other than treatment. There is a fact that stuttering is difficult to cure. On the other hand, there seems to be a case where the stuttering sound has healed suddenly. In addition, some people may have healed after trying the treatments proposed on the Internet. However, as I do, there are people who have no effect and can't heal. So what I want to insist is "change stuttering into laughter". I think there are a lot of people who have been laughed when a stuttering comes out in front of the audience. It is hard to laugh. However, I try to laugh there. Try to laugh around. Then I felt that my feelings naturally became lighter. I think this is very effective for adolescent children. By all means, if you have a hard time, you can try it as much as possible.

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・ Gathering of stuttering

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·paper

Functional lateralization of speech processing in adults and children who stutter

<Original text>

https://www.frontiersin.org/articles/10.3389/fpsyg.2011.00070/full

The connection between knee and waist

5407 Kanai Daiki

Abstract]

The body part that is often injured in Japan and the world as well as the central middle is the waist. There are various reasons for this, such as sitting too much and lack of preparatory exercise. There are many types of knee injuries, but they have many aspects such as overuse and muscle inflammation. What I thought was that there was a relationship between hip injury and knee injury. There are many causes for each, but many of them are caused by muscle balance and inflammation. Then, you can prevent multiple injuries by training one muscle. Therefore, this time we will combine effective training and stretching for back pain and knee pain so that many people can easily work on it.

Two injuries were investigated to find out more knee and lower back injuries and their causes. As a result, it was found that what is common to the two injuries is that it is effective to train the trunk.

Therefore, in the end, there were many combinations of training for the trunk and methods for effectively training the trunk in daily life.

①Introduction

Many hips and knees have been mentioned as places in Japan that are prone to injury or pain in recent years. I also experienced pain in my knees and had a hard time. I thought that if I could prevent these two injuries, I could prevent the pain of many people from athletes to the elderly.

The purpose is to investigate the cause of lower back injuries and pain, find out the relationship between the two injuries, eventually find a way to prevent the two injuries at

the same time, and to think and spread training that many people can do smoothly is there.

②Discussion and implication

Major knee pain and causes

Osgood: A phenomenon in which the growing cartilage part in the tibia is detached when the patella tendon connected to the quadriceps pulls the tibial nodule connected to the knee.

だいたいしとうきん
大腿四頭筋
だいたいこつ
大腿骨
しつがいこつ
膝蓋骨
けいこつ
脛骨
しつがいけん
膝蓋腱
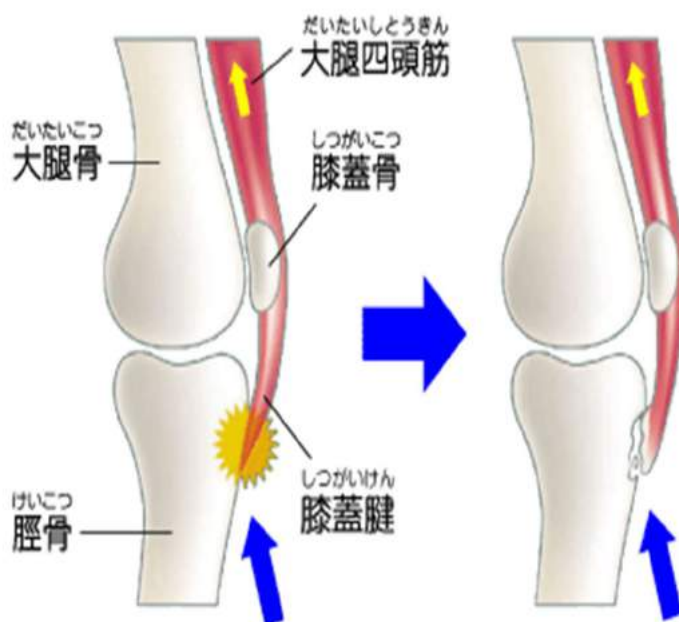
https://www.joa.or.jp/public/sick/condition/osgood_schlatter.html

Runner knees Failures caused by overuse of knees during running

腸脛靭帯
Intestinal shin ligament

腸脛靭帯
Intestinal shin ligament

https://sportsnomori.com/injury/running-knee.html

Jumper knees　　This is often seen by players who often jump

　　　　　　　　Pain felt at the lower edge of the knee plate is patella ligament

Ankle foot inflammation　　This is caused by stretching or excessive movement, causing

inflammation. Pain inside the knee
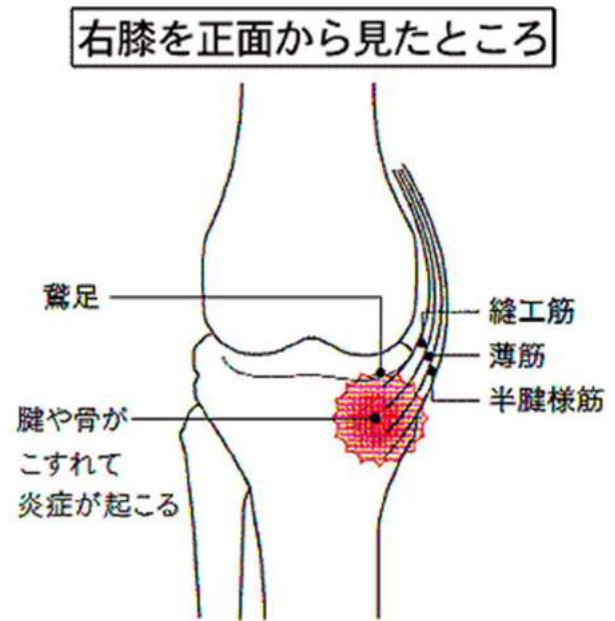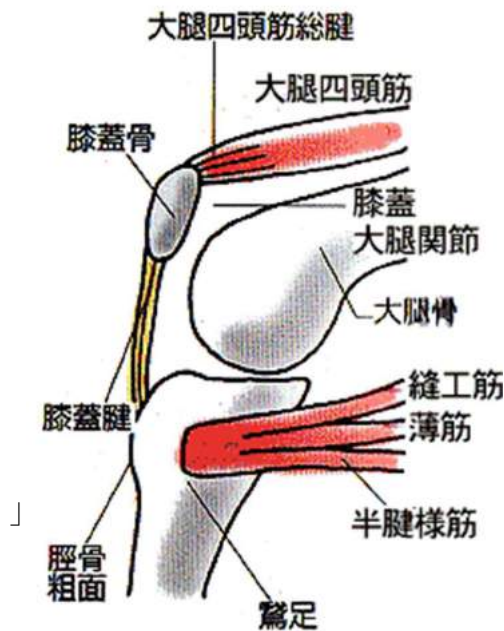
Vocabulary

大腿四頭筋→Quadriceps　膝蓋骨→Patella tendon

大腿四頭筋総腱→Quadriceps total tendon　大腿骨→Femur　膝蓋腱→Patella tendon

脛骨粗面→Tibial rough surface　鵞足→Foot

半腱様筋→Semitendon-like muscle　縫工筋→Sewing muscle

Backache

The low back pain referred to in this study, refers to rather than "sports injuries" such as bruises, caused by repeating a certain period of time the same operation of the "sports

injuries"
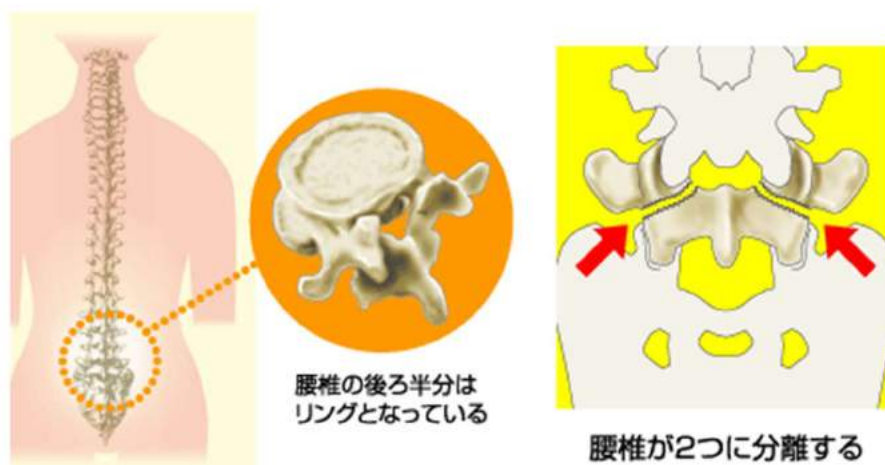
Example: Lumbar spondylosis

 A case in which a crack occurs due to repeated rotation in the rear part of the lumbar spine in the center of the waist. Symptoms occur when numbness or pain sways.

③Conclusion

   With regard to lower back injuries, it was found that there were many injuries such as sports problems caused by repeating the same action. Considering why hip injuries and sports injuries are frequent, excessive twisting and warping were cancerous. One factor that cannot prevent them is the weakness of the trunk. If your trunk is weak, you will not be able to maintain the correct posture even when you are sitting, walking, running, or performing any movement that is indispensable in your life, causing back pain. .

 Next, it was found that knee pain often occurs due to excessive load. Although it is not a direct factor, the trunk is weak and the axis is shaken, overloading when running or going down the stairs, leading to obesity, increasing the burden on the knee. Therefore, it can be said that it is important to train the trunk. If a large burden is continuously applied to the

knee in this way, the knee injury called osteoarthritis of the knee leads to a disorder.

Therefore, I thought that the trunk should be strengthened to prevent both low back pain and knee pain at the same time.

In the first place, the trunk is the upper part of the diaphragm, the back of the abdominal transverse muscle is the back side, the multifidus is the part surrounded by the pelvic floor muscle.

Here is a research proposal. It is effective means to increase muscle mass by performing muscle training, but it takes time, so it is good to propose a method to make effective use of existing muscles by scene '' Thought.

The first is when performing trunk training.

First of all, before starting workout, we will breathe to make the trunk easier to work, which is called draw-in breathing. The method is to inhale the air slowly to inflate the tummy and then deflate while exhaling slowly. The merit of this method is that it can effectively use time and train efficiently.

Next is the order of training.

If you train from small muscles, fatigue will accumulate and you will not be able to stimulate large muscles well. Also, in training, the first thing is the most effective, so work in order from the one with the highest load.

And do a systematic stretch after training. As a method, do not use recoil, weaken, relax and do natural breathing. By doing so, muscle recovery can be accelerated.

The last way to continue training.

I recommend using the smartphone app "My muscle training". The app features a list of trainings to be performed that day and the remaining number of trainings. When the weight and the number of times are input, the estimated RM is obtained. It also has a graph

function and a quick recording function.

The following is a scene where the trunk is trained other than training.

When you are sitting, stretch your back and stretch your chest, and dent your stomach.

When you are on the train, hold on to the hanging leather and lean forward slightly. It is even more effective to lift the heel a little.

When working at desk, work while riding a balance ball.

Use the stairs to go upstairs. At that time, be aware that the knee should be raised as high as possible.

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スポーツの森

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Japanese Orthopedic Association

日本整形外科学会　腰痛

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All About Beauty Where is the trunk

All　About Beauty　体幹はどこ

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The right way to stretch

ストレッチの正しいやり方

https://stretchpole-blog.com/trunk-of-the-body-10247

Official textbook for sports medicine official approval Japan Sports Medicine Examination Organization

スポーツ医学検定公式テキスト　一般社団法人　日本スポーツ医学検定機構

<center>Barrier for medical care children to go to school</center>

5408　Koki Kamimura

① Introduction

　　When collecting information about social issues in setting the theme, I saw the word medical care child. Medical care children are children who need medical care in their daily lives. They need to install respiratory equipment or pass a tube through their throat when eating. . In recent years, the proportion of medical care children is increasing despite the declining birthrate in Japan. The background is medical progress. Medical progress have helped babies who previously died shortly after birth. This percentage is increasing. It seems that there are many people who cannot get enough education because such children have difficulty even in daily lives. I tried to find a way to support the education of such people.

　　I used the Internet mainly as an information gathering tool. There are previous studies and papers on medical care child, so I used them.

　　First, I investigated the current state of medical care children. At this stage, the definition of medical care child was not clearly defined, so I started collecting information after setting it.

② Discussion

　　As I mentioned earlier, the purpose of this study is to find ways to support education for medical care child. Medical care child always need somebody's continuous support, so we would like to consider ways to minimize the burden on such supporters. This research can promote education for medical care child. In addition, we can promote school attendance of children who want to go to school while having disabilities. In order to do research that will help children who want to go to school, there is no particular research on correspondence or visiting education.

③ Implications

　〇What is medical care child?

・ Children who need medical care in their daily lives. The number of such children is increasing year by year as medical development and the expansion of NICU have helped newborns who would have died shortly after birth. (Figure below)

↑Trends in the number of children who need medical care（from MEXT）

○ Examples of medical care

・Tube feeding (nasal cavity, gastrostomy, intestinal fistula, etc.)

・Central parenteral nutrition (IVH)

・Aspiration (oral cavity, nasal cavity, airway, etc.)

・Suction from tracheostomy

・Management of tracheostomy

・Ventilator management

・Management of oxygen therapy

・Urination, etc.

○ Problems that medical care children have in school

　Assistance from the country for medical care by educational institutions is very thin. Even if medical care children are accepted at preschool educational institutions such as kindergartens, there are very few kindergartens or nurseries that accept such children because there is no financial support from the country and there are no special subsidies. . Even in public elementary and junior high schools, the environment is not well maintained for medical care children. There are barriers to attending school other than financially, such as requiring nurses with specialized knowledge to attend medical care children. In addition, even in special support schools where nurses are stationed, there are cases where parents are required to accompany parents who have severe disabilities, such as children who require ventilators. The walls are very high. In the past, a proposal to relax regulations to allow visiting nurses to visit

schools was proposed as a project in the National Strategic Special Zone, but it was abandoned because of the problem of Kake Gakuen.

○The Burden on medical care child

As described above, there are many problems in attending school for medical care children. Therefore, at present, the burden on parents of medical care children is very heavy. Naturally, care is needed without taking your eyes off, so you won't be able to work or even go out. Although there is an option to send medical care children to school, there are few academic institutions that accept them. Even if a medical care child is allowed to attend school, a parental attendance is essential. Since teachers at educational institutions do not have specialized knowledge of medical care, children are taken care of by their parents. Even in special schools where nurses are resident, children who need complex care due to severe disabilities may need to be accompanied by their parents.
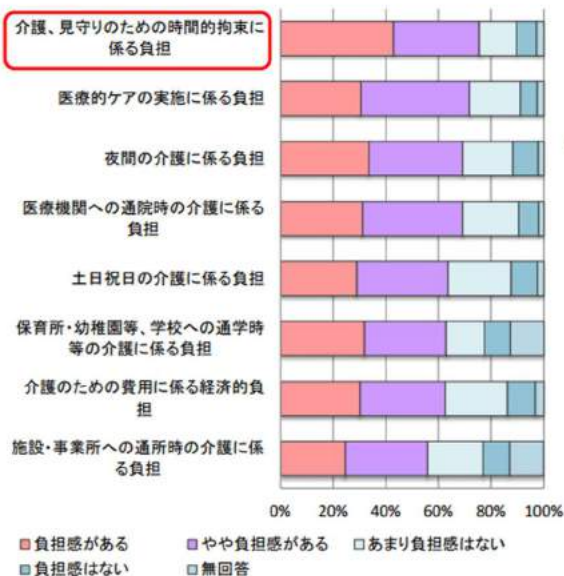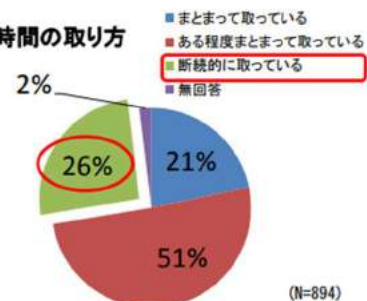
平成27年度厚生労働省社会・援護局委託事業「在宅医療ケアが必要な子どもに関する調査」速報値

④ Conclusion

1 Securing human resources for medical care

Since fiscal 2016, the government has set up a budget to subsidize the local government for a portion of the cost of 1,200 nurses in elementary and junior high schools to support medical care children. However, in the first place there are few nurses and there are some areas that cannot be dispatched to education sites. For simple medical care, I think the rules should be revised so that teachers who have received guidance can also do it.

2 Nurse resident

As mentioned earlier, there is no ongoing discussion on the case of nurses being stationed at school. By promoting the assignment of personnel with specialized knowledge to schools, the environment in which medical care children can attend school can be improved. I think that for children who need complex care, guidance to nurses should be strengthened, trained, and cared for.

3 Educational institution understanding

  The current situation is that educational institutions have little understanding of medical care. As the number of medical care children increases, medical care is now being carried out in the community. Due to advances in medical technology, there are many cases where human care is not required, although it is called medical care. Currently, the school principal is responsible for medical care at school. Therefore, there is little acceptance of medical care children. We believe that educational institutions' understanding of the safety of medical care will make it easier for children with medical care to attend school.

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Cancer test drug using microRNA

with reference to previous research

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Abstract

  The reason I chose this theme is that one out of every two Japanese people will get cancer, and if it can be detected early, surgery will be easier and the death rate from cancer will be reduced. Because I thought that I was allowed to We also thought that the medical costs that would increase year by year could be reduced. I learned that research on ultra-early detection of cancer is now underway. And I decided that the purpose of this study was to propose a cancer screening drug that was simple and less painful and painful. Currently, PET / CT is the main cancer screening method. This test can be detected early because it can be found in about 1 cancer, so-called stage 1. However, ultra-early detection techniques that can detect cancer even in stage 0 are currently being studied. It can be found mainly from blood, smell, saliva, etc. Among them, I was interested in a test method using blood (body fluid). Therefore, we propose a method using an autonomously driven microchip. At this time, a small RNA library is used as a reagent. The challenge of this research is that I don't know if I can really find cancer this way.

1 Introduction

  The purpose of this study was to create a simple cancer test drug that would be less painful and less painful. If this research is successful, cancer can be detected very early, and the physical and mental burden of surgery on affected individuals can be expected. And cancer mortality can be greatly reduced. Moreover, since it is expected that the operation will be simpler than the present, it is possible to minimize medical cost savings and human and social losses that are expected to increase year by year. In this way, we thought that it would have a positive impact on the Japanese economy as well as the burden on affected people.

2 Discussion and implications

  Currently, PET / CT is being performed. *
Many "cancers" have the property of consuming 3 times more glucose than normal tissues. Therefore, when a test drug (FDG) similar to glucose is injected intravenously, a lot of FDG gathers in the "cancer" lesion. Because this FDG is labeled to emit radiation that can be detected with a PET device, scanning can detect a "cancer" lesion from outside the body. In addition, CT images taken at the same time show exactly where the cancer is located in which organ. In reports such as newspapers, there are articles that PET / CT testing is not useful for early detection because of its low cancer detection sensitivity. In fact, in order to detect with PET / CT, "cancer" needs to grow to a certain size (0.5cm to 1cm in diameter), so discover small lesions that can only be seen with a microscope. Is impossible. However, PET / CT, unlike the examination performed with a microscope, can be examined in an hour and a half to burn "almost whole body (trunk) cancer". The "cancer" of about 1 cm that is often found in PET / CT

is almost in the stage 1 state.

3 Conclusion
  However, I thought that the discovery in stage 1 was not enough. For cancer patients, many young people want to return to work immediately after surgery, and conversely, in order to minimize the physical burden on the elderly and children, they should be found in stage 0.
Therefore, I propose a method using a microchip for microRNA extraction announced by RIKEN.

The microchips developed by RIKEN are as follows.
http://www.riken.jp/pr/press/2012/20121108/

It has been found that some short single-stranded microRNAs (miRNAs) of about 8 to 24 bases increase in blood and body fluids as cancer, Alzheimer's disease, Parkinson's disease, diabetes, etc. progress. I came. For this reason, miRNAs with a specific sequence are attracting attention as very early diagnostic markers for various diseases, and detection techniques for these markers are expected from medical institutions and research institutions. However, detection methods using conventional PCR, sequencers, and microarrays meet the requirements of high sensitivity and high throughput, but the detection time is from several hours to several tens of hours. Technology is required.
Research methods and results
The research team is a type of silicone rubber that is widely used in contact lenses, medical devices, waterproofing agents, lubricants, heat-resistant tiles, etc. due to its good biocompatibility and ease of processing.). Since PDMS has the property of taking in air, the power of the degassed PDMS to take in air can be used as the power source for the pump. First, a DNA fragment that specifically binds to the miRNA to be detected is immobilized on a glass substrate. Next, place PDMS with three sample inlets, one outlet, and a microchannel with a 100 μm wide and 25 μm high cross section (Figure 1). When the sample is supplied from the inlet to the microchannel using the force that PDMS takes in air, only the miRNA to be detected forms a complex (hybridization) complementary to the DNA. Subsequently, when a fluorescent material and a cross-linking agent that connects the fluorescent materials are dropped from separate inlets, the fluorescent materials are efficiently connected at the confluence and the fluorescent signal is amplified (Fig. 2). The detection sensitivity has increased by three orders of magnitude compared to the developed method. In fact, a model sample that is well-known as a cancer diagnostic marker and that contains miRNA (miR-21 * 3) consisting of 22 bases dissolved in 0.5 microliters (μl) of 0.25 atmol (amol) I tried to detect miR-21 in just 20 minutes. As a result, it was found that the developed autonomous microchip can detect very small amounts of miRNA (Fig. 3).
Future expectations
The research team realized the detection of miRNA, which took a long time, on a microchip in a short time without the need for external driving force. This autonomously driven microchip can also be used at home and in developing countries. In the future, if this microchip is further improved in accuracy, simplification of measurement procedures, confirmation of reproducibility, and downsizing of fluorescent microscopes for observing fluorescent substances, various diseases will be performed "on the spot"

in a short time. Therefore, it is expected to be diagnosed very early.

Original paper information
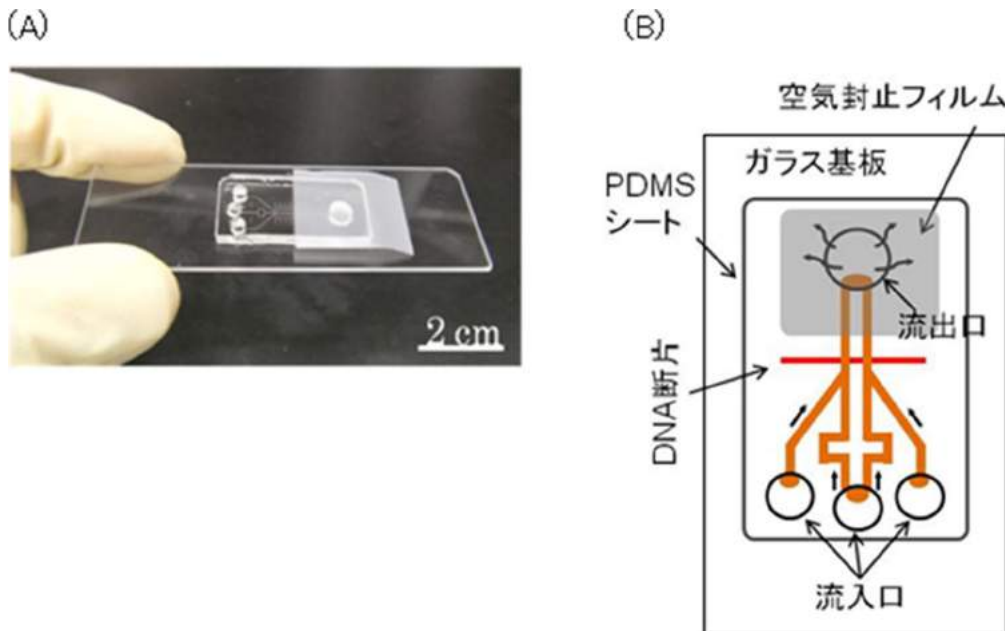
A) Microchip photo

A PDMS chip is placed on a glass substrate and fixed with an air-sealing film, and the sample outflow port is hermetically sealed, so that the degassed PDMS draws out the air intake force.

(B) Schematic diagram

Samples and fluorescent materials containing miRNA are dropped from the left inlet, and a cross-linking agent is dropped from the central inlet. From the right inlet, a reference solution (control) containing no miRNA is dropped instead of the sample to detect the background.

I focused on miR-21, one of the miRNAs. miR-21 targets tumor suppressor genes and is thought to promote cancer cell growth by inhibiting their functions. As a result of detailed analysis, the difference in the length of miR-21 is due to the addition of adenine (adenylation) to the 3 'end, and in addition, degradation of adenylated miR-21 is promoted by nucleolytic enzymes It turns out. Many cancer cells express miR-21 in large quantities. This is because the "degradation mechanism of adenylated miR-21" does not work well, and the balance between degradation and stabilization is lost. It is thought that 21 was accumulated abnormally. This led to the conclusion that it can be used as a marker for cancer.

The premise of this research is that miR-21 samples are placed in a low molecular weight library and miR-21 can be detected with the above microchip.

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マイクロ抽出場によるヒト腫瘍細胞由来のマイクロ RNA 抽出法

岡本 行広，日比野 理人，加地 範匡，渡慶次 学，馬場 嘉信

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がんとマイクロＲＮＡ～がんの病理診断及び治療マーカーとなりえるか？～

https://www.jstage.jst.go.jp/article/ymj/62/4/62_191/_article/-char/ja/

発がんに関わるマイクロ RNA（miRNA）が分解される仕組みを解明　理化学研究所

http://www.riken.jp/pr/press/2014/20140819_1/#note6

可搬型のマイクロチップで極微量マイクロ RNA を高速検出

－がん、アルツハイマー病、糖尿病などの超早期在宅診断に威力－

http://www.riken.jp/pr/press/2012/20121108/

https://shingi.jst.go.jp/past_abst/abst/p/14/1407/riken1-1.pdf

Using paper in the architecture

～Thinking about a building from an advantage of the paper～

1. Research Summary

  At first of my research, the advantages in the architecture which I came up with were lightness and easy to process. In the research, I found the advantages of "high strength" and "high ventilation". There are two types of paper which were Japanese paper and Western paper. Therefore, we compared Japanese paper with Western paper. The main difference between Japanese paper and western paper is in the structure. While Western paper has a structure in which short fibers are laid down, Japanese paper is made in a way that opens many small holes that can be seen with a microscope called "*nagashisuki*" from the background that has been used in calligraphy. It has a structure that absorbs well. The difference in strength lies in the difference in this structure. Western paper is simply laid out with short fibers, but Japanese paper is very strong because the fibers are intertwined by paper making. For this reason, in this research, we decided to proceed with research on the hypothesis that Japanese paper was used. However, for using in developing countries, it is necessary to be able to produce at low cost, but to make Japanese paper (220 g), it was found that 5500 g of raw wood was necessary, and research was advanced in a direction to increase the strength of paper . As we collecting the information, we found that there was a person named Shigeru Ban who was famous architect. Mr. Shigeru's method is to use paper tubes for building, mainly used as monuments, temporary housing, and temporary shelters. Since the purpose of use is consistent with this research, the content of the research has been changed from here to a policy of improving the construction using paper tubes for use in developing countries. The ability of bearing is essential to use paper in ordinary residential buildings. Therefore, we examined the use of high strength truss structure, shell structure, and membrane structure. I want to think about architecture that makes use of these elements in the future.

2. Research purpose

  I was studying the need for paper in learning before I started this research. In the study, we compared machine records with paper records. The comparison compared the advantages of paper and machine recording. In the comparing, we found that paper is easy to process and light. Therefore, we learned that the benefits were being used as materials for temporary housing in the area immediately after the earthquake, and started this study with the aim of eliminating the shortage of houses in developing countries.

3. Research method

The information for this research is mainly from the Internet and books. I also learned about Shigeru Ban's architecture in a newspaper article.

4   Research results

I came up with the advantage of "lightness" and "easy to process". There are two types of paper which are Japanese paper and Western paper. When using paper as a building material, strength is required. Therefore, we compared the strength of Japanese paper and Western paper. The main difference between Japanese paper and Weston paper is in the structure. Western paper was born for using in printing, so it is easy to carry ink and has a smooth surface. In order to bring out this feature, it has a structure in which short fibers are spread. On the other hand, Japanese paper has a structure that absorbs ink well by making a lot of tiny holes that can be seen with a microscope called "*nagashisuki*" from the background used in calligraphy. The difference in strength lies in the difference in this structure. Western paper is simply laid with short fibers, but Japanese paper is very strong because the fibers are intertwined by papermaking. For this reason, in this research, we decided to proceed with the research on the premise of using Japanese paper. However, when making Japanese paper, if a raw tree (such as firewood) is 100, it becomes white skin 8, and half of it becomes 4 and only a small amount of this is 4 paper. Necessary, if converted to wood, 25 kg of raw wood will be used. If expressed in basic units, it becomes 2 kg of white skin / kg of Japanese paper product and 25 kg of raw wood / kg of Japanese paper product. This was considered impractical when considering the cost, and research was conducted on the premise of using paper. In the process of collecting information, it was found that there was a person named Shigeru Ban who made the same research and made a building. Mr. Shigeru's method is to use paper tubes for construction, and it was mainly used as a monument, temporary housing, and temporary shelter. Since the purpose of use of paper is consistent with this study, the content of the study was changed from here to a policy to improve the construction using this paper tube so that it can also be used for ordinary buildings.

As an element that needs to be considered when constructing ordinary buildings, the strength of the building needs to be high to some extent. Since many of the building materials are rectangular, they are basically vulnerable to long side forces (called bending moments). Therefore, the structure is devised to make it hard to break. There are three main ways to make it harder to break.

First, it is a type that reduces the bending moment. This type makes it difficult to break by converting the bending moment into axial force (force in a direction that is difficult to break) or in-plane force. Structures using this type include a truss structure, an arch structure, a shell structure, and a membrane structure.

 1. Truss structure

The truss structure is a structure used mainly for gymnasiums, domes, and bridges. The nodes of the truss structure are pin joints. Since both ends of the member are pin-jointed and triangular, only an axial force is generated even when an external force is applied, so that the force can be supported efficiently.

Parallel truss

Roof truss

Truss structures can be divided into many types depending on how the triangles are assembled. The most common truss structure is the Warren truss.

Below
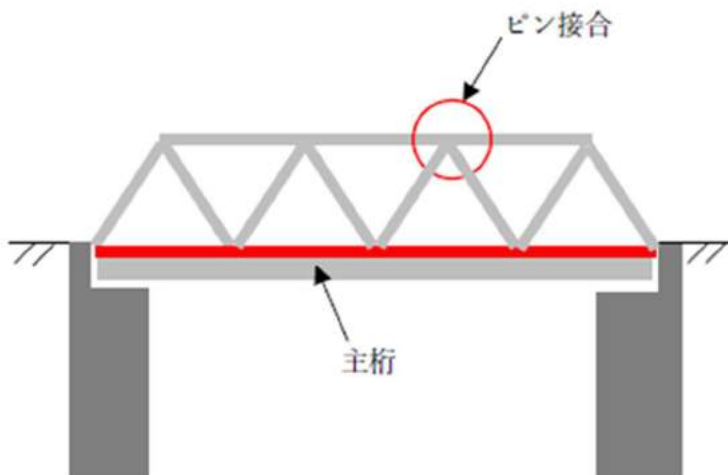
A truss bridge is a structure that clearly shows the type of truss. The building is hidden behind the ceiling and walls, and the structural materials are not visible. The truss bridge is obvious because the structural members directly represent the truss structure.

The figure below shows the platform structure.

ピン接合

主桁
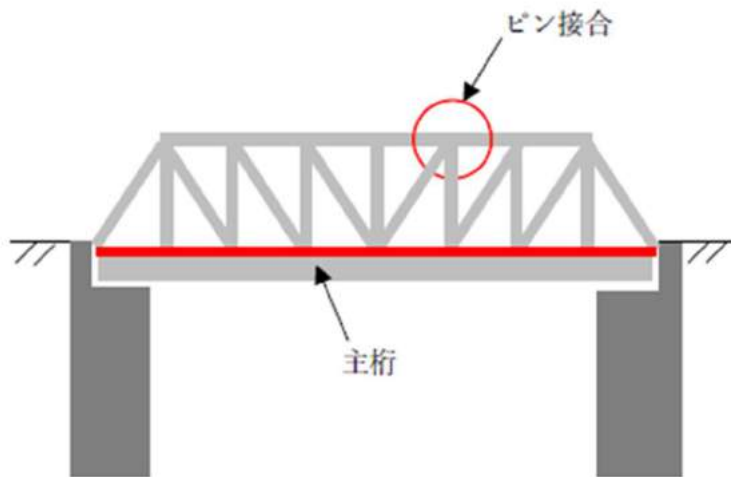
As a merit of the truss structure, the truss uses a pin joint for the member joint. And since it is a triangular shape, only axial force is generated in the member.

荷重

軸力

荷重

曲げモー
メント
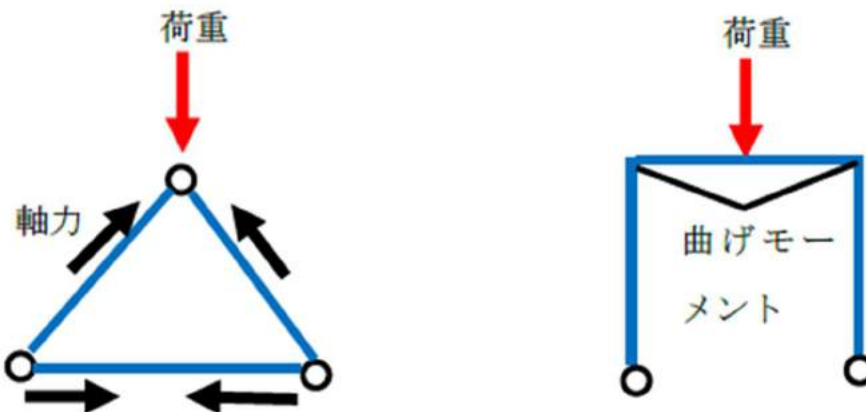
For example, if a force is applied to a quadrangle, the quadrangle will bend under the force. On the other hand, the triangle is not "bent" with respect to force, but is deformed to "shrink" or "extend", and a bending moment acts on a member in which the deformation "bend" occurs. However, only the axial force acts on the deformation that "shrinks and stretches". Even if the members have the same size, the latter is overwhelmingly advantageous in a member in which a bending moment acts and a member in which only an axial force acts. That is, an efficient cross section can be selected for a member that acts only on the axial force (the member can be made smaller).

Next, there are two disadvantages of the truss structure. First, the construction is troublesome. Since the truss structure requires members such as upper chord material, lower chord material, bundle material, and diagonal material, the points where the members cross each other tend to be complicated. The second point is that the beam as a truss frame is large. In the truss structure, although the stress acting on each member is small, the height is increased accordingly. In general structures, the truss structure cannot be adopted due to the limited floor height.

2. Arch structure

An arch is one of the structural forms used in architecture and civil engineering structures. The arch has a characteristic shape that draws a curve. This characteristic shape is not just a matter of appearance, but has a smaller bending moment than a horizontal beam, and a compressive force acts instead. For compressive force, materials such as stone, brick and concrete are suitable. Look at the diagram below. In the arch structure, a force in the direction of the arrow acts on a load from above. This is a force that pushes the member, that is, a compressive force. Any material tends to have a relatively strong tensile force and compressive force compared to the bending moment and shear force (however, the compressive force should be careful of buckling). Can withstand long spans. Since a compressive force acts, a member strong against compression is used.

3. Shell structure

A structure that uses the mechanical properties of curved surfaces. Egg shells and shells have structures that retain their shape even when there are no hard supports like bones inside. Such a curved surface structure has considerable strength. The shell structure is a structure system that creates this curved structure with a thin film and supports its own weight and external force with its three-dimensional rigidity. In this structure, even if the force applied to the surface is in the vertical direction, all the force is converted into a horizontal force, so the strength is high.

4. Membrane structure

The film structure is a kind of shell structure and has several types.

・ Hanging structure

It is also called a suspension structure. A structure like a "tent" in which a mast is set up and a cable is stretched to suspend the membrane material from above. Some have roofs on strong walls and others, but others such as exhibition plazas, train station roofs, and stadium stands have no strong structure and allow free entry and exit. In addition, it has a wide range of uses, such as temporary warehouses and event venues (close to tents) that take advantage of ease of setup. Examples include the Munich Olympic Stadium and parks (designed by Fly Otto).

・ Frame structure

Create a framework such as a steel frame or a wooden frame, and stretch the membrane. It would be better to imagine a "lantern". The Beijing Olympic Swimming Stadium "Beijing National Swimming Center" at the Beijing Olympics creates a space surrounded by water bubbles by inflating a steel frame with a translucent film. There are many examples of train station stadiums and stadium canopies with membranes attached to simple frames.

・ Air film structure

It is also called an air-supported structure or a pneumatic structure. The roof is composed of membrane material or membrane material and reinforced cable, and is supported by raising the atmospheric pressure slightly higher than the outside. It looks like a large wall and looks like a

large "balloon". However, the balloon is a sealed structure that is filled with air and plugged, whereas this structure clearly maintains the atmospheric pressure in the film by constantly supplying air into the film with a blower or the like. It's different. The material used in this structure is particularly required to be airtight. It can be used as a roof for indoor stadiums because it can create a vast column-free space. There are examples such as Tokyo Dome (Tokyo, Japan) for lifting the roof with a pressure difference between inside and outside, and Allianz Arena (Munich, Germany) as a type with rigid walls. Considering the architecture with these structures, the arch structure was not suitable for residential construction, and it was concluded that it would be better to proceed with the research using the truss structure and the shell structure arch structure.

As a characteristic of paper, the chemical effect is demonstrated for a certain period of time by soaking the chemical into the paper itself. As an example, there is a product that has a function of reducing the odor of ammonia filling the toilet by including a deodorant component in the core of the toilet paper. Because of this characteristic, it is possible to prevent epidemics and mosquito-borne infections that are prevalent in developing countries by impregnating medicinal ingredients and mosquito repellent ingredients. However, this method only lasts for a certain period of time, so in future research I would like to proceed with research on penetration methods and paper processing methods that will last for a long time.

5　References

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Penetration of biopharmaceutical

~Promotion of subsequent product biosimilar~

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Abstract

In recent years, medical technology has made tremendous progress. Among them is biotechnology. I was interested in this and focused on biopharmaceuticals with further themes. There are two major research achievements.

The first is about biopharmaceuticals. Biopharmaceuticals are drugs made by applying biotechnological techniques and are based on proteins. Currently, the biopharmaceutical market size has reached 16 trillion yen, accounting for approximately 22% of the total in 2013, and is expected to expand to 27%, 30 trillion yen in 2020. The merit of biopharmaceuticals is high safety and future.

The second is a comparison with small molecule drugs. Biopharmaceuticals are extremely expensive to develop and use compared to small molecule drugs, making future development difficult.

Based on these, my conclusion is that "Currently, it is difficult to make biopharmaceuticals commonly used in Japan". Therefore, we suggest that we should replace biosimilar from them, which is known to a subsequent product of biopharmaceuticals, cost and usage issues. Biopharmaceuticals are extremely expensive to administer, so no matter how effective they are, it is difficult to use them by anyone other than the wealthy. In comparison, biosimilar are pharmaceuticals that take quality, effectiveness, and safety into consideration, compared to the already approved original biopharmaceuticals. However it is still expensive, so I finally suggest that government should approve biosimilar for use. Since this is cheaper than biopharmaceuticals, it was judged that it is easy to do.

1, Introduction

○Background and Purpose

 Nowadays, technology makes advances and many achievements in medical technology such as biotechnology.

This time, my research is focused on biopharmaceuticals. The reason is that my future dream is to become a pharmacist, and I am interested in biotechnology which is the latest medical technology, when I am looking for research themes related to it in a comprehensive study time. Then, when I examined it in detail, I found a drug called "Biopharmaceutical" that uses biotechnology. I was interested in how to apply such complex technology to medical treatment, so I determined this theme.

The final goal is to make biotechnology commonly used as a biopharmaceutical. If it is difficult, I suggest another treatment. Currently, it is said that biopharmaceuticals are not so popular in Japan compared with other developed countries. Therefore, I would like to propose what is necessary to make it commonly used in Japan in the future, and if this is difficult to make it commonly used, we would like to promote the making alternative things commonly used.

○method

Mainly uses website (Internet) and books.

I use the website as a highly credible site such as the homepage of a facility that focuses on biotechnology (medical, biopharmaceutical) and other pharmaceutical information. I use books, especially pamphlets to add the information. The collected information is below.

(1) About biopharmaceuticals and biosimilar

(2) Comparison between biopharmaceuticals and general drugs (small molecule drugs)

2, Discussion and implications

(1) About biopharmaceuticals

  Biopharmaceuticals are generic names for pharmaceuticals (from Gene Techno Science Co., Ltd.) made using advanced biotechnology such as genetic recombination and cell fusion. Actually it is a protein. This technology is used as a therapeutic agent for various diseases. Specific examples include "human insulin" which is a therapeutic agent for diabetes and "interferon" which is a therapeutic agent having antiviral / anticancer effects. Currently, the biopharmaceutical market size has reached 16 trillion yen, accounting for approximately 22% of the total in 2013, and is expected to expand to 27% or 30 trillion yen in 2020.

One of the merits of biopharmaceuticals is high safety. The reason is in the manufacturing process. Biopharmaceuticals are made from proteins (hormones, enzymes, antibodies, etc.), that is, they have little adverse effect on the body. In addition, biopharmaceuticals must satisfy a standard called GMP (Good Manufacturing Practice, a standard for manufacturing and quality control of pharmaceuticals and quasi-drugs) in order to ensure safety and effectiveness. Approximately 250 management tests must be conducted to meet this standard. Therefore, it can be said that the safety of biopharmaceuticals that have passed such tests are high.

Another advantage is high future potential. As I mentioned earlier, biopharmaceuticals have grown in size in recent years and are spending a lot of money. Therefore, future development is expected. In addition, since this drug also uses biological cells, it can be expected to have a therapeutic effect on intractable diseases such as cancer for which no therapeutic drug has yet been discovered.

Biosimilar is deeply involved in thinking about biopharmaceuticals. Biosimilar is a pharmaceutical that considers quality, effectiveness, and safety compared to the already

approved original biopharmaceuticals. This is similar but not identical to biopharmaceuticals. Because biopharmaceuticals have complex molecular structures and unique manufacturing processes, and biosimilar cannot make complete copies of biopharmaceuticals, but contain the same active ingredients as biopharmaceuticals.

Thus, biopharmaceuticals are one of the drugs that are currently attracting attention

(2) Comparison between biopharmaceuticals and general drugs (small molecule drugs)

  One of the characteristics of biopharmaceuticals is that it is one of high-molecular drugs. First, in many cases, drugs are called small molecule drugs because they are minute substances with only a few tens of atoms combined. Biopharmaceuticals, on the other hand, are drugs and macromolecular drugs that act by combining tens of thousands of atoms. As a result, biopharmaceuticals are complex and difficult to produce. There are also significant differences in the cost of developing new drugs. The development cost per drug for small molecule drugs is 10-30 billion yen, whereas biopharmaceuticals are said to require R & D investment of several hundred billion to 100 billion yen, several times that. It is increasing further now. In addition, biopharmaceuticals are difficult to use because of the high costs that users incur. Therefore, further development is considered difficult in Japan, which is experiencing economic difficulties.

3, Conclusion

My conclusion is "Currently, it is still difficult to make biopharmaceuticals commonly used in Japan". There are two reasons for this.

Firstly, they cost a lot. Biopharmaceuticals are more expensive in development and usage than general drugs.

Secondly, usage. Biopharmaceuticals are often used for diseases that are currently less effective with common drugs. Therefore, it is difficult to make it commonly used because there are few people who need it.

  As mentioned in the results, there are certainly many advantages to biopharmaceuticals, but there are also many disadvantages.

  Instead, a biosimilar is proposed. By using this as a substitute for biopharmaceuticals, costs can be reduced about 30% and safety can be maintained. However it is still expensive, so I finally suggest that government should approve biosimilar for use. Then, they expect financial aid from government. Since this is cheaper than biopharmaceuticals, it was judged that it is easy to do.

4, References

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http://www.jcrpharm.co.jp/bio/

株式会社ジーンテクノサイエンス

https://www.g-gts.com/business/#business02

○Book

・pamphlet

バイオ医薬品　医療の新しい時代を切り開く　IFPMA　IPMA

http://www.jpma.or.jp/medicine/bio/pdf/bio_01.pdf

バイオ医薬品とバイオシミラー（バイオ後続品）に関する **Q&A**

http://www.jpma.or.jp/medicine/bio/pdf/bio_03.pdf

Ministry of Health, Labor and Welfare

http://www.nihs.go.jp/dbcb/15rsforum/15rsforum-yamate.pdf

IFPMA JPMA

http://www.jpma.or.jp/medicine/bio/pdf/bio_03.pdf

<center>Scientific approach of harmony</center>

<center>～Harmony considered from waves～</center>

<div align="right">5412　Yusei　Tamura</div>

Abstract

　　Music has been such an amusement among people all over the world. Even there are many genres, naturally, all are based on enormous experiments and conclusions by ancient people in each region in the world and their wisdom.

　　Here, to establish one of the methods to create better modern music, I focused on just intonation, one of the wisdom of western ancient predecessors, and the harmonization regarded as comfortable in the entire world and attempt an improvement in the intonation. Also, as a current objective, to try on arrangement using microtone for the 27th subscription concert of Chuo Secondary School where I belong, I proceed discussion by expanding this method to understand in an original way.

Purpose

　As I said before, I view about a rational and intentional method of making "healable music" that is spreadable to the world and a way to let it be generally more offerable. I hope that this method would let each individual be lively and so the world economy and productivity would be vivid overall.

Procedure

　・using bibliographic survey

　・making samples and sound waves by MATLAB

　・taking contact with a professor in Tokyo University

Results

1. Examination of Harmony

Nowadays, equal temperament is generally used in instruments which has frozen pitch such as piano. Defining the frequency of A_4 as 440[Hz], each value of frequencies of pitch from A_4 to A_5 in equal temperament is defined as table 1.

On the other hand, just intonation defines frequencies in A major as table 2. The bottom row shows the difference from temperament.

Just intonation creates simple fractional ratio of frequencies unlike temperament, increases the frequency of synthetic waves of multiple sinusoidal wave, and so makes it easier to produce harmonious chord.

Figure 3 shows the waves of chord $A(A_4, C_5^{\#}, E_5)$ tuned in different intonation. $(I = \{t | 0 \leq t \leq 0.1\})$

Just intonation creates more regular wave, while temperament produces beat. This fact can be more explicit by spreading the interval I. (See figure 3')

However, in case of A $\dim_7$ $(A_4, C_5, D_5^{\#}, F_5^{\#})$ (figure 4, figure 4'), both intonation create similarly messy wave, and it is seemingly not much harmonious for the synthetic wavelength.

2. Reviewing Just Intonation

From now on, using programing platform MATLAB, I examined chords, play them alongside.

I prepared source codes makewave3.m, makewave4.m, and makewave5.m, which produce the sinusoidal wave and the sound of a single tone or chords. A value "har" is the frequency that defines a definable shortest period in input synthetic waves as its period, and dividing this "har" by the frequency of the root

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cf_{001}, multiple it by 100 is the return value "harc". We call this "harc" as "harmonic rate" (only in this context). Harmonic rate is solved in the following equation:

$$harc(cf_{001}{}^{-1}, cf_{002}{}^{-1}, cf_{003}{}^{-1}, \cdots) = \frac{100 \times cf_{001}{}^{-1}}{\left(LCM\ of\ cf_{001}{}^{-1}, cf_{002}{}^{-1}, cf_{00}{}^{-1}, \cdots\right)}$$

Using these codes, I examined chords.

2.1. Problems in Just Intonation

Just intonation is said to be effective in making good harmony. There are some chords that I thought can be better than in just intonation, however.

2.1.1. A$_7$($A_4, C_5^{\#}, E_5, G_5$)

The ratio of frequencies in just intonation is:

$$1: \frac{5}{4} : \frac{3}{2} : \frac{16}{9} = 36:45:54:64$$

Examining the following, we get figure 5. Harmonic rate is $\frac{25}{9} \approx 2.7778$.

```
>> makewave4(44100,440,440*5/4,440*3/2,440*16/9,1,1,1,1)
```

2.1.2. AdimM$_7$($A_4, C_5, D_5^{\#}, G_5$)

The ratio of frequencies in just intonation is:

$$1: \frac{6}{5} : \frac{45}{32} : \frac{16}{9} = 1440:1728:2025:2560$$

Examining the following, we get figure 6. Harmonic rate is $\frac{5}{72} \approx 0.6944$

```
>> makewave4(44100,440,440*6/5,440*45/32,440*16/9,1,1,1,1)
```

2.1.3. Adim$_7$($A_4, C_5, D_5^{\#}, F_5^{\#}$)

The ratio of frequencies in just intonation is:

$$1: \frac{6}{5} : \frac{45}{32} : \frac{5}{3} = 480:576:675:800$$

Examining the following, we get figure 7. Harmonic rate is $\frac{5}{24} \approx 0.2083$

```
>> makewave4(44100,440,440*6/5,440*45/32,440*5/3,1,1,1,1)
```

3. Approaching New Intonation

To resolve this discord, I studied how to make just intonation better.

I researched how high each time of the frequency of A_4 that is 440Hz sound, and concluded into table 8. When a similar sound appears, I name it either as the closest tone in value or by recording between what two tones it places. This sequence of tones is so-called natural harmonic series.

I tried to approach refinement from this outcome.

3.1.1. Making of New Intonation

3.1.1.1. $A_7(A_4, C_5^\#, E_5, G_5)$

Seen from the 4th line of the table above, the ratio of the 4 tones should be defined as the following:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{7}{4} = 4:5:6:7$$

Examining the following, we get figure 9. Harmonic rate is 25.

```
>> makewave4(44100,440,440*5/4,440*3/2,440*7/4,1,1,1,1)
```

3.1.1.2. $AdimM_7(A_4, C_5, D_5^\#, G_5)$

Seen from the 5th line of the table above, the ratio of the 4 tones should be defined as the following:

$$1:\frac{6}{5}:\frac{7}{5}:\frac{9}{5} = 5:6:7:9$$

Examining the following, we get figure 10. Harmonic rate is 20.

```
>> makewave4(44100,440,440*6/5,440*7/5,440*9/5,1,1,1,1)
```

3.1.1.3. $Adim_7(A_4, C_5, D_5^\#, F_5^\#)$

Seen from the 3rd and the 5th line of the table above, the ratio of the 4 tones should be defined as the following:

$$1:\frac{6}{5}:\frac{7}{5}:\frac{5}{3} = 15:18:21:25$$

Examining the following, we get figure 11. Harmonic rate is $\frac{20}{3} \approx 6.6667$.

```
>> makewave4(44100,440,440*6/5,440*7/5,440*5/3,1,1,1,1)
```

3.1.2. Other Chords

Until now, $A_4^\#$ has not appeared yet, and it will not help with producing simple ratio of frequencies to keep on recording table 8. Using fractions approximate to $\frac{16}{15}$ in just intonation in chords including $A_4^\#$, I evaluated each chord by harmonic rate.

3.1.2.1. $A_7{}^{(b9)}(A_4, C_5^\#, E_5, G_5, B_5^b(= A_5^\#))$

3.1.2.1.1. When Only $A_5^\#$ is in Just Intonation

The ratio of frequencies is:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{7}{4}:\frac{31}{15} = 60:75:90:105:124$$

Examining the following, we get figure 12. Harmonic rate is $\frac{5}{3} \approx 1.6667$.

```
>> makewave5(44100,440,440*5/4,440*3/2,440*7/4,440*31/15,1,1,1,1,1)
```

3.1.2.1.2. Put the Denominator of $A_5^\#$ as 16

Referring that the denominator of other ratio values are power of 2, that ratio of frequencies in this case is:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{7}{4}:\frac{33}{16} = 16:20:24:28:33$$

Examining the following, we get figure 13. Harmonic rate is $\frac{25}{4} = 6.25$.

```
>> makewave5(44100,440,440*5/4,440*3/2,440*7/4,440*33/16,1,1,1,1,1)
```

3.1.2.1.3. Put the Denominator of $A_5^\#$ as 8

Referring that the denominator of other ratio values are power of 2, that ratio of frequencies in this case is:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{7}{4}:\frac{17}{8} = 8:10:12:14:17$$

Examining the following, we get figure 14. Harmonic rate is $\frac{25}{2} = 12.5$.

```
>> makewave5(44100,440,440*5/4,440*3/2,440*7/4,440*17/8,1,1,1,1,1)
```

3.1.2.1.4. When Only $A_4^\#$ is in Just Intonation (Lowering $A_5^\#$ to $A_4^\#$ by an Octave)

The ratio of frequencies is:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{7}{4}:\frac{31}{30} = 60:75:90:105:62$$

Examining the following, we get figure 15. Harmonic rate is $\frac{25}{2} \approx 1.6667$.

```
>> makewave5(44100,440,440*5/4,440*3/2,440*7/4,440*31/30,1,1,1,1,1)
```

3.1.2.1.5. Put the Denominator as 32 (Lowering $A_5^\#$ to $A_4^\#$ by an Octave)

The ratio of frequencies is:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{7}{4}:\frac{33}{32} = 32:40:48:56:33$$

Examining the following, we get figure 16. Harmonic rate is $\frac{25}{8} = 3.125$.

```
>> makewave5(44100,440,440*5/4,440*3/2,440*7/4,440*33/32,1,1,1,1,1)
```

3.1.2.1.6. Put the Denominator of $A_4^\#$ as 16 (Lowering $A_5^\#$ to $A_4^\#$ by an Octave)

The ratio of frequencies is:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{7}{4}:\frac{17}{16} = 16:20:24:28:17$$

Examining the following, we get figure 17. Harmonic rate is $\frac{25}{4} = 6.25$.

```
>> makewave5(44100,440,440*5/4,440*3/2,440*7/4,440*17/16,1,1,1,1,1)
```

3.1.2.2.　 $\mathrm{Adim}_7{}^{(\mathrm{b}9)}(A_4, C_5, D_5^\#, F_5^\#, B_5^b(= A_5^\#))$

3.1.2.2.1. When Only $A_5^\#$ is in Just Intonation

The ratio of frequencies is:

$$1:\frac{6}{5}:\frac{7}{5}:\frac{5}{3}:\frac{31}{15} = 15:18:21:25:31$$

Examining the following, we get figure 18. Harmonic rate is $\frac{20}{3} \approx 6.6667$.

```
>> makewave5(44100,440,440*6/5,440*7/5,440*5/3,440*31/15,1,1,1,1,1)
```

3.1.2.2.2. Put the Denominator of $A_5^\#$ as 16

Using the ratio we used before, the ratio of frequencies is:

$$1:\frac{6}{5}:\frac{7}{5}:\frac{5}{3}:\frac{33}{16} = 240:288:336:400:495$$

Examining the following, we get figure 19. Harmonic rate is $\frac{5}{12} \approx 0.4167$.

```
>> makewave5(44100,440,440*6/5,440*7/5,440*5/3,440*33/16,1,1,1,1,1)
```

3.1.2.2.3. Put the Denominator of $A_5^\#$ as 8

Using the ratio we used before, the ratio of frequencies is:

$$1:\frac{6}{5}:\frac{7}{5}:\frac{5}{3}:\frac{17}{8} = 120:144:168:200:255$$

Examining the following, we get figure 20. Harmonic rate is $\frac{5}{6} \approx 0.8333$.

```
>> makewave5(44100,440,440*6/5,440*7/5,440*5/3,440*17/8,1,1,1,1,1)
```

3.1.2.2.4. When Only $A_4^\#$ is in Just Intonation (Lowering $A_5^\#$ to $A_4^\#$ by an Octave)

The ratio of frequencies is:

$$1:\frac{6}{5}:\frac{7}{5}:\frac{5}{3}:\frac{31}{30} = 30:36:42:50:31$$

Examining the following, we get figure 21. Harmonic rate is $\frac{10}{3} \approx 3.3333$.

```
>> makewave5(44100,440,440*6/5,440*7/5,440*5/3,440*31/30,1,1,1,1,1)
```

3.1.2.2.5. Put the Denominator of $A_4^\#$ as 32 (Lowering $A_5^\#$ to $A_4^\#$ by an Octave)

Using the ratio we used before, the ratio of frequencies is:

$$1:\frac{6}{5}:\frac{7}{5}:\frac{5}{3}:\frac{33}{32} = 480:576:672:800:495$$

Examining the following, we get figure 22. Harmonic rate is $\frac{5}{24} \approx 0.2033$.

```
>> makewave5(44100,440,440*6/5,440*7/5,440*5/3,440*33/32,1,1,1,1,1)
```

3.1.2.2.6. Put the Denominator of $A_4^\#$ as 16 (Lowering $A_5^\#$ to $A_4^\#$ by an Octave)

Using the ratio we used before, the ratio of frequencies is:

$$1:\frac{6}{5}:\frac{7}{5}:\frac{5}{3}:\frac{17}{16} = 240:288:336:400:255$$

Examining the following, we get figure 23. Harmonic rate is $\frac{5}{24} \approx 0.2033$.

```
>> makewave5(44100,440,440*6/5,440*7/5,440*5/3,440*17/16,1,1,1,1,1)
```

4. Suggestion for New 12-tone Intonation

The intonation I suggest here is listed in table 24.

5. Reconsideration of The New Intonation

As you can see in the table above, all of the value has denominator which is multiple of at least one of 2, 3, or 5, except some such as 6 and 10, and 9, 15, 16 only appears once in each in the table.

Also, I checked the harmonic rate of a chord made by 3 tones, I, II and VI#, is higher when the frequency of II is $\frac{10}{9}$ rather than it is $\frac{9}{8}$

Therefore, table 24 cannot be said to be exactly the most harmonious intonation. It is better to use a common denominator choosing from 2, 3, 5 or the multiples of them, as we can see in the process of all of these examinations. The following discussion, however, compares this table.

6. Expansion of Intonation

Now I focused on microtones base on the suggestion in 4. The consideration starts from 6n-tonal intonation made by gathering nth-tones. We consider 6n-12 tones of all the 6n tones in an octave, which is not in the general 12-tonal scale. We expect the ratio be simple for we pursue the harmoniousness.

6.1.1. Definition of Quartertones in Equal Temperament

Following the form of the tables we saw, 24 equal temperament, made by gathering quartertones, is described as table 25.

Referring to expressions in Xenharmonic Wiki, a semitone higher tone is called "jump" and lower tone is called "drop" here. Because "jump" and "drop" are to be used like accidentals, here I use their initials, "j" and "d", even though these are not the exact signs used in 24-tonal music.

6.1.2. Construction of Just-Intonation Definition of Quartertone

6.1.2.1. Considering from Natural Harmonic Series

Table 26 shows how it is like when we keep on listing natural harmonic series and choose the closest values in 24 equal temperament, in addition of 12-tonal just intonation.

6.1.2.2. "24-tone Just Intonation" based on Natural Harmonic Series

There were no official definition of chord names in quartertones, so I defined them instead and examined chords that includes both natural tones and microtones. Due to defining chord names specialized in microtone, some chords need to be changed in names, such as that A_7 should be written A_{Mm7}, and A_{M7} should be A_{MM7}.

6.1.2.2.1. A^{d5} (A drop5, $A_4, C_5^\sharp, E_5^d$)

The ratio of frequencies is:

$$1 : \frac{5}{4} : \frac{23}{16} = 16 : 20 : 23$$

Examining the following, we get figure 27. Harmonic rate is $\frac{55}{2} = 27.5$.

```
>> makewave3(44100,440,440*5/4,440*23/16,1,1,1)
```

6.1.2.2.2. A^{j5} (A jump5, $A_4, C_5^\sharp, E_5^j$)

The ratio of frequencies is:

$$1 : \frac{5}{4} : \frac{25}{16} = 16 : 20 : 25$$

Examining the following, we get figure 28. Harmonic rate is $\frac{55}{2} = 27.5$.

```
>> makewave3(44100,440,440*5/4,440*25/16,1,1,1)
```

6.1.2.2.3. Am^{d5} (A minor drop5, A_4, C_5, E_5^d)

The ratio of frequencies is:

$$1:\frac{6}{5}:\frac{25}{16} = 16:20:25$$

Examining the following, we get figure 29. Harmonic rate is $\frac{5}{4} = 1.25$.

```
>> makewave3(44100,440,440*6/5,440*25/16,1,1,1)
```

6.1.2.2.4. Am^{j5} (A minor jump5, A_4, C_5, E_5^j)

The ratio of frequencies is:

$$1:\frac{6}{5}:\frac{27}{16} = 16:20:27$$

Examining the following, we get figure 30. Harmonic rate is $\frac{5}{4} = 1.25$.

```
>> makewave3(44100,440,440*6/5,440*27/16,1,1,1)
```

6.1.2.2.5. An (A neutral, A_4, C_5^d, E_5)

The ratio of frequencies is:

$$1:\frac{39}{32}:\frac{3}{2} = 32:39:48$$

Examining the following, we get figure 31. Harmonic rate is $\frac{25}{8} = 3.125$.

```
>> makewave3(44100,440,440*39/32,440*3/2,1,1,1)
```

6.1.2.2.6. An^{d5} (A neutral drop5, A_4, C_5^d, E_5^d)

The ratio of frequencies is:

$$1:\frac{39}{32}:\frac{25}{16} = 32:39:50$$

Examining the following, we get figure 32. Harmonic rate is $\frac{25}{8} = 3.125$

```
>> makewave3(44100,440,440*39/32,440*25/16,1,1,1)
```

6.1.2.2.7. An^{j5} (A neutral jump5, A_4, C_5^d, E_5^j)

The ratio of frequencies is:

$$1:\frac{39}{32}:\frac{27}{16} = 32:39:54$$

Examining the following, we get figure 33. Harmonic rate is $\frac{25}{8} = 3.125$.

```
>> makewave3(44100,440,440*39/32,440*27/16,1,1,1)
```

6.1.2.2.8. Ai (A infra, A_4, C_5^d, E_5)

The ratio of frequencies is:

$$1:\frac{35}{32}:\frac{3}{2} = 32:35:48$$

Examining the following, we get figure 34. Harmonic rate is $\frac{25}{8} = 3.125$

```
>> makewave3(44100,440,440*35/32,440*3/2,1,1,1)
```

6.1.2.2.9. Au (A ultra, A_4, D_5^d, E_5)

The ratio of frequencies is:

$$1:\frac{21}{16}:\frac{3}{2} = 16:21:24$$

Examining the following, we get figure 35. Harmonic rate is $\frac{25}{4} = 6.25$.

```
>> makewave3(44100,440,440*21/16,440*3/2,1,1,1)
```

6.1.2.2.10. A_{Mn7} (A major neutral7, $A_4, C_5^\#, E_5, G_5^j$)

The ratio of frequencies is:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{29}{16} = 16:20:24:29$$

Examining the following, we get figure 36. Harmonic rate is $\frac{25}{4} = 6.25$.

```
>> makewave4(44100,440,440*5/4,440*3/2,440*29/16,1,1,1,1)
```

6.1.2.2.11. A_{Mi7} (A major infra7, $A_4, C_5^\#, E_5, G_5^d$)

The ratio of frequencies is:

$$1:\frac{5}{4}:\frac{3}{2}:\frac{55}{32} = 32:40:48:55$$

Examining the following, we get figure 37. Harmonic rate is $\frac{25}{8} = 3.125$.

```
>> makewave4(44100,440,440*5/4,440*3/2,440*55/32,1,1,1,1)
```

6.1.2.3.   Evaluating the Results

Most of the harmonic rate are either 6.25 or 3.125, and it seems to be

room for improvement. We need to make hypotheses due to the narrow intervals.

7. Issues and More Considerations

The most harmonious frequency ratio must not be uniquely defined as we can see in these all experiments, because we grasped continuous value of frequency discretely and used the least common multiple. In more practical situations, performers need to instantly and relatively judge what height of pitch each should play relying on his senses of hearing, so-called "feel with their body" relying on resonance in each part of his own body and his experiences and take the proper tone. Here I could see the backgrounds of "beautiful music" which is generally regarded as sensuous and difficult to be hit by using physical and mathematical system.

From now on, I would like to experience more about music and develop an effective method in actual analog instruments.

Book References

「関数名、入力および出力の宣言 – MATLAB function - MathWorks 日本」

https://jp.mathworks.com/help/matlab/ref/function.html

「線形に配置されたベクトルを作成 - MATLAB linspace - MathWorks 日本」

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MATLAB sym - MathWorks 日本」 https://jp.mathworks.com/help/symbolic/sym.html

「最小公倍数 - MATLAB lcm - MathWorks 日本」

https://jp.mathworks.com/help/matlab/ref/lcm.html

「線形 2 次元プロット - MATLAB plot - MathWorks 日本」

https://jp.mathworks.com/help/matlab/ref/plot.html

「Xenharmonic Wiki」 https://en.xen.wiki/w/Main_Page

Figure 1

A_4	$A_4^\#$	B_4	C_5	$C_5^\#$	D_5	$D_5^\#$
$440 \times 2^{\frac{0}{12}}$ $= 440[\text{Hz}]$	$440 \times 2^{\frac{1}{12}}$ $\approx 466.164[\text{Hz}]$	$440 \times 2^{\frac{2}{12}}$ $\approx 493.883[\text{Hz}]$	$440 \times 2^{\frac{3}{12}}$ $\approx 523.251[\text{Hz}]$	$440 \times 2^{\frac{4}{12}}$ $\approx 554.365[\text{Hz}]$	$440 \times 2^{\frac{5}{12}}$ $\approx 587.330[\text{Hz}]$	$440 \times 2^{\frac{6}{12}}$ $\approx 622.254[\text{Hz}]$

E_5	F_5	$F_5^\#$	G_5	$G_5^\#$	A_5
$440 \times 2^{\frac{7}{12}}$ $\approx 659.255[\text{Hz}]$	$440 \times 2^{\frac{8}{12}}$ $\approx 698.456[\text{Hz}]$	$440 \times 2^{\frac{9}{12}}$ $\approx 739.989[\text{Hz}]$	$440 \times 2^{\frac{10}{12}}$ $\approx 783.991[\text{Hz}]$	$440 \times 2^{\frac{11}{12}}$ $\approx 830.609[\text{Hz}]$	$440 \times 2^{\frac{12}{12}}$ $= 880[\text{Hz}]$

Figure 2　(The bottom line shows the distance from equal temperament)

A_4	$A_4^\#$	B_4	C_5	$C_5^\#$	D_5	$D_5^\#$
$440 \times \frac{1}{1}$ $= 440[\text{Hz}]$	$440 \times \frac{16}{15}$ $\approx 469.333[\text{Hz}]$	$440 \times \frac{9}{8}$ $= 495[\text{Hz}]$	$440 \times \frac{6}{5}$ $= 528[\text{Hz}]$	$440 \times \frac{5}{4}$ $= 550[\text{Hz}]$	$440 \times \frac{4}{3}$ $\approx 586.667[\text{Hz}]$	$440 \times \frac{45}{32}$ $= 618.75[\text{Hz}]$
± 0	$+11.73129$	$+3.910002$	$+15.64129$	-13.68629	-1.955001	-9.776284

| E_5	F_5	$F_5^\#$	G_5	$G_5^\#$	A_5
$440 \times \frac{3}{2}$ $= 660[\text{Hz}]$	$440 \times \frac{8}{5}$ $= 704[\text{Hz}]$	$440 \times \frac{5}{3}$ $\approx 733.333[\text{Hz}]$	$440 \times \frac{16}{9}$ $\approx 782.222[\text{Hz}]$	$440 \times \frac{15}{8}$ $= 825[\text{Hz}]$	$440 \times \frac{2}{1}$ $= 880[\text{Hz}]$
$+1.955001$	$+13.68629$	-15.64129	-3.910002	-11.73129	± 0
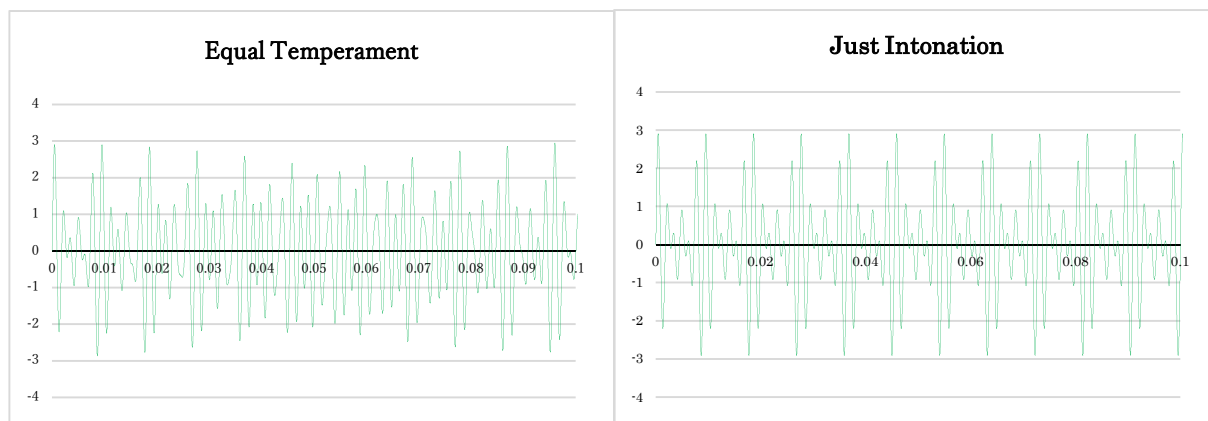
Figure 3

Figure 3'
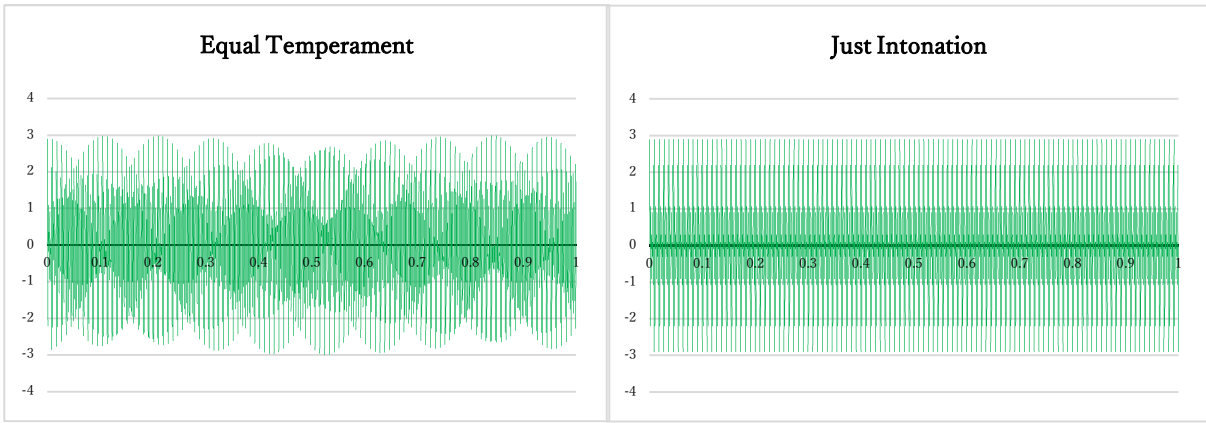
Figure 4
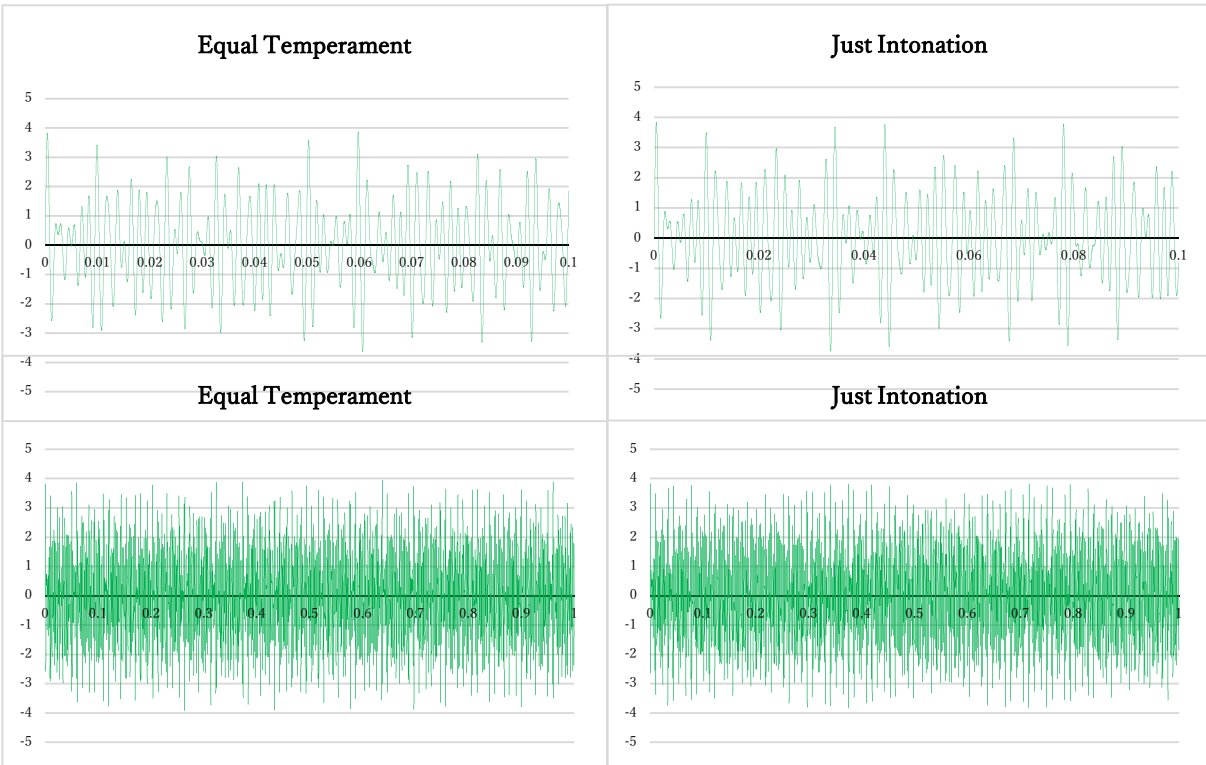
Figure 4'

makewave3.m

```
function harc = makewave3(sf,cf_001,cf_002,cf_003,cc_001,cc_002,cc_003)
%MakeWave3 3和音を作成し鳴らす
%
 S=linspace(0,1,sf);

numenator=cc_001*sin(2*pi*cf_001*S)+cc_002*sin(2*pi*cf_002*S)+cc_003*sin(2*pi*cf_003*S);
 denominator=max(max(numenator),abs(min(numenator)));
 output=numenator/denominator;
 A=sym([1/cf_001,1/cf_002,1/cf_003]);
 har=1/lcm(A);
 harc=har/cf_001*100;
 sound(output,sf);
 plot(S,output);
end
```

makewave4.m

```
Function harc = makewave4(sf,cf_001,cf_002,cf_003,cf_004,cc_001,cc_002,cc_003,cc_004)
%MakeWave4 4和音を作成し鳴らす
%
 S=linspace(0,1,sf);

numenator=cc_001*sin(2*pi*cf_001*S)+cc_002*sin(2*pi*cf_002*S)+cc_003*sin(2*pi*cf_003*S)+cc_004*sin(2*pi*cf_004*S);
 denominator=max(max(numenator),abs(min(numenator)));

 output=numenator/denominator;

 A=sym([1/cf_001,1/cf_002,1/cf_003,1/cf_004]);
 har=1/lcm(A);
 harc=har/cf_001*100;
 sound(output,sf);
 plot(S,output);
end
```

makewave5.m

```matlab
function harc =
makewave5(sf,cf_001,cf_002,cf_003,cf_004,cf_005,cc_001,cc_002,cc_003,cc_004,cc_00
5)
%MakeWave5 5和音を作成し鳴らす
%
 S=linspace(0,1,sf);

numenator=cc_001*sin(2*pi*cf_001*S)+cc_002*sin(2*pi*cf_002*S)+cc_003*sin(2*pi*cf_
003*S)+cc_004*sin(2*pi*cf_004*S)+cc_005*sin(2*pi*cf_005*S);
 denominator=max(max(numenator),abs(min(numenator)));
 output=numenator/denominator;
 A=sym([1/cf_001,1/cf_002,1/cf_003,1/cf_004,1/cf_005]);
 har=1/lcm(A);
 harc=har/cf_001*100;
 sound(output,sf);
 plot(S,output);
end
```

Figure 5

Figure 6

Figure 7

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Table 8

$\frac{1}{1}$					$\frac{2}{1}$				
A_4					A_5				
$\frac{2}{2}$			$\frac{3}{2}$				$\frac{4}{2}$		
A_4			E_5				A_5		
$\frac{3}{3}$		$\frac{4}{3}$		$\frac{5}{3}$			$\frac{6}{3}$		
A_4		D_5		$F_5^{\#}$			A_5		
$\frac{4}{4}$		$\frac{5}{4}$		$\frac{6}{4}$		$\frac{7}{4}$		$\frac{8}{4}$	
A_4		$C_5^{\#}$		E_5		G_5		A_5	
$\frac{5}{5}$		$\frac{6}{5}$		$\frac{7}{5}$		$\frac{8}{5}$		$\frac{9}{5}$	$\frac{10}{5}$
A_4		C_5		$D_5^{\#}$		F_5		G_5	A_5
$\frac{6}{6}$		$\frac{7}{6}$		$\frac{8}{6}$		$\frac{9}{6}$	$\frac{10}{6}$	$\frac{11}{6}$	$\frac{12}{6}$
A_4		C_5		D_5		E_5	$F_5^{\#}$	G_5	A_5
$\frac{7}{7}$	$\frac{8}{7}$	$\frac{9}{7}$	$\frac{10}{7}$	$\frac{11}{7}$	$\frac{12}{7}$	$\frac{13}{7}$	$\frac{14}{7}$		
A_4	B_5-C_5	$C_5^{\#}-D_5$	$D_5^{\#}-E_5$	E_5-F_5	$F_5^{\#}$	$G_5^{\#}$	A_5		
$\frac{8}{8}$	$\frac{9}{8}$	$\frac{10}{8}$	$\frac{11}{8}$	$\frac{12}{8}$	$\frac{13}{8}$	$\frac{14}{8}$	$\frac{15}{8}$	$\frac{16}{8}$	
A_4	B_4	$C_5^{\#}$	$D_5-D_5^{\#}$	E_5	F_5	G_5	$G_5^{\#}$	A_5	
$\frac{9}{9}$	$\frac{10}{9}$	$\frac{11}{9}$	$\frac{12}{9}$	$\frac{13}{9}$	$\frac{14}{9}$	$\frac{15}{9}$	$\frac{16}{9}$	$\frac{17}{9}$	$\frac{18}{9}$
A_4	B_4	$C_5-C_5^{\#}$	D_5	$D_5^{\#}$	E_5-F_5	$F_5^{\#}$	G_5	$G_5^{\#}$	A_5

Figure 9
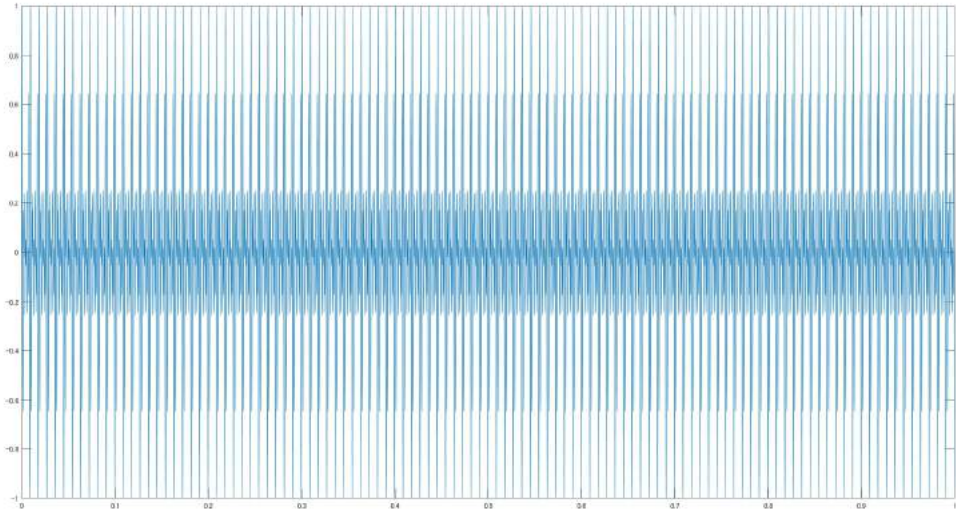
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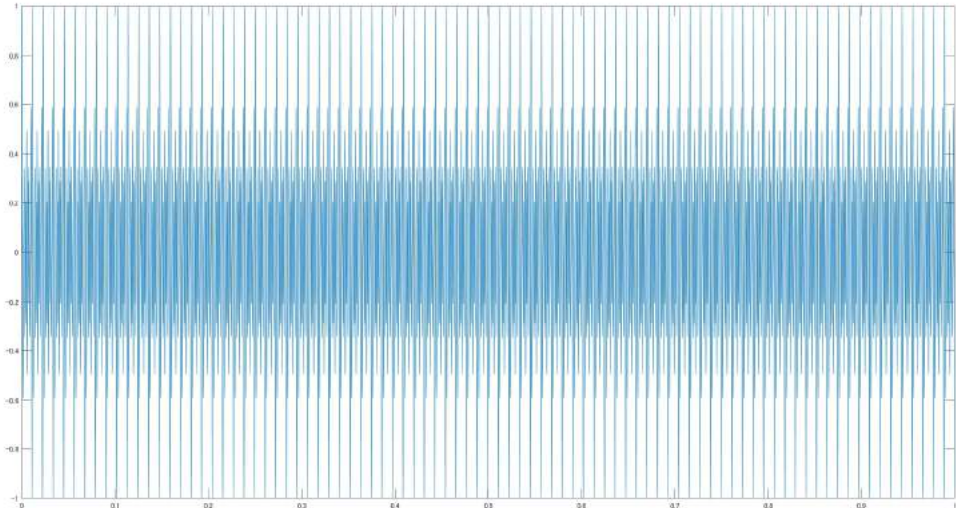
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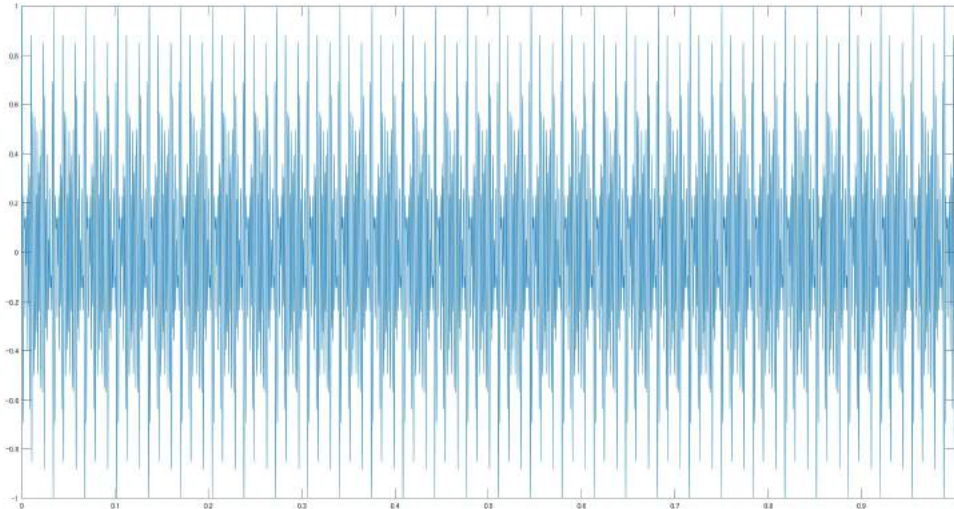
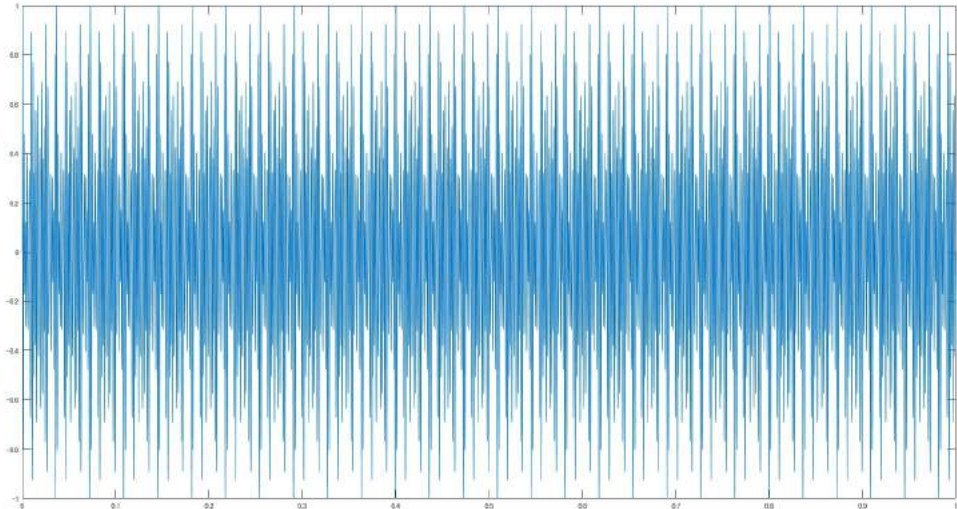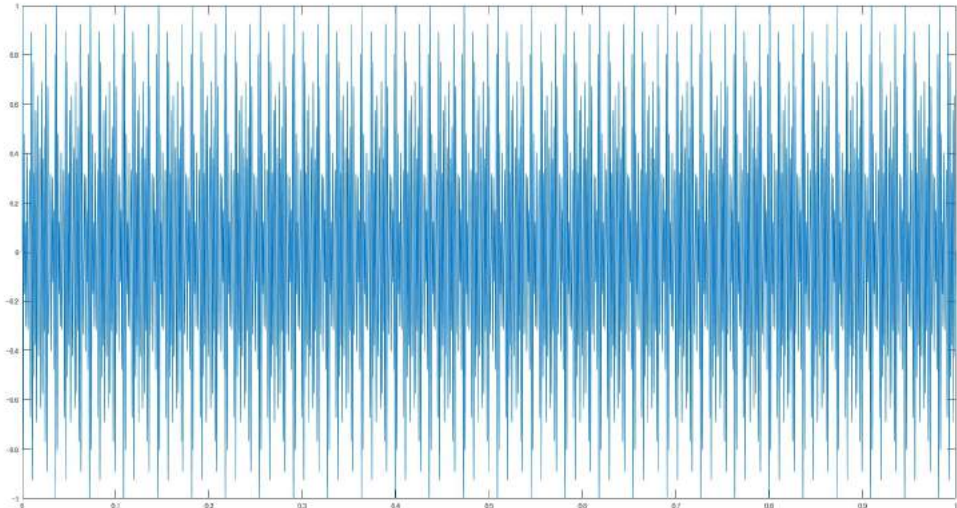Figure 12
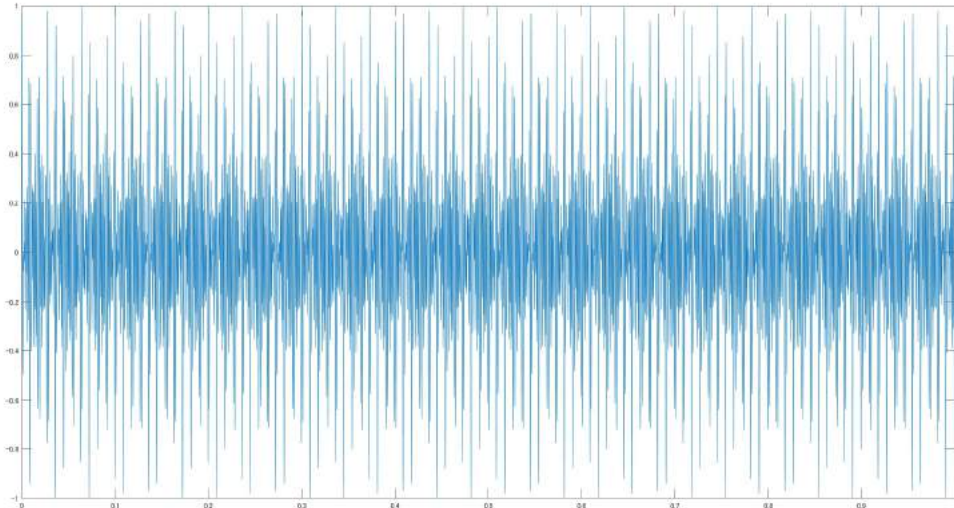
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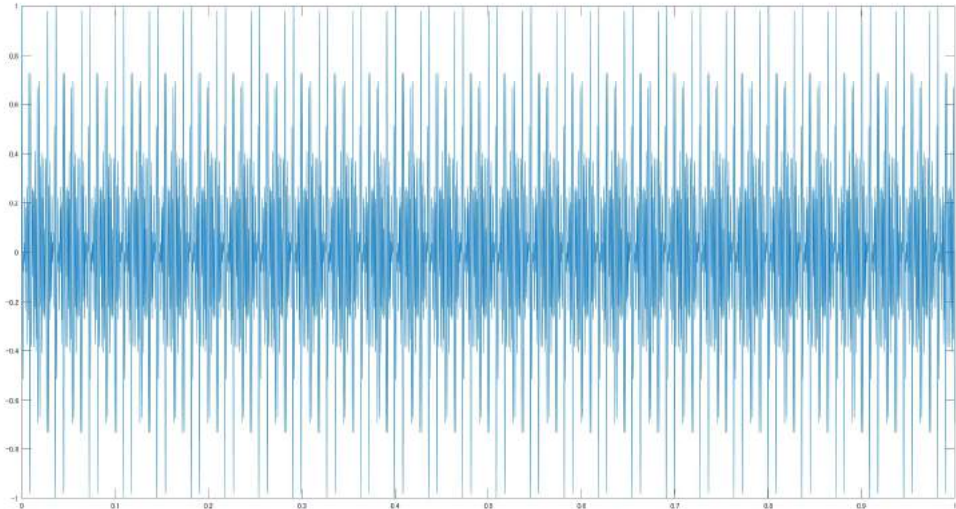
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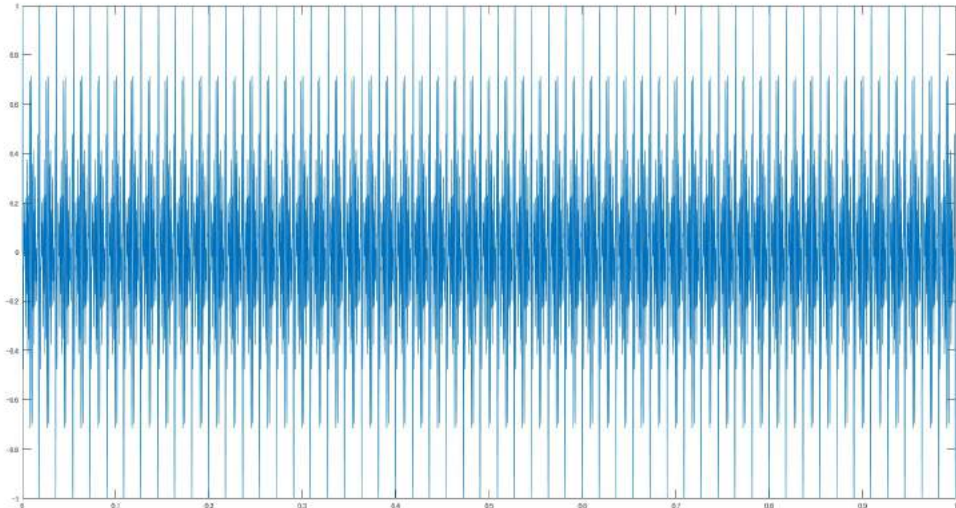
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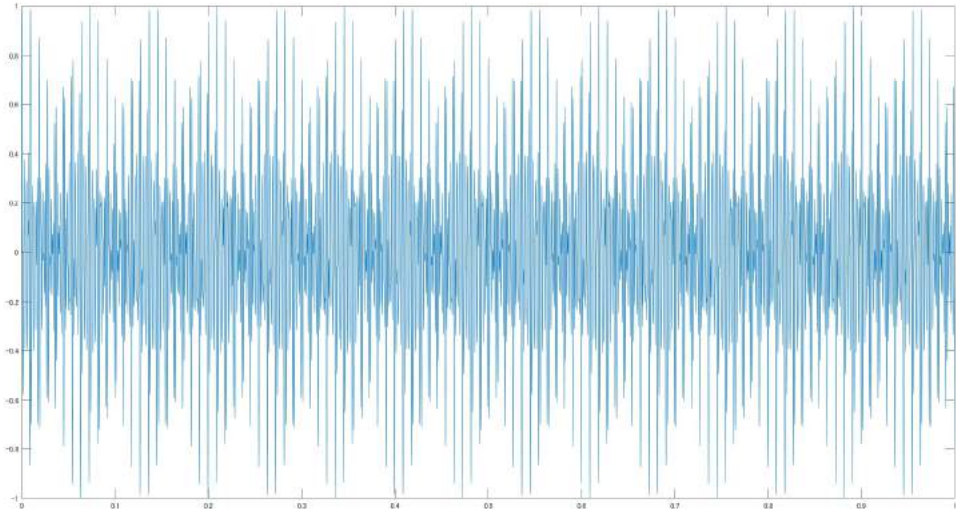
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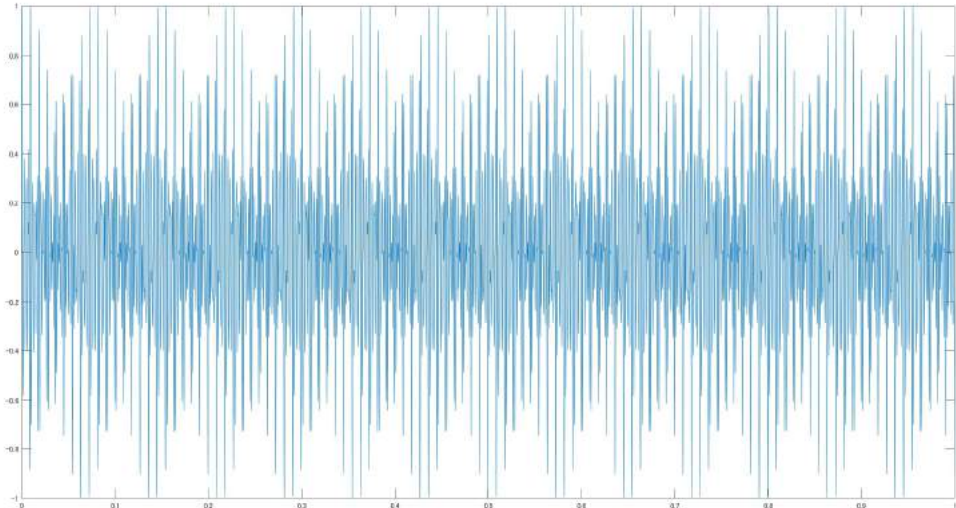
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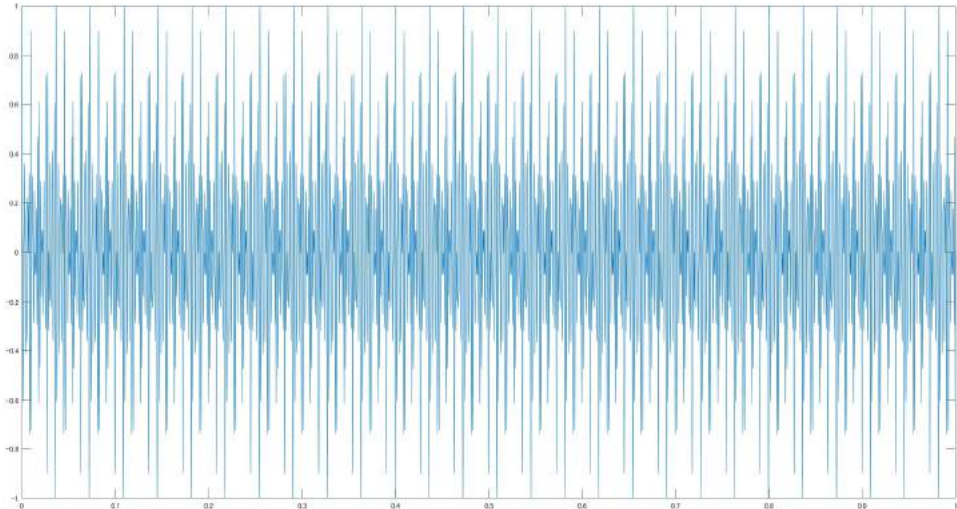
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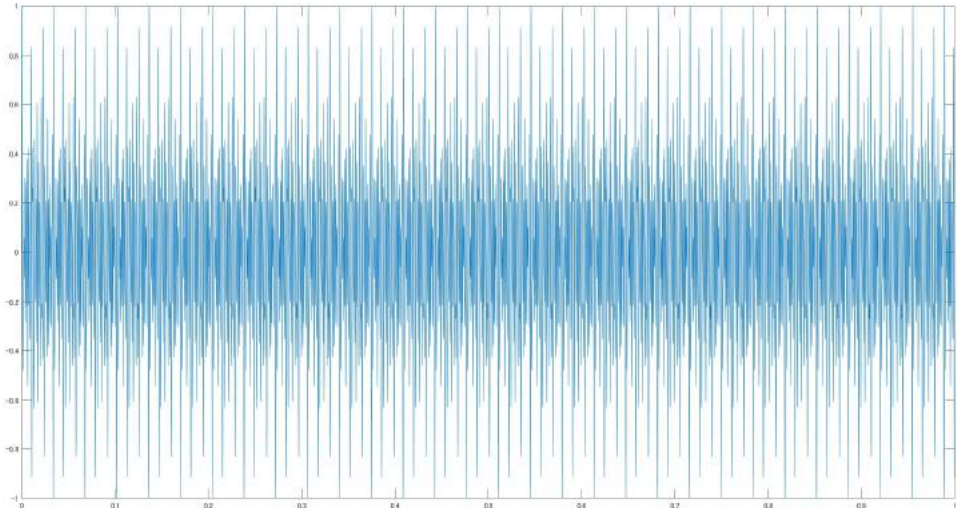
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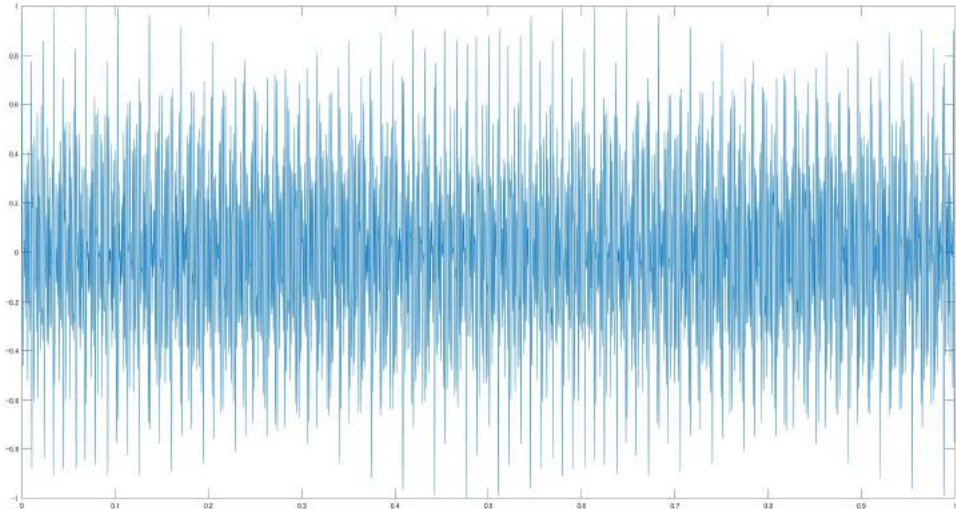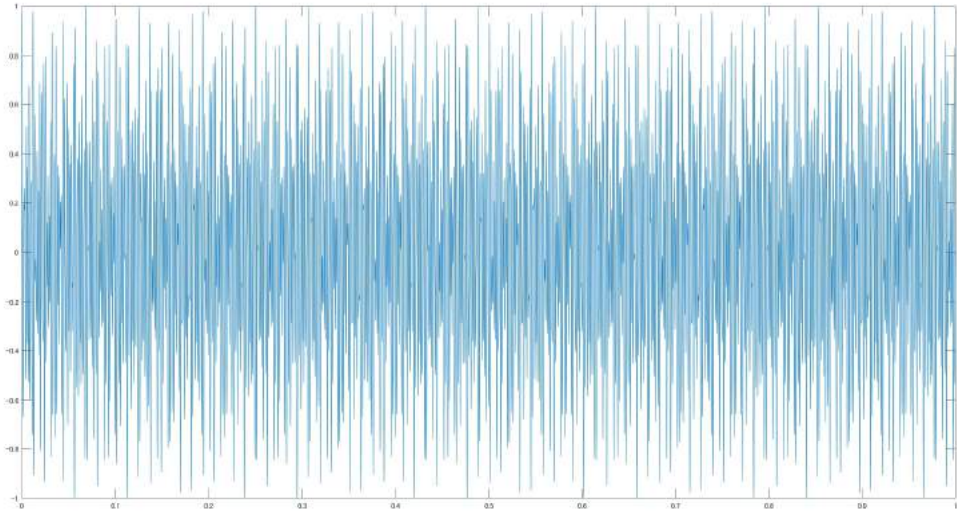

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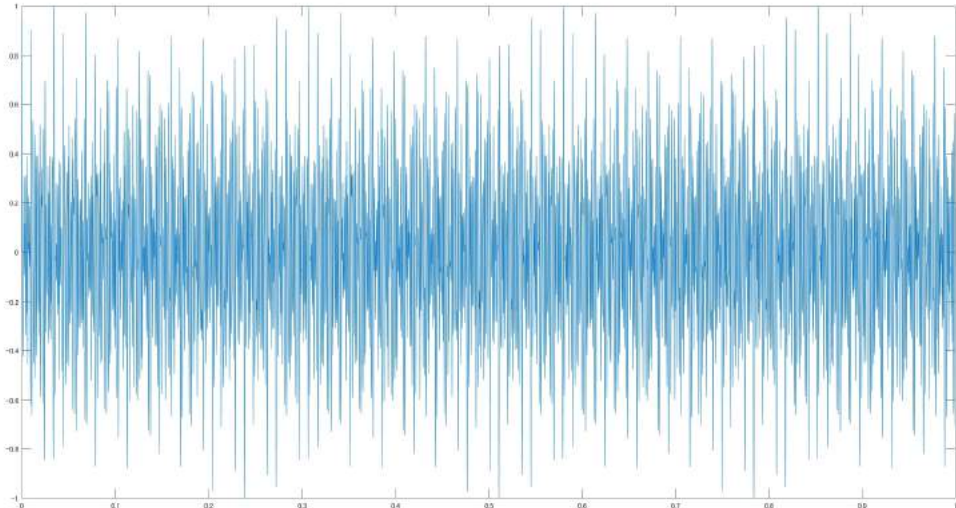
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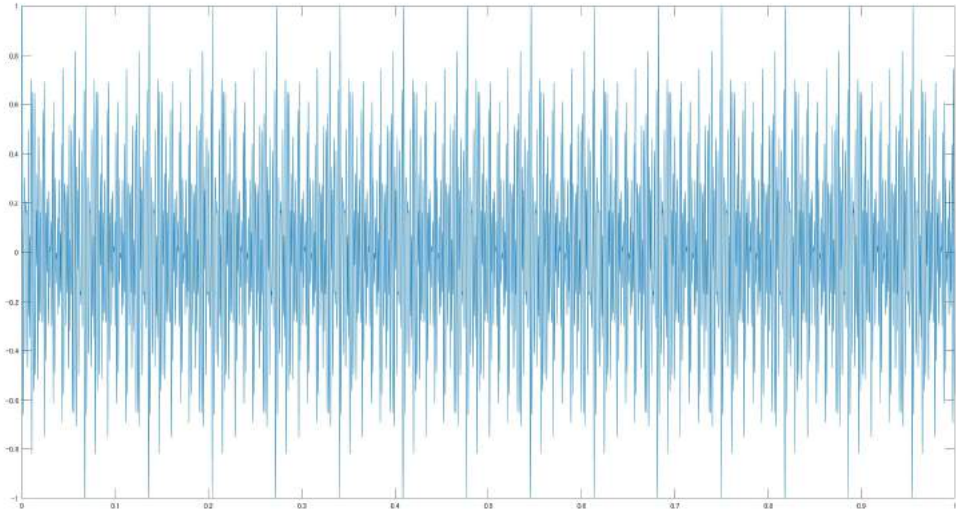
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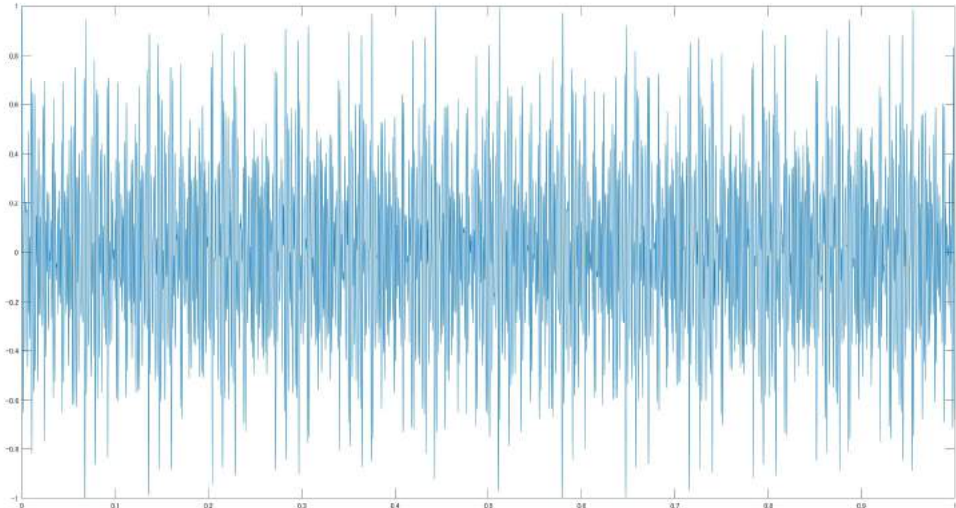
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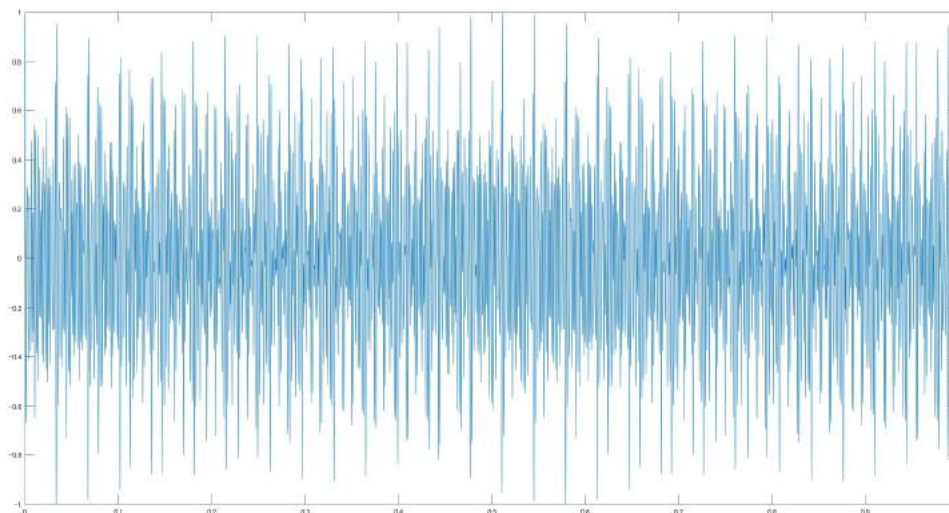
表 24

I	I#	II	II#	III	IV	IV#
$\frac{1}{1}$	$\frac{16}{15}$ または $\frac{17}{16}$	$\frac{9}{8}$	$\frac{6}{5}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{7}{5}$
0	+11.73129 or +4.955410	+3.910002	+15.64129	-13.68629	-1.955001	-17.48781

V	V#	VI	VI#	VII	VIII
$\frac{3}{2}$	$\frac{8}{5}$	$\frac{5}{3}$	$\frac{7}{4}$ または $\frac{9}{5}$ または $\frac{16}{9}$	$\frac{15}{8}$	$\frac{2}{1}$
+1.955001	+13.68629	-15.64129	-31.17409 or	-11.73129	±0

			+17.59629 or -3.910002		

Table 25

I	Ij	I#	IId	II	IIj	II#
$2^{\frac{0}{24}}$	$2^{\frac{1}{24}}$	$2^{\frac{2}{24}}$	$2^{\frac{3}{24}}$	$2^{\frac{4}{24}}$	$2^{\frac{5}{24}}$	$2^{\frac{6}{24}}$
IIId	III	IIIj	IV	IVj	IV#	Vd
$2^{\frac{7}{24}}$	$2^{\frac{8}{24}}$	$2^{\frac{9}{24}}$	$2^{\frac{10}{24}}$	$2^{\frac{11}{24}}$	$2^{\frac{12}{24}}$	$2^{\frac{13}{24}}$
V	Vj	V#	VId	VI	VIj	VI#
$2^{\frac{14}{24}}$	$2^{\frac{15}{24}}$	$2^{\frac{16}{24}}$	$2^{\frac{17}{24}}$	$2^{\frac{18}{24}}$	$2^{\frac{19}{24}}$	$2^{\frac{20}{24}}$
VIId	VII	VIIj	VIII			
$2^{\frac{21}{24}}$	$2^{\frac{22}{24}}$	$2^{\frac{23}{24}}$	$2^{\frac{24}{24}}$			

Table 26

I	Ij	I#	IId	II	IIj	II#
$\frac{1}{1}$	$\frac{33}{32}$	$\frac{17}{16}$	$\frac{35}{32}$	$\frac{9}{8}$	$\frac{37}{32}$	$\frac{6}{5}$
±0	+3.272943	+4.955410	+5.139620	+3.910002	+1.344039	+15.64129

IIId	III	IIIj	IV	IVj	IV#	Vd
$\frac{39}{32}$	$\frac{5}{4}$	$\frac{21}{16}$	$\frac{4}{3}$	$\frac{11}{8}$	$\frac{7}{5}$	$\frac{23}{16}$
-7.517337	-13.68629	+20.78091	-1.955001	+1.317942	-17.48781	-21.72565

V	Vj	V#	VId	VI	VIj	VI#
$\frac{3}{2}$	$\frac{25}{16}$	$\frac{8}{5}$	$\frac{13}{8}$	$\frac{5}{3}$	$\frac{55}{32}$	$\frac{7}{4}$ または $\frac{9}{5}$ または $\frac{16}{9}$
+1.955001	+22.62743	+13.68629	-9.472338	-15.64129	-12.36834	-31.17409 or +17.59629 or -3.910002

VIId	VII	VIIj	VIII
$\frac{29}{16}$	$\frac{15}{8}$	$\frac{31}{16}$	$\frac{2}{1}$
-20.42281	-11.73129	-4.964428	±0

Figure 27

Figure 28

Figure 29

Figure 30
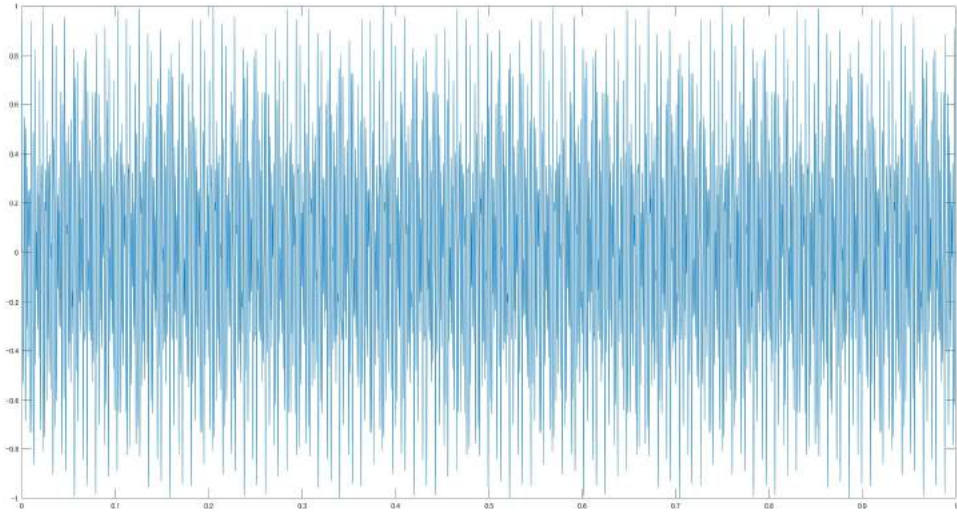
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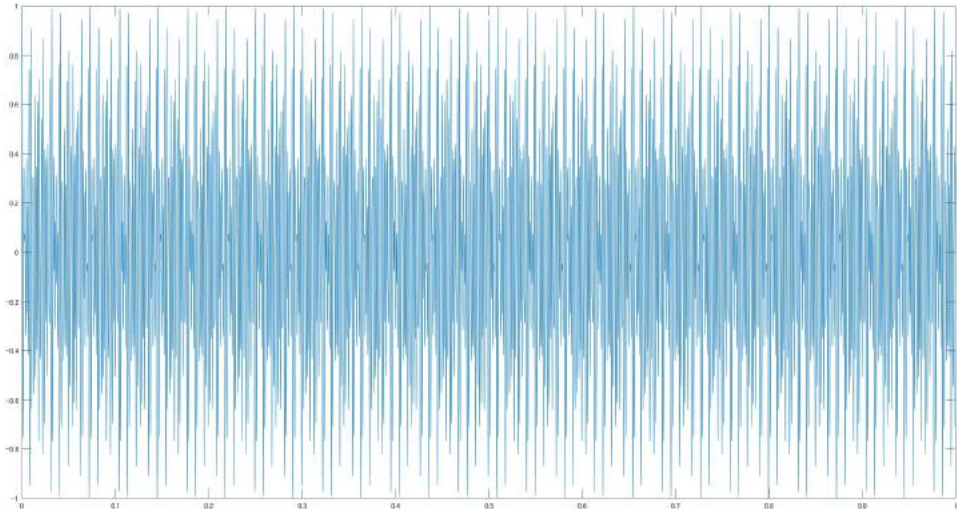
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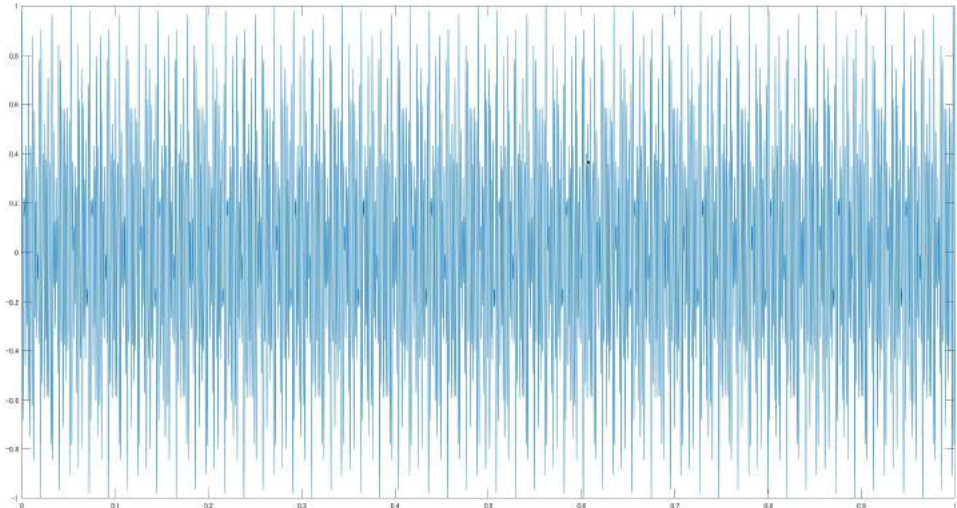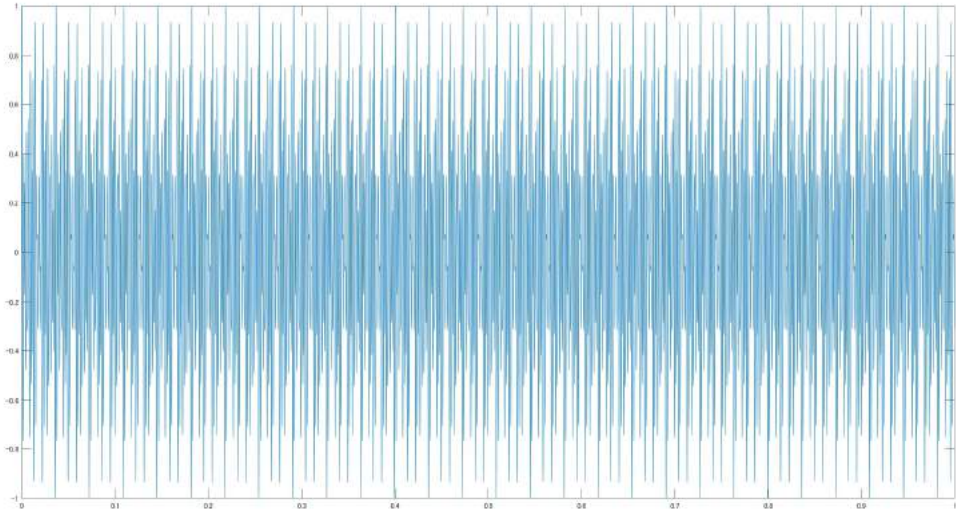
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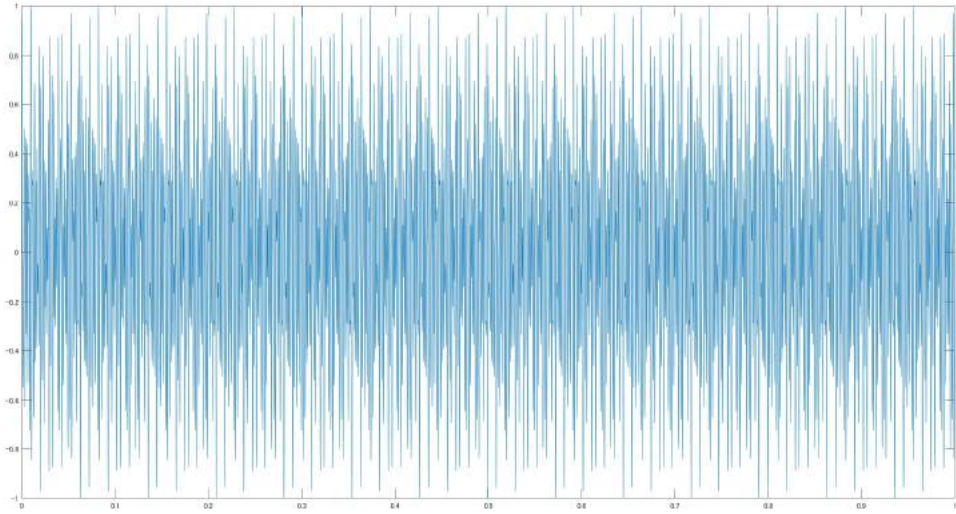
Figure 34
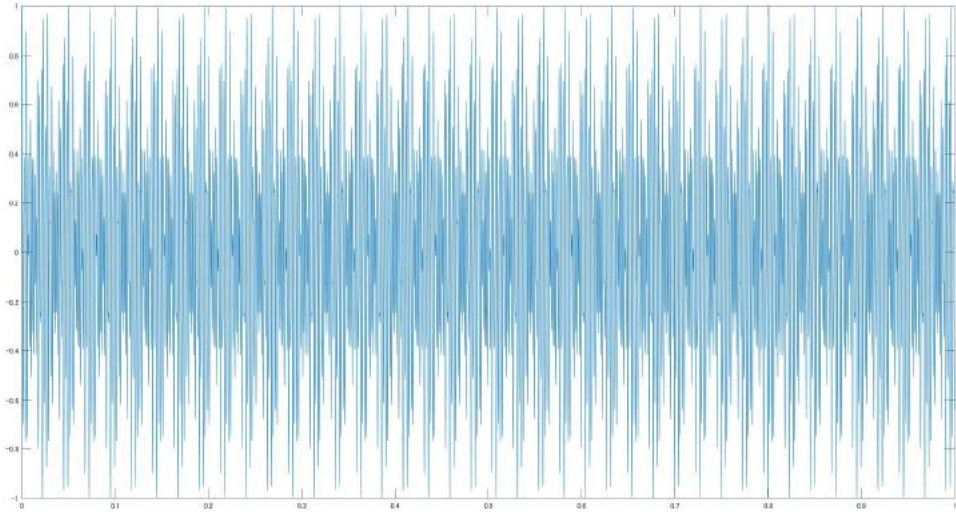
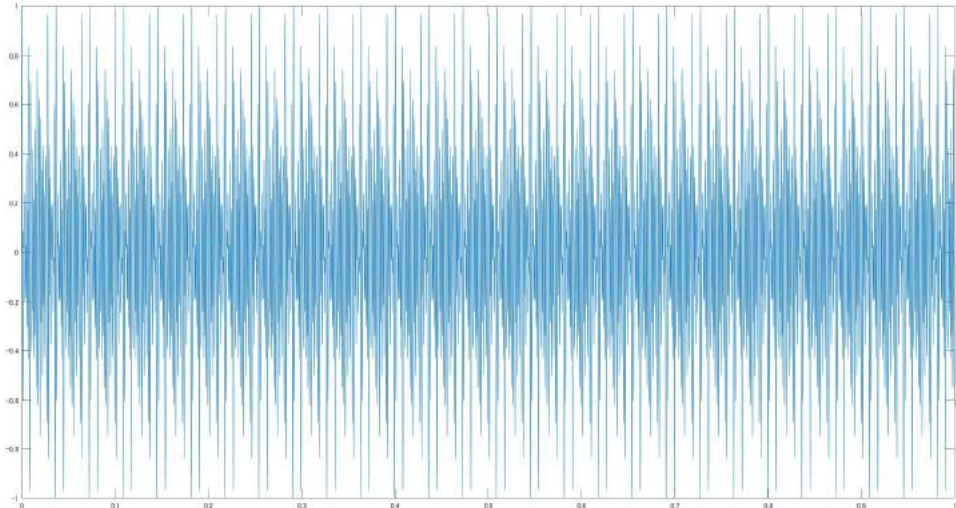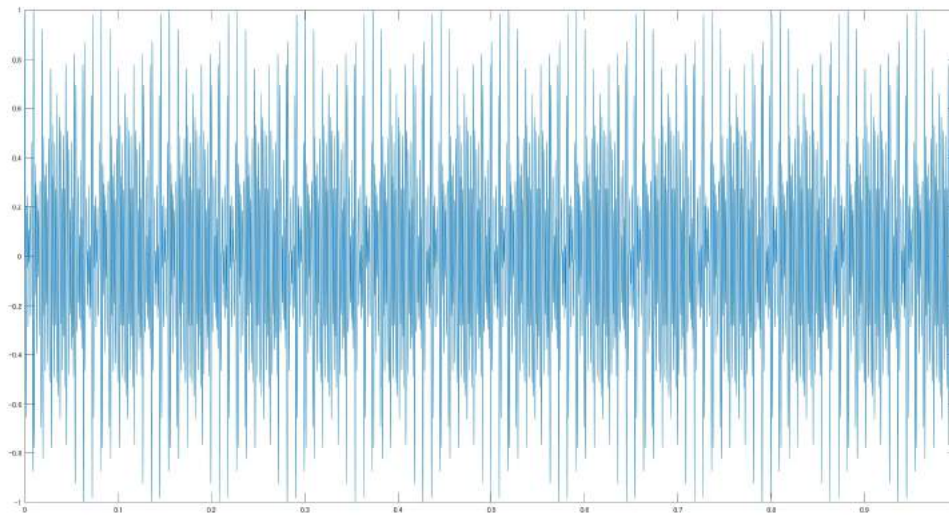Figure 35

Figure 36

Figure 37

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Think of making clear the symptoms from mechanism of allergy

~Make the society safe from allergic subjects~

5413 Tomizawa Soya

1st Result & suggestion

I hope researchers will make clear the system of allergic reactions and we will detect the system that suppress second reaction from allergen entering the body, because of new therapy invented by doctors. For example, IPS cells cure disease, laser therapy kill the cancer, sublingual immunotherapy（SLIT）, and so on. However they did not make clear all of the system of allergic.

2nd Reason

This research motivation is I am severe hay fever. Also people increased interest for hay fever because number of people with hay fever has increased in recent years. So sublingual treatment became a hot topic. Sublingual treatment is method that weaken reaction little by little by absorbing extract that include allergens in the body. However, this method has some troubles.

First, this treatment not necessarily cured allergic symptoms. I often saw comments that "I did not heal allergic reaction I had had surgery." "I cured a little allergic reaction but I did not cured completely." and so on. In addition to this hospital side said, "This treatment effect differ individual and may not cure completely." So we do not get certain effect to be cured by this treatment.

Second, it take a very long time to cure allergic. This treatment is to administer extract for around four years. However, I think administering extract for around four years is so hard stress for patients. Therefore I thought treatment that is cured by eating foods which take effect to cure allergic.
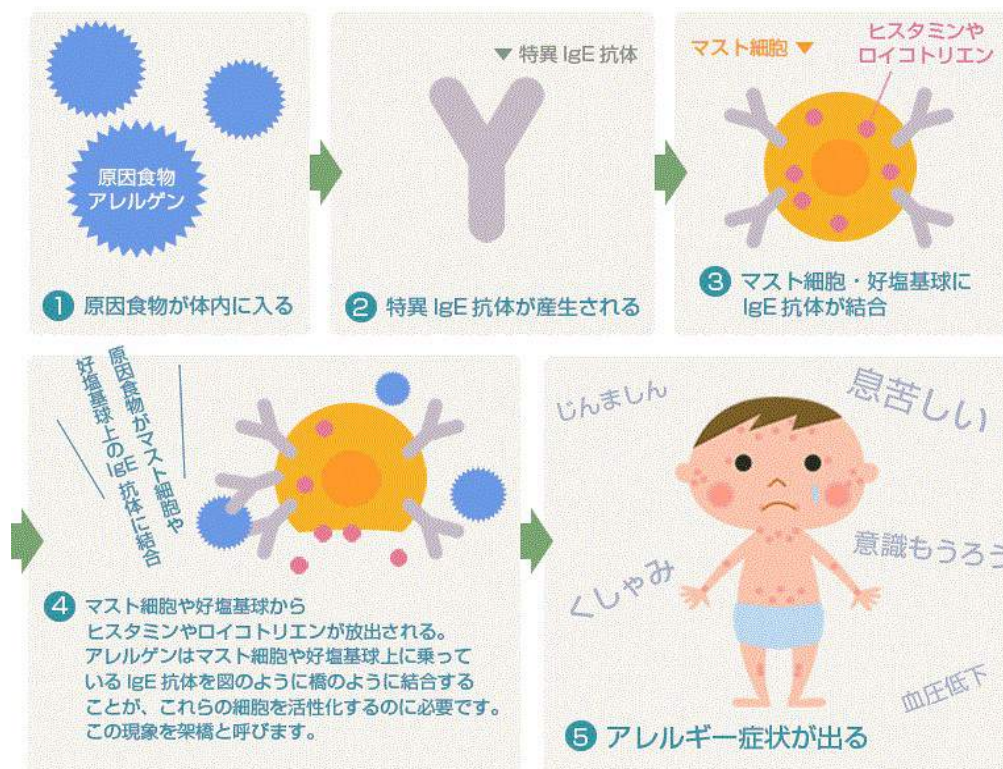
3rd Purpose

Purpose is to be cured allergic reaction by eating foods that similar to structure of allergen. If we eat it, we develop allergic reaction of oral at the present stage. To react protein which similar to structure is called "cross reaction" and this character called "cross antigenicity" and "cross reactivity". Fruits and vegetables that cause oral allergy syndrome are different by a kind of pollen that cause hay fever. For example, tomato and cedar pollen have almost same structure of allergen. So if allergic patient of cedar pollen eat raw tomato, I may develop oral allergy syndrome. It is my purpose to allow you to eat food of the structure of a similar allergen without developing oral allergy syndrome. To do so, we should discover protein that similar to protein that dose not cause allergic reaction or understand intake to

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do not react

4th   Result

　Allergic reaction is generated for IgE antibody reacting the protein which similar to structure of allergen. IgE antibody combines antigen protein and histamine in intracellular organelle is released by that, which is allergic reaction. As a result it promote inflammatory reaction which has two kinds. These differences are cells and mediator which is participating reaction. Among materials released by the degranulation of the mast cell the histamine promote to acute inflammation by aggravating blood vessel permeability. Also, molecules such as leukotrienes and cytokine chemokines relate to delayed type reaction in inflammation and play a role such as mobilizing an inflammatory cell. The patient of allergic diseases such as the bronchial asthma shows high price, and these reactions are aggravated. Therefore if IgE antibody do not react, we will get better. However, IgE antibody have shape which is reacting protein is different depending on the person so doctors should use different ways to make it better. As a result, sublingual treatment affects differently.

① 原因食物が体内に入る
② 特異 IgE 抗体が産生される
③ マスト細胞・好塩基球に IgE 抗体が結合
④ マスト細胞や好塩基球からヒスタミンやロイコトリエンが放出される。アレルゲンはマスト細胞や好塩基球上に乗っている IgE 抗体を図のように橋のように結合することが、これらの細胞を活性化するのに必要です。この現象を架橋と呼びます。
⑤ アレルギー症状が出る

https://www.miraizaidan.or.jp/allergy/diagnosis.html 　（2018・11・5・月）

In other words, curing allergic reaction is difficult extremely by eating.　We need to think therapy one by one. Then this way similar to Sublingual treatment.

　For these reasons, I thought the way that they do not react allergic reaction. That way is not that we reduce a reaction but that we do not recognize allergen when allergen invade the

body. Specific IgE antibody exist sticking to the mast cell in the body. Producing it called sensitization. We do not have symptoms in this state. However, when we have same substance again we will capture it. This reaction make allergic reaction because mast cell start action. Thus, if we do not occur sensitization, we will not react allergic reaction. In the future, I want doctors to research that preventing sensitization can reduce allergic reaction.

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Plant embryo replication technology

Plant replication and growth

Gunma Prefectural Central Secondary School, 5th year Hiroki Tomizawa

1. Outline of research

In this research, we propose a method of utilizing the plant gene RKD4 discovered by Nara Institute of Science and Technology. RKD4 is a gene that has the ability to reset (initialize) plant cells that have differentiated into roots and leaves to the state of an undifferentiated early embryo, and has the properties of early embryos from the germinated plant rather than from the seed state. Cells can be obtained in large quantities. From there, it is possible to regenerate individual plants in a short time through mature embryos, and therefore, there is a possibility that they can be used for techniques for efficiently breeding useful plants and rare plants.

Research results

"Environmental Management" Themed Solution

・ Global warming: Use this technology to accelerate the speed of tree formation

・ Food shortage… Cultivate fruits at low cost by taking advantage of the ability to regenerate individual plants in a short time

In addition, there is a possibility that it can be used for the restoration of Japanese agriculture.

Aim for research

・ Improving the efficiency of tree reproduction and restore the environment → Solutions for international issues such as global warming

・ Breeding rare and useful plants efficiently → Can cope with shortages

2. Research methods and procedures

・ Reading research paper on RKD4 from Nara Institute of Technology

・ Understanding the traits of RKD4

・ Considering what technologies can be used, and make proposals

3. Results of research

・ Utilization plan of Nara Institute of Science and Technology

Utilizing the property of RKD4 obtaining a large amount of cells having the properties of an early embryo from the state after germination, there are utilization plans such as propagation of useful plants and cultivation of rare plants.

・ Proposal

Use this property for trees and food.

① Tree

Reduce the time required for trees to grow completely and increase the motivation to restore the forest.

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(Trees take an enormous amount of time to grow, but we believe that improving them can increase the motivation for planting trees.)

② Food

We think that Japanese agriculture is declining from the viewpoint of income and poor land productivity. Moreover, the lack of income is due to the difficulty to fight cheap products overseas. We propose to use RKD4 technology to improve it and to revive Japanese agriculture. We thought that if we could start production from an early stage in the early embryo state, it would be possible to reduce maintenance costs and labor costs that were necessary until then.

・ For these suggestions

Dissemination of RKD4 technology is indispensable in order to make these proposals feasible. Therefore, we propose to create a genetically modified plant so that individuals can recombine so that RKD4 can be generated in large quantities, and individuals can replicate in specific plants.

4. Future issues

・ Current experiments at Nara Institute of Science and Technology reveal that the nature of RKD4 appears in case of Arabidopsis thaliana. Find out if this applies to trees, other plants and food.

-Find out if it is until the early embryonic stage that the tree is taking a lot of time to grow.

-Investigate whether a certain amount of maintenance and labor costs are incurred in the stage up to the initial lung when cultivating food, and the price can be reduced by omitting that process.

・ Carefully investigated from the safety aspect whether there is any obstacle to the cultivation of plants after genetic modification, and whether there are any abnormalities in fruits and food ecology.

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Aim for coexistence between GM Food and non-GM Food

1 Abstract

 These days genetically modified food (=GM food) is getting more and more popular. Some people want to eat them, and others do not. Actually those who do not want to eat GM food eat them unknowingly. I thought it social matter so I start this study to solve this matter. The goal of this research is to suggest the way that makes consumers to distinguish GM food and others easily. I knew that consumers could not understand the rule around GM food. This is one of the reason why some people eat GM food unknowingly. So I suggest two things. First, educate about GM food in school. Second, make three kind of mark which shows us whether it is GM food or not.

2 Introduction
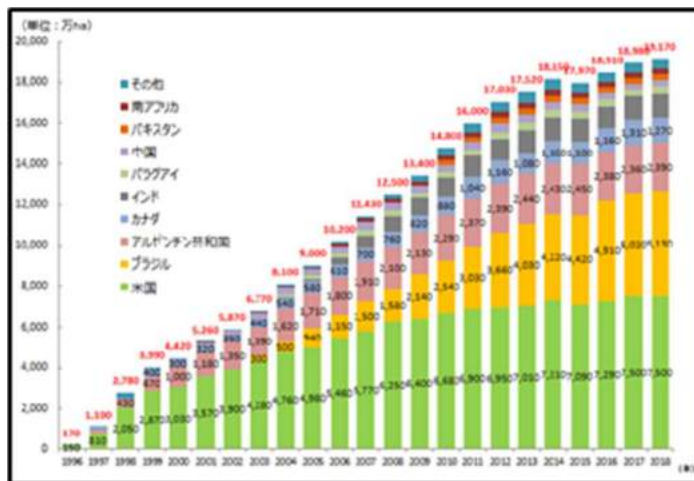
Changes in the cultivation area of each country from 1996 to 2018   (https://cbijapan.com)

These days GM food is getting more and more popular. According this graph (graph 1), the area where GM crop are cultivated is getting wider year by year. The area in 2018 is twice as large as that in 2006. US cultivates GM food the most in the world and export it to many countries, including Japan. This is why Japanese begin to eat GM food though any GM organization are cultivated in Japan. Japanese government force to prove it is GM food if it is. However, this rule is not enough because particular GM food are allowed to omit that display. For example, soy source which is made from GM soybean is allowed to omit it. Actually, large part of exported soybean is from US and most part of soybean cultivated in US is GM organization. Therefore, soy source made from exported soybean are likely GM food and some people may eat GM food unknowingly although they do not want to eat them. I regard this situation as problem, so I begin this research so that I solve this problem.

3 discussion and implications

I Consumer's attitude in Japan

First, I investigated consumer's attitude toward GM food. I investigate it by looking questionnaire survey which is conducted by Ministry of Agriculture, Forestry and Fisheries.

According to it, 40% of consumers are afraid of eating GM food. And 80% of consumers attempt to avoid eating GM food. The rate of people who know about gene recombination technology and their safety is low. The rate of people who know about obligation which is applied to Gm food in japan is extremely low. However, 60% of people know about displaying which say that it is GM food. More than half of people replied yes to the question "do you buy the non-GM food even if it is expensive?"

Judging from these data, I concluded that few people know about the code of displaying because they are too complicated for consumers to understand. Few people also know about genetic recombination technology. And a lot of people try to avoid eating GM food while they do not know whether it is safe or not.

II Consumer's attitude in other country. Second, I investigate consumer's attitude in other country. According to "Determinants of Consumer Attitudes and Purchase Intentions with Regard to Genetically Modified Food – Results of a Cross-National Survey", consumer's attitude formation and decision-making are more comparable among Danish, German, and British consumers than with Italian consumers. And at present consumers reject the technology overall rather than evaluate products on a case-by-case basis.

Ⅲ Law in Japan

Third, I investigate the law about GM food in Japan. I will write the contents.

When GM food is used as a raw material, it is supposed to be displayed in parentheses in the raw material name or name on the product label. However, if a new gene or a new protein produced by the gene cannot be detected technically, no labeling is required. (Egg oil, soy sauce, mayonnaise, etc.) If it is not the main ingredient of processed foods (the ratio of the weight of all ingredients to the top three and the ratio of the weight of ingredients to 5% or more), the indication is omitted.

Ⅳ Law in other countries

I investigated other countries, too. I investigated the law in the US, Brazil, Korea, Australia and European Union. I chose one country per one continent except Africa continent because I could not find good example. I will write these contents.

- The US

The law about GM food was established. This law force GM food producer to prove it is GM food if it is. It this law is effective over the US. Producer have to prove it by sentence, symbol mark, or QR code. That QR code navigate consumers to web site which provide them with detail information. However, this consumer may not understand the meaning of that QR code in one sight. So, some people criticize it of having no meaning.

- Brazil

Presidential decree about GM food was announced in 2003. This decree decided that products which include GM food at rate of 1% are obliged to be shown to consumers. This decree is also applied to meat from livestock whose feed was GM food or processed food. There is some symbol mark which shows that the products include GM food. However, some people criticize this symbol mark of giving too much caution to consumers. Then congress is considering new bill. This new law does not force meat from livestock whose feed was GM food or processed food to be shown to consumers.

- Europe

All of the products which is sold must be proved by writing the word of warning on the label. All product made from GM organism, including processed food like refined oil and feed for livestock, is supposed to follow this rule. The formula of sentence has decided yet, so consumer can understand that the product include GM food in one sight.

- Korea

All products using GM food to make is obliged to write about it. If the product has no protein from GM food, such as oil, sugar, alcohol or soy sauce, it has no duty about proving.

- South Africa

Crops or processed food which include GM food have to be proved that it is GM food. If there are any protein came from GM food in product, they do not have to be proved. Even if they have no protein from GM food, if their nutrition or trait have changed, they have to be shown.

4 Conclusions

Judging from Ⅰ ～ Ⅳ , I conclude that there are two reasons why people eat GM food unknowingly although they do not want to eat them. First, few people know about genetic recombination technology. Second, the code of displaying is too complicated for consumers to understand. Then I suggest two solutions to solve these problems.

First, we need to educate consumers in order to increase the number of people who know about genetic recombination technology. So, I suggest educating them in compulsory education. Now, there are some description about it in textbook used in high school biology class. I suggest educating it in health or home economy class in junior high school.

Second, I propose making three kind of symbol mark like the mark for food for specified health use. Mark for product which does not include any GM food, mark for product including GM food, mark for product which might include GM food. For example, third mark is pasted on product made by potatoes, which include GM potatoes and non-GM potatoes and are not separated. I come up with this idea from symbol mark used in Brazil. To make rule about displaying of GM food simple may be difficult. However, consumer can distinguish GM food by seeing three kind of symbol mark. This way is easy to understand for consumers. And producer or seller can prove that it is Gm food easy.

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Medicine changing at plant factories

Delicious food, delicious medicine

12th 5th Grade 4th 16th Keisei Fukumoto

Outline of research

In recent years, Japan's food self-sufficiency rate has become the lowest level among developed countries due to a decrease in the number of farmers. However, with increasing public interest in health, the trend of consuming domestically produced safe agricultural products is gradually increasing. Still, there are many voices that domestic agricultural products are expensive and cannot be bought even if they want to buy them. Under such circumstances, the Japanese government is trying to promote a new agriculture that uses the latest technology called a plant factory. By disseminating this, safe domestic crops can be purchased at low cost, and the impact on Japan due to foreign situations and climate change can be suppressed. In addition, the development of genetic engineering technology has made it possible to produce vegetables with higher nutritional value than usual. I focused on genetically modified crops using this plant factory and thought that I could produce medical products using this technology. Specifically, by recombining the gene of a fruit, the same effect as a medicine is obtained by eating the fruit. If you can make it, the taste and texture will be the same as the fruit, so it will be easier for small children to take the medicine. This study focused on Tamiflu and anticancer drugs used for influenza.

Research motivation

This research is to study the production of genetically modified crops that have the same effect as pharmaceuticals using genetic modification technology in plant factories, and to study the issues in disseminating them, and to give their own opinions Is the purpose.

Research method

1 Internet survey

Research on the production of drugs at the Ministry of Agriculture, Forestry and Fisheries, National Institute of Advanced Industrial Science and Technology, Japan Plant Factory Industry Association, plant factory, etc. I used the Kashima construction site.

Research results

What is a plant factory?

The plant factory maintains the optimum environmental conditions such as temperature, light, carbon dioxide, and nutrient solution in the facility with automatic control equipment, and is consistent throughout the year plan from crop sowing, transplanting, harvesting, and

shipping adjustment. Production system. Since it is produced in the facility, it is possible to supply crops periodically and stably without being influenced by the weather, and it is possible to avoid the damage of pests, and it also leads to employment of elderly people and people with disabilities.

Type and number of plant factories

Plant factories do not use any sunlight in a closed environment, but use "perfect artificial light" that uses fluorescent lights, sodium lamps, LEDs, etc., and artificial light as supplementary light based on the use of sunlight. However, it can be broadly divided into two types: "solar-powered type" that is cultivated using high temperature suppression technology in summer. There are 354 plant factories nationwide, of which 197 are fully artificial light type, 31 are solar artificial light combined type, and 126 are solar type.

(As of February 2017)

Main vegetables produced in plant factories

Frill lettuce

Watercress

Green leaf

lettuce

Romaine lettuce

Sweet basil

Mustard mizuna

Advantages of plant factories

Advantage ①

He cultivation environment is controlled by production in the plant factory. Cultivate in the optimal growth environment for each vegetable, such as day length, temperature, humidity, and fertilizer. So,

・ The texture is good. It is crisp and soft.

・ Taste is good. Egumi, less blue odor, easy to eat. You can eat even if you hate vegetables.

・ Seasonal taste anytime. It is always cultivated in a seasonal state, and the nutrients are the same as in the seasonal season and are of high quality.

Advantage②

The plant factory is a closed space. Produces safe and safe vegetables with little invasion of pests, no need to spray pesticides. So,

・ You can eat with confidence because it is safe. Pesticide-free and safe cultivation.

・ Easy to wash. In the completely closed type, you can eat without washing.

・ The number of bacteria is small and the shelf life is good. Since there are few harmful bacteria, it will last for a long time

Advantage ③

Planned production and stable supply are possible without being affected by climate change. So,

・ There is no need to throw away the lower leaf. It doesn't hurt, it doesn't get dirty, it can be eaten whole from the first one, it's economical, and it doesn't take much time to save.

Actual efforts of plant factories

Plant Factory Research Center, Osaka Prefecture University

R & D direction

The plant factory is composed of a wide range of technical elements and cannot be covered by a single company. R & D is required to be accelerated and sophisticated through an organic collaboration system consisting of multiple companies and universities. Yes. The Center focuses on these missions together with many corporate members as a research and development base specializing in fully artificial light. Plant cultivation research and development

　Cultivation research and development of high value-added plants

Functional vegetable production technology / development of delicious leaf vegetables and fruit tree cultivation system (reliable, delicious, rich)

"Green Crocs New Generation (GCN) Plant Factory Demonstration / Evaluation Innovation Center" has utilized two facilities since 2011, and has been working together with industry and academia to try to solve the problem of reducing plant production costs. A project to develop and create a full-scale mass production scale plant factory commercialization model (new generation plant factory) and open up a new stage. Efforts to verify the first 40% reduction in production costs in Japan by utilizing the latest research results such as the use of clock genes, the full use of LED light sources, and automatic transfer systems using robots. Based on these demonstration and evaluation projects, plant standardization and business model construction will be promoted, and technologies from Osaka Prefecture will contribute to the expansion and development of plant factories around the world.

　Kashima Corporation

　Plant for manufacturing medical products

　Advances in biotechnology have made it possible to produce specific target substances in genetically modified plants. Attention has been focused on the production of high-value-added substances such as "vaccines" and "interferons" using genetically modified plants using this technology. This is made possible by plant factories that produce pharmaceuticals. However, the handling of genetically modified organisms is regulated by law in Japan, and it is difficult to cultivate genetically modified plants in general fields and houses from the

viewpoint of preventing gene diffusion. For this reason, efforts are being made to produce high-value-added substances in a "closed genetically modified plant factory" that can prevent the spread of recombinant genes, and Kashima has advanced engineering results in this field.

Plant factory for production of high value-added substances such as medical products

"Enclosed genetically modified plant factory"

In 2007, the National Institute of Advanced Industrial Science and Technology constructed the world's first "closed genetically modified plant factory" (design and construction: Kashima) in Sapporo, Hokkaido. In 2012, the Hokkaido Science and Technology Promotion Center (North Tech Foundation) established the second plant in Japan, "Green Chemical Research Institute" (design and construction: Kashima). It was done. These two facilities have both a plant cultivation area with advanced environmental control functions and a gene diffusion prevention function, and a GMP-compliant pharmaceutical manufacturing area, and "production of genetically modified plants" in an artificial environment isolated from the outside world. → "Seedling propagation" → "Cultivation / harvesting" → "Inactivation of genes" → "Extraction / processing / formulation of useful substances" "National Institute of Advanced Industrial Science and Technology, closed-type genetically modified plant factory" is the world's first use of Cartagena method type 2 industry (such as genetically modified organisms with the intention of preventing the spread of the facility to the outside environment) It is confirmed as a facility that complies with the regulations regarding the use of Utilizing these plant factories, efforts are being made for commercialization by related organizations.In 2013, Hokusan Co., Ltd. used the fruits of genetically modified strawberries that produce canine interferon α as raw materials. Canine Gingivitis Reducing Agent "Interberry α" has been approved. This is the world's first approval for a drug made from genetically modified plants that produce medical ingredients.

Advantages of sealed genetically modified plant factory

① Reliable prevention of recombinant gene spread

② Realization of stable production and stable quality independent of the weather etc. by ensuring optimal cultivation environment conditions

③ Realization of advanced hygiene management and pesticide-free management suitable for manufacturing pharmaceutical raw materials

④ Minimize costs and risks related to transportation and storage by integrating plant and pharmaceutical factories

What is medical care at a plant factory?

Medical treatment at a plant factory is an effort to create new medicines and herbal medicines by recombining genes in a closed space called a plant factory. A gingivitis alleviation agent for dogs using strawberries has been developed and is now on the market.

Advances in this technology have the potential for major advances in medicine, such as delicious fruits becoming medical products, enabling the production of Kampo ingredients in Japan, and the stable production of drugs that are difficult to synthesize. ing.

Challenges in developing medical products at plant factories
1. The cost of the plant factory itself is high
2. Genetic modification is strictly regulated by law
3. Sales of ordinary crops deteriorate
→ Farmers are no longer available, and the number of farmers may decrease.
Problem solution
1. The cost of the plant factory itself is high
　　Ingenuity when building a plant factory
Reusing abandoned schools or abandoned factory buildings when creating a plant factory can lead to significant cost savings. In fact, there are places where large corporations such as Panasonic Corporation and schools that have been closed are inviting corporations to create plants for their plants. In addition, installing solar panels on the roof will help save electricity. Furthermore, if the scale is too large when building a plant factory, the running cost will increase accordingly, so start with a small one at the beginning, and add equipment as you get on track. Smaller labor costs can be reduced.
　　Use of subsidies
Currently building plant factories from the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Economy, Trade and Industry You can get a subsidy. Some municipalities that invite plant factories like Ishinomaki City have their own subsidies. There are also places where you can rent a building that can be renewed to a plant factory, rather than a subsidy.
2. Genetic modification is strictly regulated by law
　　In 2000, the Cartagena Protocol and the Cartagena Law were signed at the resumption of the Special Conference of the Parties to the Convention on Biological Diversity. This law aims to prevent adverse effects on biodiversity by taking regulatory measures when using genetically modified organisms. This is also important from the perspective of biodiversity, which can be directly linked to human life. The law itself cannot be eliminated, so the development of new technologies to prevent the outflow of genetically modified crops And so on.
3 Sales of ordinary crops are poor
　Farmers are no longer available, and further farmhouse declines may occur
This will be differentiated from ordinary crops by branding genetically modified crops

produced in plant factories. For example, the genetically modified functional vegetables are compensated for by making them 20% higher than normal vegetables. After that, as research on plant factories progresses, we think that it will be at a price that even ordinary farmers can afford, so we will gradually expand production at plant factories there. In addition, the subsidy system for the construction of plant factories will be enhanced, the school buildings of schools that have been abandoned in recent years, and abandoned factories will be utilized so that construction can be done with as little money as possible

Drugs that should be developed in future

Strawberry with Tamiflu ingredients

Tamiflu is a drug that is taken against influenza A or B and is a relatively familiar drug. Influenza tends to affect children with weak immunity. In addition, the flu causes symptoms such as high fever, so it is a very difficult disease for small children. In such a situation, it is difficult to take medicine, so if you recombine the fruits of your favorite fruits, such as strawberries, so that they have the same effect as Tamiflu, it will be easier to take the medicine, leading to faster recovery.

Anti-cancer food

As you all know, cancer is currently the top cause of death in Japan. Cancer can occur anywhere in the body, including the lungs, liver, and large intestine. For example, when the pancreas is formed, it progresses with almost no subjective symptom, and when it is found, it may be too late. Recently, the probability of cure if cancer is detected early has risen dramatically, but there are places where early detection is quite difficult. Therefore, if a food with an action to resist cancer cells is developed, eating the food regularly can reduce the probability of developing cancer. Eating them also creates awareness of nature and cancer prevention. In addition to daily life, it is also a substitute for anticancer drugs known to have severe side effects during cancer. If these progress, the day may come when cancer is treated like a cold.

<Problem of my proposal>

・ Tamiflu is mainly circulating in the winter when influenza is prevalent, so how to manage other periods

・ Is it safe to put medicine in the supermarket's fresh food corner?

・ Is it safe to take Tamiflu without a prescription?

It is impossible to change the period of influenza epidemic and limit the period of demand. In addition, the management of genetically modified plants is legally difficult, and it is quite difficult, and if it flows out to the outside world other than the distribution period, or it is mixed with vegetables produced in the same factory, it is difficult. is there. Therefore, instead of Tamiflu, we will develop a strawberry that has the same effect as Japanese encephalitis,

which is a vaccination. If so, the period of vaccination is not as limited as the flu season, and the production period is long, so I think that the risk of unexpected spills can be avoided. In addition, there is no prescription for hitting Japanese encephalitis. In addition, Japanese encephalitis is made at a lower concentration than what we are currently struggling with, so if it is labeled on a package as a food that is highly nutritious and effective in preventing influenza, I think there is no problem . In addition, I don't need injection, so I think it will be kind to small children.

· Is it safe to take foods with anti-cancer activity on a daily basis?

· What are the countermeasures against accidental eating without knowing that the drug is healthy?

I didn't know much about this, but when I took anticancer drugs

Since side effects such as nausea, malaise, and hair loss appear, it seems that it can be administered by healthy people

Absent. However, since it is taken only in daily life, if it is shaped like a functionally labeled food, such as reducing the anti-cancer effect or the current alpha rice, I don't think so. In addition, write alerts on conspicuous places such as wrapping paper. In addition, it will be a story about the development of technology, but if genetic engineering technology develops in the future, I think that it will be possible to develop something with few side effects, so if it does so, it will be a problem even if it is taken daily I don't think so.

<Task>

My research has only been able to go through proposals, and I have not been able to verify that my `` strawberry with ingredients of Japanese encephalitis '' or `` food with anti-cancer activity '' can really be realized, especially With regard to "food with anti-cancer activity", there are many cases where the risk of side effects is unknown. In the future, it will be a major challenge to verify whether it can be realized, how to deal with health problems such as side effects, and to collect medical knowledge about Japanese encephalitis and anticancer drugs. It is.

Summary of research

Plant factories are making efforts to popularize the country, and the number of plant factories is expected to increase in the future, but on the contrary, it is an industry that still has many challenges, and in order to spread it must be cleared. However, the industry using plant factories will surely develop in the future and will carry Japanese agriculture. If we can make use of such state-of-the-art technology to make medical products using foods with genetically modified foods, I think we can create an environment where we can be aware of diseases and take measures against cancer on a daily basis. However, there are still many issues in my research. To that end, I would like to advance the approach to the problem through

further research, verification and presentation.

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National Institute of Advanced Industrial Science and Technology

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Efficient reception of traffic information

-Reducing traffic congestion with real-time information-

Gunma Prefectural Chuo Secondary School Maeda Yoshiki

1. Overview

Currently, traffic jams occur in many places, but there are cases where the traffic jam prediction does not work well. Therefore, I thought that there was a problem with the current congestion prediction technology, and devised a new distributed congestion prediction system.

2. Research motivation

Currently, traffic jams occur in many places. Congestion increases the standard travel time in Japan by 50%, causes an economic loss of 12 trillion JPY, and reduces the survival rate in emergency by 50%. In order to avoid this, congestion prediction is important, but a certain delay occurs at the reception. At present, it is difficult to obtain pinpoint information from the point of view. Therefore, I thought that if I could get a pinpoint traffic jam information with real-time characteristics, I would be able to navigate more conveniently, so I decided to start this research.

3. Purpose of research

The purpose of this research is to consider a method of acquiring traffic jam information with real-time characteristics and pinpoint characteristics, and to propose a specific method for actually operating the system. As a result, it is expected that traffic congestion can be known and avoided more quickly, accurately and in detail.

4. Research method

How to use the Internet. The page to be used will be specified later.

In addition, the effectiveness of the proposed system is confirmed by computer simulation.

5. Research results

First, we examined the definition of traffic jam. According to Asai (2001), the overall traffic jam is defined as "congestion even if the vehicle is traveling at a speed of 20 km / h or less, even if it is stopped and the train is not moving. In addition, the exact distance is not fixed, but it is said that traffic jams occur when the length of a row of cars exceeds one kilometer. "According to NEXCO East, the expressway The traffic jam in is a situation where low speed traveling at a speed of 40 km / h or less is repeatedly transmitted.

Next, we investigated how the current traffic jam

▲Traffic counter

(http://response.jp/article/2012/11/07/1845

▲Edge computing

(http://www.ntt.co.jp/news2016/1602/1602

information was obtained. According to NEXCO East Japan, on highways, traffic counters, which are called traffic counters installed at intervals of approximately 2 km, continuously detect vehicles running at speeds of 40 km / h or less, resulting in traffic congestion. It is said that it is. As for general roads, according to the Ministry of Land, Infrastructure, Transport and Tourism (2007), VICS was set up with emphasis on major spots.   I felt that there was a problem with the method of observing traffic on this expressway. The reason for this is that the traffic counters are placed every 2 km, so the "1 km in length" definition of traffic jam in Asai (2001) may not be observed every 2 km. However, there is a problem with adding traffic counters. According to the Ministry of Land, Infrastructure, Transport and Tourism (H25), the price of the traffic counter was 10 million yen, which was very expensive. Therefore, I thought that a traffic jam prediction method for a fundamentally different system was necessary.
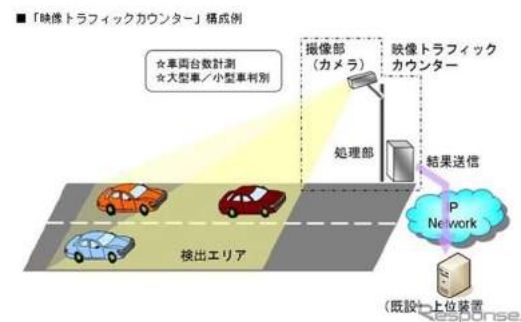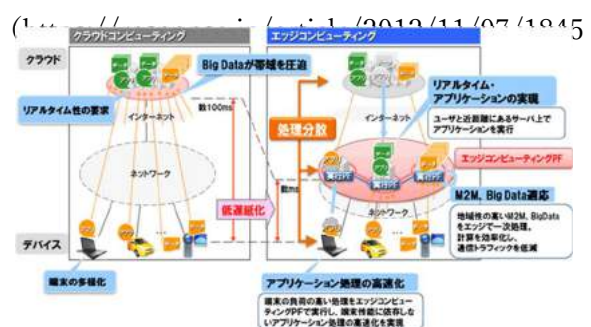
Therefore, as a new system, I use Peer to Peer (P2P) communication technology and edge computing, and even if I do not go through a large-scale server, the running car can communicate with surrounding cars on the spot as a system. I thought it would be better to convey the road conditions to the following car. The advantage of this system is that real-time performance is strong because information can be obtained directly without going through a large-scale server. Also, by

▲Peer to Peer

(http://www.dreamnews.jp/press/000014

3606/)

sending the information to a large-scale server in the end, it is possible to obtain more detailed information than the conventional ones at 2km intervals, so it is more detailed for vehicles without the system or where communication is not possible. Can send information.
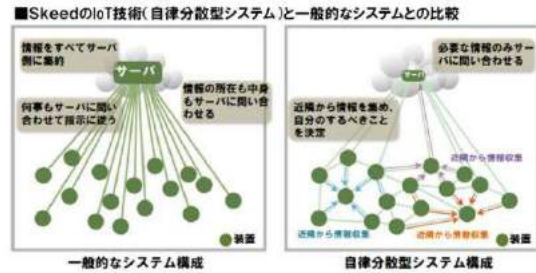
6. Simulation

I conducted a computer simulation with tens of thousands of vehicles. The method is as follows.

・ Creating a grid-like city

・ Prepare national roads, prefectural roads, city roads, and village roads.

・ Prepare any number of cars. This time it was 50,000.

・ Cars appear on the road with random numbers.

・ The car moves according to rule 184.

▼Rule 184 cell automaton

current pattern	111	110	101	100	011	010	001	000
new state for center cell	1	0	1	1	1	0	0	0
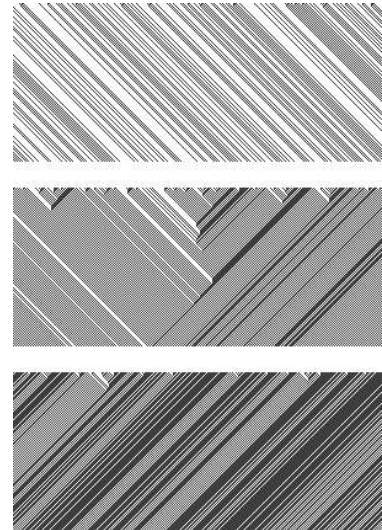
・ Measure by the number of loops in the program.

・ It is assumed that it runs on national and prefectural roads in 2 loops, 3 loops, and 4 roads on village roads.

・ A road is prepared. At the intersection, a ratio is set according to the type of road ahead, right turn, left turn, and turn according to the probability.

• Prepare a signal and the car will comply with it.

・ Each car should have a probability of an accident, and if that happens, the road will be closed. If the car is closed, it will stop until it is cleared.

・ Congestion is a condition that multiple cars with the system do not move on the same road even after 5 minutes.

・ If a traffic jam is detected on the road where the following car is going straight ahead, the establishment of a right turn or a left turn will be greatly increased.

・ The effectiveness of the system is determined by the time it takes to reach a specific point from a specific point. The Dijkstra method is used for route search.

・ Dijkstra method(Wikipedia)

Let the node at which we are starting be called the initial node. Let the distance of node Y be the distance from the initial node to Y. Dijkstra's algorithm will assign some initial distance values and will try to improve them step by step.
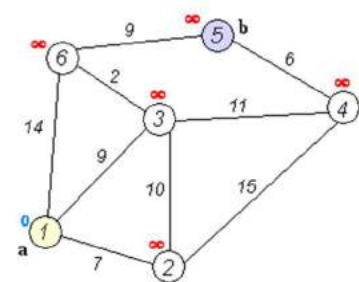
1. Mark all nodes unvisited. Create a set of all the unvisited nodes called the unvisited set.

2. Assign to every node a tentative distance value: set it to zero for our initial node and to infinity for all other nodes. Set the initial node as current.

3. For the current node, consider all of its unvisited neighbours and calculate their tentative distances through the current node. Compare the newly calculated tentative distance to the current assigned value and assign the smaller one. For example, if the current node A is marked with a distance of 6, and the edge connecting it with a neighbor B has length 2, then the distance to B through A will be 6 + 2 = 8. If B was previously marked with a distance greater than 8 then change it to 8. Otherwise, the current value will be kept.

4. When we are done considering all of the unvisited neighbors of the current node, mark the current node as visited and remove it from the unvisited set. A visited node will never be checked again.

5. If the destination node has been marked visited (when planning a route between two specific nodes) or if the smallest tentative distance among the nodes in the unvisited set is infinity (when planning a complete traversal; occurs when there is no connection between the initial node and remaining unvisited nodes), then stop. The algorithm has finished.

6. Otherwise, select the unvisited node that is marked with the smallest tentative distance, set it as the new "current node", and go back to step 3.

When planning a route, it is actually not necessary to wait until the destination node is "visited" as above: the algorithm can stop once the destination node has the smallest tentative distance among all "unvisited" nodes (and thus could be selected as the next "current").

7. Result

1	2	3	4	5	6	7	8	9	10	11
60%	40%	80%	100%	70%	90%	30%	50%	10%	0%	20%
17618.91	18367.45	18546.64	18962.73	19011.64	20891.36	21632.36	21989.91	23720.91	24669.73	24822.54

The average values of the simulation results are shown in the table above. In this simulation, random numbers have a large effect, so in the current situation where the number of trials is small, it is not a statistically reliable value, but a simulation with a large proportion of cars equipped with the system has obtained relatively good results I understand that.

8. Conclusion

The conclusion is that the current system is inadequate as a countermeasure for traffic jams, so it is indispensable to use a more efficient public security method for receiving traffic jam information.

9. Research subject

I haven't given a specific implementation method. In particular, since the Peer to Peer method is assumed, what kind of data should be sent and calculated, and the amount of communication traffic and the difficulty of implementation cannot be assumed. .

Another problem is that it does not give a result of how much the delay of traffic information affects.

In this simulation, there was only one car heading to the destination. In reality, however, most cars should have a destination and drive. Therefore, if every vehicle is made to have a destination and the combination to efficiently move all the routes of the vehicle equipped with the system can be optimized, it will be a more realistic simulation and expected to be an ideal system. . However, it is difficult to find exact solutions for combinatorial optimization problems, and the amount of computation is enormous. Therefore, it is thought that advanced algorithms, supercomputers, quantum computers, or both are required to realize them. (NP hardness). Therefore, the solution of this problem is the subject of research.

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Reform the football

~How to raise best eleven~

5418 Maki Yuma

1 Research overview

In the Russian World Cup, the Japanese national team participated in the final tournament, and the result was the best 16. It can be said that it is a breakthrough from the perspective of old Japan, but it is far from winning the World Cup in Japan. However, the collusion power, team power, and the possession football that has been built up in Japan can be said to be high in terms of global standards. Since JFA's educational policy is not different from other countries, I thought that there was a problem in the method of raising junior and senior high school students. To be able to be an advisor to the soccer club, you must have an official qualification from the Japanese Football Association or higher than a D-class coach. Another way is to get coaches from outside the school to teach. In this way, club activities can be promoted with a clear vision. In addition, we thought that it would be possible to improve the official game by creating a mixed game of clubs by setting up a practice game with the club to reduce differentiation from the club team.

2 Purpose of research

Recently, I often hear that Japanese people don't have strikers in soccer. In this way, I thought that there was a problem in human resource development in Japan. In this research, we will study the theory of football that is necessary compared to the world.

3 Research methods

The research method is literature survey and interview survey.

The literature survey will be on the Internet and books, and the interview survey will be an interview.

We will investigate the methods of coaching soccer players in each country and look for differences from the current situation in Japan and the best way to train them. Also, based on the information of the Russian World Cup, I will study what kind of football each country plays and what kind of play is not enough to win.

4 Research results

<Characteristics of Japanese football from the Russian World Cup>

Japan won the first round against Colombia 2-1. The second round was a draw with Senegal. The third round was against Poland and lost 0-1. As a result, the group league scored 1 win,

1 loss and 1 minute, and entered the final tournament.

In the first round of the final tournament, Japan played against Belgium, but lost 2-3. Although Japan lost the game, it was highly evaluated, and there were many reports from overseas media.
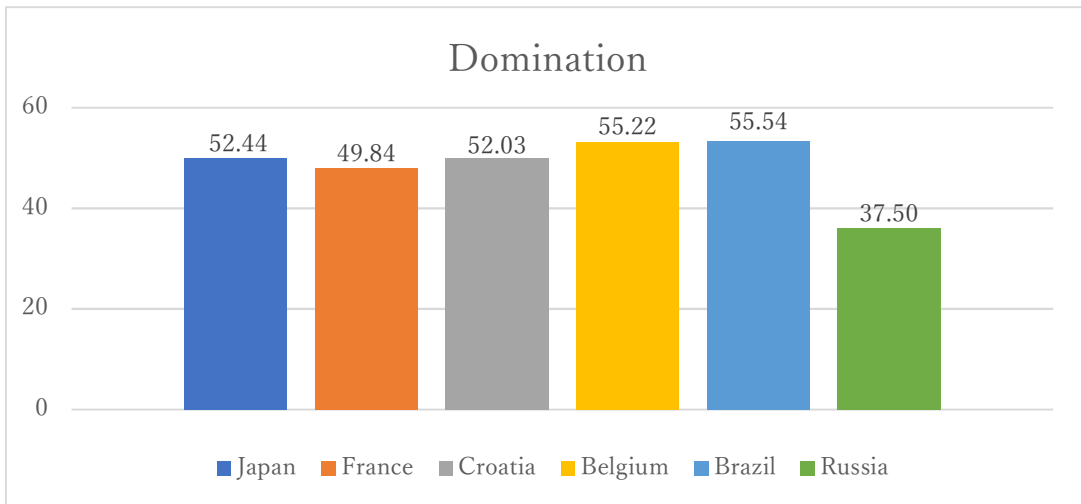
Nishino's soccer concept is to strengthen team organization, build up by connecting passes from the back, and establish a possesion in the middle. Taking full advantage of the Japanese technology and agility, they gained leadership by enhancing cooperation and linkage.
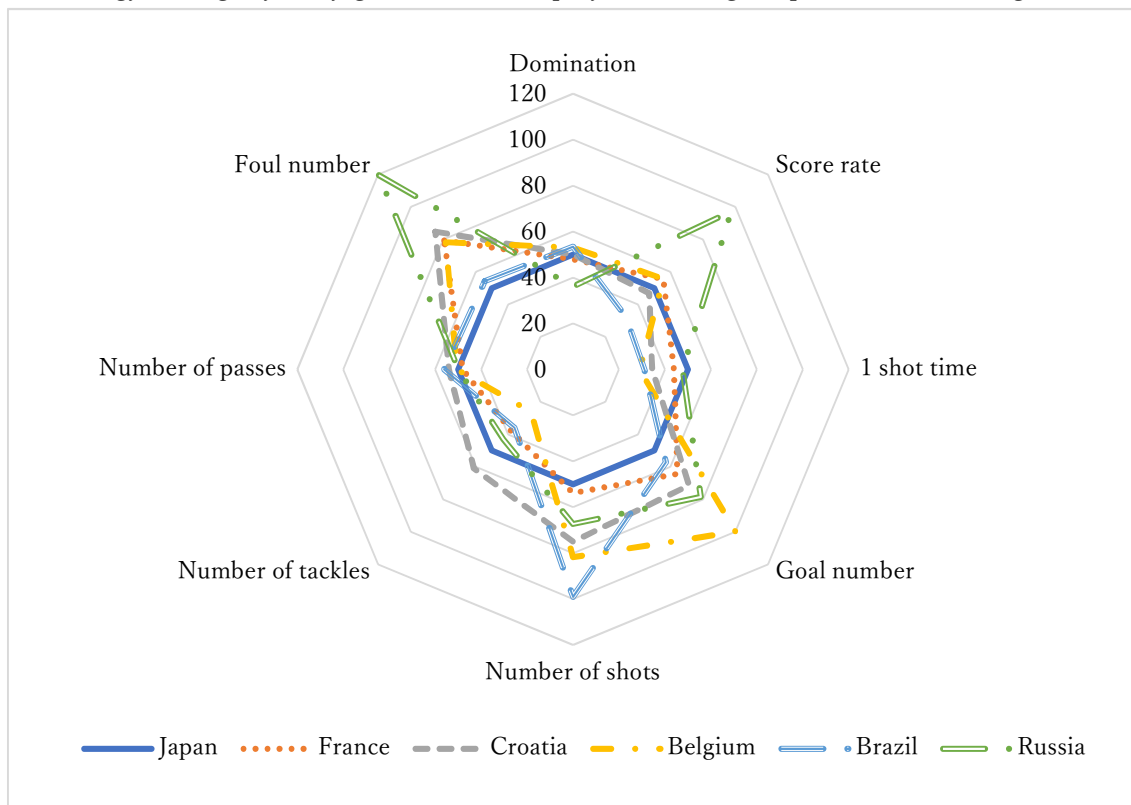

The graph below compares the soccer statistics of Nishino Japan and other countries about Football.

Based on this data, we will look at what kind of points Japan is lacking, whether Japan can be playing their soccer.

The Japanese soccer concept strengthens organizational strength, builds up by connecting passes from the back, and establishes a possession in the middle. The emphasis was on the use of technology and agility, which are the characteristics of the Japanese, with an emphasis on "pass soccer", which is to take the initiative by enhancing coordination and linkage.

Domination

Country	Value
Japan	52.44
France	49.84
Croatia	52.03
Belgium	55.22
Brazil	55.54
Russia	37.50

As you can see from this graph, Japan has a low dominance rate except for Russia, which aims at the counter, and France, which advances the game with individual power. It can be said that pass soccer is making a game by raising the control rate. Therefore, the game rate must be increased, but Japan has a lower control rate than other countries. In fact, it can be said that it is enough possession soccer if the control rate exceeds 50%. However, Japan is far from overwhelming. Simply put, it's halfway. There are no features. Therefore, if you play possession soccer, it is important to raise the dominance rate.

Score rate

Country	Value
Japan	7
France	9
Croatia	10
Belgium	14
Brazil	8
Russia	11
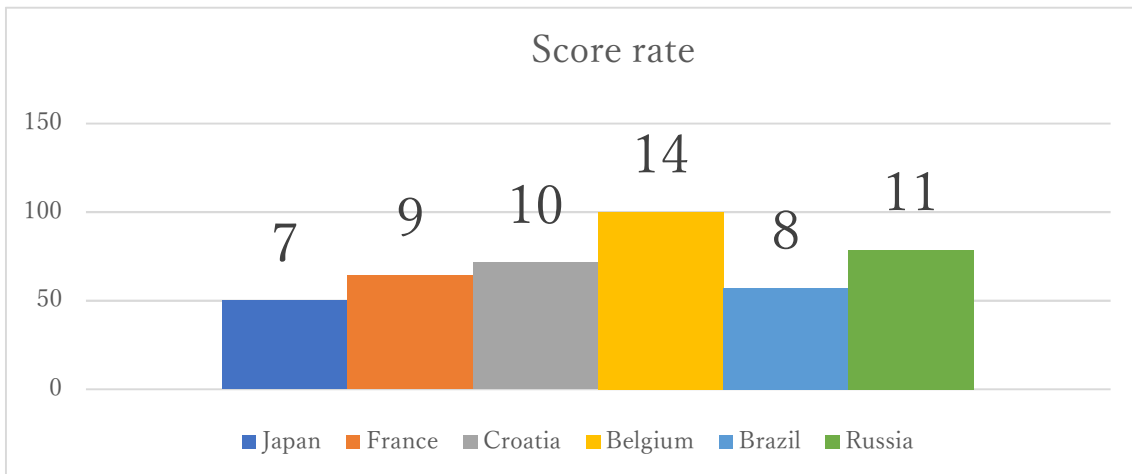
The next challenge is scoring. Japan has the smallest number of goals in each country. Many professional players in Japan are also active overseas. However, no player can be called an absolute striker. If you have a teammate next to you and give a pass, your teammate can score a goal. "However, you can shoot without hesitation even under such circumstances."It is Necessary.
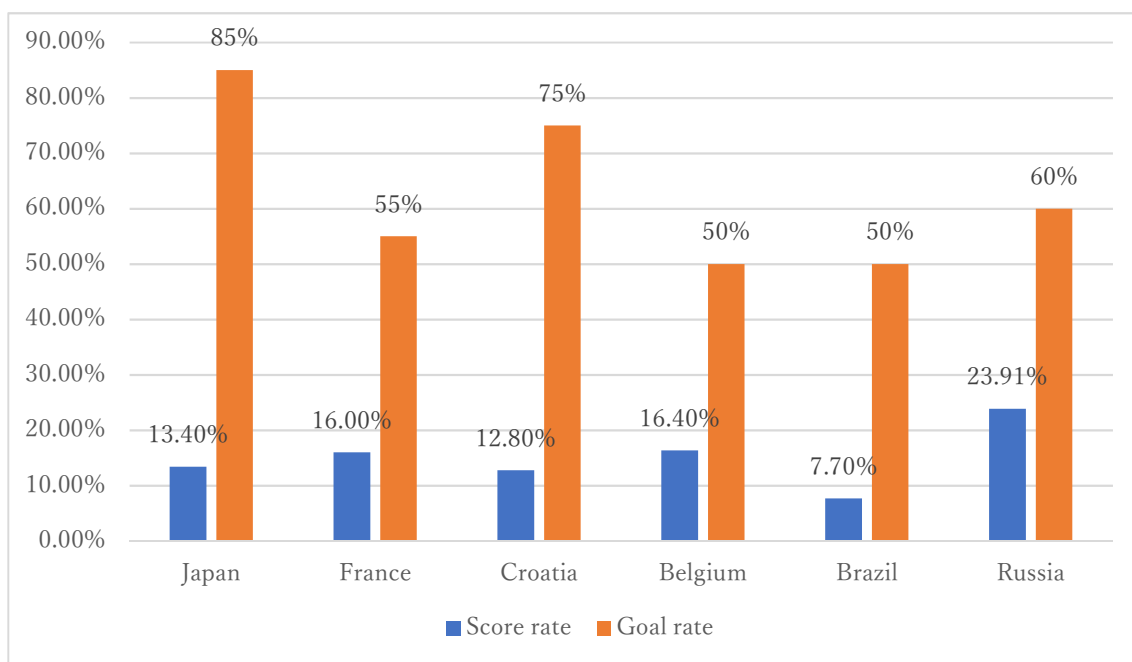
As can be seen from this graph, Japan has the second lowest scoring rate after Brazil. In addition, the goal loss rate is the lowest compared to other countries. As you can see, Japan has fewer goals, and both the score rate and the goal loss rate are bad.

	Japan	France	Croatia	Belgium	Brazil	Russia	Spain
1 shot time	174	156	120	101	108	166	150
Number of shots	52	56	78	85	103	70	70

Also, as you can see from this table, Japan is not as aggressive as other countries. You may have been able to take shape and attack over time while being conscious of Japanese pass soccer, but it is clear that you have not finish attacking because of the low scoring rate.

Thus, Japanese soccer is able to carry out their own pass soccer, but has not been able to bring it into the final shot. It is thought that the current Japanese need is to be conscious of pass soccer as well as the ability to bring a shot.

So what do you need to "attack"? There are no strong players in Japan that can change the

game flow. To that end, I thought that the training method for Japanese players must be fundamentally changed.

From this conclusion, we will investigate the method of training players of the Japanese Football Association and compare it with other countries, and consider what is lacking in Japan and what can be improved to fight with the world.

<JFA's player development concept>

Japan Football Association

Their spirit   "Players First!"

When thinking about player development, there are important words that you must never forget.

It is "Players First!"

This is a term you should always turn back to when judging something in various dimensions every day, or when a difficult challenge arises from reform. There may be various problems and difficulties. However, I would like to overcome this by thinking about things based on what is best for children.

<div align="right">

http://www.jfa.or.jp/training/players_first/

</div>

Based on this secret word, we are promoting player training with emphasis on three major points.

"World-class player development"

The content is that, regardless of whether Japan is present or not, we will visit the world competitions of each era and prepare a technical report. This is a cycle of extracting issues from here and challenging again to the world competitions of each category. The content is shared with the entire Japanese football community, sharing information and directions regarding future reinforcement and development, and aiming to improve the level of Japan as a whole. The short-term ones are reflected in the representative team, the medium-term ones are trained in youth and teacher training, and the long-term ones are reflected in grassroots.

Grassroots: JFA is an organization that aims to create a society where everyone can enjoy football anytime, anywhere under the slogan "Football For All".

普及

代表強化

指導者養成　　ユース育成
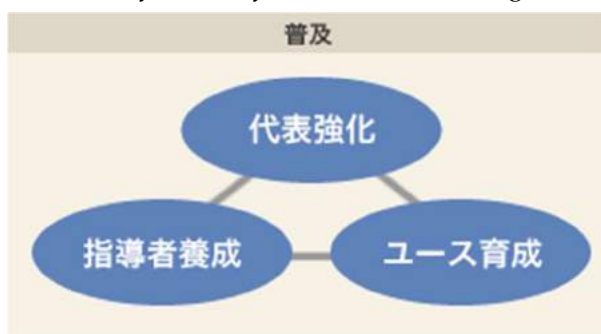
"Trinity"

The Trinity means that the three departments—reinforcement of representatives, fostering youth (young people), and training of leaders—have the same knowledge and information, and aim to strengthen and cultivate players and improve the level of Japanese football. It is a system. *

Reinforcement of the representative is not only a short-term strengthening by collecting the representative players, but also a thing that is done by daily training with the belonging team, and one player suddenly becomes strong well when becoming an adult Rather, it will be strengthened through repeated training from the youth age. It is clear from the world that countries that fail to nurture youth will not last long, and top-level powers or top clubs have placed great importance on youth development. In Japan, the national training center is the top, and the framework for youth development throughout the country has been established, and the level has been improved through elite programs, the JFA Academy, and others.

And it is the instructors who instruct such athletes every day, and the development of high-quality athletes requires an improvement in the level of daily instruction by the instructors. In other words, if you want to foster good youth, improving the quality of leaders is essential. To that end, it is necessary to work to increase the number of courses and enhance re-education with the aim of training more and more quality leaders.

"Developing players from a long-term perspective"

Rather than the immediate victory at the moment, the primary objective is how a single player grows greatly during his independence period. It is a way to give a challenge at a time when the ability is most easily absorbed. Consistency is necessary for that. This idea is shared by all Japanese leaders, and even if players are moving across different types, teams and leaders are changing, everyone is aware of the future of the athletes, The idea of teaching age.

This will be compared with the training methods in each country.

-Comparison target-

Spain, Italy, Portugal

"Spain"

Nurtured in a fulfilling environment centered on subordinate organizations. Athletes are finely categorized every 2 or 3 years of age and can receive guidance in line with their developmental status. Also raised

Even in the adulthood, he spends the same cycle season as professional players. Spanish players are trained as they experience a lot of matches, so a small team will play every weekend. In addition, the number of matches is not guaranteed only for certain strong teams, but for players of all categories at all levels. It can be seen that such enhancement of the environment at the bottom leads to the improvement of the domestic league, which in turn leads to the improvement of the national representative.

"Italy"

Players are finely categorized, there are leagues in each level of each category, and players are trained in official games. In addition, each club receives guidance from the Italian Football Association to instruct players, and the Football Association examines and ranks the club's development environment and provides detailed development guidelines for each category to the club. Against. The cooperation between professional teams and local clubs is also strong, and with the support of the football association, a broad development environment centered on clubs in each region has been established.

"Portugal"

Domestic league clubs with finely categorized teams and extensive facilities are nurturing players in league games throughout the year in cooperation with regional clubs.

In this way, the powerhouses of each country are categorized according to their detailed age groups, and can practice in an environment suitable for their level. In addition, the guidance policy of the instructor is unified, and the players are raised throughout the country.

Japan is not much different from other countries in professional training methods. However, clubs that are largely categorized by the 6.3.3 school system cannot provide appropriate guidance according to the player's developmental stage. In addition, the tournament format is the mainstream for official games in Japan's breeding era, and players cannot gain enough experience. In addition, the Japan Football Association is focusing too much on the training center system and some elite development by the JFA Academy, neglecting to revitalize the

region and clubs and raise the overall football world.

From this research result, I thought that Japan had a problem in the way of nurturing in school days, not after becoming a professional.

<Meanings of club teams>
The decisive difference between club teams and club activities is the quality of the leaders. In the case of club activities, teachers form a team from scratch. There are not a few teachers who leave it to students. So even talented players end up in the city as strong soccer players. However, in the case of a club team, a coach who is certified by the Japan Football Association is required to supervise the club team, so it is possible to receive guidance from a leader who has a certain level of coaching skills. In addition, because it is meritocracy, there is a treatment that is commensurate with the result as much as the ability is raised.
In high school, the difference with the powerhouse school is more widened, but the level of high school soccer is also increasing and there are more high schools where you can fight equally with club teams.
From this, it is considered necessary to raise the level of the advisory of club activities in junior high school or to raise the level of the football world by activating the club team more.

<How to change junior high school soccer>
As much as possible, in order to become an advisor to the soccer club, you must have an official qualification from the Japanese Football Association or higher than the D-class coach. Another way is to get coaches from outside the school to teach. In this way, club activities can be promoted with a clear vision. In addition, we thought that it would be possible to improve the official game by creating a mixed game of clubs by setting up a practice game with the club to reduce differentiation from the club team.

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Deforestation of the world

～Social factor and solutions～

5419　Matsushita Satoya

Abstract

 In this research, the issue of deforestation is to investigate the causes and solutions of each country, and to raise interest. Forests not only play a role in protecting biodiversity and preserving soil, but also create a comfortable environment for humans and have a positive impact on the body and spirit. The role of forests is to protect existing forests because natural forests are larger than artificial forests. Causes of deforestation include artificial fires and illegal logging, such as land use conversion and slash-and-burn due to population growth. Current solutions include building forest monitoring systems, planting trees by companies, and sustainable forest management policies by the government. However, in developing countries, there are situations in which forests have to be cut to live. However, it is important to listen to the voices of local people rather than unilaterally pushing to stop deforestation, so we want to think about ways to stop deforestation and environmental destruction in cooperation with local residents.

1. Purpose of research

　Currently, there are about 4 billion hectares of forests in the world. This is about 31% of the world's land area. However, about 5.2 million hectares decrease every year. I felt a problem there, and there are many roles for forests, so I became aware that I had to protect the existing forests, and I started research on such a theme. The purpose of this study is to investigate the current forest conditions and forest conservation and countermeasures in countries with large or greatly reduced forest areas. In addition to thinking about solving the problem, it is also an issue to raise interest among the general public who are less interested in the current forest problems.

2. Research methods

　Mainly surveys on the Internet. The flow of research is to investigate the role of forests and the causes of deforestation in the world as a whole, and then to investigate foreign cases and countermeasures. The target countries are Brazil, Indonesia, Tanzania, and Japan. The reason for setting the target country in this way is that Brazil is one of the most forested countries in the world, but also the largest deforested country in the world. Next, Indonesia, like Brazil, is a country with high biodiversity and abundant nature, but the forest area temporarily decreased but gradually increased again, so I was worried about measures. This is because I learned that illegal logging of forests is taking place.

Tanzania has also been rapidly deforesting in recent years, and will investigate the current situation in Japan, which is its own country. Ultimately, the goal is to disseminate and send solutions.

3. Research achievements and issues

The SDGs (Sustainable Development Goals) have the following descriptions:

> Goal 15. Protect and restore terrestrial ecosystems, promote sustainable use, manage sustainable forests, combat desertification, and prevent and restore land degradation and biodiversity loss
>
> 15.2 By 2020, promote the sustainable management of all types of forests, stop deforestation, restore degraded forests, and significantly increase new and reforestation throughout the world.

In that context, themes will be focused on forests, and solutions will be considered while touching the role of forests and the causes of deforestation.

The role of forest

Biodiversity conservation function

Working to protect diversity, involving many creatures. Japan currently has over 550 species of birds and over 6000 species of plants, each of which lives according to the environment.

Global environmental conservation function

Work to maintain the environment so that humans and organisms can live easily. The annual CO_2 emission per household is 6500 kg, which is absorbed by 460 cedars.

Soil conservation / sediment disaster prevention function

Work to prevent the outflow of earth and sand. Sediment runoff is 2t / year · ha in forest, 15t / year · ha in arable land, and 307t / year · ha in bare land, and it can be said that there is less sediment runoff in forest. There is also a function to keep the soil on the slope by the roots of the trees.

Water source recharge function

Work that contains a lot of water. Comparing the water penetration capacity, the forest is 258mm / ha, the grassland is 128mm / ha, the bare land is 79mm / ha, and the forest is more likely to contain more water. Forest soil has a sponge-like structure, which can help reduce flooding and clean water.

Comfortable environment formation function

The work that keeps humans comfortable. Evapotranspiration also lowers summer temperatures and helps reduce heat island decline. In addition, it will mitigate climate change, absorb dust and pollutants, and take measures to prevent sound.

Health and recreation functions

The work that humans bring a healthy and prosperous life. Volatile substances emitted from trees lead to stress relief and healing. According to the Japanese Journal of Hygiene, the amount of stress hormone is 0.25 in forests and 0.35 in cities: less in forests.

Cultural and educational functions

According to the National Youth Education Promotion Organization, there is data that people with abundant natural experiences have a greater sense of morality and justice. It also leads to the formation of views of nature, traditional culture, and education for children.

Material production function

It is an indispensable function for humans to produce food and fuel. It is a semi-permanent material that supplies timber, mushrooms, wild plants, bamboo, etc. that are supported as recyclable resources.

Causes of deforestation

Land use conversion

The purpose of land use has been changing due to increased demand for food and biofuels. For example, in Southeast Asia, forests are cut down to oil palm farms, and in Amazon, forests are converted to sugar cane farms and ranches. Expanding production of commercial crops such as oil palm, coffee, rubber, soybeans, cocoa and export crops is an important factor.

Non-traditional slash-and-burn agriculture

Originally, slash-and-burn agriculture means cutting and burning forests, using them as farmland, and returning them to the forests with natural resilience, but due to population growth, the cycle is shortened and the forests are not recovered. Bake and deteriorate.

Increase in forest fires

There may be human causes such as spontaneous firing due to lightning, slash-and-burn, fire for development, fire, misfire, and arson.

Over-collecting wood for fuel

In developing countries, deforestation is done to use firewood and charcoal as fuel for daily life. About half of timber demand is fuel, and the increase in population has made it possible to catch up with the speed of forest recovery.

Illegal logging

Logging in violation of the laws of each country, logging of forests without logging rights (stolen logging), and observance of protected area laws. As a result, sustainable forest management will be hindered, and forest management will be hindered by deforestation / degradation and distribution at low prices. Southeast Asia (Indonesia, Malaysia), Russia, Brazil (Amazon River Basin), USA (Cameroon, Gabon, Congo, and Congo River Basin), etc. are examples of illegal logging areas.

In this way, deforestation has occurred for various reasons. Carbon dioxide emissions from deforestation account for 20% of the total, and can be said to have a significant impact on the global environment.

Here, the natural forest and the secondary forest are compared. A secondary forest is a forest that has been regenerated naturally or artificially after the primary forest has been destroyed by logging or forest fire. The part of the forest where the branches and leaves that receive sunlight directly in the forest are called the canopy is 27.7m for the natural forest and 24.7m for the secondary forest (both are average, Figure2). In addition, according to the survey of the frequency of wildlife photography using a natural photography device, there were about 850 times in the natural forest, Jimmer, and many

図4 林冠高の比較
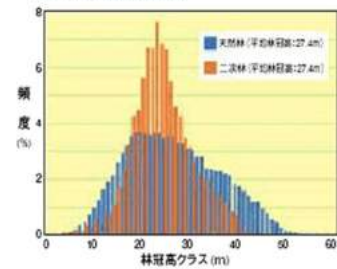
林冠の高さを見ると、天然林ではいろいろな高さの木が分布していることがわかるが、二次林では平均の高さの木が多く、両者の間には構造的な違いがあることがわかる。

(Figure 2) National Institute for Environmental Studies
https://www.nies.go.jp/kanko/kankyogi/04/10-11.html

世界各国の森林率
(国土面積に占める森林面積の割合)

(Figure 3) Forest / Forestry Learning Center
https://www.shinrin-ringyou.com/forest_japan/menseki_japan.php

organisms were confirmed. I understood. For this reason, it can be said that we must protect existing forests because natural forests have a greater merit for living organisms and the natural environment.

There are currently about 4 billion hectares of forest in the world. This is about 31% of the world's land area. However, about 5.2 million hectares decrease every year. Looking at the forest ratio in each country, the ratio of Finland, Sweden, and Japan is high, exceeding two-thirds of the total (Figure 3). On the other hand, looking at the trend of deforestation, it can be said that the percentage of deforestation is high in Africa and South America, but

there is no change in the area in North / Central America and Oceania, and the area is increasing in Asia and Europe. (Figure 4).

森林面積の推移（1990-2010年）

Causes and solutions for deforestation in each country

・Brazil

It has a vast land of about 850km² across the equator, and is a forest powerhouse with the world's largest tropical forest Amazon. It plays a significant part of the

world's biodiversity. 56,000-62,000 species of higher plants (not including moss, lichens and fungi) and many mammals live. This represents approximately 20% of the world's plant species, 20% of birds and 10% of mammals. But Brazil is also the world's largest deforested country. In recent years, the area of decline has been on the decline, but the

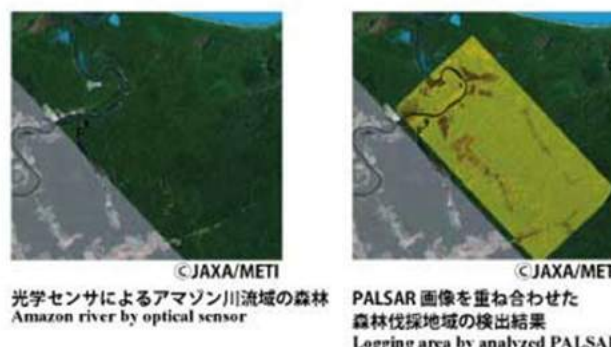need for forest conservation is still high. Brazil is focusing on illegal logging and deforestation control in the Amazon. In recent years, deforestation has been put to a halt. The reasons for this include the strengthening of regulatory surveillance by the government, the linkage of administrative

©JAXA/METI
光学センサによるアマゾン川流域の森林
Amazon river by optical sensor

©JAXA/METI
PALSAR 画像を重ね合わせた
森林伐採地域の検出結果
Logging area by analyzed PALSAR

systems, the raising of awareness of pastoral and agricultural workers, and the construction of a forest monitoring system using satellite remote sensing (Figure 5).

（Figure 5）Forest Monitoring | Remote Sensing Technology Centerhttps://www.restec.or.jp/solution/service/service-forest

・Indonesia

It consists of approximately 17,000 islands covering approximately 5,200 kilometers from east to west. It is said to be the country with the highest biodiversity in the world with the eighth largest forest area in the world and the largest lowland rainforest in Asia. For example, 515 types of mammals, 12% of the world, have been identified on the land of about 1% of the world's land. In addition to direct factors such as forest fires, conversion to other uses of natural forests (industrial plantations, plantations, migration), illegal logging, etc., in addition to direct factors such as forest fires and

increased forest degradation in Indonesia, there is also a logging permit system Some issues have been pointed out, such as the problems that originated, the unclear land ownership system that has led to frequent clashes between communities, including indigenous peoples, and confusion in the process of decentralization. In Indonesia, to prevent deforestation / degradation and promote sustainable forest management, the removal of illegal logging, prevention of forest fires, reconstruction of the forest sector by improving the efficiency and capacity of forest resource management, degraded forests, etc. Five priority policies have been set up: conservation of forest resources through the regeneration of forests and decentralization of the forest sector.

・ Japan

Forests are not decreasing. The law and the system to protect forests are said to "plant trees, grow them, and turn them into forests once they cut down the forest trees". It boasts the highest forest ratio in the developed world. However, the number of forestry workers in Japan is decreasing year by year. Specifically, according to the Forestry Agency, it was 146,000 people in 1980, b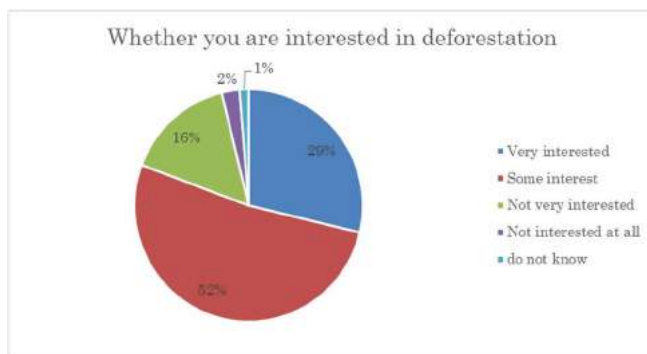ut in 2015 it was 45,000 people, about one third. In addition, the aging rate (ratio of 65 years old and over of the total number) has risen, and the aging rate of 13% in all industries is 25% (2015) in forestry (Figure 6). For this reason, there is a view that deforestation is not
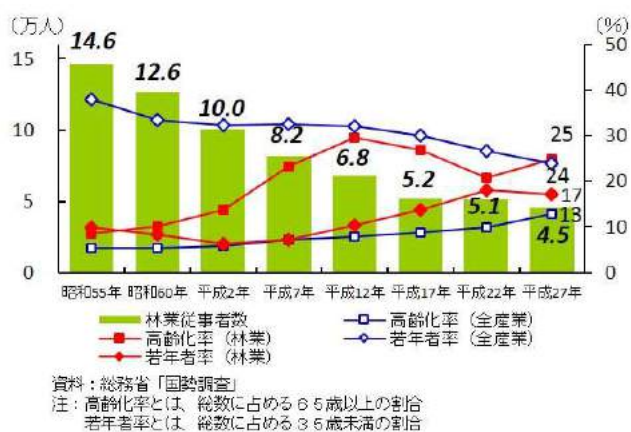
（Figure 6）Forestry labor force trends-Forestry Agencyhttp://www.rinya.maff.go.jp/j/routai/koyou/01.html

progressing as a result because forests are not fully managed. The lack of forestry and the aging of workers are the reasons why Japanese people are not interested in deforestation.

・ Tanzania

Facing the Indian Ocean, eastern Africa. Although it is known for its rich nature, such as Kilimanjaro and Serengeti National Park, it is actually one of the countries where the forest area has been declining significantly. Deforestation is not only because it is a result of advanced development, but because there are situations in which trees must be cut to survive. Tanzania is one of the poorest countries in the world, with 88.5% of people living on less than $ 1.25 a day. Generally, poor countries give birth too many children

for reasons such as securing workers and high child mortality. It is not uncommon for Tanzania to have 7 or 8 children in their family. If the population grows explosively, new settlements and farmland must be developed, resulting in an increase in forest cutting.

Why do we have to cut trees? It has something to do with the poverty issue. There are people who cut trees for life. In developed countries, withering due to air pollution and a decrease in forests due to large-scale fires are seen, but as a result of reforestation from reflections that were reduced by logging during the economic development period, the area has increased overall. On the other hand, in developing countries, consumption of wood and paper and food product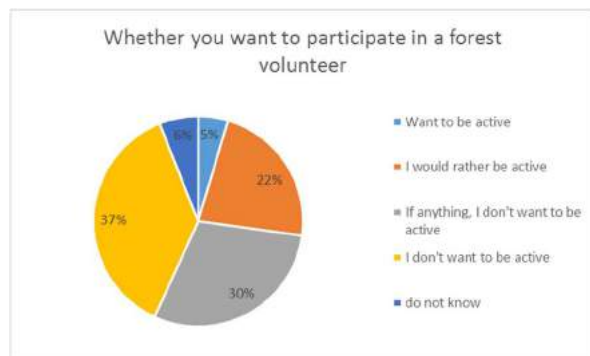ion are increasing due to the increasing population. In order to acquire farmland and live, we must cut down the forest. To resolve deforestation, we must first address the poverty and population growth issues. Also, in solving the deforestation problem, I thought it was important to be interested in the fact that deforestation is progressing around the world. The Japanese thought they were less interested in deforestation, but the Cabinet Office's "Poll for Forests and Forestry" (survey period: January 11, 1996 to January 21, 1996, subject to the survey): According to 3000 people over the age of 20 in the country (including 2282 effective collections), 28.7% of respondents answered that they were "very interested" regarding the issue of deforestation, "somewhat interested"

（Figure 7）Cabinet Office "Public Opinion Survey on Forests and Forestry"（1996）

It was found that interest was high, with 51.9% responding and a total of 80.6% (Figure 7). However, in response to the question of wanting to participate in forest conservation volunteer activities, 9.4% responded that they wanted to participate, and 37.5% responded that they would rather participate. Stayed (Figure 8). In other words, I'm interested in the problem, but I don't know how I should be involved, and someone else does it, so I don't

（Figure 8）Cabinet Office "Public Opinion Survey on Forests and Forestry"（1996）

have to do it. Therefore, I thought it was important to show more clearly what kind of organizations are doing what kind of activities.

In this study, it was found that there are circumstances in developing countries where forests have to be cut for the sake of life, rather than just being cut down to establish clothing, food and shelter. Therefore, it was found that each country is taking measures to solve the deforestation, but first thought that it was important to solve the poverty problem behind it. I thought it was important to listen to the voices of people in developing countries, as well as not to push down the forest. As a future issue, in order to stop deforestation in developing countries, we should consider ways to stop deforestation and environmental destruction in cooperation with local residents rather than simply planting trees.

4.　　Literatures

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・ Forest Partnership Platform-Ministry of the Environment

<http://www.env.go.jp/nature/shinrin/fpp/worldforest/index1.html> (June 22)

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< http://mori-zukuri.jp/foresapo/yutaka> (June 22)

・ "Cabinet Office Public Opinion Survey on Forests and Forestry"

<https://survey.gov-online.go.jp/h07/H08-01-07-15.html > (January 18)

・ "Trends in Forestry Labor Force-Forestry Agency"

< http://www.rinya.maff.go.jp/j/routai/koyou/01.html> (January 18)

To delay the progress of global warming
～To produce photosynthesis on roof～

5420 Ritsushi Mogi

○Summary of research

  One of the world problem is global warming. We are taking measures against global warming, such as the Kyoto Protocol and the Paris Agreement, but no results have been achieved.

  According to Chubu Electric Power, there is one that each of us strives to counter global warming that we can be familiar with. I think that if each person works global warming countermeasures, it will difficult to prevent but delayed. However, I wondered if each person would really work. Therefore, I would like to propose a photosynthesis capable of biochemical reaction that converts carbon dioxide to oxygen, that is, a method of delaying the progress of global warming using plants effectively. Specifically, roof tiles are made using hard and heat-resistant plants such as Agave and Haorchia and used in countries with few natural disasters such as Sweden and Australia. As a result, each person can contribute to their daily lives without being aware of global warming countermeasures.

○ Research background

  Now, global warming is a major problem in the world. We are taking measures against global warming, such as the Kyoto Protocol and the Paris Agreement, but no results have been achieved.

  Although the Kyoto Protocol reduced CO_2 emissions in developed countries, developing countries and others left them open, so the goal of reducing CO_2 emissions worldwide could not be achieved. Under the Paris Agreement, countries around the world are making efforts to reduce CO_2 emissions. However, since this is not an obligation, I think we cannot expect to reduce CO_2 emissions in developing countries. The current CO_2 concentration continues to increase by 2ppm each year. According to the IPCC Fifth Assessment Report, the average global temperature at the end of the 21st century rose 2.6 to 4.8 degrees Celsius, compared to the end of the 20th century. Even in this case, it is predicted that the possibility of a rise of 0.3 to 1.7 degrees Celsius will increase.

  As a measure against global warming that we can be familiar with, we do not waste electricity. 2. Don't rely on cars too much. 3. Increase green. 4. Don't get a plastic bag. 5. Make as little garbage as possible. The one that each person makes an effort is mentioned.

Before and after the industrial revolution, atmospheric CO_2 concentrations increased by 40%. The current CO_2 concentration continues to increase by 2ppm each year.

1986 年～2005 年平均気温からの気温上昇（産業革命前と比較する際は 0.61℃を加える）
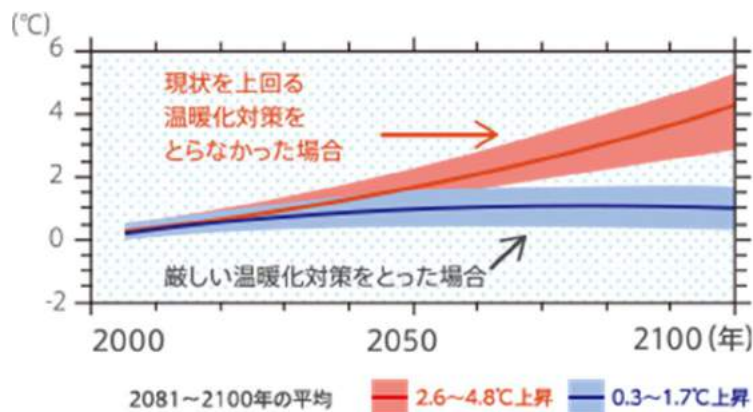
出典：IPCC 第 5 次評価報告書 統合報告書　政策決定者向け要約　図 SPM. 1(a)より環境省作成

As a measure against global warming that we can get close to by Chubu Electric Power, we do not waste electricity. 2. Don't rely on cars too much. 3. Increase green. 4. Don't get a plastic bag. 5. Make as little garbage as possible. The one that each person makes an effort is mentioned.

○Purpose of research

Even if we can't prevent global warming, we can delay progress. Therefore, I want to give a proposal that would allow each person to substantially reduce carbon dioxide emissions without being aware of global warming.

○Research method

I use the Internet as a research method. There is a lot of lie information, so I choose information.

○Research results and issues

In order to reconfirm the basic knowledge of global warming, we investigated the effects, causes and countermeasures of global warming.

1. Impact of global warming

As glaciers and ice in cold areas melt, the amount of water in the sea increases and the water level rises, and low-lying land and small islands sink into the sea. As a result, there is no place for living creatures that have lived on ice or living in forests until now, resulting in a decrease in animals and plants. In addition, sudden climate change will occur, and the number of creatures with contagious diseases that have lived in hot areas such as the tropics will increase.

In addition, areas where rain does not fall and areas where typhoons and floods are likely to occur increase, making it impossible to harvest a certain amount of rice and field crops, thereby reducing the amount of food.

2. Causes of global warming

It is thought that the generation of greenhouse gases by human activities is affected, and it is said that the increase of carbon dioxide is particularly affected.

3. Countermeasures for global warming

According to Chubu Electric Power, what we can do close to ①Don't waste electricity. ②Don't rely on cars too much. ③Increase green. ④Don't get shopping bags. ⑤Don't throw out garbage as much as possible. The one that each person makes an effort is mentioned.

○ Conclusion/Future outlook

I think that if each person works global warming countermeasures, it will difficult to prevent but delayed. However, I wondered if each person would really work. Therefore, I considered a method that would enable each person to work on global warming countermeasures without being aware of it. One year ago, I thought creating a roof and clothes using only chloroplasts with photosynthesis, but it was unrealistic. I would like to propose a method to slow down the progress of global warming by making effective use of plants rather than chloroplasts so that they become more realistic.

The utilization method is the roof. First, I think that the best plants to use are Agave and Haorchia. In common with the two plants, the leaves are hard, don't grow large, have heat resistance, cold resistance, and resistance to drying. I think that it is important that the overall size is small and that it is resistant to disasters in order to function as a roof. In order to make a roof, I thought that both hardness and flexibility were essential. The reason is that when a hard object hits the roof due to a disaster, the conventional roof easily breaks due to the collision between the hard objects. Some Haorchia have soft leaves, so I think they can play a role in absorbing shock.

It is an easy way to plant a plant roof by creating a space where you can lay soil where you want to lay the roof of your house. I thought that enough people could live if considered as an extension of thatched roof. I would like to adopt a country with few natural disasters, such as Sweden and Australia, for the use place of the roof.

I think that I can contribute to my daily life by improving a few things that are familiar to me, and without having each person consciously work on global warming countermeasures.

The future tasks are to investigate plants, actually purchase them, make a trial mini-house,

and observe them for a long time.

○Literature

"Results and disappointment, COP18 explore the new framework from the Kyoto Protocol"

http://www.afpbb.com/articles/-/2914107

"The Paris Agreement" We can't hear anymore. ~What has been decided? What should we do? ~ "

http://www.enecho.meti.go.jp/about/special/tokushu/ondankashoene/pariskyotei.html

"Current Status of Global Warming"

https://ondankataisaku.env.go.jp/coolchoice/ondanka/

"How can I prevent global warming?"

https://www.chuden.co.jp/kids/denkipaper/2007/630/issue03.html

"What will happen when global warming goes on?"

https://www.kepco.co.jp/brand/for_kids/teach/2016_01/detail1.html

"What will happen if global warming advances?"

https://www.wwf.or.jp/activities/basicinfo/1028.html

Organ transplant by clone

- How to use clone -

12 graduating   5 years class 4   No.21   Kazuki Yajima

1 Outline of research

Research on medical technology using clones.Present the current status and possibilities of cloning technology and share a deep understanding of cloning.

2 Methods

I used the internet to get information.

I also used sciencebooks. 「」

3 Achievements so far

In recent years, the number of elderly people has increased due to the development of medical technology.

As a result of the extension of human life, there are many cases that organs do not have life. Organs can be transplanted using donors, but organ deficiencies are often lacking or compatible.

Current medical care will be greatly altered if animal organs can be adapted to the human body using cloning techniques, or clones can be used to replicate organs.

Although can be excised organ to replicate the mouse situation by clone, prospect in the case of human beings which is realized by the moral issues and technology shortage is not standing.

Development of animals with little rejection even when organs are transplanted into humans is also underway.

In organ transplantation to humans, it is effective to mass-produce pigs with few rejection and reactions using cloning technology.

4 Conclusion

It is very unrealistic and difficult to carry out research deeply.Since there is not much medical treatment using clones, there are few data.

I think that Japanese company should more

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Application contestHigh School Student Global Environment Paper Award

https://www.chuo-u.ac.jp/usr/jhs_activity/award/

Promotion of the secretion of serotonin
~ For prevention of game addiction ~

5422 Akama Arisu

Abstract

The purpose of this study is to find ways to promote the secretion of serotonin and suppress dopamine, which causes game addiction, in order to stop the increase the risk of being game addiction patients. In recent years, game addiction has become a major social problem in many parts of the world. The fact that WHO certified a game fault in May 2019 is another new memory. I found that game addiction is caused by dopamine in my research up to last year, so I thought that if I use serotonin, which suppresses dopamine, I can take measures. This year's study focused on serotonin secretion, thinking about ways to induce and promote serotonin secretion. I ultimately wanted to help prevent the addiction, but I could not.

1. Introduction

Last year, to find a way to prevent it, I researched how to enjoy the game without being addicted it, and concluded that it was "to live a healthy life and secrete serotonin." However, big questions remain about how to secrete serotonin. For this reason, this year we will focus on serotonin, consider means for inducing and promoting serotonin secretion.

The purpose of this study is to "think about a method to induce and promote the secretion of serotonin to establish a treatment for game addiction". Game addiction is a mental illness caused by excessive secretion of dopamine. Therefore, we thought that effective use of serotonin to suppress dopamine secretion would be effective in preventing and treating game addiction.

In addition, if the countermeasures can be applied to other addictions, this study will be meaningful for the field of addiction countermeasures in general.
I think the game is not completely bad and it is not good to deny it. There is much we can learn from games, and there are many studies from overseas universities that show that games are good for the brain. If you can enjoy the game without becoming a game addiction, our lives will be enriched.

2. Discussion and implications

This research mainly proceeded through literature surveys. Research until last year revealed that tryptophan, vitamin B6, linalyl acetate, and oxytocin induce and promote serotonin secretion. Therefore, using books and the Internet, we first investigated whether these substances have common components in chemical and molecular formulas.

Serotonin and related substances are summarized as shown in the below figure.
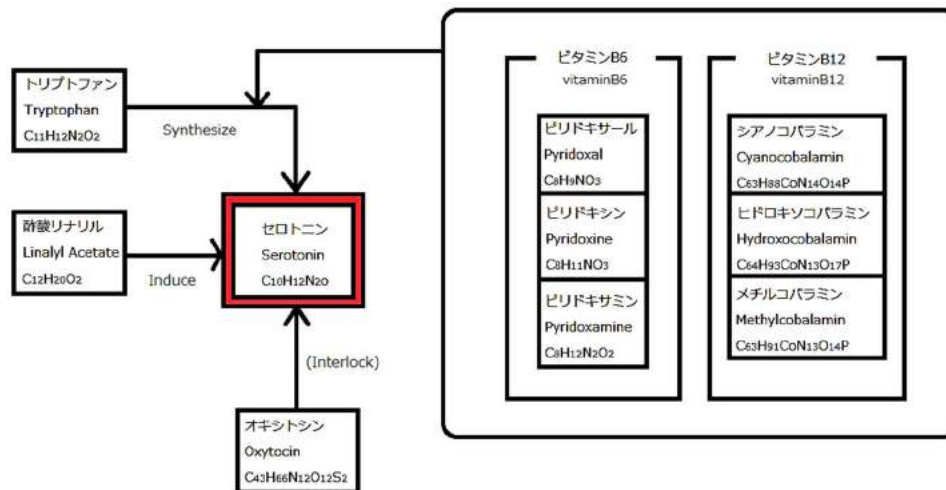
I suggest two hypotheses from these relationships.

a) In order for tryptophan into change to serotonin, ingredients both vitamin B6 and vitamin B12 have (hereinafter referred to as vitamin B) may be required. ($C8,H9,N,O2$)

b) When tryptophan changes to serotonin, the reason why C and O are decreasing is because it was used for synthesis.

Some relationship was found between tryptophan, serotonin, and vitamin B, but it was not known how linalyl acetate promoted the secretion of serotonin. Since the relationship between oxytocin and serotonin is only the receptor, we decided not to consider it this time.

3. Conclusions

At this stage, we have not been able to draw a conclusion that corresponds to the goal of "think about a method to induce and promote the secretion of serotonin to establish a treatment for game addiction". Therefore, we want to verify hypotheses a) and b) first. In particular, I want to investigate how vitamin B is used in the process of changing tryptophan to serotonin, and whether the process can be reproduced artificially or not.

Also, if we can extract linalyl acetate from lavender and tryptophan and vitamins from food, we can do further experiments, so I would like to know if there is a way for high school students to do it.

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Volunteer activity that anyone can do

～ Is hair donation eco-friendly?～　5423　Mayo Araki

○　Abstract

We conducted research focusing on the environmental aspect of hair donation activities called Hair Donation. This activity is to provide free medical hair wigs made of human hair to people under the age of 18 who have lost their hair due to anticancer drug treatment.The donated hair is used for medical hair wigs. There are various rules for hair donation. Care, such as treatment, is necessary to provide hair in good condition. In addition, it is necessary to prepare the hair quality by using chemical substances to use hair for 20-30 people to make one wig, but the chemical substances used at this time are prohibited to use in Japan Therefore, there are concerns about the impact on the environment.

1 Introduction

These days Hair Donation becoming popular. This volunteer activity can contribute for children without hair, but the activity has many rules. In one article, when making a medical wig, it was using chemicals that is not permission in Japan. When I knew that and wondered if it might be bad for the environment. When I heard of volunteer activities, I often get only a good image, but I thought there might be bad aspects. Therefore I wanted to consider the effects of hair donation on the environment from various angles.

2 Discussion and implications

<About rule of Hair Donation>

1. The hair is completely dry.
2. Don't cut with a slight pull.
3. Must be at least 31cm.

<Is hair donation ecofriendly?>In general, the speed at which hair grows is about 0.3 to 0.4 mm per day, so it can

grow at most about 15 cm per year. It means that it takes at least 2 years to be able to donate30cm. I consider the amount of shampoo needed to stretch this 30cm.I assuming that about 4.5mlof shampoo is used in one shampoo, the amount of shampoo used to

stretch 30cm is $4.5 \times 365 \times 2 = 3285mL \fallingdotseq 3.3L$ is required.

In addition, about 200 liters of water per one time (4.5 ml) is necessary to return these Shampoo to water that is clean enough for fish to live. In other words, 147,000L to return the water that has been shampoo about 3L back to clean water. Considering this huge amount of water, it is hard to say that it is ecological.

Some donations often go to the hair salon and do treatments because they want to donate beautiful hair. The desire to provide more beautiful hair is wonderful, but it is by no means good in terms of water pollution. When using shampoo, it is necessary to devise measures such as shortening the showering time as much as possible and reducing the amount of shampoo used.

3 Conclusion

It was stated that it was ecological because the amount of hair burned was reduced as a merit of Hair Donation. However, it is hard to say that it is ecological based on water pollution caused by shampoo, chemicals used in factories, and transportation to China.

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JHD&C official homepage：https://www.jhdac.org/

Tunakami official homepage：http://www.organic-cotton-wig-assoc.jp/

HERO official homepage ：https://hairdonation.hero.or.jp/

water pollution ：love-theearth.com/environment/environment07

Hair ingredients ：https://www.kao.com/jp/haircare/structure_02.html

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WIGS FOR KIDS:https://www.wigsforkids.org/about-us/

Reducing death from overworking
～To make workplace comfortable ～   5424 Ohno Hinano

Abstract

At present, not only in Japan but also around the world, overwork death is a problem. Overwork death became a problem for the first time in the 1980s. Now, 35 years later, the problem is even worse. In recent years, youth overtime working has increased sharply. The number of so-called "black companies" that have not signed 36 agreements is increasing rapidly. There are companies that are forced to work with severe quotas (standards), long hours of work, and work on holidays, and if they lose their ability to work, they will be forced to quit. Many of the physically and mentally forced workers eventually develop suicide, such as depression, and commit suicide. As a countermeasure, in June 2014, the Diet passed the Act on the Promotion of the Prevention of Work-related Death. The opposite was zero. The law stipulated that it was the state's duty to prevent overtime working. In October 2016, the government prepared a white paper on measures to prevent overtime working, including information on working hours, mental health measures, and measures to prevent overtime working. However, as of now, it has been decreasing for a long time, but it has increased for the first time in three years as of 2017. Here, we thought that there were some issues.

Change in the number of death from overworking
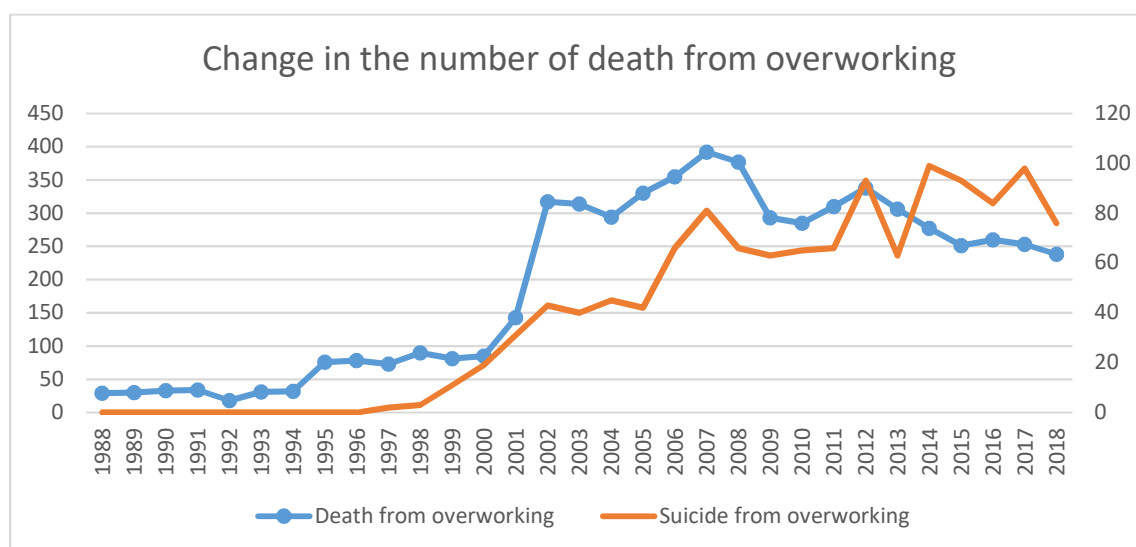
As we can see the graph above, we can see the change in the number of death from overworking. We can say it is decreasing. However it changes yours by yours.

1. Introduction

The reason for setting this research theme is that I have a willingness to get a nursing job in the future, and I am particularly interested in the work of a midwife. Currently, there are many problems that midwives have, and researchers mainly researches two things about low quality of midwifery education and overwork. With regard to overwork, I have researched overwork last year and the year before last, so I referred to the

results of last year's research. The ultimate goal of the study is to understand the current situation and create measures that allow midwives around the world to work in a better environment. Since this is a world quest, we will conduct research from a global perspective.

2. Discussion and implications

I found the cause of death from overworking while I exam the reason why we couldn't see the change in the number of death from overworking. That was because the overtime hours wasn't established by the low. Despite the government took some measures, the number of people died from overworking wasn't decreasing drastically. For example, Ministry of Health、Labor and Welfare made the white paper of overtime working by aiming that the number of people died from overtime working will be zero in the future.

By not being established the overtime hours, capitalists can force to work overtime to workers without limit. Also workers can work as much as they want to work. But it is difficult for us to establish the low of overworking hours. Namely, we can't take measures although the government establish the time of working. Now, workers have to know the fact of death from overworking and grasp the risk of overworking. Also it's important to manage health of the mind and body. Speaking of death from overwork, many workers have the image of being forced to work long hours by capitalists and dying mentally and physically. However, in reality, there is no particular feeling of fatigue, and many people die suddenly despite their willingness to work. In general, as fatigue accumulates, the brain seeks sleep and rest. However, despite seeking for sleep and rest, if you continue to work hard, your brain will get used to fatigue and you will not realize that you are physically tired. In such a situation, fatigue accumulates without you knowing and you will gradually become abnormal. Eventually, sudden illnesses such as stroke or myocardial infarction will result in sudden death. There are about ten examples of measures against overwork death. There are various things such as stress management, relaxation, stretching, moderate exercise, comfortable sleep, communication with people. Stretching muscles is said to be effective in relaxing the mind and body. If the posture is the same for a long time, the muscles continue to contract and the blood flow through the muscle blood vessels stagnate. "Kori" refers to this. This stiffness can be loosened by stretching. Also, by communicating with people, anxiety and frustration can be sorted out, advice can be

obtained, and solutions can be seen naturally. In addition, by having a hobby away from work, the feeling of being freed from work may increase motivation for work. Interacting with people through hobbies creates new relationships and widens the scope of life.

3. Conclusion

  The death from overwork is not only a problem for the government but also for the workers themselves. Each worker needs self-control to their own health and first look at the problem of death from overwork. That is what the current workers can do. I believe that the problem of overwork death will be solved someday, and I strongly hope that I can work in a comfortable working environment when working in the future.

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<center>A charm of future discovery action</center>
<center>～Revitalize the depopulated area in terms of school education~</center>

<center>Gunma chuo secondary school</center>
<center>5425　　　komai miki</center>

○Abstract

A tendency to decrease has the population of Japan year by year, and the local depopulation advances with it. A disaster risk rising when the depopulation advances and the thing that the abandonment ground increases to, adverse effects including the aggravation of the peace and order are big.

I am interested individually through school life, and it is strong, and it realizes that it is different to want to do it. In addition, I connected it with the issue of depopulation of Japan and the country had charms of a lot of each and knew that there was the activity such as agriculture or the sports that it was possible for only in the land. From this, I suggest activity aiming at the activation of the depopulated area, independence. I think that activity greatly includes two merits. It is a merit of the student side and finds what something oneself wants to do in different environment, and the first wants you to learn that you make an effort for the achievement. I may feel good community only in the country and nature, freshness of the food enough.

The second is a merit of the local side, and high school students usually live, and capital spending of the whole area advances to fix the active place and can anticipate recovery of the economy. However, a leader is not in aiming at there being many areas that an expense and a place to establish the place where I can provide the house of the student to cannot secure and the improvement by sports, and it is often with a problem for realization.

I think that I can make the good circulation to both sides in both the student side and the area side by carrying out this activity. The student who wants to bring up oneself who wants to challenge something newly and the area that aim at activation and the independence to the future. I find the future of both and can keep an aim and hope. In this regard, I decided "future discovery activity" and a name. I expect that "future discovery activity" brings the influence that is better for the Japanese whole and suggest realization of the activity.

１．Introduction

（１）　Purpose of this study

This study is to propose a method to improve the depopulation of the region from the population decline, which is one of Japan's population problems that are getting worse every year. By thinking about that method, we learned that the activities of our younger generation are necessary for the independence and reconstruction of depopulated areas. Therefore, by proposing "future discovery activities" this time, we will not only improve depopulation, but also create many other virtuous circles, so we will make it a further goal.

（２）　How to study

See last year's survey for Japan's demographic problems and the current situation of depopulation.

(1) Current state of depopulation in Japan and improvement methods (2) Advantages and disadvantages of depopulated areas and rural areas

② Current status of the younger generation

We will conduct research from the above three viewpoints.

Consider related articles based on the information you are investigating.

Resolve issues and questions raised from discussions.

Summarize suggestions and conclusions

[Specific method]

・ Books, materials, brochures

Look for books related to MML and library education and gather a lot of information. We use materials at school and pamphlets at home.

・ Statistical data from the Internet (homepage) Ministry of Internal Affairs and Communications

In addition to collecting information, you can also compare information from books and collections.

・ Literature survey

This research theme was found to be rich in target materials. Collect surveys and interview data via the Internet. At that time, information is effectively extracted while grasping the purpose and type of the document to be used. Make sure that the information is unbiased.

2．Discussion and implications

(1) About population problems (the actual state of population decline)

There are various population problems, but the cause of almost all is the decline in population. As can be seen from Figure 1, Japan's population decline is expected to fall below 100 million.
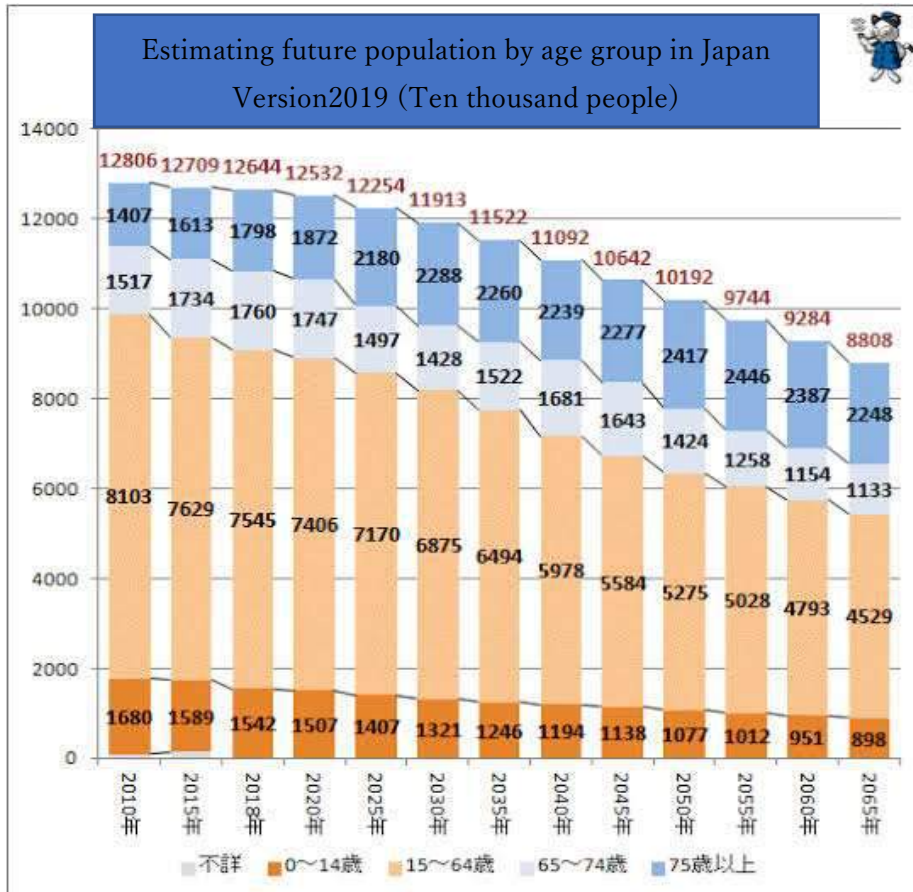
Figure 1　　From Ministry of Internal Affairs and Communications

The main cause of population decline is the decline in the total fertility rate (hereinafter referred to as the fertility rate). So why is the birth rate declining? The main causes are as follows.

・　Woman advancement into society → Since you can earn enough income yourself, you do not need to get married. Difficulty with work.

・　Problem of education expenses → In Japan, the educational expenses per child are 8 million yen for public and public, and nearly 25 million yen for private and private.

・　Nuclear family　→ The number of couples and their children is increasing.

・　Difference in values → It led to the advancement of women into society.

What is total fertility rate?

　An indicator of the number of children a woman is expected to have in her lifetime. The ratio of the number of births to the female population divided by age is called the birth rate by age, and the total special birth rate is the total of the birth rates by age of 15 to 49 years.

(2) About influence on area caused by population decline (the present situation of depopulated area)

　　As can be seen from the graph above, the current state of depopulated areas in Japan accounts for about half of the number of municipalities nationwide. Similarly, the area is also large. However, it accounts for only about 10% of the population in depopulated areas. Therefore, we thought that measures to maintain the community were necessary for the depopulated areas in Japan.
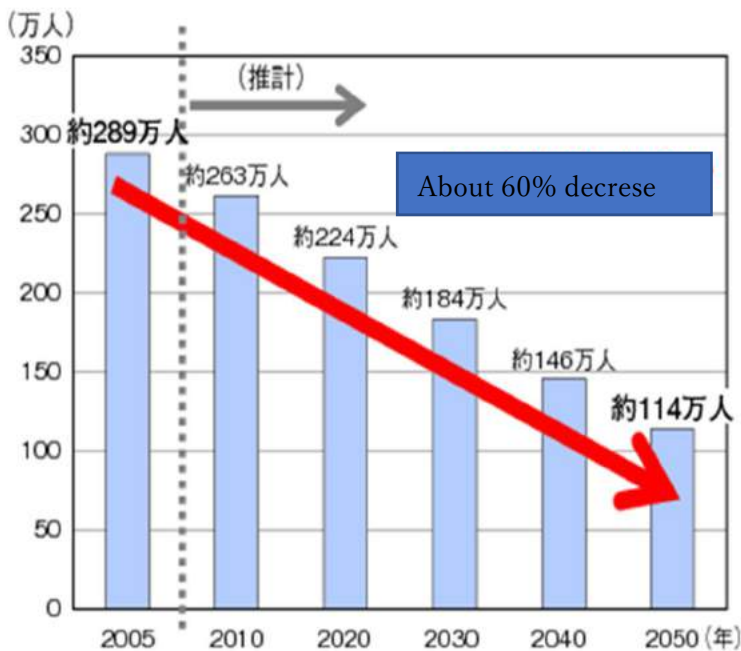

（万人）

350

300　約289万人

約263万人

About 60% decrese

250

約224万人

200

約184万人

150

約146万人

約114万人

100

50

0

2005　　2010　　2020　　2030　　2040　　2050 （年）

（推計）

Figure 2　　Population transition in areas with depopulation

(3) About the contents of "future discovery activities"

Throughout my school life, I feel strongly that I am interested in each and every thing I want to do is different. Also, in connection with the depopulation problem in Japan, it was found that there are many activities in the countryside such as agriculture and sports that can only be done on the land. Based on this, we propose activities aimed at revitalizing depopulated areas and becoming independent.

1. The planner proposes three areas where students can live their high school life. This area is designated as the main demon depopulated area. Recruitment is for students who are interested in living and activities in the area proposed by urban junior high school students and want to live high school life there.
2. Have the test taken as a high school entrance exam, and have the motivation to participate in this activity and future goals, etc., submitted as a written application.
3. Successful students will live high school life in the designated area.
In this way, we believe that students with goals can participate by starting activities in the form of entrance examinations.

The appeal of future discovery activities
○ Merits for students
Students who want to work out agriculture and sports that can only be done in the countryside. In the case of agriculture, of course, and in the case of sports, it is possible to aim for further improvement in places where the practical environment is prepared rather than entering private high schools in Tokyo such as canoeing, horse riding, skiing and climbing.
Students who want to participate in activities such as getting tired of life in the city, wanting to leave the place where bullying and bad environment are away, or wanting to relax and live a high school life
Through this activity, learn to find something you want to do in a different environment and make an effort to achieve it. You will be able to feel the goodness of the community, the nature, and the freshness of the food.
○ Merits on the local side
The capital investment in the entire region is progressing to prepare a place for high school students to live and act normally, and the economy can be expected to recover.
In addition, we can experience living in cooperation with people of various generations in the area, and we believe that activities are worthwhile in the countryside where there are many elderly people. If students consider future settlement in the area, it will be a step towards population growth.
○ Issues
There are many areas where it is not possible to secure the cost and place to establish a place where student housing can be provided, and there are no leaders in aiming for improvement in sports. There are many.

3．Conclusion

The increase in depopulated areas due to the decline in Japan's population is getting worse year by year. In order to prevent the decline and collapse of the region due to depopulation, and to enhance the life of students in the city center, we propose activities as "future discovery activities".

I believe that we can create a virtuous cycle for both students and the community. A region that aims to revitalize and become independent in the future with students who want to try something new and grow themselves. Find the future of both, and have goals and hopes. Furthermore, we believe we can expect a positive impact on Japan as a whole. From this point, we decided the name "Future Discovery Activity". There are still many issues, so I would like to continue my research by thinking about improvement measures.

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What are marginal settlements?

Reduce the number of suicide

～Mental care methods～

5426　Sakurai　Kohana

○Abstract

　　Japan has the highest number of suicides among the seven major countries. 70% of　suicides suffer from mental illness. For example, depression and schizophrenia. For other reason, there are life and economic problems. Reasons and a motive of commit suicide are differ to an age group. The purpose is to reduce the number of suicides from the counselor. First of all, the sex ratio of suicide is 7: 3, which is higher for men. Also, contrary to the decline in the suicide rate of older people, the rate of self-harm and suicide among young people under 30 is increasing. Japan's suicide rate correlates with the unemployment rate. This is because mental health and welfare systems and measures to promote reemployment of unemployed people are not fully functioning. Companies may have in-house counselors. Based on the above, we believe that the promotion of peer counseling and the active establishment of in-house counselors will lead to a decrease in the number of suicides in order to reduce the number of young suicides.

1　Introduction

○Research background and purpose

　　70% of suicides suffer from mental illnesses such as depression and schizophrenia. However, there are many people in Japan who have a negative image of mental illness, and they may not want to receive psychiatry or counseling. Therefore, I would like to reduce the number of suicides by creating an environment where counseling can be easily received. Also, not only the person who decides to commit suicide, but also thinks that the person can feel free to receive counseling by wiping out the negative image of psychological counseling and psychiatry of surrounding friends and family, I want to think about how to dispel the idea

○Research method

　<The Internet>

　　・　Ministry of Health, Labor and Welfare

　　・　National Police Agency

　　The survey targets young people aged 20 to 34 years.

3　Discussion and implications

[About counseling]

Refers to advice and guidance through linguistic and non-verbal communication (from a psychiatric

standpoint) in response to the consultation of a person complaining of trouble, and attempts to change behavior accordingly.

[Efforts at educational facilities]

In educational facilities, the following activities are being carried out to support the psychological development of students.

・ Preventive development counseling, which is the support stage for school counseling

・ Human rights education to understand that promises, rules, laws, constitutions, etc. are established to protect each other's rights

・ Life skills education to obtain life skills that are necessary for living as a human being

・ Career education where students have their own dreams, goals, and hopes, learn necessary knowledge and skills to realize them, and develop the ability to live their lives independently as members of society

・ Education with dialogue, which is a collaborative activity based on equal mutual respect and mutual understanding between independent individuals

・ Case meeting by team

・ Application of stress management

・ Cooperation with specialized institutions

School counseling can be divided into three stages of assistance: developmental, preventive, and problem-solving counseling.

1, Developmental counseling

2, Preventive counseling

3, Problem development counseling

[Yearly change in the number of suicides]

Number of Suicides

Legend: Total (blue), Male (orange), Female (gray)
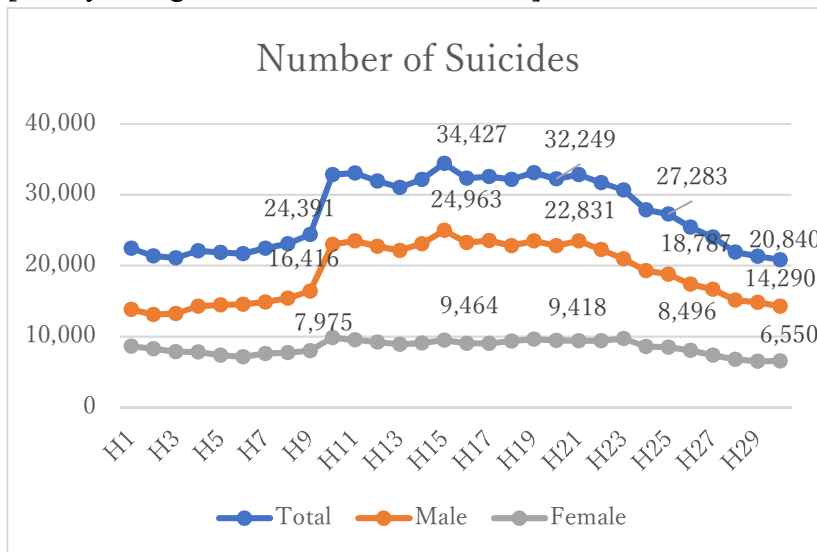
The gender ratio of suicide is 7:3, with many men. One of the factors is that men are more aggressive and impulsive than women, and women have better communication skills and higher ability to seek help. In developed countries, the suicide rate for older people is declining, but the proportion of people over 60 is over 40%. Contrary to the suicide rate of the elderly, the proportion of young adults under 30 is increasing.

In a question asking whether to be discriminated in society, Japanese citizens thought that 30% of depression and 54% of schizophrenia were "discriminated". In relation, "they don't know what to do" was 36% for depression and 63% for schizophrenia. About 40% considered that their problem was not a medical illness, and more than half of them indicated the idea of "individual weakness" or "personal weakness". On the other hand, only 16% of people think that they can get married and become part of a family when they are depressed and 9% when they are schizophrenic.

European suicide rates have nothing to do with full unemployment rates, as mental health and welfare systems are strengthened and measures to promote reemployment of unemployed people are working. Suicide rates are not enough and correlate with complete unemployment.
Some companies in Japan have in-house counselors to maintain the mental health of workers, but there are not many companies that are still functioning sufficiently.

(Corporate counselor: Psychologists engaged in psychological consultation work in the field of occupational safety. Dealing with labor stress problems due to intensifying competition and changes in the workplace environment due to changes in industrial structure and economic conditions. Work for the health and mental health of people with physical and mental health problems.)

3 Conclusion

In educational facilities, creating an environment that is easy to receive counseling is most important. It is important to promote peer counseling as well as school counseling. In the enterprise, I think that the mental health of workers can be maintained by enhancing mental health and welfare systems, actively establishing in-house counselors, and incorporating some of the activities being conducted in educational facilities.

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・https://medical.nikkeibp.co.jp/inc/all/hotnews/archives/423365.html

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<div align="center">

Extend the life of your teeth

～Possibility of xylitol～

</div>

Gunma Chuo Secondary School　5427 Shimada Rika

○Abstract

　To extend the life of current Japanese teeth, brushing alone is not enough. So I thought about the popularization of xylitol. Xylitol is currently being developed by many food companies, but I would like to expand its possibilities though this research. Xylitol is as sweet as sugar. It is big advantage to use xylitol as a sweetener. Even without using other sugar which have sugar that causes caries. It can be sweet enough, and it can promotes salivation and remineralizes. Currently, gums, chocolates and gummi containing xylitol are sold in Japan, but most of these products are hard and difficult to eat for the elderly and children. Therefore I suggest that we make xylitol ramune like a Ramune. Because It can promotion of saliva and it can spread xylitol in the mouth. Second, there are few kinds of materials. It made of sugar, cornstarch, potato starch.　This materials are simple. Therefore we only use xylitol instead of sugar. I think to do that is easy for us, so we can make xylitol ramune like kuppie ramune.

1.　Introduction

　At present, the life of Japanese teeth is said to be lower than in the world. What is it because the percentage of people who brush their teeth after meals is low compared to the world?　However I compare Japan with America about number of dentifrice, there is no difference.

Moreover, there are countries with high tooth life and few toothpastes.　Xylitol has been regarded as important in such countries, so I decide to research about xylitol.

I use internet to investigate many information. Internet has a lot of people's opinion and feeling about xylitol products. I want to investigate not only Japan but also foreign country.

2.　Discussion and implications

＊Current status of tooth life in Japan and its impact.
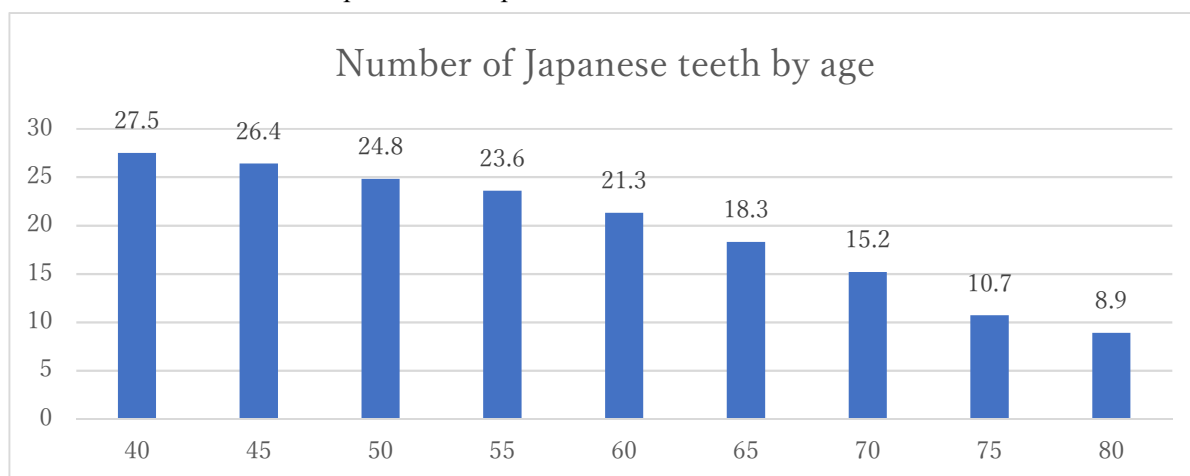
　This graph's horizontal axis represents age and vertical axis represents the number of teeth. The total number of teeth is 32(Including wisdom teeth) so the graph shows that the Japanese have already lost more than half of their teeth at the age of 70. In most cases, there are few people who lose their teeth until they are 40 years old. However

beyond the age of 40, teeth are more likely to fall out year by year. How will it be affected if the number of teeth decreases? First, a big difference appears in the type of meal. Examples of the number of teeth you need to eat deliciously include 18-28 teeth, takuan, French bread, squid, vinegar octopus and more. 17-6 teeth, including kimipiragobo, Lotus root, Kamaboko, Okowa and more. 5-0 teeth, including banana, udon and more. As a result, reducing the number of teeth prefers soft food, increases carbohydrate intake, and reduces other nutrients. The problems caused by this dietary bias are metabolic syndrome and lifestyle-related diseases. In addition, the number of bites decreases, brain stimulation decreases, and the risk of dementia increases, too.

＊A country with a long tooth life

  Swedish teeth have the longest life in the world, with 21 teeth remaining at the age of 80. While some may think that it has a gene that makes it difficult to become a tooth decay, but Sweden has long suffered from tooth decay. It was the dental reform that took place in the 1970s that changed the situation. What is the Swedish style that radically changed the way of dentistry and became a world model? Xylitol seems to be effective as a Swedish preventive, so I would like to investigate the possibility of xylitol.

What is xylitol?

  Xylitol is one of the sugar alcohol. It is made from corn core and white birch. Xylitol is as sweet as sugar. It is big advantage to use xylitol as a sweetener. Even without using other sugar which have sugar that causes caries. It can be sweet enough.

  Why xylitol makes it difficult to get tooth decay. There are two main reasons that xylitol prevents tooth decay. First reason is that promotes neutralization of acid in plaque and inhibits metabolism of mutans. Second is sugar alcohol has a sweet taste, when it is placed in the mouth, it stimulates the taste and promotes salivation. In addition, sugar alcohols increase dental plaque calcium levels and help remineralize teeth. In addition, the sugar alcohol-calcium complex penetrates the hard tissues of the teeth, promoting remineralization and hardening the teeth.

Use of xylitol
　【How to choose】
Products containing xylitol in high concentration (50% or more).
　【How to use】
3-5 times a day, about 10 minutes after meals, between meals and before going to bed (Chewing gum). Do not swallow saliva containing xylitol immediately, spread it over your teeth.
　【Important point】
  Xylitol is said to be effective when carefully brushed so even if you take xylitol properly, if you do not brush your teeth, you will not be able to get any effect.

Is xylitol available for the elderly and infants?

＊Use of the elderly

If elderly people who need nursing cannot fully brush their teeth and the oral environment tends to deteriorate, the following effects can be expected by using xylitol.

1. Direct reduction of oral bacteria (plaque).
2. Promotes saliva secretion and cleans the dirt in your mouth.
3. Saliva improves thirst cause of aging and medicine.
   Xylitol is absorbed regardless of insulin so it can be used with peace of mind by people with diabetes.

＊Use for infants

Take candy after your teeth. After the use of xylitol gum has grown to some extent. There is a risk of accidentally swallowing gum if given to children. Tablet type is considered safe for children.

This indicates that a wide range of people find xylitol effective for preventing dental caries. However, there is a risk that people who cannot eat hard food such as elderly people and infants will accidentally swallow gum. Currently, gums, chocolates and gummi containing xylitol are sold in Japan, but most of these products are hard and difficult to eat for the elderly and children. Think about how xylitol should be taken for such people.

3 Conclusion

What I noticed here was "Kuppie Ramune" from Kakudai Confectionery Co., Ltd.

Reasons to pay attention to "Kuppie Ramune"
1. As soon as you put it in your mouth.
2. There are few kinds of materials.

First, As soon as you put it in your mouth. It can promotion of saliva and it can spread xylitol in the mouth. Second, there are few kinds of materials. It made of sugar, cornstarch, potato starch.   This materials are simple. Therefore we only use xylitol instead of sugar. I   think to do that is easy for us, so we can make xylitol ramune like kuppie ramune.

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キシリトールについて

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<center>Aiming to spread microchips</center>
<center>~To prevent unauthorized resale ~</center>

<div align="right">12 期生 5 年 4 組 28 番　鈴木英未</div>

○Abstract

　I often feel anger when I see unauthorized resale of tickets of my favorite artist, so I wanted to prevent them and wanted to make good events.

　I wonder to use personal authentication technology to sale tickets. I suggest to spread MICROCHIPS because we can do personal confirmation easily.

1 Introduction

　I like listening to music, so I often go to the concerts and events of my favorite artist. They have some trouble, Resale or fraudulent purchase of tickets. As a result, here are vacant seat, and some people who want to go the concerts or events would not be able to go there. All people who witness malicious activity may not feel good. I started this research with my feeling that I want people enjoy the concerts and events.

　　"The law on ensuring proper distribution of tickets at ticket offices by prohibiting illegal resale of designated ticket office tickets: The prohibition law of unauthorized resale of tickets" is enforced in January 14, 2019, so I research using the background of the law.

　This research's goal is to spread my idea that the way to reduce the trouble of tickets to the world using English. This research's significance is to make events that everyone who participate it feel good and to application the idea to large events including Olympic, World Cap, and so on.

　I use mainly the Internet to research. I have to use reliable website and compare a lot of information not to believe wrong information with media literacy.

2 Discussion and implications

I　The prohibition law of unauthorized resale of tickets

　As mentioned above, "The law on ensuring proper distribution of tickets at ticket offices by prohibiting illegal resale of designated ticket office tickets: The prohibition law of unauthorized resale of tickets" is enforced in January 14, 2019 by Agency for Cultural Affairs.

　This law prevents illegal resale of certain entertainment tickets, ensures proper distribution of entertainment tickets, and promotes culture and sports through entertainment promotions. The objective is to contribute to the realization of a fulfilling national life while contributing to the stability of consumer life.

　However I think that it doesn't have no effect because I sometimes see unauthorized resale of tickets on SNS.

II　Personal authentication technology

　I thought personal identification is most important to stop unauthorized resale of tickets, so I researched about personal authentication technology.

　There three types of it.

1 Something you know

ID password	An authentication method using the ID given to the user and the password known to the user.

PIN number	4-6 digits. The security level is very low. It is used to unlock phones, to unlock device and so on.
secret questions	A combination of questions and answers known to pre-registered users. The problem is the system that the user can specify what the administrator specifies. Combinations of Multiple questions are registered and some of them are asked randomly. It uses to reset when forgotten.
Matrix authentication	Each time a different number or letter is randomly placed in the grid pattern. Authenticates by sending the value displayed at the specified cell location.

2 Something you have

IC card	A combination of questions and answers known to pre-registered users. The user may specify what the management specifies. A combination is registered and some of them are asked randomly. It uses when resetting password when forgetting.
One time password	A device that displays random numbers that are updated regularly. A numeric string is called a one-time password. It is impossible to reuse the number because One-time password will be uploaded regularly.
USB token	The mechanism is to save the key of electronic certificate. It read the key by plugging the USB port.
FIDO U2F	FIDO Alliance is promising next-generation authentication method. A standard called FIDO U2F is provided for USB type devices. Insert the USB port during authentication and touch to the metal part with your finger.
SMS authentication	The mechanism of SMS (Short Message Service) sends short texts to mobile phone numbers. SMS authentication is performed by SMS from the server to the user's mobile phone during authentication. A one-time password is sent, and the contents are entered and authenticated.
E-mail authentication	A one-time password is sent by email from the server to the user during authentication. Authentication is possible to have a terminal that can access your email address, but email can be accessed from multiple devices so, the security level is low.
Voice call	During authentication, the phone reaches the user's mobile phone and the one-time password is read. The user authenticates by entering a read password.

Smartphone app authentication		Install and authenticate a dedicated application on your smartphone. Tap [Approve] to confirm whether to approve access from the smartphone app.
Bluetooth smart authentication device		Bluetooth connection type authentication device. Pair with a tenant login device to authenticate by being connected via Bluetooth when authenticating.
Encryption table authentication		An encryption random security number is distributed to users in advance and during authentication. Authentication is performed by successively entering values corresponding to the specified row and column.

3 Something you are

Fingerprint authentication		Authentication is based on the user's fingerprint information. A dedicated device for reading fingerprints is required
Face recognition		Recognize and authenticate the users face. Requires a device with a camera.
Iris authentication, retina authentication		Authenticate with the user's eye iris or retina. Requires a read-only device for the iris or retina.
Vein authentication		Authenticate with the vein of the user's hand. A special device for reading veins is required.
FIDO UAF		A biometric authentication standard based on the next generation certification standardized by the FIDO Alliance. Standardized biometric authentication function for smartphones.

GMO(https://trustlogin.com/)

There are many methods to authenticate individual. I suggest to use microchips, one of the personal authentication technology which is used these day.

Ⅲ What is microchips?

Microchip one of the ways of personal identification. The diameter is about 2mm, and the length is about 8~12mm. We put it between Thumb and index finger by using injection.

  Some Swedish have already use microchips, though penetration rate is not so high.

PROS

  It is useful and convenient to confirm individual to individual.

CONS

  It has pain and anxiety when people put it into their body. Some scientists and doctors say it is not moral.

https://sippo.asahi.com

3Colusion

  "We should solve this problem by using microchips in our body" because we can do personal confirmation easily. However there are some problem. First, we should spread them when we use the technology in the events.

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How to support survivors of childhood chronic diseases
~from the idea of comprehensive, virtual hospital~

5429 TAWARA Mayuki

Abstract

  In this study, I suggest the new system "Neuvola for Survivers" that could help survivors of childhood chronic diseases improve their own QOL referring to neuvola in Sweden. This suggestion could solve the problems related to childhood chronic diseases such as carry-over.

  "Neuvola for survivors" could connect central hospitals which include pediatricians who specialize particular disease and local hospital where the patient visit constantly. It might reduce the burden on patient and their family. Moreover it might encourage patient to continue seeing their doctors. For these reasons, the suggestion in this study have possibility to improve survivors' lives.

Introduction

    The main object of this paper is to suggest new system that support the lives of childhood cancer survivors. According to the statistics of childhood cancer, 5-year survival rate is increasing because of medical proceed. However, I found late complication, which appears after finishing treatment as side effect. Childhood chronic diseases also have such problems. They confront obstacle, when they go thorough childhood stage and come adult stage. Though usual diseases which appear in adult stage are supposed to be seen by doctor who specialize particular branch, childhood-disease-survivors should see a pediatrician constantly. It is because childhood disease is different from adult ones even if they are alike to each other. However, it is difficult for survivors to do so. That means there remains the room for improvement.

Method

    I used google scholar and books in order to read previous studies. Moreover, there are some systems that support general, healthy children in many developed countries. I thought they can be hint to improve my suggestion. This is why I researched the systems in Sweden, the UK, Japan, and Australia. Sweden is one of the most developed countries of welfare. The UK is the first country that introduce hospice for children, not for adults. And Australia is famous for primary medicine.

Discussion and implications

    In general, the target of childhood medicine is under-15-age children. Accordingly, the definition of childhood in this study is the same. And this study follows the childhood chronic disease which the ministry of health, labor and welfare has defined. Also I treat them as a group,

not individuals.

〈Current situation in Japan〉

The progress of medicine has extended the lifespan children who are premature of have some difficulties. The number of the patients of childhood chronic disease is estimated 70000, which is expected to increase 1000 every year.

The problem which is caused by that is Carry over; the patients become adult with their disease. Those patients is likely to get　not only the disease worse, other disease, late effects, but also the problem related to society and economy. More over childhood chronic disease is not common to adult ones even if the name is very similar, which means that pediatrician should take care of. So another problem is the lack of pediatrician who specialize childhood chronic disease and have enough time and equipment. Thus some patients cant find attending doctor after carry over.

According to the survey of the ministry of health, labor and welfare, almost half of survivors who experienced childhood cancer have late effects such as low-height and disability of memory. Those effects are likely to turn to the obstacle to get job. Ishida Yasusi, the member of the survey group and a doctor at Ehime Central Hospital, said that some survivors have few experience in society because of long hospitalization in their childhood and it is necessary to make system to support them become independent.

Also according to the study "the current situation and measure of childhood chronic disease", 27.8% of carry-over patients don't see doctors regularly, 19.8% don't follow doctors of the instructions to take medicine well, and 13.9% are under overprotection of their parents.

〈Neuvola in Sweden〉

Neuvola is welfare institution in finland which supports mothers, children and their family from pregnant to entrance to elementary school comprehensively. The feature is "comprehensive support"; one health nurse take care of one family basically. This system raise the ratio of women who go to pregnancy examination.

In this study I suggest "Neuvola for Survivors", a comprehensive application service for .childhood chronic survivors. It is based on neuvola in Finland, hospice in the UK and primary medicine in netherland.
When considering the carry-over, keeping carte and contact with main doctors is necessary in case of late complications, other treatment, or pregnancy.
I did not find any other study which mentioned support system for childhood chronic disease survivors so this study become the first one.

However, some limitations exist in this study. First, since the study includes only existing examples that focus on other disease or problems, it isn't sure whether the system is efficient. Thus, this new system can be a platform for survivors.

Then whether such system is effective in real society must be tested in the future.

In summary, this study indicates that the survivors of childhood chronic disease need special support even if they become adults, which my suggestion can be the solution.

Conclusion

　　From those information, I suggest the new system, named Neuvola for Survivors. Of course there are supports for them, but it is unclear and sometimes omit some children because of the criteria of their target. This suggestion will be clearer and easier to use. The biggest merit is to support those survivors comprehensively.

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<center>
The importance of team medical

～For further development of the medical field～
</center>

<div align="right">Kanane Teramura</div>

○Overview

First, when I looked at the current medical care, I was interested in the number of medical malpractices and the points that Japan should improve in the future. I thought it was necessary to change the development of the medical field in order to reduce medical errors, and as a result of my research, I found that there was team medical care. And when focusing on pharmacists, it was found that there are out-of-hospital prescriptions and in-hospital prescriptions as systems. It turns out that there is also a problem that team medical care is not being used successfully in present day Japan.

1 purpose

I was particularly interested in medical malpractice when I first considered this study. Originally interested in the medical field, when thinking about the medical workers working there, I thought that medical errors could be trivial and that the responsibility as a job would be greatly involved I thought. In order to solve such problems, I knew the current situation in Japan and thought about what would lead to the development of the Japanese medical field in the future. In the medical field, research was conducted with an emphasis on professionals such as pharmacists and registered dietitians.

The ultimate goal of this research is to make suggestions for what improvements can be made in order to develop the medical field.

2 Method

First of all, I thought that the Internet that can get the latest information was suitable for knowing the current situation, so I used the Internet. The transition was confirmed with reference to statistical graphs. In addition, interviewing people who actually work in the field was also considered as a method.

3 Results and challenges

○Medical accident, medical malpractice

A medical accident is a medical accident caused by inadequate medical examination / treatment or inadequate facilities. Examples are misdiagnosis and mistreatment. The

<center>189</center>

difference between medical accidents and medical malpractices is whether there were human errors made by medical staff.

By looking this graph, it shows medical accident causes about 300 times in a year.
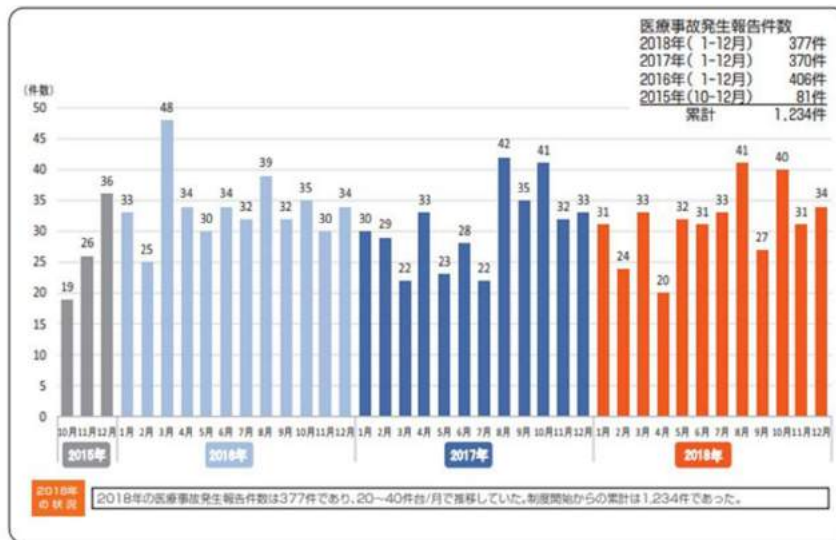
・Pharmacist and medical error

Medical malpractice involves people working in medical care, but there are two cases that pharmacists are involved. The first is the case of not following the instructions on prescription that doctor prescribes. The second is the case of following the instructions, but it is the case of dispensing without noticing the mistake on the document .This also means that the duties as a pharmacist are not fulfilled. In the past, there have been cases of patient deaths due to nupelcaine formulated in-house at pharmacies, which requires improvement. As a result, in 2002, the Japan Pharmacists Association was informed of "thorough introduction of doubt".

Medical team is that initiatives the Ministry of Health, Labor and Welfare to promote from May 2010. The "Team Medical Promotion Conference" has been launched. This is because multiple medical professionals collaborate on treatment and care for one patient. In hospitals, doctors and nurses who face patients in the examination room and ward, as well as medical social workers and registered dietitians Medical professionals (medical staff) such as physical therapists work to support each medical life.

○Pharmacist, dietitian

A pharmacist has the image of a person who dispenses drugs, but with team medical care, in recent years, hospital pharmacists have also provided inpatient guidance and outpatient chemotherapy support. The scope of pharmacists is expanding. In addition, there was an image that the registered dietitian was a person who made a menu for hospital meals. The patient is supported from the mind and body aiming at early bed removal and early discharge.

Role of pharmacist
① Confirmation of prescription
It is important to check whether the doctor's prescription is correct. Also, check whether the drug is selected correctly and whether the dose of the drug is appropriate for the age, sex, and physical condition of the patient. Also make sure that the number of drugs is in compliance. For this, it is also important to have a good relationship with a doctor on a regular basis so that inquiries can be made easily.
② Correct dispensing and medication instruction
Ability that must be made as a pharmacist. Dispensing correctly according to the prescription and giving the patient how to take the right medicine.
③ Medication management and assessment
The patient's medication situation is managed, and when the drug compliance is bad, the device for improving is proposed. In addition, the patient's condition is checked and interviews are conducted at the time of taking the medication to confirm that the patient has no side effects.

〇Role of a registered dietitian
In the medical field, there is an NST / nutrition support team. This refers to a medical team composed of a plurality of medical workers in order to provide optimal nutritional management for the patient.
Propose the most appropriate nutritional supplements for patients who cannot get enough food due to illness or surgery, or propose nutritional management methods that are useful for recovery from illness or prevention of complications. Proposed and selected appropriate nutritional therapy by evaluating the nutritional status of hospitalized patients, aiming to improve the nutritional status of patients, improve therapeutic effects, prevent complications, improve quality of life, reduce medical expenses, etc. to do.

〇In-hospital and out-of-hospital pharmacies

In modern times, with the progress of "medical division of labor", medical institutions that choose out-of-hospital prescription are increasing. As a factor that increases the number of out-of-hospital pharmacies, there is a management advantage. Specifically, prescription fees are higher than in-hospital prescriptions.

Benefits of in-hospital prescription・ Since there is no fee for dispensing pharmacies, etc. the self-payment amount is small.・ You can save time and time to go to the pharmacy, and you only need to pay once.・ If you wish, you can easily change medicines and adjust the number of days at the counter.・ Since the contents of medical care can be confirmed immediately, it is possible to explain medication more accurately.

○Advantages of out-of-hospital prescription

For patients,・ Reduction of waiting time for dispensing・ Receiving sufficient explanations about drugs・ Increase in drug inventory for appropriate medical guidance

For medical institutions・ Improvement of service・ Reduce drug purchase costs・ Increase in space・ When there are prescriptions of medicines from multiple medical institutions, it is excellent in terms of safety such as drinking.
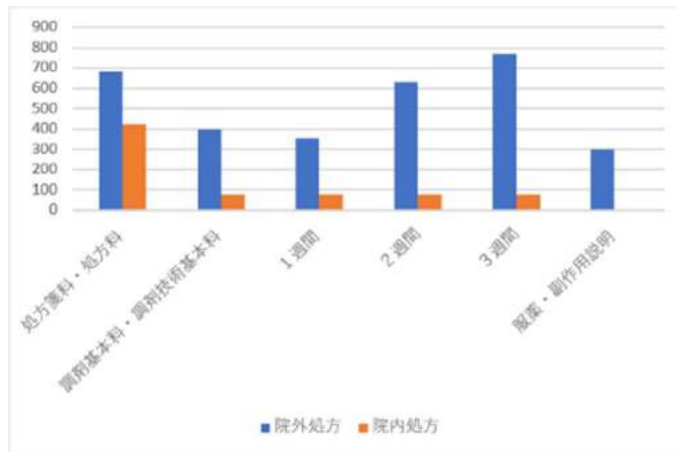
From the above figure, it can be seen that the price is one reason to advance the division of medicine. In-hospital prescription for patients is less expensive. Therefore, it can be seen that the hospital side, which is mainly profits, recommends out-of-hospital prescriptions and the burden on patients is increasing.

○ Conclusion

These studies show that the increase in out-of-hospital pharmacies can be said to be efficient in the field. Therefore, in my opinion, the increase in out-of-hospital

pharmacies is positive, but I thought that out-of-hospital prescriptions for large institutions such as university hospitals should not be continued. Many university hospitals have relatively large symptoms. Therefore, in order to make use of team medical care, which many medical professionals can make use of their roles, I think in-hospital prescriptions should be made at university hospitals.

<Type of hospital>
　① National Hospital
　Ministry of Health, Labor and Welfare / National Hospital Organization / Independent Administrative Worker Labor Health and Welfare Organization, etc.
　② Public, public and social insurance related hospitals
　Prefecture / city / town / local independent administrative agency / Japanese Red Cross Society / Saiseikai / National Health Insurance Association Federation
　③ University hospital
　National University / Public University / Private University
　④ general hospitals
　Public interest corporation / Medical corporation / Social welfare corporation, etc.

4 Literature

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New cure for food allergy

Mixed allergen powder and transdermal immunotherapy

Gunma Chuo secondary school

5432 Mai Tokizawa

1. Abstract

I considered a new cure for food allergy using transdermal immunotherapy and mixed allergen powder. The mechanism of food allergy has been solved, but the difference between the patients who have food allergy and don't have food allergy. I focused on transdermal immunotherapy using a patch like a bandage with micro needle to take the allergen in gradually and accustom the body to allergen. mixed allergen powder is the way that degrade allergen and change the structure of allergen by heating and enzymes. When you do mixed allergen powder, you can inactivate the allergen. I suggest that you do mixed allergen powder in the body and utilize the transdermal immunotherapy to reduce the reactions of food allergy.

2. Introduction

In this research, I studied about immunotherapy of food allergy. Now there are two main cures. One is to remove allergen completely. Another is immunotherapy. However they are too hard to restrict meals and need to enter the hospital for a short time. Then I was interested in Transdermal immunotherapy and hypoallergenic. And I made a final goal "to find new cure". I researched by using three devices.

 First I used literature. I used "food allergy of infants (written by Ito Setsuko)" to do my research.

 Next I used the internet to search for results of research done by companies, allergen guidelines, its factors of food allergies.

 Third I used these academic papers which were researched for food allergies.

"Vaccine and Immunotherapy with technologies of Transdermal delivery" (written by Naoki Okada)

"Development of transdermal vaccine preparation using microneedle technology" (written by Sanami Ito, Shinsaku Nakagawa and Naoki Okada)

"Transdermal vaccine formulation using microneedles" (written by Sanami Ito, Shinsaku Nakagawa and Naoki Okada)

"Degradation of wheat allergen proteins by microbial proteases" (written by Shigeru Oita)

 In this research, I had been searching for how to Hypoallergenic. This research was for hypoallergenic of pollen. However I found the efficient way of allergy, transdermal immunotherapy and hypo-allergenic. I decided to research them.

Discussion and implications

In this study, I investigated the mechanism of food allergy. The symptoms of food allergies are due to the following reactions when patients take certain reactions or allergen enter the skin. The following is a study of the mechanism of inflammation caused by allergies.

First, the production of specific IgE that binds only to specific allergens begins, and the specific IgE remains in the body (this is called sensitization).

Next, when IgE comes into contact with the allergen, it reacts with the two IgE antibodies on mast cells and basophils, connects to the two the IgE antibodies, sends a signal inside the cell, and activates the mast cells and basophils.

（The figure below is from Nippon Ham HP）
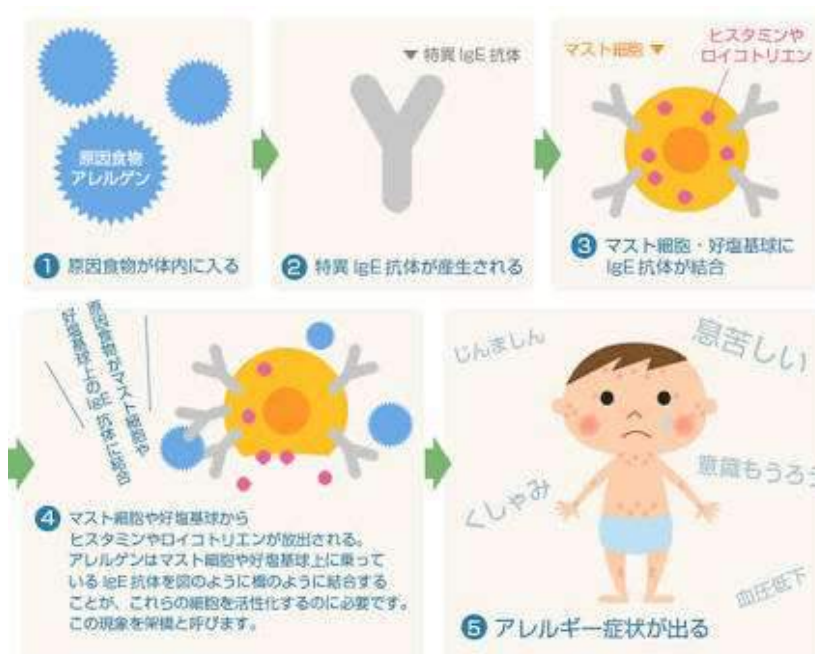
The inflammatory substances histamine and leutcoelin are released from the fatty substances of the mast cells. According to this, the reaction food allergy occurs depending on whether IgE antibodies are produced and sensitized by touching allergens in the past. The question here is why some people are sensitized and others are not sensitized even though they are taking the same. What is the difference between them? This difference between them is big. However, this questions has not been solved, and there are various rumors.

The cause of food allergies was thought to be the main cause until oral sensitization was ruled out in 2008 in the United States and a paper on transdermal sensitization was published.

For this reason, not taking foods that are likely to become allergens in childhood was considered the only preventive measure to prevent food allergies. However, in recent years,

excessive dietary restriction during childhood has been thought to prevent the development of the body's immune function, and is thought to be related to the skin condition during childhood.

Next, I became interested in the method of hypoallergen, which was considered for eating food in the same way. What do you think a hypoallergen is? "Proteins change their shape by heating, acid and enzyme (denaturation), and the linkage of amino acids is broken by the action of digestive enzymes (digestion). By using them, structure of the place where IgE antibodies combine are broken and don't work as allergens. Some supermarkets and restaurants sell and provide foods with hypoallergen food.

According to "degradation of wheat allergen proteins by microbial proteases (written by Shigeru OITA)", by using microbial proteases, he did experiments which decompose the wheat allergen lipid transport protein (LTP), a-amylase inhibitor (wheat AI), mixture of wheat seed.

I made a list of the results of his experiment.

P1236, p2143, p4860, p5147, p5985, and p6110 are kinds of microbial proteases.

	P 1 2 3 6	P 2 1 4 3	P 4 8 6 0	P 5 1 4 7	P 5 9 8 5	P 6 1 1 0
wheat allergen lipid transport protein (LTP) (below is 5 times of them)	×	×	○	○	×	×
	×	×	◎	◎	◎	△
a-amylase inhibitor (wheat AI)	×	○	○	○	○	○
mixture of wheat seed	△		○	○		△

Patients who have food allergy in wheat can avoid symptoms of allergy by making use of microbial proteases and decomposing wheat allergen.

Causes of milk allergy are two proteins of Casein and β-lactoglobulin. I think there are microbial proteases and enzymes which can decompose these allergen.

Next, I focused on the cure of food allergy. I found cures which are established at present and written in "Guideline of treatment for food allergy in 2016".

Removal completely

This is to remove allergen from patients' meals completely and aim to ease the symptoms naturally. However "Guideline of treatment for food allergy in 2016"indicated removal minimum food, preservation of safety of patient, and regard of nutrition. Most food allergy of infants improve by developing gastric juice or getting resistance against allergen as they age, thus it is the general way to improve food allergy.

Immunotherapy

Immunotherapy is used when cure of removal allergen seems to improve nothing. This is to

take in allergen by injection or oral with doctor's instruction. Before this cure, patients test the amount of limit which they can eat it. Through this cure, patients aim to raise limit and get resistance against allergen.

However, this immunotherapy is not promoted as the general cure by the guideline of treatment of food allergy. The guideline says immunotherapy should be done carefully by physicians who specialize in food allergy because it probably causes serious symptoms of food allergy. The guideline also says, "Though immunotherapy makes most patients' limit improve, a lot of symptoms of food allergy happen in their therapy. Symptoms which appear lately are often happen." There are a lot of examples and evidence that patients get resistance against allergen, whereas some patients are obliged to stop the therapy on the way.
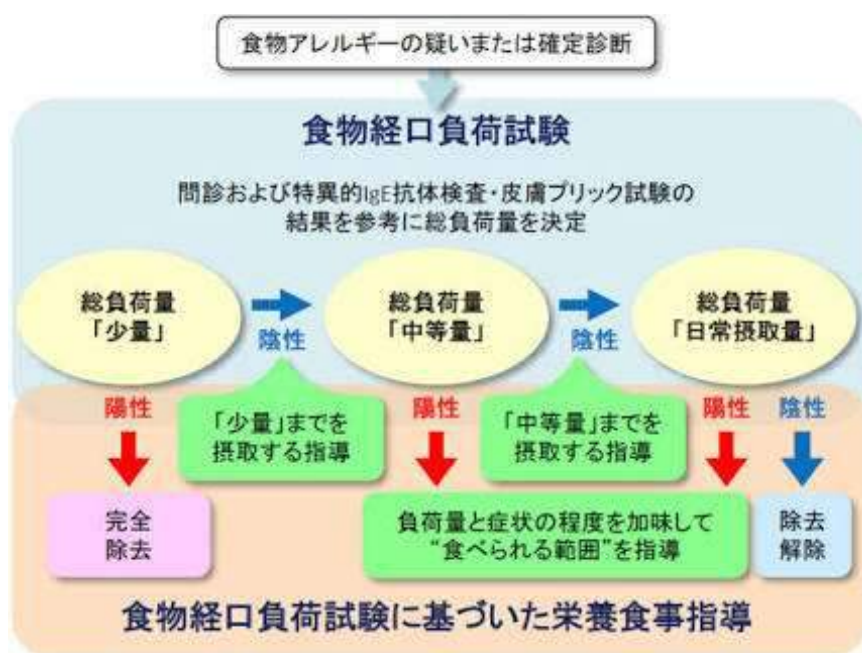

食物アレルギーの疑いまたは確定診断

食物経口負荷試験
問診および特異的IgE抗体検査・皮膚プリック試験の
結果を参考に総負荷量を決定

総負荷量「少量」 → 陰性 → 総負荷量「中等量」 → 陰性 → 総負荷量「日常摂取量」

陽性 / 「少量」までを摂取する指導 / 陽性 / 「中等量」までを摂取する指導 / 陽性 / 陰性

完全除去 / 負荷量と症状の程度を加味して"食べられる範囲"を指導 / 除去解除

食物経口負荷試験に基づいた栄養食事指導

図5 小児の耐性獲得を目指す食物アレルギーの診断・管理のフローチャート

Below is the demerit of these cure.

Removal allergen
・Need cooperation and comprehension of family or people around his or her
・Need consideration in nutrition
・Need attention to eating outside and processed food every time

Immunotherapy
・Some cases are obliged to stop by the side effects
・Need hospitalization sometime
・Need taking in allergen regularly after the therapy

I was interested in latest immunotherapy as a cure of food allergy. Immunotherapy via skin, oral, and under tongue are established now as cures of food allergy.

Immunotherapy via skin

Physicians inject a very small amount of allergen once or twice a week and add the amount of allergen gradually. When the amount of allergen reaches the limit of patients can take in, you extend the span of therapy. This is done before 100 years ago, but this is getting be replaced by other immunotherapy.

Oral immunotherapy

This therapy is spreading as a popular cure of food allergy. This therapy is done to the patients who are thought they can't get resistance easily by removal allergen. It aims to raise the limit of the maximum of they can eat and get the tolerance. It has two types. One is done in the hospital for a short span, another is done in their own house for long span. This needs eating allergen after getting tolerance because the effect will be lost when this cure is stopped on the way.

経口免疫療法のイメージ
食べる量
目標量
食べ続ける
増やす
効果を判定
開始
いったん終了
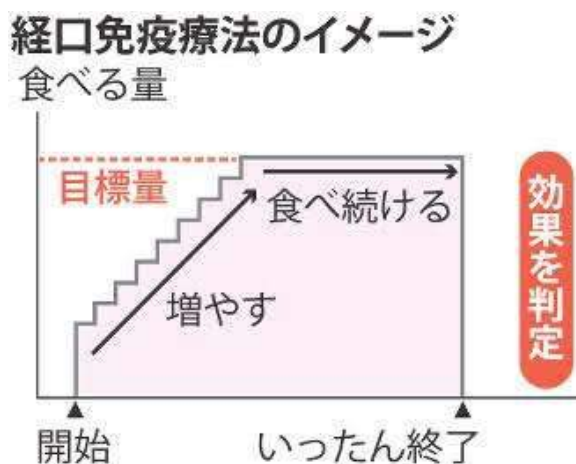
Immunotherapy via under tongue

This is done for allergy of cedar pollen and mite allergy. This is to intake under their tongue the medicine which allergen is concentrated. Patients take the medicine once a day, add the amount gradually, and continue taking medicine of certain amount for several years. This is done in hospital for the first time, after that in house.

(Medicine for allergy of cedar pollen : the left picture, medicine for mite allergy : the right picture)

 Mixed allergen powder

This contains powder of milk, nuts, eggs, wheat, and a lot of allergen. In the United States, this prevention by having allergen from very early age is getting popular.

In the research of the United States, Seven hundred and five healthy infants randomized to mixed allergen powder Mix-in or placebo, fed daily for 28 days.

Mixed allergen powder was well tolerated in an at-home setting. Of the 8803 ingestions of mixed allergen powder, zero infants experienced an allergic reaction.

transdermal immunotherapy

I found transdermal immunotherapy which is done as one immunotherapy in the phase of test. It is immunotherapy through skin. It is different from immunotherapy via skin. The device is the vaccine through skin. There are hydrophilic gel patch and biodegradable micro needle which are like gauze soaking allergen. Study of micro needle is proceeded a lot, I focused on micro needle as a vehicle to do immunotherapy. Micro needle is a small patch that has a lot of minor needle to make small holes in skin and direct allergen into the body. It does not injure the skin and pain because of smallness of holes. It is a bandage.

Micro needle has four types. They are solid micro needle, hollow micro needle, coated micro needle, and biodegradable micro needle. Solid micro needle and hollow micro needle are initial types. It is difficult to adjust the amount of allergen, the time of pasting, the speed of putting allergen into skin, and length of needle. Coated micro needle is developed after solid one and hollow one. Its tips of needle are coated for the safe. Eventually biodegradable micro needle is invented. It melts after it stick to skin.

Immunotherapy that is utilized the **transdermal** delivery technology is transdermal immunotherapy. It is different between oral immunotherapy in using micro needle like bandage. However, the mechanism is same as the micro needle. This therapy is done to the patients who are thought they can't get resistance easily by removal allergen. It aims to raise the limit of the maximum of they can eat and get the tolerance and accustom the body to the
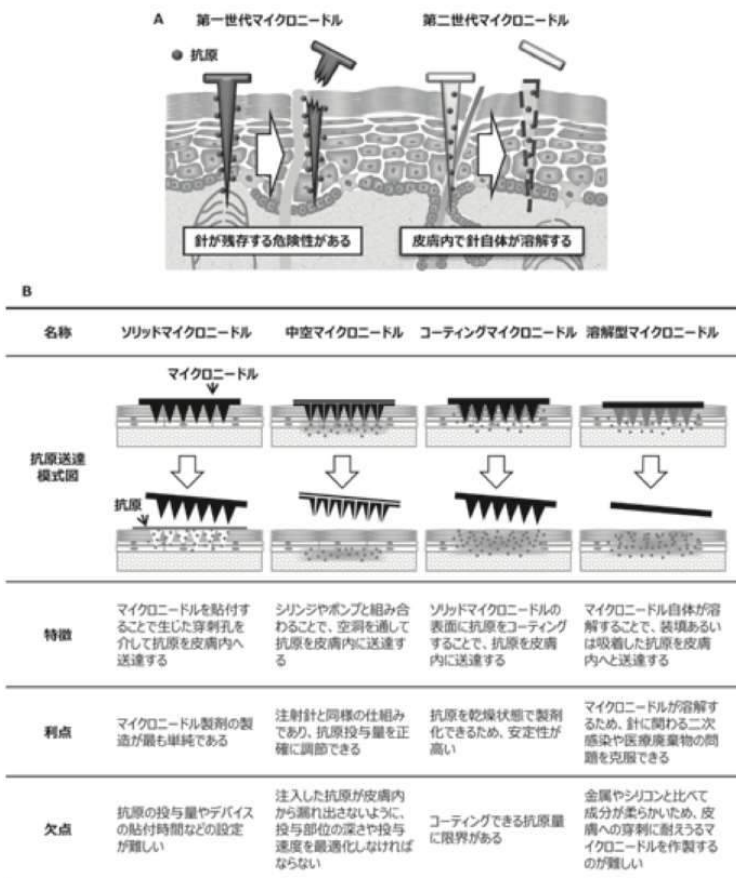
allergen. Recent researches prove to be efficient for children under 11 years old, but not to make a great impact on adults. This outcome is not surprising fact because it is the same with the outcome of the other immunotherapy. Therefore, this is no more amazing way of cure food allergy than other cure because it need not hospitalization, doctors' observation, and pain.

(The left figure is the illustration of micro needle.)

3. Suggestion and defect of my suggestion

At first, you send mixed allergen powder that degrade allergens into the body by subcutaneous injection or transdermal vaccine. As a result, when the allergen enters the body, the powder decompose the allergen before allergen reacts with the IgE antibody.

Next, you do transdermal immunotherapy micro needles or transdermal delivery technology, and the body is gradually made accustomed to degradation of allergens.

Finally, you adjust the amount of powders that degrade allergens to be able to take in allergen without help of enzymes.

Defect of this my suggestion is luck of evidence. I want to know whether it can be true or not and illustrate the certainty of this suggestion.

4. Literature

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Food allergens and Antigen modification of β-lactoglobulin

Improving the environment for broiler chickens
~Thinking from the view point of the animal welfare~

1、Abstract

Animal welfare is a way of raising livestock that raises as little stress as possible from birth to death. The basic policies of this animal welfare include "freedom from hunger and thirst", "freedom from discomfort", "freedom from pain, disability and disease", "freedom from fear and restraint", and "freedom to express normal behavior" 2,The concept of animal welfare came from Europe, and Japan is said to be relatively inferior. I have been conducting research with the ultimate goal of developing this animal welfare. An indicator of this animal welfare is FPD (skin dermatitis), a skin disease of broiler feet. A broiler is a young chicken raised specifically for food and is said to grow twice as a result of repeated breeding. In addition, it becomes difficult to walk with FPD, and when it becomes severe, its legs cannot be used, leading to economic damage. I recommend and propose "installation of perch" and "review of laying" to improve broiler breeding environment for FPD resolution.

2,Introduction

The purpose of this study is to develop animal welfare. Currently, in Japan, it is often said that animal welfare is inferior to countries of Europe. The reason for this problem that is that the weight at shipment is about 1 kilogram in Japan, and the weight of broilers per square meter and the upper limit on the number of individuals are legal in Europe, but Japan has no upper limit.　Therefore, we want to raise the level of animal welfare in Japan.

The reason for setting the theme is that I was interested in animals. In admission, I knew that many broilers were raised in small spaces. So, when I examined broilers at the cancer, I found out that there was a "animal welfare" and found that was greatly related to animal welfare. Therefore, I wanted to do this research to improve the breeding environment of broilers and further develop animal welfare.

3.Method

Research has been conducted using the following methods.
・ Books
Investigated how current livestock are kept.
・ Ministry of the Environment website
Investigate what livestock welfare is. In addition, we investigated the advantages and disadvantages.
・ Previous research papers
I referred to the research.

・ Websites of companies related to broilers or government agencies

We investigated the current situation of rearing environment.

In addition, the research has been conducted as follows.

① Contents of livestock welfare and origin of thinking

② Broiler disease, FPD

③ About previous research on FPD

④ Think about the proposal based on the contents

4,Conclusion

(1) About animal welfare

  In short, the first way of livestock in Europe. It aims for a breeding method that can live mentally and physically healthily with minimal stress and satisfying the desire for action from birth to death. The British government advocates the standard of "freedom to stand, sleep, turn around, look out, extend limbs for all livestock". In the UK, we wrote "Five Freedoms" as Article 9 of the Animal Welfare Law 2006, "Obligations of the animal manager to guarantee welfare". The World Veterinary Medical Association (WVA) is also admired by its basic policy.

① Freedom from hunger and thirst

・ Proper nutrition for animals, sufficient food

・ Clean water

② Freedom from discomfort

・ Environment suitable for animals

・ Cleanliness

・ Resting place where wind and rain and hot weather can surpass

・ Consideration to avoid injury

③ Freedom from pain, disability and illness

・ Health management for disease prevention

・ Presence / absence of pain and trauma, medical treatment and treatment

④ Freedom from fear and suppression

・ Existence of fear, mental distress (anxiety), great stress, elucidation of the cause, and appropriate response

⑤ Freedom to express normal behavior

・ Space to express normal behavior, appropriate environment

・ Group or live alone according to habits.

  Compared to the past, what can be understood from these five freedoms is that livestock is not raised as "just" food, but is thought to be able to live as a "living thing". According to the certified animal rights center, the idea of animal welfare allow to use animals in order for

people to live, but it seeks better handling of animals. I think that animal welfare is more important for humans and livestock to live together.

(2) about FPD

There is a broiler illness called FPD (footpad dermatitis) as an index. It has been discussed in Europe and the United States to see whether the situation is good or bad in the livestock welfare of broilerFirst, I will explain what FPD is. In short, FPD is a skin disease of the foot. The causes of the disease include poor floor condition and high breeding density. When FPD worsens and becomes severe, broiler chickens suffer from difficulty walking or fever stress. According to a survey of broiler outbreaks in Japan ("Studies on the actual occurrence of foot dermatitis in broiler shooting in Japan" Shinichiro Hashimoto 2011), "FPD was observed in all the flocks investigated, all the individuals recognized FPD", which indicates that FPD occurs at a high rate. In livestock welfare, not stressing is very important. The quality and density of the floor related FPD. So solving the FPD problem will lead to the development of animal welfare.

In addition, as a study by Mr. Kozo Takase, they investigated the occurrence of FPD in 8985 broilers brought in from 45 groups of broilers in 36 farms in 5 locations in Kyushu and Tohoku. Those lesions were quantified with a 4-point score. This score is called score 0 (no lesion), score 1 (foot sole, mild, redness), score 2 (medium redness but no lesion), score 3 (heavy redness and lesion on the sole) Divided into 4 stages. As a result, FPD mean scores tended to be higher in females than in females and in winter than in summer. In addition, the observation by age on the farm confirmed the occurrence of FPD at an early age of 1 week. Observation of the farm revealed that FPD was more likely to occur when bred with a high water content, and that breeding of FPD-generated broilers with a low water content could suppress the deterioration of FPD.

Becoming an FPD, the value of broiler is reduced and pathogens are invaded. it is an index for discussion in Europe and the United States, but it is also an index for poultry house environmental conditions. By avoiding FPD, it is thought to reduce stress, suppress disease, and improve training results.

Chicken feet without inflammation ↑

Chicken feet with mild inflammation ↑

Chicken leg with severe inflammation ↑
(Authorized NPO Animal Rights Center http://www.hopeforanimals.org/)

(3) Instinct of Chicken

There are five freedoms in animal welfare, but there is "freedom to express normal behavior", but we investigated what broiler normal behavior is. Broiler chickens live in groups of about 30. And there is a nature that likes friends who are together. Broiler chickens flapping when they wake up in the morning, repairing, picking up the ground and eating, prefer an orderly life with one male at the top. About 40-80 chickens can distinguish other individuals. In social environments, there is a clear ranking in the flock. High density make broiler chickens have a lot of stress. They acts as a sand bath to keep her feathers clean. Chickens have the habit of staying wild and have sleeping on trees. it is essential to install a perch in a poultry house because they need to train the power of jumping wings and legs with a perch. However, the number of poultry houses which have enough perches to use is a few. Also, it is said that broiler chickens grows twice as fast as ordinary chickens.

I think that the stress can be relieved by living as natural as possible for chickens.

(4) Existing solutions

The following are listed as FPD solutions by the Japan Chunky Association. ・ To maintain

skin health, add nutrients such as biotin, zinc, vitamin B group, clay mineral absorbent.

・ Disinfect the following methods for intestinal health.

① Eliminating all organic matter from poultry houses

② Detergent spray

③Water disinfection

④ Antiviral disinfectant

⑤Person showering, stepping-in disinfection, changing to boots dedicated to poultry houses, compliance with biosecurity program

Appropriate bedding conditions include high water absorption, uniform amount and appropriate depth (8-9 cm depth is the most ideal but economical) There are many poultry houses that are about 2 to 3 centimeters deep because they are economically demanding.)

〈important point〉

・ Adjust the height and number of water supply lines.

・ Make the lighting uniform. By doing so, chickens are not biased in the poultry house.

・ Provide minimum ventilation. Be especially careful in the dry winter.

(5) Proposal

Based on the above, I first tried to propose making an ordinance or a law. The content is that the density of broilers in poultry houses in Japan is the same as the EU, with an average of 16.5 birds per square meter and 33 kilograms. However, even if FPD can be solved, making this law is difficult because it would reduce the amount of production and cause damage to farmers. So I would like to recommend "installing a perch". This is also recommended in the EU. As explained in (3) chicken ecology, I decided to recommend broiler chickens because they have a strong desire for action on perches. The merit of this proposal is that there will be no significant damage to the farmer. Also, if an organization such as an agricultural cooperative can provide it cheaply, the damage will be eliminated. Staying on the perch is part of normal behavior, leading to broiler stress reduction and animal welfare development.

The use of perches improves FPD and foot bone quality. (Hughes and Appleby, 1989) Broiler chickens were bred to grow quickly because it becomes ecological but they are weak. As a result, the joints and skeleton of the hips and knees cannot support the body, and there is a problem that walking is difficult, ascites, and dehydration. If a perch is installed and the bones of the legs can be developed, such diseases would be reduced and the shipping volume would increase.

Image of the perch in the proposed house Quoted from (Akane Farm http://www.akanefarm.com/)

（6）Issue

I suggested "installing a perch" as a suggestion, but this idea cannot completely eliminate FPD. I would like to do more research to make better proposals considering the economic aspects in order to reduce FPD and develop animal welfare.

We also proposed "reviewing the bedding". Considering the merits, demerits, costs, and environment of the situation, I have not found the proposal. It is my problem to think about how we can find the bedding and make it easier for farmers to provide. Also, in order to develop more animal welfare, we must deepen our knowledge about animal welfare.

6 Literature

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To revitalize Japan with fish farming

~Let's develop inland tourism with shrimp~

5434 Nanaho Matsuoka

Abstract

Gunma is my home town. But it's not popular in Japan. Gunma continues to be in the lower ranking in the prefecture attractiveness ranking all the time. I tried to find the way to raise the rank even if it is small. Then, I thought it may be effective to do unusual thing to be attracted. As an unusual project, I decided to consider a plan that use shrimp farming in place which has no sea to make it possible that fresh shrimps are eaten in inland place. Through this research I will suggest a plan to revitalize inland place tourism. The final purpose of this research is improve inland lifeless area such as Gunma(not Gunma).

Object and Significance

These days, the demand of shrimp is including in Japan. The trend is similar in the world. For example, in china, the amount of shrimp demand is twice as much as it was 10 years ago.

In case of Japan, about 90% of shrimps consumed were imported from foreign countries such as Indonesia, Thailand, and so on. That is why it is possible to gain money through doing shrimp farming and selling them.

Therefore, the promotion of shrimp onshore culture is effective for regional revitalization. So I'd like to make a plan which can be used in everywhere, and suggest it for some developing areas.

Way of researching

Research shrimp terrestrial aquaculture currently in progress and identify the strengths and weaknesses of each.

In addition, we will consider a shrimp land farming plan that can be done more compactly and easily.

Main of this research

1 The problem of previous originally shrimp farming way

In Indonesia and Thailand, shrimp onshore farming has already been flourishing, but it is viewed as a problem in the following points.

Problem 1 Water pollution

The water in the aquarium, which has been contaminated by shrimp excrement and surplus food, flows directly into the river or the sea, and the surrounding natural water quality deteriorates.

Problem 2 Deforestation

  Southeast Asian countries are cutting mangrove forests to secure the land needed for shrimp farming. The recent increase in shrimp demand has increased the amount of land used for shrimp farming, and mangrove deforestation has become a more serious problem

  Problem 3 Disease epidemic

  Banana shrimp, which has been actively cultivated, has started in South American countries such as Ecuador and Mexico. In the 1990s, shrimp diseases spread and the South American shrimp were annihilated. Therefore, an American research institute that mainly ate shrimp at that time developed SPF (no pathogen) banana shrimp juvenile shrimp. Using the shrimp, countries in Southeast Asia started shrimp farming and continue to the present day. Therefore, in modern shrimp farming, it is important to use SPF shrimp, but at present, the only shrimp with SPF is banana shrimp.

2 The way to farm shrimp which was invented by Japanese company
Way 1 Indoor Shrimp Production System (ISPS)
  An aquaculture method developed by IMT Engineering Co., Ltd. It is held in *Myoko* City, Niigata Prefecture. It is sold under contracts with several stores, and is also sold online. Developed in collaboration with Marcy N. Wilder, International Research Center for Agriculture, Forestry and Fisheries.
Since the water in the tank is circulated and filtered, there is no risk of environmental destruction, and the juvenile shrimp used for aquaculture is also highly safe because it uses
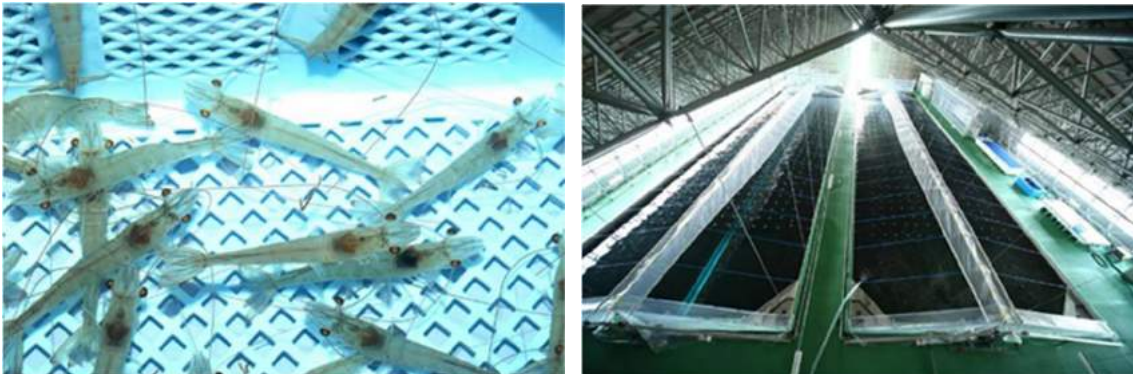Thai SPF shrimp.
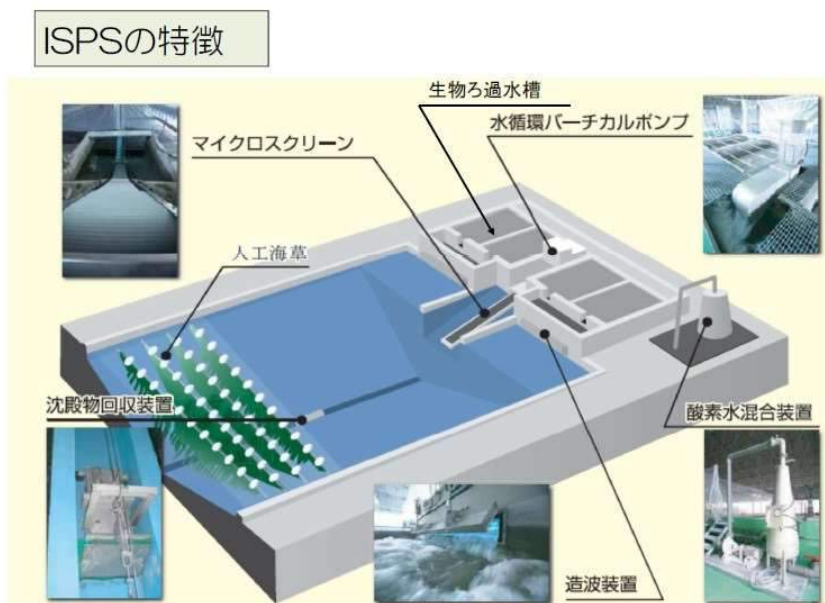
The explain of ISPS system.
From
http://www.isps-japan.or.jp/technology.html

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Right State of farm　　Left *Myoko Yukiebi* produced with using ISPS

From http://yukiebi.sakura.ne.jp/

Way 2 Highland farm *Tono*

　Highland farm tono start producing shrimp using Closed circulation land farming. That was the first example to farm shrimp at inland prefecture. Currently, the scale is not so large, and it is sold only in small stores.

3 How to make it more easily

View 1 Cost

View 2 Mechanism

View 3 Market

View 4 Workers

4 My original shrimp farming plan

My final suggestion is making shrimp factory which we can watch inside of it.

Literature

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Medical error of nursing

Is it true that medical error made by lack of nurse?

5435   Yuki Yoshida

Introduction

  First, I wanted to study nurses because my dream is to become a nurse. And I thought this could help myself when I become nurse. I experimented on the error of nursing because when I saw the word "The lack of nurse causes medical error", I wondered if it is true. The answer is not true. But according to the Ministry of Health, nurses make most error of all the member of a worker in the medical field. What is the cause of this situation? The cause of this problem is "7 to 1 nursing standard". This standard is one nurse take care of seven patient. Two countries showed me it is not good to decrease nurses and have to make good environment for workers in medical field and patients. These are simple ways to solve problem in this study. And according to one of the Japanese hospital, the most important thing is communication in medical institutions. If workers in the medical field share the each error, I think they take care of patients more carefully and they can decrease in nursing medical errors.

Discussion and implications

  The purpose of this experiment is to learn about the current situation of nursing in Japan. My mother works as nurse now and when I saw the word "the lack of nurse cause medical error", I asked my mother about her hospital. Then my mother said "I think it may be one of the reason for medical error". I don't think the lack of nurse don't cause of nursing error. I reference how the problem of nursing errors are solved in developed countries. There a lot of that the country developed about nursing in the world. I want to identify the cause and think solution. And finally I want to solve Japanese nursing error.

  Through this experiment I found about two things. One is that it is not true the lack of nurse cause a lot of nursing error, but more nurses make mistake than the other workers in hospital. For example nurses make twenty times more mistake than doctors.
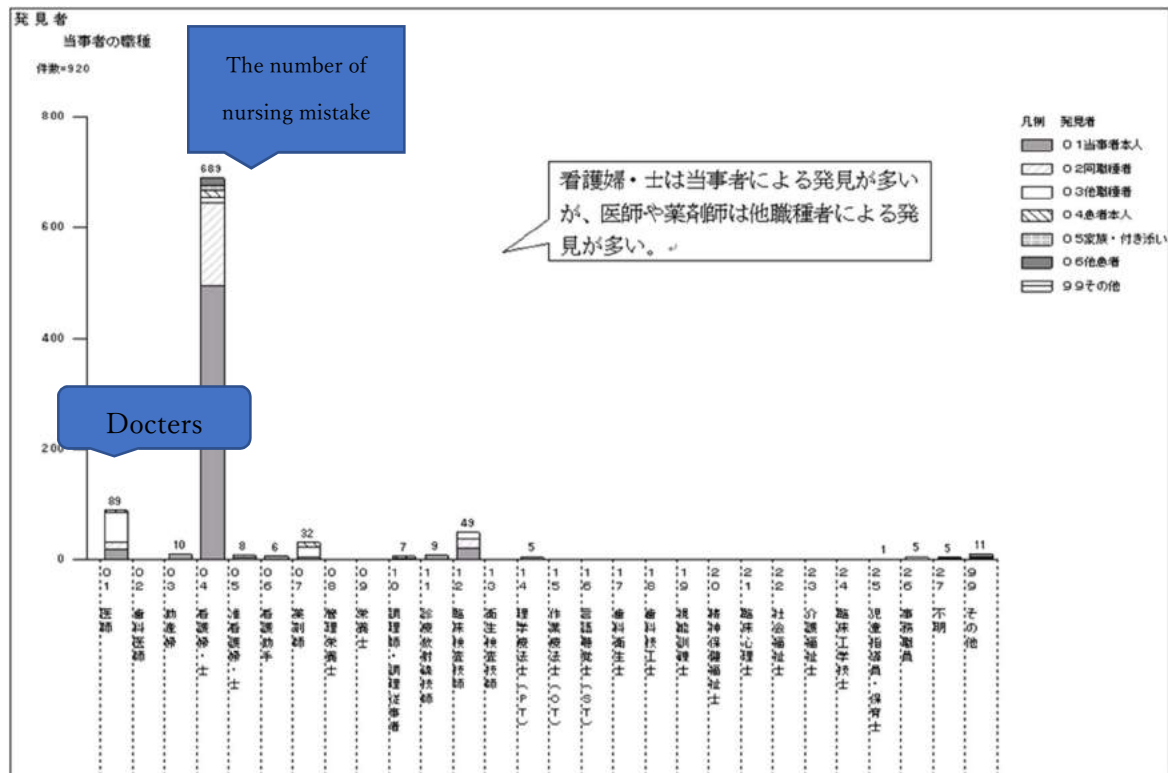
The other findings is 7 to 1 nursing standard causes nursing error. The meaning of this standard is to improve quality of nursing. It can improve quality, but it made nurses trouble in the end. Although the number of nurses was increasing, it didn't change that nursing works are very hard. I wonder how other countries address such problems, so I researched about America. Based on needs, they made nursing standard in America, but in Japan, government made nursing standard based on provision. I found there are differences between Japanese nursing standard and American one. I thought it is one of the Japanese culture, so it is difficult to refer American standard to Japanese one at this time.

What can we do? How do we solve this problem that a lot of nurses make medical errors. According to the Ministry of Health, the number of nurse are enough for nursing now and they increase in another few years. But in 2025, Japanese hospital need 1,960,000 to 2,060,000 nurses, and it expert that 30,000 to 130,000 nurses are running short. It is difficult to increase nurses in this situation that aging population with a declining is moving up. I researched about other country again. I research two areas. One is Europe. They showed us, if nursing work increase, the probability of death rate within thirty days increase seven percent. Decrease nurses to save money have a bad influence to patient. Hospital can reduce death that we can prevention if they educate with an emphasis the sign of bachelor's degree. The other one is Iran. They showed us communication barrier between nurse and patient. They have a lot of trouble, for example, different age, different social rank and so on. These things

are obstacle for them to communicate with each other. From these evidence, I think Japanese hospital must not decrease nurses and have to make good environment for workers and patient. According to one of Japanese hospital, the most important thing in hospital is communicate with people around workers. I think it is impossible to increase nurses and teachers who can teach students of nurse about more detail skills and knowledge, but it is very easy to communicate with workers. The opinion that workers in the medical field do not make mistake is not on any account. Anyone have likely to make medical error. Sometimes, someone make mistake while they did not notice. When l saw the word "communication is most important thing in hospital" I deeply agree with it. I think communication is simple way to solve nursing error.

Conclusion

In this experiment I suggest about two things. One is that Japanese hospital should make meeting time to share each errors that workers in the medical field made while they were working. I think if they share each error, they become more carefully about their mistake and then both medical error and nursing error may be naturally decrease. It dose not effect soon, but everyone can action easily. The other is Japanese hospital should make environment that both workers in medical field and patient are talk to whatever they want to say each other. If patient can say anything , they can notice something before nurses make mistake easily. I hope that medical error is not made by nurses in the future.

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