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Factors influencing plastic overconsumption in Japan from consumers' perspective

A social experiment

Centre for East Asian Studies

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Faculty of Social Sciences

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Factors influencing plastic overconsumption in Japan from consumers' perspective: A social experiment

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Abstract.

This thesis focuses on obstacles preventing Japanese consumers from reducing their plastic consumption. The purpose of this thesis is to fill a knowledge gap on the issue of plastic, shifting focus from waste management to causes of high plastic waste production from the perspective of Japanese consumers. Moreover, it challenges previous research on the environmental awareness of Japanese consumers. The study is relevant as it offers empirical research stemming from the direct involvement of consumers as they attempt to avoid purchasing anything containing or packaged in plastic for a week, recording the obstacles they have encountered. The study finds that there is a series of socio-cultural factors impacting the preference for plastic material by both manufacturers and consumers. This preference then creates obstacles for consumers which make it extremely difficult for them to avoid plastic material during their purchases. Moreover, the findings suggest that despite a seemingly high environmental awareness of consumers, many the lack essential knowledge and skills to significantly impact the environment with their behavior. The findings can be used to shift the focus of environmental and educational policies. Furthermore, they can help implement effective changes based on consumers' needs and address the obstacles and their causes as pointed out by this study. How to implement such changes is a question for further research.

Keywords: Japan, plastic, consumption, environmental awareness, consumers, social experiment

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Introduction

Plastic has become an inseparable part of our lives over the past 50 years, as it seems to be surrounding us everywhere in our daily lives – in our households, at our workplaces, and most of all, in stores. It has become nearly impossible to walk out of a store without at least one product wrapped in or made of plastic. Nowhere is this statement more true than in Japan.

When one enters a store in Japan, they are flooded with products either made of or wrapped in plastic. Bottled drinks, perishable foods, and even fresh groceries such as fruits and vegetables are carefully wrapped in plastic packaging, often multiple layers of them. Even products that are wrapped in alternative packaging in Europe, such as conserved fruit, can be found in plastic rather than metal cans. These practices are especially visible in supermarkets and convenience stores (further referred to as "*konbini*").

When I first walked into a Japanese *konbini* in 2019, I was shocked to see an immense amount of plastic packaging, bottles, and bags used in the store. After this experience, I became very invested in this phenomenon. I wanted to know how much plastic Japanese people consume on a daily basis, how much plastic waste they produce annually, and what happens to it after it has been disposed of. After examining literature focusing on or mentioning this issue, I noticed that plastic in Japan has been gaining gradual attention over the recent years, both academic and journalistic. Many of the sources pointed out Japan's issue with excessive use of plastic or certain plastic products compared to average consumption in other OECD countries.

According to the statistics from the past five years, Japan produces up to 9 million metric tons of plastic waste annually, which makes up for 3% of the world's total plastic waste. This accounts for 88kg of plastic waste per capita, which is much higher than the average amount of plastic waste in other OECD countries (Buchholz 2021). Moreover, Japan remains the second biggest producer of plastic waste among OECD countries following the USA, fifth on a global

scale ("10 Countries Producing Most Plastic Waste," n.d.)[1]. About 70% of this waste is composed of household plastic, making it one of the biggest problems Japan struggles with (Moshkal et. al. 2023, 8). In 2020, the amount of generated plastic waste accounted for 8,2 million metric tons, most of which was plastic packaging, PET bottles and plastic bags (Klein 2022a). In 2021 plastic packaging totaled 69% of plastic waste, followed by plastic bottles, comprising 14% (Klein 2022b).

Disposable plastic bags are also a significant component of plastic waste. In July 2020 Japanese government implemented a policy which mandated retailers to charge a small fee for plastic bags which customers receive at the register (Mainichi Daily News 2020). Until then this bag has been given out automatically for free, resulting in Japanese using up to 30 billion plastic bags annually, which accounts for over 450 bags per person per year. For example, before the 2020 bag fee policy, Japan used seventeen times as many plastic bags as the UK, although only having twice the population size (Jozuka 2020).

Since these products are usually acquired by consumers in stores, it seems appropriate for this research to focus on Japanese consumers and the factors that impact their purchase behavior. When gathering sources for this research, I have discovered a knowledge gap. Despite the growing attention to plastic pollution by researchers, most scholarly literature focuses on waste management practices rather than the source of the waste produced - consumption. The few sources that did mention plastic consumption and possible factors impacting it, define this phenomenon as a social issue. For example, a Japanese historian Eiko Maruko Siniawer states:

> *"The amount and composition of trash itself is a mirror of the society responsible for its creation, and discussions about what to do with garbage and how to handle the afterlives of stuff suggest much about people's relationship to material things, what they want to own, how and what they choose to consume, and how they treat*

[1] Following USA is India, China and Brazil, all of which have much bigger population than Japan.

> *their possessions. Rubbish can tell us about the societal context in which the decision to discard was made, about opportunities for repair, attitudes toward disposability, or planned obsolescence." (Siniawer 2018, 3)*

Additionally, Cwiertka and Machotka label consumption as "a tool for understanding Japanese society" (Cwiertka and Machotka 2018, 21). I agree that the best way to tackle this issue is through societal changes and I have therefore decided to focus on Japanese consumers and the possible factors that might impact their purchasing behavior. With supermarkets and *konbini* stores mostly replacing small locally owned stores (Siniawer 2018, 58-61), I believe that the focus on the relationship between these stores and the consumers is crucial, as it plays a key role in this issue. For example, the role of *konbini* has been stressed by Gavin H. Whitelaw in his contribution to the book *Consuming Life in Post-Bubble Japan*. According to Whitelaw, there are over 56 000 *konbini* stores in Japan today and they became to "reflect societal, demographic, technological and political changes rather than economic shifts", as they are not only a place where people shop anymore, but also offer many other services, such as copying, posting, and paying bills (Whitelaw 2018, 24). That reflection can also be seen in their quick adjustment to the aging population by offering soft food, lower shelves, or home delivery. As a result, Japanese people have become dependent on them to the point where they find it hard to live without a *konbini* near their homes (*ibid*, 72).

To explore the above-mentioned relationship between consumers and the stores, I examine motivations behind consumer behavior, limitations the stores might be imposing on them and how these limitations might be contributing to consumers' daily consumption of plastic material. To achieve this goal, I ask three questions: 1) "What factors are contributing to the plastic overconsumption issue in Japan?", 2) "What limitations are Japanese consumers facing if they attempt to avoid plastic products?", 3) "What alternatives are offered to consumers who do not want to support plastic consumption?" My hypothesis is that plastic

material is so imbedded into Japanese society, that it makes individual's efforts to reduce their plastic consumption very challenging, if not impossible.

This research is important as it draws attention to the contribution of various sectors to plastic consumption through historical and cultural perspective. As such, it could be meaningful to various stakeholders including the government, non-governmental organizations, and individuals, who can then use the information gathered by this research to make informed decisions to change individual attitudes and awareness of environmental sustainability. The method used for this research is a thematic comparative analysis of secondary literature together with field research results. I believe this method is fit for this research as it helps to incorporate historical and cultural insights from secondary literature which is then applied to interpretation of the results. As such, the research investigates the historical and cultural context of consumer behavior in Japan and factors impacting consumer's purchasing choices.

The thesis is divided into two main parts – theoretical framework and field research. The theoretical framework is composed of analysis of secondary literature and is divided into two chapters. The first chapter gives a brief overview of the historical development of both general consumption and plastic consumption from the 1870s up to the year 2020. The second chapter then focuses on possible factors which may be contributing to current plastic consumption. Among such factors, I introduce convenience, hygiene, Japanese customer service also known as *omotenashi*, the culture and tradition of wrapping, the quality of Japanese environmental education and other contributors.

The field research is then divided into a questionnaire, a social experiment, and an observation. The questionnaire explores purchasing habits and preferences along with a level of environmental awareness among Japanese consumers. The social experiment is composed of short recordings from participants, who attempt to reduce their plastic consumption to the best of their ability for a week. Finally, the observation comprises of recordings from class

observations, which I made by attending Environmental Studies and Consumer Law courses. The last part of the thesis is the discussion where I compare the data collected from field research with the data gathered from secondary literature.

By combining the analysis of secondary literature and the data gathered from the field research, I hope to determine the main contributors to the “plastic overconsumption” issue. I also hope that my research will become a steppingstone for further research and will draw more attention to the issue, potentially leading to developing better practices to solve it.

1 Japan's environmental leadership and waste management

Japan has a long history of environmental movements originating in the 1950s. The country has undergone rapid industrial growth since the *Meiji* period (1868-1912), which caused gradual environmental degradation (Ando & Noda 2017, 40). This degradation peaked in the 1950s with the infamous four industrial diseases – Minamata disease, *Itai-itai* disease, Niigata Minamata disease, and Yokkaichi asthma – which provoked a series of anti-pollution protests. These protests helped make pollution a prominent social and political issue and led to establishment of environmental education along with a series of anti-pollution and pro-environmental policies, laws, and regulations. (Siniawer 2018, 102).

Over the following years, Japan has experienced multiple waves of environmentalism and established itself as one of the environmental leaders in the world. One of the events that helped Japan assert such a position was the 1997 Kyoto Summit resulting in the Kyoto Protocol, where Japan, along with other parties, agreed on targets for the reduction of greenhouse gas emissions (Gilson 2021, 729). Another interesting case which Japan uses to present its success in environmentalism is the curious phenomenon of Kamikatsu, Japan's first zero-waste city. Located in the southern part of Japan, the city of Kamikatsu adopted a "zero waste declaration" in 2001 as an alternative to accepting government subsidies to build an incineration plant. By establishing 34 recycling categories, the city has achieved an 81% recycling rate in 2020, becoming an inspiration for other cities not only in Japan, but all over the world (Shenyoputro & Jones 2023, 1-3).

However, Japan's label as an environmental leader is rather self-proclaimed and the views of that label are conflicting. For example, despite the above-mentioned successes, Japan has been criticized on many occasions for its lack of initiative to fight the climate change and for being behind other OECD countries. Gilson argues that already by 2001 Japan was falling behind with implementation of regulations agreed upon by Kyoto Protocol. As she states:

> *"Japan had failed to promise the implementation of Kyoto and in fact sought to reduce penalties for non-compliance, thereby illustrating its absence of instrumental leadership, and winning the Japanese government the ironic Fossil of the Day Award by the Climate Action Network, given to the states seen to be 'doing the most to achieve the least'. Japan would go on to win it again (along with many other states), including in 2010 at COP16 for 'trying to kill the Kyoto Protocol'". (Gilson 2021, 730)*

Gilson also argues that this lack of initiative towards fulfilling the promises of Kyoto protocol has been consistent up to the Glasgow summit in 2021. A former prime minister Suga, who participated in the summit has made a pledge in 2020 to make Japan carbon neutral by 2050. However, the author is very sceptical whether this pledge can be upheld based on the country's previous struggle to fulfil the Kyoto protocol (*ibid*, 747).

Moreover, initiatives by both government and business retailers in Japan toward plastic waste reduction have been slow compared to other developed countries. For example, while several countries have banned certain or all kinds of single-use plastic, such as straws, cutlery, or bags, ("Action to Reduce Waste from Single-Use Plastics" n.d.), Japan is falling behind, setting a goal of reducing single-use plastic by only 25% by 2030 (Gilson, 2021, 735). Another initiative is the above-mentioned 2020 plastic bag fee policy. Yet again, this initiative has come much later than in other developed countries and has taken three years to implement since its first introduction in 2017 (Sasatani 2020). Additionally, the fee is incredibly low, only 5 yen (0,031 euro) for a thinner bag and 10 yen (0,062 euro) for a thicker, more resilient one. While the fee was originally only 3 yen when the initiative came into effect (Mainichi Daily News 2020), the increase seems to be far too slow. Additionally, the delay of the implementation was allegedly due to the government facing protests from *konbini* associations who refused to

charge their customers for bags, as they did not want to provide what they considered insufficient service (Hussein, 2019).

Lastly, many criticize Japanese waste disposal system which mostly relies on incineration plants. These plants were originally supposed to serve as an alternative source of electricity. However, the fragmented recycling system caused an excessive amount of these facilities, totalling 1221 in 2014. Only 304 of them generated energy. Additionally, only 16 of them exceeded 20% of their potential efficiency. The individual facilities also often compete to stay in business, which motivates them to burn as much waste as possible, not considering the recyclable waste. Measures have been taken to prevent this issue, but due to the excessive number of facilities, it is very hard for the government to track the recycling system of individual facilities. The competition between the waste management companies also leads to the preference of burning plastic due to its high caloric value for electricity generation (Watanabe et al. 2014, p. 4-6). The current state of plastic waste disposal is very ambiguous, as each source offers different statistics. According to the ministry of environment, the official recycling rate is approximately 89% 「プラスチック資源循環戦略」の策定について, 2023 [2]). However, the Japanese concept of recycling is very different from the western one.

While in western countries recycling is understood as sorting out the waste to use it to make new products, Japan has four different types of recycling: thermal, chemical, mechanical, and material. Material recycling is the only kind that equals the western understanding of recycling and accounts for only about 10%. Mechanical recycling means that the waste is turned into plastic pebbles which are then used for industrial manufacturing. The difference between these two is that while material recycling results in production of various types of recyclable plastic, the only resulting product of mechanical recycling are the plastic pebbles. Chemical recycling means the waste is either liquified or gasified. As they are often considered the same category,

[2] “Development of the "Plastic Resource Recycling Strategy”

the exact percentage of these categories is not clear (Sasao 2022, p. 2). About 66% of plastic waste is recycled thermally, which means burned in incineration facilities, including incineration for energy generation (Amemiya 2018, p. 4-5). The remaining 11% of the waste is then either exported to other Asian countries, such as Malaysia, Vietnam, or Thailand or ends up in landfills (Sun and Tabata 2021, p. 2). Based on the presented numbers, Japanese waste management seems to be very ineffective.

Another issue is caused by the 1995 Container and Packaging Recycling Law. This law has shifted the responsibility for disposable packaging and containers to municipalities away from companies producing them. Compared to municipalities, which carry up to 80% of the financial burden or waste disposal of single-use containers and packaging, manufacturers are expected to pay only about 20% to 30%. Critics of the recycling system argue that the focus of this system is not to solve the waste problem or become more sustainable, but to make recycling as profitable as possible. As the waste management is funded by taxes collected by municipalities, recycling facilities can collect raw material at low cost (Harada & Harrison 2017, 30-33).

These contradictive statements lead to a question: what causes Japan's delay of tackling the plastic issue and joining other OECD countries? There seems to be a complexity of various factors contributing to this problem, which makes it impossible to provide a direct solution. My hypothesis is that the factors mainly impact consumer behavior, which has a direct impact on plastic waste generation. Therefore, determining these factors can help create solutions that can lead to a significant reduction of plastic waste. To properly examine this hypothesis, the level of environmental awareness and environmental concern among Japanese consumers needs to be considered.

Environmental awareness or consciousness could be defined as "acquiring education and knowledge about the impact of human behavior and activities in the environment/acquiring

knowledge about the impact of human behavior on natural resources, considering the needs of the current population" (Mokshal et. al. 2023, 6). It composes of three elements – motivation, knowledge, and skills, with each element comprising of several aspects. Motivation includes concern about environmental problems, understanding the responsibility of an individual towards environment and their willingness to act. Environmental knowledge is then composed of information about environmental problems, individual's understanding of the cause-effect relationship between those problems and one's behavior and information of structural possibilities of environment-friendly behavior. Lastly, skills, or one's ability to act, then includes various kinds of environment-friendly behavior in different spheres of life. Neither of these components alone is sufficient to make one behave environment-friendly. For example, Kokkinen argues that while motivation or values influence individual's behavior towards the environment, they do not necessarily lead to environment-friendly behavior. Similarly, even if one is both motivated to improve their behavior and knowledge about environmental problems, they might not be capable of behaving environment-friendly. To do so, they must first acquire a set of proper skills (Kokkinen 2013, 9-11). Therefore, the three components are interdependent.

Environmental concern can then be defined as "the degree to which people are aware of problems regarding the environment and support efforts to solve them and or indicate the willingness to contribute personally to their solution" (Kokkinen 2013, 10). According to Franzen, the environmental concern has been increasing globally since the 1950s, which can be seen in the rise in numerous international environmental treaties, national pro-environmental policies, and non-governmental organizations. There is also an ongoing debate regarding causes of this increase with contradictive findings. The main conflict in this debate is the impact of gross national product (GNP) per capita. Some scholars argue that rich and developed countries give less priority to economic issues as their immediate needs are met, giving more attention to

other values such as protection of the environment. In contrast, others argue that poorer and developing countries face pressing environmental problems such as water and air pollution, which increases environmental concern in these countries (Franzen 2003, 298). While there is conflicting evidence on both sides of the debate, many studies have concluded that there is little difference in overall level of environmental concern in both developed and developing countries and that there are many factors influencing it, such as cultural beliefs and values of specific countries (Running 2012, 17-20).

With consideration of this debate, it is important to examine the situation in Japan. Unfortunately, I was only able to find a limited number of papers dedicated to the situation in Japan, as most research focuses on environmental awareness and concern in comparison between various countries. However, researchers argue that Japan's long history of environmental movements and the country's unique Shinto religion which is based on animalism and sacredness of nature suggest a strong environmental awareness among the Japanese (Sato 2017, Taylor 2011, Takayama 2015). Mokshal argues that Japan has a culture which encourages individuals, organizations, and communities to respect the environment, and which emphasizes connection between humanity and nature. His claims are supported by recent statistics, which indicate that more people are becoming aware of their environment and try to alter their behavior to be more eco-friendly. As a recent survey (Figure 1) shows, 77,9% of consumers try not to purchase plastic shopping bags, 64,1% attempt to save energy and 40,8% said they want to buy eco-friendly products (Klein 2022).

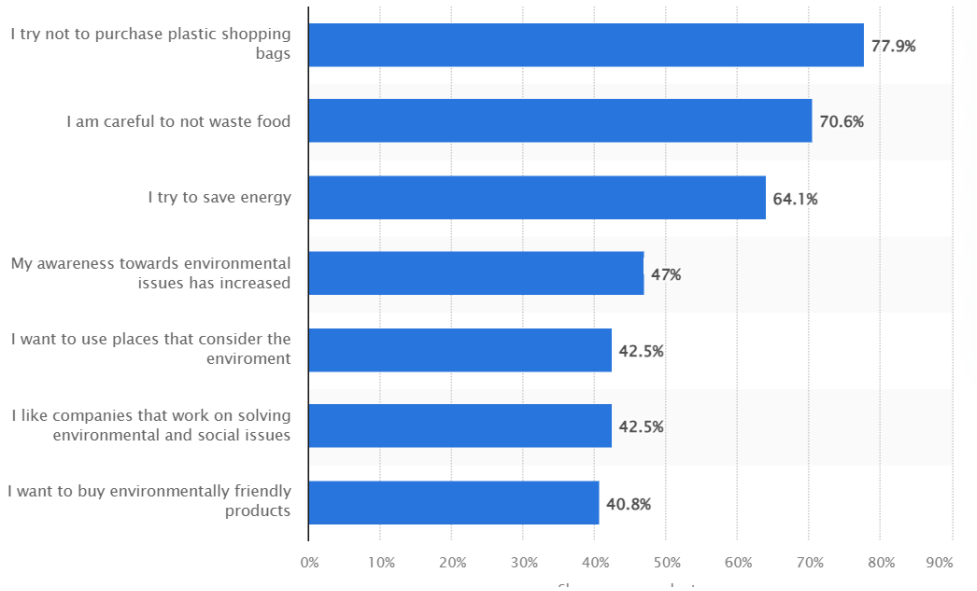

Figure 1: Environmental awareness and most common eco-friendly habits in Japan 2022, Statista.

At the same time however, Mokshal also argues that the Japanese lack knowledge of their responsibility towards waste management, making it unsustainable in the long run (Mokshal et.al. 2023, 6). Imamura and Mitsuyuki then argue that Japanese environmental awareness is only superficial and that they lack understanding of the complexity of environmental problems and the effect humans have on the environment (Imamura&Mitsuyuki 2017, 5). These findings suggest that while the Japanese have the motivation to live more environment-friendly, they lack the knowledge and skills to alter their behavior effectively. Therefore, this thesis also examines environmental awareness of Japanese consumers and how it affects their plastic consumption.

2 Historical development of plastic consumption

To understand why Japan struggles so much with both plastic consumption and plastic waste, one must examine the development of consumption and waste management policies. Therefore, will briefly introduce the history of both consumption in general and plastic consumption in Japan. To make this chapter easier to understand, it is divided by decades, starting from the postwar period of 1940s until 2020.

2.1 From Meiji cholera to the American Dream (1870s-1950s)

Japan's struggle with waste started in 1870s and 1880s, when the country struggled with cholera epidemics caused by the lack of sanitation and improper waste management. This experience, combined with economic hardship in late 1910s and early 1920s, prompted an emergence of recycling and waste consciousness. Since then, waste minimization had been promoted to improve people's daily lives. The emergence of consumerism can then be dated back to the Taisho period (1912-1926) when Japan had started forming into a consumer capitalist country. As Humbleton points out, this period can be characterized by "an explosion of westernization, modernization and consumerism, bolstered by the rapid growth of print media" (Hambleton 2020, 380). However, it was then abandoned due to the Pacific War and the aftermath of Japan's defeat in World War Two.

Due to the devastation and impoverishment of the country by World War Two, resources were scarce and people's attitude towards consumption and wasting was shifting drastically in the 1940s. Wasting was considered unthinkable, and people emphasized hygiene and waste consciousness as part of their quest for revitalization mainly out of fear of disease originating in previous experience. As people tried to make most of what they had, waste began to be considered backwards and uncivilized, and garbage was seen as something that needs to be eradicated for the sake of hygiene and sanitation. However, due to gasoline and labor

shortages, municipalities did not have enough resources to dispose of waste properly, therefore most of it was either burnt in one of very few incineration plants or buried in designated dumping grounds (Siniawer 2018, 11-28).

The characteristics of this time was culture of scarcity and frugality, which originated not only from the dire economic situation but also from the concept of *mottainai*. Dating back to Edo period (1603-1868), *mottainai* is a notion of waste consciousness, which expresses regret over wasting of something. It originated from the Buddhist concept of *mujo*, a belief that nothing is permanent and therefore existence of everything is precious (Tyler 2011). Based on this philosophy, people believed that if they waste something, it means that the true nature, or rather the meaning of existence of the thing wasted, is lost, evoking the feeling of regret over such loss. Therefore, it urged people to use resources with respect (Sato 2017). The concept of *mottainai* has acquired various interpretations and has been used in different context, not only regarding resources but also other aspects of life such as time, money and other, but the core message has remained the same – avoid wasting. For example, during the 1940s and 1950s, it primarily inspired people to value resources to help the country recover from the war.

While the minimization of waste continued to be encouraged in the 1950s, the narrative of what is considered waste has changed. As the country's economy got boosted by the Korean war, and the U.S. was using Japanese industrial power to supply its military, frugality and waste consciousness was no longer a matter of sheer survival but turned into a narrative of "an inherently Japanese virtue" (Siniawer, 40-41). Waste consciousness was romanticized, considered as more of a good trait of citizens of a rising nation rather than a necessity. As part of this new narrative, many magazines advised housewives to not waste and to utilize every part of the household to its maximum potential (*ibid*, 42-44).

The economy took a drastic turn in the mid-1950s with national income exceeding 10% and GNP higher than ever before. This shift started a new way of thinking about consumption.

People were encouraged to spend money instead of saving to improve both their lifestyle and the economy. Both the government and various businesses took advantage of the flexible interpretation of *mottainai* and used it to transform the idea of wasting, encouraging people to purchase anything that prevented them from wasting time, effort, or labor through campaigns regarding efficient purchasing through recognition of rationalized and impulsive purchase. Most of these campaigns were again targeting housewives (*ibid*, 47).

Additionally, a lot of businesses used the idea of the American dream to romanticize consumption as means to reach the appealing American lifestyle. In fact, Humbleton argues that "the ideal of post-war Japanese home life flowed explicitly from the model of the American way of life" (Humbleton 2020, 381). One way to achieve this lifestyle was to strive for the three treasures of the 1950s: a washing machine, a refrigerator, and a vacuum cleaner. Acquiring these appliances served as means for Japanese household to express that it reached a certain financial status, forming the newly established middle class. Another event inspired by the American dream was the establishment of supermarkets in 1953. The supermarkets have quickly spread around the country and drastically changed the lifestyle of Japanese consumers, transitioning Japan into a new era of consumerism and disposability (Siniawer 2018, 58-61).

2.2 War Against Waste and Culture of Disposability (1960s)

As stated above, the chase after American affluency launched a new lifestyle and a new understanding of both waste and consumption among Japanese people. According to Cwiertka and Machotka, the 60s were the time when the Japanese first started indulging in consumption. The authors argue that the "economic affluence transformed and the culture of scarcity and ethos of frugality – characteristic of the 1940s and 1950s – gradually gave way to the veneration of material comfort and convenience" (Cwiertka and Machotka 2018, 16). One of the reasons for this drastic change was the fact that between the 1960s and 1980s Japan has experienced an

uninterrupted economic growth also known as “Japan’s economic miracle”, which resulted in dramatically rising standard of living with GDP per capita being doubled between 1960-1970.

Consumption played a big part in the economic growth as well, as the attitude towards consumption, which has already started changing in the late 1950s, was further perpetuated during the Cold War. Consumption was used to legitimize capitalism in Japan, encouraging Japanese people to enjoy it. As always, the marketers pursued this encouragement through housewives, creating a new ideal of a housewife – “*karisuma shufu*”. This new ideal was very different from the traditional *shufu* of the early 20th century. While an ideal housewife in the 1920s was to be frugal, domestic and sacrifice everything for her family, *Karisuma shufu,* also known as “charisma housewife”, was to enjoy life through consumption (Cwiertka and Machotka 2018, 24). It was invented and heavily advertised by the marketers and the media to help shift the attitude towards consumption, resulting in Japanese people eventually identifying themselves as consumers (Goldstein-Gidoni 2018, 107). Nowadays the term refers to a celebrity housewife renowned for her cooking and housekeeping. They usually live in rich neighborhoods and lead a fancy lifestyle (Goldstein-Gidoni 2012, 139). Furthermore, the phenomenon of three treasures from the 1950s have been expanded by new products Japanese consumers were to strive for to achieve the newly introduced ideal of middle class. These new three treasures, also known as 3C’s, were composed of a car, a colored television set and an air conditioner (also referred as cooler) (Siniawer 2018, 62).

The 1960s’ period is also when convenience stores, vending machines and plastic materials were introduced. Following the supermarkets, vending machines quickly spread around the country and grew from 10 000 pieces in 1962 to astonishing 4 million today, creating a new ideal of convenience. Also aligning with the drastic lifestyle changes perpetuated by supermarkets, the introduction of plastic material, especially plastic packaging, has further changed the purchasing practices of Japanese consumers, expanding the disposability culture.

Plastic wrapping, first produced in Japan in 1961 by a Kureha Chemical company as *kure rappu*, quickly gained popularity for its convenient and hygienic features, and launched an abundance of various disposable products, from nylon pantyhose to plastic bottles (Siniawer 2018, 61). Lastly, convenience stores were introduced in the late 1960s, but would not gain their crucial role in plastic consumption until the 1990s, and therefore will be discussed more later.

The narrative of accepting consumption as a necessary tool for economic growth and rising living standard of the newly emerged middle class has caused that waste started to be viewed as a necessary by-product of mass consumption. In fact, the growth of waste has been so rapid that it brought attention of many critics, who for the first time pointed out a link between mass consumption and waste and criticized advertisers and marketers for igniting mass consumption and encouraging wastefulness. They also claimed that this new narrative caused that consumption has become more about waste than life improvement and that people lost the sense of appreciation of objects and therefore the labor and time that has been put into it (*ibid*, p. 71-73).

There was also another health crisis caused by the rapid rise of waste, as the waste management facilities were not equipped to deal with such an amount of waste in such short period of time. As mentioned above, incineration facilities already existed, but as they were not yet established on a national level, they were still rather expensive, which meant that only 5% of waste was incinerated and majority of waste ended up in landfills, which again lead to the increase of pests such as rats, flies, and mosquitos. Amid this crisis and the incoming Tokyo Olympics in 1964, the government dealt with the waste issue by establishing sewage lines and a new garbage pick-up system as a part of a "beautification movement". This new system started using plastic garbage containers, which were advertised as a "sanitary, hygienic and convenient" tool to tackle the waste issue. As government refused to deal with this issue on a

national level, the waste management became a responsibility of municipalities, each establishing their own system of waste disposal and pick-up (*ibid*, 81-87). This system, although highly inefficient and fragmented, is still used to this day. Despite the rising garbage issue and the criticism of mass consumption, the consumers were not encouraged to limit or alter their consumption, as it might threaten the economic growth. Therefore, the consumption fever has continued for the next two decades, and the waste issue continued to be treated as a separate issue.

2.3 The Oil Shock and Consumer Identity (1970s)

The 1970s can be considered a period of changes which have impacted both the country's economy and society, and played a major role in shaping Japan into the country as we know it today. Some of the major changes originating in this decade are the nationwide establishment of incineration plants, a wave of second handedness and flea markets driven by the Oil Shock and the newly discovered identity of the Japanese as consumers.

The outburst of materialism in the 1960s caused that already by the 1970s the Japanese government was unable to handle the immense amount of waste produced every year, as landfills were no longer a sustainable solution. In fact, the growth of waste was so rapid, that it resulted in a local phenomenon known as Tokyo Rubbish War in 1971. With plastic being the main component, the amount of waste produced by the 23 wards increased 2,3 times from 41 000 in 1961 to astonishing 192 000 in 1970. There was also an increase in the amount of industrial waste, which meant a potential threat to locals. The governor therefore decided to tackle this issue by construction of more incinerators and artificial landfills (Gygi 2018, 142).

While the phenomenon was only local, it has brought nation-wide attention and was highly publicized and heavily covered by all kinds of media. More importantly, it has brought public attention to waste and has sparked discussions about rubbish all over the country, contributing to the shift in attitude regarding waste. Garbage was no longer a necessary

collateral damage of consumption, but a sign of backwardness which needs to be eliminated. (Siniawer 2018, 93-103) This re-adopted view of waste together with the pressing issue of garbage flooding the streets all over Japan called for a quick solution. Such solution came in a form of a nation-wide establishment of incineration plants in 1971, which became a major means of waste disposal in Japan and still maintain this position today. It also became the most preferred way of disposal and was promoted as a "process of melting down and re-forming the material, during which the matter undergoes purification by fire" (Gygi 2018, 142).

The shift in the view of waste was additionally boosted by an event known as "the Oil Shock" which hit the world in 1973. The Oil Shock was caused by an embargo placed on the export of oil to countries which were supportive of Israel in the Yom Kippur War. Since Japan imported 99,7% of its oil from other countries and over 80% of it came from Middle East, the embargo caused both an inflation spike as well as a resource scarcity in Japan, along with many other countries (Siniawer 2018, 94). The sudden financial struggle showed the government how unsustainable the high-growth ideology was, as it took only one event to disrupt it. As a result, people became very aware of limited resources and their waste disposal practices. They started thinking about what happens to the waste after they dispose of it, which spurred another rise of environmental consciousness and a second wave of the *mottainai* movement, with people finding inspiration in the 1940s. In search for ways to save both money and resources people created new ways how to consume sustainably. People started promoting recycling, reusing products and materials, and the conservation of resources (Gygi 2018, 143-144).

While such initiatives were mainly economically motivated, they did help raise environmental awareness and promote sustainable consumption as well. In effort to tackle this issue various social organizations started to promote waste consciousness through specific initiatives to reduce waste. One of these initiatives was a "no packaging movement" in 1971 inspired by the criticism of excessive packaging. Participants of this movement tried to persuade

the supermarkets and other businesses to cut down on excessive and disposable packaging by bringing their own bags, bowls for tofu or egg cartons to the stores and asking the retailers to refill them. (Siniawer 2018, 115)

Despite the Oil Shock and the following wave of frugality and waste consciousness, many Japanese continued to indulge themselves in consumption and the deep-seated culture of disposability was still strong. In fact, it remained so strong that even durable products such as furniture, house appliances or even cars were treated as easily expandable. For example, over 50% of cars were disposed of in less than three years, which was quicker than in any other country at that time. It was also the time when producers started making products intentionally obsolete by promoting new designs more frequently and making certain products easily breakable, such as TV sets (Siniawer 2018, 113-115).

Lastly, the 1970s was a time when the Japanese, especially the young generation, started to define themselves as consumers and consumption became a tool for self-expression. Young people of this time, so called *shinjinrui* (often translated as new humankind), found a new sense of freedom and used it to rebel against tradition and expectations of social constructs they had to abide by. This shift was also visible through their attitude towards work. Contrary to the hardworking older generation who considered work as part of their identity as a good citizen and productive member of society, the younger generation started to consider work only as a tool which allowed them to consume. (Hambleton 2020, 385; Gygi 2018, 136). Unfortunately, this consumption fever continued in the following decade as the country entered the bubble economy.

2.4 Bubble Economy and PET Bottles (1980s)

As presented above, the notion of sustainability Japan experienced in the 1970s was highly financially motivated and quickly disappeared when the country entered the bubble era. As Japan's high-growth economy continued to blossom, Japan's GDP per capita exceeded that

of the United States in 1987 and continued to rise through the early 1990s. As a result, the country's household consumption expenditure per capita was one of the highest in the world, with consumption expenditures increasing among all workers regardless of their income level. Therefore, excessive consumption slowly became common among all classes. (Siniawer 2018, 161-165). Consumerism itself reached its peak between 1984 and 1989. Gygi argues that this was a period of "exuberant consumption and decadence" when "consumers consistently chose the more expensive version of a functionally equivalent product, and it was not unusual for a middle-class couple to change all furniture every other year" (Gygi 2018, 136). Shop retailers have implemented new policies with one main goal – to convince the consumers that new is always better and that the products which they already have are boring to get them to buy new ones. Additionally, the shift in the 1970s from family-centered consumption to more personal consumption pursued by the young generation influenced the new consumption fever of this decade. A peculiar case of this new consumption trend is a phenomenon known as Hanako tribe – readers of the magazine Hanako, which was first published in 1988 and was referred to as "consumption bible" as it advised its readers on fashion, dining, and travel. The readers of this magazine were mostly single women, who were known as hedonistic consumers. Most of these women lived with their parents and spent all their disposable income on their consuming desires (Hambleton 2020, 382; Goldstein-Gidoni 2018, 110).

As a result of this shift in consumption, waste was again dismissed as a pseudo-problem, perceived as a necessary means of making space for new things (Gygi 2018, 139). This phenomenon also led to a certain dissociation from nature. According to Alex Kerr, one of the most acknowledged contemporary Japanologists, there was a major shift in Japanese perception of nature in this period which seems to be persisting even today. He argues that "quick modernization caused that nature, which was once viewed as something sacred and admirable according to the Shinto tradition, was suddenly seen as something inconvenient for the new

shiny cement-covered modern cities". Similarly, second-hand goods were suddenly perceived as "disgusting" (Kerr 2002, 136). While secondhand goods and hand-me-downs were common just a couple of years before that, possessions from strangers were now considered polluted. Instead, the consumers searched for a sense of purity which could only be achieved by purchasing new products, often safely wrapped in plastic (Gygi 2018, 140). In other words, new was always better.

The promotion of recycling however remained vibrant in the 1980s, as it created a pacifier effect and gave people an excuse to continue with mass consumption. Pacifier effect is a phenomenon anchored in the discipline of ecopsychology and can be observed in specific environmental behaviors such as recycling. In simple words, by performing a specific pro-environmental behavior such as recycling, the consumers feel like they have done their part of helping the environment and therefore do not feel the need to do anything more (Gatersleben 2018, 135). This effect allowed them to keep indulging in consumption. Additionally, the government's recycling and garbage reduction campaigns permitted consumption as long as the household trash was sorted, and resources recycled (Siniawer 2018, 164). As a result, recycling allowed the consumers to dissociate from the waste, as they were convinced that their waste is taken care of. In other words, they no longer had to worry about what happens to the trash after they dispose of it. Part of this promotion were of course the incineration facilities as they became a cheap and quick way to deal with waste. Such a solution was perfect as this spike in consumption again produced an immense amount of waste.

The waste problem was aggravated not only by an increase in consumption, but also by the introduction of PET bottles in 1982. Convenient and easy to handle, they quickly gained popularity and their usage increased rapidly by the beginning of the 1990s. And together with PET bottles, plastic containers and packaging quickly replaced other materials. This, however, resulted in a rapid increase of waste, plastic waste in particular. Unfortunately, as plastic was

still rather new, the waste management facilities did not know how to deal with it. Most municipalities refused to incinerate it because of the amount of heat the process produced. Therefore, without a proper way of disposal, most plastic ended up in landfills or shipped to other countries. But despite the waste management issue, the production of plastic continued to increase which resulted in plastic waste accounting for 20% of all non-burnable waste, and the amount of plastic packaging shipped in particular increased from about one million in 1980 to over two million by 1990. This was also caused by the fact, that despite the struggle of the municipalities to deal with the plastic waste, plastic as a category was not introduced until the 1990s (Siniawer 2018, 171).

Additionally, the recycling system which was established in the 1960s was never unified on a national level. The waste management was divided into a centralized and a decentralized system. The centralized system was based on small municipalities managing waste from a smaller area, while the decentralized system was based on bigger facilities serving a bigger area. The collected waste was divided by type into four categories: burnable, non-burnable, recyclable, and bulky. Initially, some wards did not want to install incineration plants for burning the waste, as the locals were afraid of toxic emissions. This fear led to illegal dumping of waste and shortages of landfill sites amid rapid economic growth. However, eventually this system spread around the country and despite its ineffectiveness it remains unchanged (Watanabe et al. 2014, 6).

2.5 The Lost Decade and the Recycling Society (1990s)

The phenomenon that defines the 1990s, also known as “the lost decade”, is the burst of the bubble. Recycling kept growing in popularity and was recognized nationwide in the 1990s. There was a sudden decline in labor demand and a consequential increase in unemployment resulting in a fundamental change in the labor market, where many workers were employed as contractors or in temporary positions to create a more flexible workforce

which could be manipulated with based on the needs of the country's economy. This new kind of workforce suddenly included a third of all workers, causing growth in socioeconomic disparity and a collapse of the middle class (Hambleton 2020, 383).

The new socioeconomic disparity and financial fragility then led to another wave of environmental consciousness and rediscovering sustainable consumption. Since then, sustainable consumption and development have become a part of major societal change in Japan (Cwiertka and Machotka 2018, 24). This societal change can be seen for example in institutionalization of environmental education. It was first defined as "education that engages in solving global environmental issues" and was applied as part of formal education in elementary and high schools. However, there was no subject called "environmental education". Instead, various subjects that were already taught, such as science, moral education, or social studies included the concept of the ecosystem, energy conservation or consumption behavior to promote raising "environmentally conscious children". The main three themes which were emphasized within the environmental education were "volunteering for experiences such as environment beautification/cleaning and separate waste collection," "experiencing animal husbandry and plant production," and "learning about waste and recycling within the nation and the local community" (Kodama 2017, 21-23). The topic of environmental education will be further elaborated on in a separate section.

Another part of the new wave of environmentalism was an introduction of new environmental laws (eighteen in total) and a shift towards sustainable development and ecological modernization which was created by NGOs, government, and businesses together, and which eventually lead to the establishment of the Ministry of Environment in 2001 (Cwiertka and Machotka 2018, p. 18). A pivotal point was also Japan's hosting of Climate Convention in Kyoto in 1997, where Kyoto protocol was adopted, and Japan established goals

for emissions reduction. This protocol also included guidelines to control and reduce the emissions of incineration plants (Siniawer 2018, 228).

The burst of the bubble also intensified attention to recycling and waste. The bubble economy caused a spike of the annual production of waste from 42,7 million in 1983 to 50,4 million in 1990. Consequentially, recycling became an integral part of people's lives and was understood as a civic and moral duty among the Japanese public and Japan rebranded itself as "recycling society". This increased attention to waste and recycling also lead to introduction of the Containers and Packaging Recycling Law in 1995, which held the producers responsible for recycling the packaging of their products. The already existing recycling categories were expanded to plastic, paper, glass, burnable, kitchen waste and bulky. Due to the fragmentation of the recycling system, the categories varied by municipalities with some additional categories in certain areas, but the base remained the same. The recycling was then collected by either municipalities or retailers (Cwiertka and Machotka 2018, 18).

Despite this environmental awakening and the unstable economy, the consumption in general did not decrease. Consumerism and materialism were deep-seated in people's minds, who were not willing to sacrifice their comfort. This notion created an opportunity for cheaper retailers to appear on the market to cater to now budget-conscious consumer's persisting shopping desires at affordable prices, such as Uniqlo or Daiso (Hambleton 2020, 384). However, there was a change in the attitude towards secondhand products. The environmental movement along with the need to save money spurred yet another wave of flea markets, recycling shops and 100-yen shops, and the secondhand goods were no longer considered disgusting like in 1980s but were labeled as "vintage" (Siniawer 2018, 232). With retailers catering to the needs of consumers for affordable consumption and the recycling providing them an excuse, Japanese consumers happily continued feeding their desires into the 21st century.

2.6 *Mottainai*, the Tripple Disaster and COVID (2000-2020)

The environmental movement has been on the rise since the 1950s both globally and in Japan (Mokshal et. al. 2023, 7; Franzen 2003, 297). However there has not been much happening in the 2000s as the country still needed time to recover from the financial shock it endured in the 1990s. The first decade of the 21st century could be defined as a period of economic decline. While the economy started to recover from the burst of the bubble, the 2000s were still a time of instability and growing inequality of income distribution. Due to the growing gap and the decline in income, the household expenditures also declined, and people have seemed to finally sober up from the consumption fever that lasted almost four decades. However, consumption still played a pivotal role in Japanese society (Assman 2018, 54-55).

One of more impactful events of this time was an international boom of *mottainai*, which gained a new broader definition, encompassing not only material waste, but waste of all kinds. The person who has brought the international attention to this phenomenon was Wangari Maathai, a Kenyan environmentalist and a Nobel Prize Laureate, who stressed the importance of *mottainai* as a key for conserving environment in 2005 (Taylor 2011, 5). Japanese government has taken advantage of this sudden attention to the concept and contemporary Japanese prime minister Koizumi Junichiro branded *mottainai* as a uniquely Japanese phenomenon, that is hard to understand for non-Japanese. Concurrently, he labeled *mottainai* as a part of Japanese identity and declared the era of mass-production to be over. (Siniawer 2018, 250) The government even went to the length of incorporating *mottainai* into the newly launched “Cool Japan Project”, a government initiative to promote Japan through popular culture. According to Siniawer, “Cool Japan was to be conscious of waste, wastefulness, and environmental protection in ways that captured the multifaced understanding of Japanese culture, values, and spirit.” (Siniawer 2014, 180).

Much more impactful was the following decade, during which both local and international events have greatly influenced Japanese environmental movements as well as consumers' relationship to the environment and to consumption. The first and probably most pivotal event which led to yet another rise of *mottainai* was the Triple Disaster in 2011. As tens of thousands of people lost everything amid this crisis, many have come to reevaluate what is truly important in life, turning away from material possessions and towards environmental conservation. People grew more aware of the importance of sustainable consumption, recycling, and energy conservation, which resembled the notion of the Oil crisis in the 1970s. However, this new notion of appreciating life and turning away from material things has led to unprecedented wastefulness, as Marie Kondo and her decluttering methods have taken over not only Japan but gained international attention and popularity (Siniawer 2018, 266-268).

Kondo's practice was originally inspired by *danshari*, a similar practice of decluttering invented by Yamashita Hideko in 2009, who promoted decluttering as "an antidote for a lifestyle overflowing with stuff" (Siniawer 2018, 268). While still very popular, Yamashita's methods have remained encapsuled in Japan and reached only to a limited audience. However, Marie Kondo and her book "The life-changing Magic of Tidying Up", which came out in 2011, have boomed internationally. Both methods were advertised as a way of decluttering for ones who struggled to do so, composed of simple steps which were to help people determine why they cannot give up on specific possessions. As part of their campaigns, both authors criticized *mottainai* as "indulging an attachment to the material and encouraging a guilty conscience that made it hard to dispose of thing". Moreover, they criticized the sense of responsibility to recycle and reuse as an obstacle for decluttering. This promotion of irresponsible wasting and criticism of proper recycling practices again lead to an overwhelming amount of waste of all kinds, including large refuge and non-burnable waste (Siniawer 2018, 269-271).

The biggest issue with decluttering practices, however, was not the amount but the variety of kinds of waste, as most products are composed of multiple different materials which cannot be separated, including plastic. Therefore, majority of the waste could not be recycled and would either end up in incinerators, or in landfills, causing tremendous damage to the environment. Kondo's practice has in fact been heavily criticized as undermining waste consciousness and contributing to negative environmental impact. Additionally, critics accused Kondo of legitimizing wasteful practices of shortening lifespan of things and promoting marketing strategies to encourage impulse buying. On the other hand, both practices also encouraged people to detach themselves from material things, and reinforced the idea that happiness cannot be achieved through accumulation of them. This notion then inspired a practice that has also gained international popularity, especially among young people – minimalism (*ibid*, 274-277).

The concept of minimalism originated from a notion of simplicity, which can be seen in many cultures throughout history, but especially in Zen Buddhism where simplicity has not only an artistic but also a moral value. It is then captured through various Japanese aesthetic such as *wabi-sabi* - a concept which values simplicity and imperfection, the art of flower arrangement known as *ikebana* or the simple poetry of *haiku* (Saito 2007, 86-89). It later spread globally as an artistic concept in the early 20th century and boomed in the 1960s with the main movement in the USA, influencing visual art and music (Britannica 2024). The modern popular definition of minimalism was invented by Sasaki Fumio, first published on his website in 2014, and made into a book in 2015. It encouraged living with only a few things and therefore freeing oneself from dependence on material possessions. Like Kondo, Sasaki also argued that "it is wasteful to hold onto things just because you think discarding them would be *mottainai*" (Siniawer 2018, 274). However, it primarily discouraged people from purchasing anything that they do not need in the first place and criticized creating large amount of garbage, labeling

minimalist lifestyle as a “waste-reducing” (Siniawer 2018, 274). Encourages by post-materialism, the notion is still popular today as people continue to grow more environmentally conscious and detached from material things.

An important year which influenced the course of both consumerism and environmental movements globally is 2018. During this year there have been two events which had major impact on international governments’ attitude towards waste, as well as the environment. The first event was China’s implementation of plastic waste import ban. Until 2018, China was the biggest importer of global plastic waste, buying out up to 56% percent of it . Japan, along with the USA, UK and Germany have been the biggest exporters and supplier to China. However, after an implementation of new health and environmental policies, Chinese government have decided to ban import of various types of waste, including plastic, which lead to a series of new policies regarding plastic waste reduction in many countries. Some of these policies were for example the ban of single-use plastic in many EU countries, rise in production of alternative packaging and improvement of waste management (Brooks, Wang, and Jambeck 2018). As for Japan, the ban has caused a lot of struggles to waste management facilities, as 78% of all plastic waste exported from Japan, accounting for a million and half tons, have been received by China. The ban forced Japan to find a new solution to deal with its plastic waste, which resulted in significant increase of export into Southeast Asian countries such as Malaysia, Vietnam, and Thailand. More importantly, a significant increase of CO_2 emissions has been reported, as Japan had to deal with the plastic waste overflow through incineration (Sun and Tabata 2021, 9-10).

The second noteworthy event of this year is a movement known as Fridays for Future or School Strikes for Climate, encompassing a series of student strikes worldwide lead by a Swedish activist Greta Thunberg. This movement’s main purpose is to pressure national governments as well as international organizations to implement new policies and laws to fight

climate change and improve the environment (Wallis and Loy 2021, 5). The movement reached Japan as well, but there were only few strikes in the country which were discontinued soon after due to low participation. However, while the movement was rather weak in Japan compared to other countries and it did not have any significant impact on change in policies, it is still an important movement that has reached primarily to the Japanese youth and helped raise awareness and interest among them (Mesimäki 2019).

As mentioned above, the 2020 plastic bag fee policy also played an important role in Japan's fight with the plastic waste overflow and is considered a big step in the right direction to tackle the plastic issue. However, many critics point out that the fee is too low to have a real impact on the consumption of cash register bags, account for only 5 JPY (0,031 euro) for a small bag and 10 JPY (0,061 euro) for a bigger bag (Mainichi Daily News 2020). Others on the other hand praise this policy, stating that it did in fact helped reducing plastic consumption, as about 80% of shoppers have abandoned the single-use bags and instead bring their own reusable bag. Therefore, they argue that the charge, however small, is changing the socio-cultural meaning of the carrier bag (Yamashita and Writers 2023; Steger 2021, 9). Yet again, the statistics focus only on the bags received at the cash register and disregard the small plastic bags with which the cashiers pack certain products like frozen or liquid goods, and the small bags the customers can take for free at the packing counter after they paid for their groceries. These counters are not available in all stores but are used by many of them to allow customers to pack their groceries without stalling the cash register. Without these additional bags being counted into the statistics, it is hard to say how impactful the plastic bag fee policy truly is.

Lastly, one must consider the impact of the COVID-19 pandemic and the rapid increase of plastic waste resulting from it. As human health has taken a priority and overshadowed the concerns over environment during the pandemic, the amount of plastic waste escalated drastically all over the world. The global governments were unable to cope with this rapid

increase, leading to majority of the waste produced during the pandemic, consisting of single-use plastic products, medical waste, and other plastic material, being landfilled or incinerated. This aggravated both the environmental damage and the amount of plastic waste ending up in the ocean due to improper waste management, accounting for approximately 4-12 million tons each year going to the oceans and seas (Silva et al. 2021, 8). While the pandemic has been handled and COVID-19 is no longer considered an immediate global threat, some of the practices adopted during the pandemic, such as excessive packaging and plastic replacing alternative materials, remain until today. Unfortunately, I have not been able to find any literature on the case of Japan, but I believe I can confidently say, that the pandemic has set the world backwards regarding sustainability, including Japan where this effect is likely to be even more significant due to the pervious emphasis on hygiene.

3 Possible factors contributing to current plastic overconsumption

The concepts analyzed in this chapter have been chosen based on the frequency of their appearance in secondary literature or the significance of their impact on Japanese society according to previous research.

3.1 Convenience

Convenience appears to be one of the strongest factors impacting the plastic consumption in Japan. Not only because plastic material itself is considered convenient, but because everything in nowadays Japanese society is set up to be as convenient as possible to cater the hectic life of people, starting from early childhood. Due to double education composed of state schools and crams schools where students prepare for exams for higher education, children as young as six years old spend most of their day studying and come back home as late as 10pm. This hectic lifestyle continues at university, where students are overwhelmed with school and spent most of their days studying in their dorms or in a library. Finally, when they start working, they are forced to work long hours from an early morning and often must work unpaid overtime. This is especially challenging for working housewives who despite raising children without much help of their husbands are still expected to work same hours as their male colleagues. The pressure and workload put on them results in them having to get up early in the morning and work until late at night to fulfill all their duties, compromising their health (「輝く女性」とは何なのか, 2017[3]). The hectic environment requires both students and working class, especially housewives, to use their time as efficiently as possible. With not enough time to cook or have a proper meal in a restaurant, many people go into the closest convenience store, buy themselves a lunch in a bento box with plastic cutlery, a drink in a

[3] “What is a ‘Shining woman’”?

plastic bottle and take it back to their office or school in a plastic bag. As a result, many Japanese consume a decent amount of plastic on daily basis under the pretense of convenience.

As presented in the history chapter, the idea of convenience was born in the 1950s to justify consumption as the Japanese economy started to grow. The institution of supermarkets, which main purpose was convenience, have established new practices of selling products to be able to distribute them in large amount at numerous stores, which remains standard to this day. Such practices involved premeasuring and packaging fruits, vegetables, or meat, and replacing home delivery of milk in returnable glass bottles with carton boxes at the store. As a result, waste-conscious practices, such as bringing your own bowls and bottles to stores or stores providing returnable packaging, have been diminished (Siniawer 2018, 60-61). With a global rise of environmental consciousness in recent years some sustainable practices like bringing a reusable bag to stores or carrying a reusable water bottle have gained popularity and the number of people using them has increased. However, aside from a reusable bag, regular stores usually do not allow customers to use their own packaging as most products are prepackaged primarily in plastic, and zero waste stores where customers could bring their own packaging are rather scarce in Japan.

If one is to think of a symbol of convenience, it would be convenience stores. Starting in the 1960s and gaining popularity in the 1990s, there is over 56 000 *konbini* in the country today, with majority of them divided into three main chains – 7-eleven, Family Mart, and Lawson and it has become increasingly difficult to find areas in Japan without a *konbini* in a proximity.

As a result of these overwhelming numbers, Japanese people have become very dependent on these stores, many finding it hard to imagine their lives without one. Whitelaw argues that they have become “a part of social infrastructure” together with hospitals, post offices and banks, as they brand themselves as adaptable and provide many additional services,

such as postal and package services, printing and copying services, ATM and fee payments, and many more. Their adaptability also applies to customers. With the increase of aging population and decrease in young customers, the stores have adjusted to the older demographic by providing softer foods, lower shelves, eat-in areas, and home deliveries (Whitelaw 2018, 70-81).

However, the convenience and other benefits these stores provide come with a price. In the quest to provide convenience as well as uphold hygienic standards, majority of *konbini* products are either wrapped in or made of plastic. Therefore, plastic waste is a significant byproduct of these stores. Unfortunately, there is no exact data available on how much plastic waste *konbini* produce, as majority of the plastic acquired at the stores are later disposed elsewhere by the consumers and the stores do not provide the information about how much waste they dispose of. However, during a self-conducted experiment, Whitelaw shopped products and consumed food only from *konbini* stores. After the first week, he gathered all the waste that he has accumulated, composed of "28 plastic bags, 6 plastic straws, 13 chopsticks, 11 plastic spoons of various sizes, a few plastic forks, and two 10-litre bin bags of plastic plates, covers, cellophane wrapping, and PET bottles" (Whitelaw 2018, 82-83). While this experiment cannot suffice for real data, it does paint a vague picture of how much plastic can individuals produce in only a week, which shows us that *konbini* stores do carry a fair share of responsibility for the plastic overconsumption issue in Japan.

An information that is available is that majority of *konbini* take part of recycling programs of the municipalities they are located in. However, it is by far not enough to make up for the amount of plastic waste the stores contribute to. Considering the ineffectiveness of Japan's recycling system, we can compare the participation of the stores in this system to placing a band-aid on an open wound. Furthermore, the abundance of plastic packaging used in

the stores is not the only way *konbini* contributes to the plastic waste issue. However, as other ways fall under other factors and therefore are discussed in following sections.

Last establishment contributing to the disposability culture under the pretense of convenience are vending machines. Selling everything from soft beverages, through ready-made meals to flowers, magazines, toys, and many more, Japanese vending machines can be considered the epitome of convenience. The biggest boom of these machines was during the economic boom when labor cost skyrocketed. Since vending machines need only an occasional operation check-up, it was a perfect solution for the rapidly growing economy. Additionally, the low crime rate of the country makes it safe for vending machines to thrive and the uniform prices make them more desirable for the consumers. Automatic, open 24/7 and often conveniently placed not only around cities, but also in residential areas, in nature, or around secluded tourist spots, vending machines quickly gained popularity and peaked in 1990s at around 5,4 million machines (Parry 1997, 123-126).

Although their popularity seems to be decreasing in recent years, with "only" 3,9 million machines in operation in 2022 due to the rise of *konbini* stores and online stores, and shrinking population, their revenue is still high at about 151 billion JPY ("Number of Vending Machines in Japan 2022," n.d.). Additionally, while bottled drinks make up only for about a half of the vending machines, majority of products are wrapped in at least one layer of plastic. Therefore, vending machines can be considered a significant contributor to the plastic consumption issue. Unfortunately, as many machines are not equipped with trash bins and there is a general scarcity of trash bins in public spaces in the country, it is very difficult to track how much waste the vending machines produce annually (Parry 1997, 28). However, considering the frequency of these machines, their popular usage, and their content, I believe that they need to be taken into consideration when evaluating the contributors of the plastic issue in Japan.

3.2 Hygiene

As presented in the history chapter, hygiene has been a big part of motivation for usage of plastic. In fact, hygiene was one of the main aspects promoted by marketers when plastic was invented in the US. After it became cheap and mass produced, its ability to protect products due to oxygen and water barrier it provided, improvement of hygiene and food safety was used as the main appeal of plastic material to the consumers worldwide (Twede 2016, 121).

In case of Japan, the notion of importance of hygiene can be dated back to the 1870s and mid-1880s during a cholera outbreak caused by insufficient waste management. Back then, the government has enforced first waste management laws, defining what is considered waste and placed responsibility of waste collection on municipalities to maintain good hygiene. Similar concerns have been raised again in the late 1940s as the deterioration of the municipal waste management over the war caused an outbreak of various infection diseases after the war, such as cholera, dysentery, or typhoid fever. (Siniawer 2018, 27-29) In the 1950s the appreciation of hygiene together with convenience was used to justify creation of disposable products and packaging, leading to "an age of unprecedented disposability" in the 1960s (*ibid*, 60). By the 1970s majority of Japanese used disposable products on daily basis[4]. Again, consumers' main motivation for using such product was hygiene as well as convenience. While there were attempts of reducing the disposable packaging and single-use plastic over the years, they remain a preferable option for consumers, with hygiene being one of the most appealing benefits.

Nowadays, Japan is known for being one of the cleanest countries in the world. One of the more curious manifestations of the emphasis on hygiene is the treatment of nature. Alex Kerr criticizes Japanese for pushing the need for cleanliness too far, disregarding nature, even transforming the perception of it from "divine" to "dirty". The author describes how a quick

[4] Among such products were for example paper cups and plates, tissues, disposable chopsticks, or plastic bags.

modernization caused that nature, which was once viewed as something sacred and admirable according to the Shinto tradition, is now seen as a something inconvenient. He gives an example of how the city of Kameoka was forced to cut branches of trees on the street, because people kept complaining about their cars being covered by fallen leaves. I have personally encountered this phenomenon during my exchange in Kyoto, where all the trees by the road have had ther branches cut off overnight before the leave-falling season started. This attitude has then spread into other aspects as well (Kerr 2001, 32-36). As Kerr wrote in his book:

> *The stigma of being «messy» extends beyond trees and animals to natural materials in general. The writer and photographer Fujiwara Shinya witnessed once, in the 1980s, a mother in Tokyo guiding her son away from handmade crafts in a shop because they were «dirty.» This was an example of «how Japanese women had come to prefer shiny, impeccable plastic with no trace of human labor to products made by hand from natural materials, » he wrote. (Kerr 2001, 34)*

This quote suggests the connection between hygiene and plastic. Plastic ensures that the goods will be in a perfect shape and absolutely protected from possible exposure to bacteria or any other danger. The extensive need for keeping things clean results in favoring single-use plastics such as cutlery, plastic straws, plastic bags, and plastic packaging. And it is not only natural materials that are considered bad. Another great example of this mindset is tap water, as it is pointed out by Ryoko Seguchi from the SuiDo! Network, an environmental nongovernmental organization that promotes the use of tap water and encourages people to buy less drinks in containers. The resentment or even fear of drinking tap water then contributes to the enormous number of PET bottles used daily in Japan. As she claims:

> *"Drinks makers call their water 'natural water' and the packaging makes it look like it's been bottled straight from a snowy mountain. The image you have is that it's going to taste good. That has a big impact. People think that bottled water tastes*

good and tap water tastes bad. One problem now is that more people drink bottled water at home. Those people become parents and their kids think they can't drink tap water" (McKirdy 2021).

Additionally, it seems to be difficult to replace plastic packaging with alternatives due to the high standards for hygiene that businesses must follow. This is also due to the humidity element of Japanese climate. The humid conditions of Japanese summer cause that most foods, especially dairy products and perishable foods, gets spoiled very quickly if exposed to oxygen. These conditions could potentially lead to health risks and increased food waste. Unlike most materials, plastic ensures protection from both moisture and oxygen exposure at a cheap price, which makes it a perfect tool for tackling potential exposure to humidity and allows manufacturers to guarantee food safety to customers (Steger 2019, 3). Additionally, these perks make plastic packaging more appealing to consumers, often resulting in the consumers themselves preferring plastic packaging over other alternatives (Ben-Ari et. al. 1990, 258).

Lastly, as mentioned in the history chapter, the concerns about food safety and hygiene were amplified by the COVID-19 pandemic. In fact, the impact of pandemic and its connection to naturally strong emphasis on hygiene in Japan could be seen in comparison to other countries. While most countries let go of pandemic restrictions and precautions as soon as the pandemic weakened, Japan kept them long after it was determined by the World Health Organization that the pandemic was over. For example, Japan was one of the last countries to lift the mandatory mask restriction, and even after the rule was lifted, people kept wearing masks everywhere ("Masked Japan: 90% Cover Face 1 Month after Rules Lifted," n.d.). Many still wear masks in public transport and public spaces, as I could see during my exchange. For example, during my part time job in a Japanese restaurant, staff was mandated to always wear masks. When I asked about the masks, I was told that before the pandemic, it was not mandatory, but the rules have remained in place in most establishments which work with food, such as restaurants,

supermarkets or *konbini* stores. Similarly, according to the Japanese I have spoken to about this topic , it used to be easier to avoid plastic before the pandemic, as some products were either sold without or in alternative packaging. However, when COVID hit, most of this packaging was replaced by plastic, which remains to be used out of fear of another pandemic or other potential health risks. In a country that already puts a strong emphasis on hygiene and had multiple scares over spread of diseases, it is challenging to return to practices before COVID and strive for more sustainable options, as the fear of disease remains strong.

3.3 *Omotenashi* (Japanese customer service)

The concept of *omotenashi* encompassing the uniqueness of Japanese customer service has been studied by many scholars in various fields over the years. It can be defined as "a service to customers based on Japanese spirit and culture" (Wijayanti and Saifudin 2021, 122) or "hospitality which goes beyond a mere idea of customer service" (Kamagahara et. al. 2016, 230). Originated in the tradition of Japanese tea ceremony, the concept can be seen in various forms of customer service today from polite speech known as keigo to various practices performed by staff members of stores, restaurants, and other facilities (Kuraesin, 2021, 458)

As part of Japanese customer service, *omotenashi* is a big factor contributing to the plastic consumption in Japan. This can be seen especially at *konbini* stores and in restaurants. During my exchange in Japan, I have noticed countless occasions where single use plastic was considered a product of *omotenashi*. One example are wet napkins wrapped in plastic packaging. I argue that this phenomenon is partially caused by the inaccessibility of public washrooms. In Europe, every restaurant is equipped with its own washrooms within the spaces of the establishment, which encourages the habits of customers washing their hands before a meal. However, as restaurants in Japan are often located in very small spaces, a lot of them do not have the space to provide customers with a washroom inside and customers would be forced to walk out of the facility to search for it. Usually there is a public washroom nearby, within

the same building or in a nearby *konbini*. However, the customers would still need to leave the restaurant to wash their hands. Therefore, to spare the customer the inconvenience of having to leave and search for a place to wash their hands elsewhere, restaurants provide them with a wet napkin as part of the customer service. Same case applies to *konbini* stores. Although a lot of konbini stores are equipped with a bathroom for customers to use, the napkin allows the customers to eat their meal whenever without the need to search for a place to wash their hands. This phenomenon also shows different standards of customers service between Europe and Japan. In Europe, customer's hygiene is a responsibility of the customer. Therefore, even if the business is not equipped with a washroom, nothing is expected from them. Instead, many people carry around a hand sanitizer or their own wet napkins. In Japan however, hygiene is part of the customer service standard, prompting fear of losing customers among the staff if not provided.

Contributing to this issue is the social aspect of it. To ensure that the customer is provided the best service possible, these napkins are provided automatically, without the customer's request. Moreover, because Japanese people do not want to seem rude or cause trouble, they quietly accept the napkin and other products even if they do not need it (Steger 2019, 9). The same applies to other single use plastic, such as plastic cutlery, straws, plastic bags, or even plastic packaging. For example, as a spokesman for the Japan Franchise Association Shinji Shimamura explains, cutting on packaging means providing a substandard service:

> *"We consider wrapping a part of the product. Of course, it's good to cut down on plastic bag use. But we can't hand customers a hot lunch box or cold ice cream without a bag. That would be unhygienic and very rude." (Hussein 2019)*

One of the reasons why the plastic bag fee policy has taken three years to implement was because of the high expectations for customer service in Japan. Before the policy was implemented, many shops refused to charge customers for their bags and even protested

government's appeals, because they were afraid that they would upset or lose their clientele to competing stores that would still not charge for the bags (Hussein 2019). Steger argues that:

> *"Handing out free carrier bags has long been an intrinsic part of customer service in Japan. It has signified generosity and consideration on the part of retailers and an awareness of their customers' busy lifestyles and their need for convenience. It has also allowed sales staff to carefully pack customers' purchases as part of a smooth and efficient check-out process. Customers have been reluctant to refuse bags, not wanting to interrupt this smooth flow of work". (Steger 2021, 9).*

This can also be observed in the fact that even after the installment of the plastic bag fee policy, customers still have access to a free smaller plastic bag at the packaging area after they pay, which further contributes to the amount of plastic waste. With this cultural significance, cutting back on plastic bags has been challenging not only for consumers, but for retailers as well. Additionally, this automatic provision of certain products in the name of customer service does not apply to only plastic. Single use chopsticks are also a great example of Japanese disposability culture, as over twenty-four billion pairs are used annually in Japan, with majority of them disposed of immediately after meal (Anderson, Gong, and Zhi, 2012, 27; Raju, 2021), wasting about 375 000 tons of wood every year.

Lastly, a part of the *omotenashi* concept is a tradition of wrapping culture. The cultural aspect of wrapping seems to have a strong impact, as the tradition of packaging encompasses social values, such as politeness, nonverbal communication, and care for the recipient. As such, it offers at least some level of understanding of why many Japanese still insist on the excessive packaging in various forms, resulting in packaging accounting for 60% of all plastic waste produced annually. When a Japanese is asked why they prefer the excessive packaging, plastic or other, the reasons they offer are usually the same: protection, hygiene and *teinei*. The word *teinei* in Japanese means both "polite" and "a care". Therefore, scholars argue that the more

layers of wrapping a gift or a product has, the more caring and polite the donor is considered (Kornicki & McMullen 1996, 378; Ben-Ari et. al. 1990, 259.) This can be observed especially during festivities and special occasions such as New Years or Bon festival, when friends and family exchange presents which are elaborately wrapped in multiple layers, enhancing the value of the object. By using this elaborate decorating even mundane goods such as fruit become fancy presents (Ben-Ari et. al. 1990, 259). Scholars have also agreed that the phenomenon of packaging making goods more valuable is used as a marketing strategy, allowing the retailers to mark up the price of products based on the kind and amount of packaging used on the product (Maher 2021). Siniawer also observed that even in the wake of environmental movements, supermarket customers claimed that they do not want excessive packaging yet continued to choose packaged goods over the unpackaged ones (Siniawer, 2018, p. 117), resulting in stable demand for plastic packaging and no pressure on retailers to replace it with alternatives.

As presented above, the customer is automatically provided everything they might need to enjoy their meal at any time in the name of *omotenashi*, convenience, and hygiene. However, only a few small adjustments would reduce waste produced by these practices immensely. If the store staff was mandated to ask whether the customer wants the automatic products and therefore give the customer an opportunity to refuse, I believe that the waste from these products would be significantly reduced. Similarly, if restaurants were mandated to use lacquered washable chopsticks instead of the single-use ones, the amount of waste created from disposable chopsticks would also drastically drop. To achieve this however, the entire idea of what customer service represents and what should be customers' own responsibility needs to change. Therefore, it is important that the Japanese are educated about different practices and expectations of customer service worldwide.

3.4 Effectiveness of environmental education

Environmental education (EE) can be defined as "a learning process that increases knowledge and awareness of the environment and of the many challenges associated with environmental protection", which "develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action with the necessary information" (Imamura & Mitsuyuki 2017, 4).

In Japan, EE has started long before it was officially implemented on a global scale at UN Conference on the Human Environment held in Stockholm in 1972. It can be dated back to 1950s and the environmental movements related to the four major pollution-related diseases mentioned in the introduction which led to "environmentalization" of Japanese society and later gave birth to EE in the country. During that time, two major disciplines were created as a response to the industrial pollution – Education for Nature Conservation (ENC) and Pollution Education (PE). ENC's main purpose was to encourage people to love and preserve nature through practical activities such as direct observation of the environment and other outdoor activities. This form of education was quickly adopted by all institutions (Imamura & Mitsuki 2017, 5-7). PE then emerged from a series of anti-pollution movements around the same time as ENC. Citizens had study meetings to examine results of research conducted by residents in areas affected by industrial pollution. Through the efforts of these residents together with teacher unions, both disciplines were implemented into school curriculum in the 1970s (Ando & Noda 2017, 40-41) They were then merged into official environmental education as Japanese know it today and implemented into various subjects in the 1990.

Nowadays children receive EE in various forms since early childhood up to higher education. Through the above-mentioned subjects, children are taught the importance of cleanliness, recycling, reuse, and reduction. Some of the activities included are for example direct observation of nature, tending to school garden, growing plants at home, surveying rivers

and its connection to water supply, visiting local businesses such as bakeries and learning about the production and proper waste disposal practices. They are also taught proper recycling and sorting waste techniques and mandated to clean school together every day after class (Mulyadi 2020, 4-6). In fourth grade, the students are also required to visit incineration and sewage plants as part of the EE curriculum (Siniawer 2018, 263). Therefore, there are many interactive ways children are taught about the environment.

However, while this form of education seems entertaining and has been praised by many, it has also received a lot of criticism. Imamura and Mitsuyuki argue that current EE in Japan is superficial and highly insufficient. The authors point out the above-mentioned activities might have some positive effect on the environment, they also divert people's interest from the socioeconomic cause of environmental problems. In other words, they argue that the EE in Japan never developed a relationship with global environmental problems and the social problems connected to them. Furthermore, the aspect of PE has been gradually pushed out from EE and pollution is considered more as an issue of the past. For example, children still learn about the industrial pollution in the 1950s, but it is only briefly mentioned in textbooks and children memorize it for passing tests rather than learning the effect of human actions on the environment. Lastly, the authors argue that "Education in Japan today promotes values and lifestyles of an ecologically unsustainable society with focus on modern industrial society, scientific positivism, progressiveness and hedonism" (Imamura & Mitsuyuki 2017, 5-7).

Moreover, Ando and Noda point out that the content and structure of EE has seen little change since its implementation in the 1990s, and latest changes have been rather damaging than beneficial. For example, the implementation of education for sustainable development (ESD) has further limited EE, making it even more insufficient, as it focuses on maintaining economic goals rather than solving environmental problems (Ando & Noda 2017, 40-41). In other words, instead of learning about the effects of pollution on the environment or CO_2

emissions and their connection to climate change, students are mainly taught about "environmental conservation practices", such as buying environmentally friendly products, separating trash correctly, or how to save energy and water (Sato and Nakahara 2011, 50-52).

The implementation of proper recycling techniques into environmental education is then further encouraged by local governments due to the ineffective recycling system. As most of the responsibility falls onto the municipalities, the local governments need to ensure that the citizens are separating their waste accordingly, because if the collected waste is considered "impure" (improperly separated or contaminated), the recycling association will refuse to collect the garbage (Harada & Harrison 2017, 31-32). Therefore, recycling is often a priority of environmental education.

Unfortunately, there is few studies conducted on the effectiveness of EE in Japan (Imamura & Mitsuki 2017, 9) However, recent surveys on Japanese students show that students themselves often acknowledge that they don't know enough to form an opinion when asked about specific environmental issues like plastic pollution, chemical pollution, or nuclear energy. Additionally, many people in Japan do not know what happens with the garbage after it is disposed of and what consequences the recycling practices of the country might have on the environment, which is a standard part of the environmental education in EU countries (Rosembergová 2021, 21-30; Křeháčková 2018, 15-19). I hope that my research will provide me an insight into this issue and hopefully inspires further research in the future. I believe that the inefficiency of Japanese EE plays an important part in the plastic issue as well as other environmental issues the country is struggling with.

3.5 Other contributors

While I consider the four factors discussed above as the biggest contributors to Japanese seeming addiction to plastic, there are other factors that deserve to be mentioned and further

examined. However, since these factors either have a smaller impact or are there is not enough research exploring them, I decided to sum them up together.

Firstly, one must consider the effect of current Japanese recycling system. The complex separation rules imposed on consumers require a lot of time and effort from the consumers, which contributes to dissociation of consumers from the waste after they dispose of it. Additionally, the 1995 Container and Packaging Recycling Law further perpetuates plastic consumption in the country. As it shifted most of the financial responsibly for packaging and containers away from the manufacturers, these containers, namely plastic bottles, have become cheaper and their production skyrocketed from 120 000 tons in 1993 to 510 000 tons in 2004. On the contrary, the usage of reusable drink containers has drastically decreased from 4,5 million in 1996 to 1,9 million in 2003(Harada & Harrison 2017, 30-33). If the responsibility for the cost of waste management of disposable products is shifted back to the producing companies, producing such products would become more expensive, which would motivate the companies to cut down manufacturing these products and search for more sustainable alternative. Similarly, since consumers tend to make shopping-related decisions based on economic interest, the increased price of single-use packaging would motivate them to search for alternative packaging as well.

Secondly, as someone with deep knowledge about Japanese society, I have noticed a significant impact of typical traits of Japanese people. Due to space and time limitations, I will only briefly introduce the concept of group mentality and culture of shame and explain how they are connected to plastic consumption. Group mentality of Japanese people was first described by Chie Nakane, who argues that Japanese are a highly group-oriented society. In contrast to the West, where there is a strong emphasis on individualism, in Japan the interests of a group are always put in front of the interests of individuals, and it is important for Japanese to feel a part of some group (Nakane 1970, 8-23). As members of a general group that is

Japanese society, Japanese people differentiate between *honne* – the inner feelings and opinions of a person - and *tatemae* – a "mask" that a person uses in public. To ensure that a harmony of the group remains intact, a person often keeps their *honne* to themselves to protect both their feelings and preserve the respectability of their public persona. Connected to the group mentality is the concept of the "culture of shame", first described by Ruth Benedict. While Benedict has been criticized for oversimplifying a complex society, her theory has been used by other scholars and the aspect of shame in Japanese society based on her discovery has been analyzed many times. According to Sakuta, shame is a reaction of other people's criticism, but there are various forms of shame, including an internalized one. As the author stated „we become ashamed when we find ourselves the object of some special attention" (Sakuta 1986, 32). In case of Japan, this includes situations where there is only a possibility of one becoming an object of such attention. Therefore, if a person behaves differently than is expected from them as a member of Japanese society, they fear being judged. Feelings of shame often emerge, although no actions warranting judgement occurred yet. This "preemptive" shame results in people being constantly worried about being different in their actions, looks, or opinions. Furthermore, this fear is then amplified by the group mentality as people fear being singled out or rejected by the groups, which they feel a part of.

These social constructs can then be observed in connection with their behavior towards their plastic consumption. Whenever offered "automatic product" which is a part of the above mentioned customer service, such as an extra plastic bag, Japanese people will silently accept it even if they do not want them because they do not want to disturb the flow of the interaction between the staff member and the customer, and want to avoid the perceived awkwardness of voicing their concern or standing out (Steger 2021, 4). For the same reasons, they do not feel comfortable asking for alternative packaging or voicing their concerns and preferences regarding excessive packaging or lack of alternative options to retailers, as it is not common for

Japanese people to publicly express their opinions, and they are often worried about standing out.

While I was not able to find much literature supporting my theory on the impact of Japanese personality traits impacting the plastic issue in Japan, I believe it is an important contributor that needs to be addressed, along with the other factors discussed in the above sections. By not refusing the plastic products and not voicing their opinions to pressure retailers, the consumers are perpetuating the culture surrounding plastic consumption, and until this behavior is altered, no real change can happen. To bring more attention to this issue, I hope to find support for my claims during the experiment through the participants' diaries.

4 Field research

4.1 Methodology

I have decided to conduct a social experiment, in which the chosen participants will attempt to reduce their consumption of plastic material to the best of their abilities for a week, with preferably avoiding purchasing products containing or packaged in plastic completely. This idea was inspired by two similar experiments, one of which was conducted by The Japan Times reporter Andrew McKirdy, and the other one was executed by a co-author of the book *Consuming life in post bubble Japan*, Gavin H. Whitelaw.

As mentioned above, McKirdy's experiment was self-conducted and consisted of his attempt to live without plastic for a week. Unfortunately, the Japan Times official website on which of this article was posted does not provide the readers with a post date, but I have found this article back in 2019 after I became interested in Japan's plastic issue, therefore I can confidently say that the experiment has occurred before the plastic bag fee implementation in 2020. In the first part of the experiment, the reporter set out to determine, how much single-use plastic can a person consume during a week, during which he accumulated "17 plastic bottles, 27 carrier bags, a kaleidoscope of food wrappers, and numerous other pieces of flotsam and jetsam" ("Throwaway Society: Rejecting a Life Consumed by Plastic," n.d.). In the second part, the McKirdy attempted to spend a week without not only purchasing, but also using plastic. This task included making his own toothpaste, taking extra time to visit eight different stores to buy enough groceries, and asking for alternative packaging and bringing his own packaging to stores. These requests were met with strange looks and feelings of embarrassment. At the end of the experiment, the author reflects on how difficult his effort was, how limited his choices were and how much extra time shopping took each time (*ibid*).

Whitelaw conducted a slightly different experiment of consuming food from *konbini* stores exclusively for two weeks. As mentioned in the previous chapter, Whitelaw managed to

accumulate over two 10-litre bin bags of plastic packaging and other kinds of plastic waste, such as PET bottles, plastic bags, and single-use plastic cutlery. Afterwards, the author has argued that "plastic waste is a significant by-product of *konbini* stores" (Whitelaw 2018, 83).

While both experiments were small-scale, they provide a valuable insight into the plastic issue in Japan. Therefore, I have decided to conduct a similar experiment, which focuses solely on Japanese consumers, as I believe that there are many factors, some of which are exclusive to Japanese consumers, which impact results of such experiment significantly. My field research is therefore divided into two main parts.

The first part of the research is a questionnaire, which helped determine fitness of respondents for a social experiment using multiple criteria. The main criteria was whether respondents belonged to two main groups – housewives and university students, as these two groups shop significantly more often than other consumers. I have made the conclusion regarding housewives based on the analyzed literature, in which it has been emphasized on multiple occasions that most consumer campaigners and marketers have targeted housewives through various platforms, providing them with advice on how to consume. Moreover, in most Japanese households, women oversee the finances and make most of the decisions regarding purchases.

The inclusion of university students was based on my observations and personal experience, indicating that many of them make daily small purchases in form of snacks, bottled drinks, and ready-made meals to help them get through the days which they spend in school. Moreover, in contrast to students of lower education, university students are less financially limited as many of them have part-time jobs and have more independence and financial responsibility as many of them live away from their parents. This phenomenon is not universal and therefore not exclusive to only Japanese university students. However, since most of the above-mentioned products are packaged in plastic, university students seemed a perfect

addition to my research. Other criteria concerned location. The participants should come from an urban area, preferably from big cities, as people living in cities are more dependent on plastic and on both convenience stores and supermarkets, which are one of the biggest contributors to plastic waste issue.

After determining the criteria, I started my fieldwork by drafting a questionnaire. I drafted the questionnaire with the help of various literature[5] as well as multiple people to make it as accessible and useful for my research as possible. For the feasibility purposes I first drafted the questions in English and translated them into Japanese after receiving feedback from my advisor. At the same time, I have also contacted multiple organizations which have agreed to help me with recruitment of the participants, such as Miyako Ecology Center in Kyoto and Kyoto branch of Seikatsu Club. One of the personnel from the Ecology center, Mr. Hihara, have been kind enough to help me with polishing the Japanese translation of the questionnaire and have offered to consult me with any possible issue.

Among issues that have been brought to my attention was different interpretation of questions in English and in Japanese, such as the difference between the participants' current address and the word 出身[6]in Japanese, which refers where a person was born in rather than his current residence. Another example are different housework practices. For example, washing clothes with cold water instead of hot one falls under "environment-friendly habit" in European countries. However, in Japan, washing clothes with hot water is not a common practice, which made this option irrelevant to Japanese participants. I have also been advised to include consent form as a part of the questionnaire to improve the participation rate, as some participants might not be willing to fill in a separate document for the consent form. Therefore, I added four

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[5] For example, *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method* by Don A. Dillman and Jolene D. Smyth and *Ground Rules for Social Research Guidelines for Good Practice* by Martyn Denscombe

[6] 出身 – shusshin – a place of origin, where person comes from. The word is usually connected to the person's birthplace. However, it is often used during introduction also talking about where the person curently lives.

questions regarding the participants consent and their contact information at the end of the questionnaire.

As mentioned above, the questionnaire focuses on the consumer's daily shopping habits and shopping preferences along with their environmental awareness. It has been designed to examine the motivations behind these habits and preferences, their interest in environmental issues and their level of knowledge not only regarding plastic waste issue but environmental issues in general. I have decided to focus on these specific phenomena based on my previous readings on consumerism, and environmental awareness in Japan. I also believed that these questions would help me reach the goal of the research which is revealing the factors which contribute to plastic consumption in Japan.

The questionnaire was divided into four sections and contains thirty-six questions in total. The first section contains questions regarding respondents' background information, such as age, sex, residence, economic situation, whether they are either a student or a housewife, whether they currently live in a big city (population over 100 000) and whether they had any special diet, such as vegetarian, gluten free or other. This question was also provided with explanation of what the specific diets mean to ensure the respondents understand, as diets such as vegan are not as common in Japan. The purpose of the personal questions was to determine whether the respondent fits the criteria described above and is therefore eligible for the experiment. In case the respondent did not fall into them, they were immediately disqualified, and their responses were disregarded. Apart from the current residence question, all the questions of this sections were multiple choice.

The second section contained questions related to the respondents' shopping habits and preferences and were all multiple choice. In cases of some questions, there was also an option of respondents choosing "other" and providing their own answer, if they felt that none of the options reflected their case. In case of some questions the respondents were asked to choose

more than one of the options for an answer. The questions for example examined the respondents' shopping frequency, the type of store they shopped in, what is important for them when choosing a product, their preferences regarding packaging and the motivations behind them and their purchasing frequency of specific products contributing to plastic overconsumption, such as plastic bottles or plastic bags. Some questions also appealed to the respondents' environmental attitude, asking for example whether they pay attention to products' packaging, or if and how much they would be willing to pay extra for eco-friendly packaging. The purpose of this section was to challenge the previous research described in theoretical framework and to later reflect on it together with the social experiment.

The third section was designed to examine the respondents' environmental awareness – that is not only their knowledge regarding environmental issues but also their eco-friendly habits and their attitude regarding environment in general. To achieve that, the respondents are challenged with questions such as "do you think plastic overconsumption is a problem" or "what do you think is worse – plastic waste of food waste". This section has scale and open-ended and multiple-choice questions. In case of multiple-choice questions, they had an option to provide their own answer and for some questions, they were also asked to provide reasoning for their answers. This section's main purpose was again to challenge the data collected from the secondary literature and to provide more information about the respondents' connection to the researched issue. The last section contained a consent form as well as a question whether the respondents wish to participate in the social experiment as well. In case they agreed, they were asked to provide contact information, so they could be contacted receive more information about the experiment after the collection of respondents ended.

For the feasibility purpose, the questionnaire was distributed online through either a link or a QR code to make it as accessible for the participants as possible. At first, I attempted to distribute the questionnaire with help of various organizations I have contacted, international

office of the exchange university and my personal contacts in Japan. Overall, I have managed to gather fifty-one respondents, thirty-seven of who have agreed to participate in the social experiment.

However, despite reaching out to these various channels, I was not able to recruit enough participants by the end of October, which forced me into extending the recruitment period and postponing the social experiment. One of the reasons for this development was Japanese bureaucracy. When I reached out to the International Office of my exchange university to ask them for help with spreading the questionnaire among students, I was sent to multiple different offices, just to be told that there is nothing they can do to help me. Many organizations that I have reached out to gave me a similar answer. Additionally, even the organizations that have promised to spread the word and help me with participant recruitment have not succeeded to do so, as the numbers of responses to my questionnaire have not started rising until I came to Japan and started reaching out to people personally or asked my friends and acquaintances for help.

There was also an issue with a language barrier. Despite the multiple revisions, I have received responses from some respondents, claiming they did not understand the question, or their misunderstanding the question was visible from their response. The most problematic questions were regarding their location (which some have interpreted as where they originally come from based on the word 出身) and regarding whether they live in a big city. Generally, the understanding of space is very different in Japan. Especially people living in more remote parts of big cities such as Tokyo or Osaka have struggled to determine, whether they still belong to the city or not. Another problematic definition was concerning the word housewife 主婦 (*shufu*). In Japanese this word encompasses both full time and working housewives and it depends on a specific person whether they identify with this term. Since I did not provide a clear definition in the questionnaire, some participants might have not identified as 主婦 despite

caring for a family, and they did not provide me with the detail whether they also work or are a full-time housewives. The languages barrier was also a problem for the social experiment as some participants have struggled to understand the instructions regarding the experiment. For example, there was one participant, who instead of trying to reduce their consumption of plastic material just recorded how much plastic they bought every time. This also led me to sending an additional email to all the participants emphasizing that the goal of the experiment it for them to reduce their plastic consumption to minimum, not just record it. Additionally, I believe that I have made a wrong word choice in some parts of the questionnaire, which I have only noticed retrospectively. For example, in the question "How many plastic bags do you purchase per week" I did not consider the free plastic bags customers can take by vegetable stands and by the bagging stands after they have paid for their shopping. Similarly, due to this error of mine, I believe the participants of the social experiment have also disregarded bags or other products containing plastic material that they have obtained for free.

Another issue was participation rate of the experiment. Thirty-seven of the fifty-one respondents have agreed to participate in the experiment. Since a third of potential participants were neither a housewife nor a student, I decided to create an additional third category for these participants. I assumed it might be interesting to see another perspective and examine if and how it will differ from the perspective the originally selected groups. Therefore, I have reached out to 30 participants, 10 of each group. I have assigned a number to each participant based on the date they filled in the questionnaire and organized them into categories. I set the experiment to first and second week of November, as I wanted to give people an option and avoid the Christmas shopping spree. However, when I sent out a confirmation email to the chosen participants at the end of October, many of them replied that they cannot participate anymore, or have not replied at all. Therefore, I have had to abandon my original structure and work with all the participants who were still willing to participate. In the end I have managed to gather

twenty participants – eight housewives, seven students and five others. I have asked the participants of the third category to provide more information on their employment, as their occupation might be a factor influencing their shopping habits and their financial situation.

I have created a google document for each participant with a number originally assigned to them. I determined that google document is the most feasible option as it is easy to operate, it does not require the participants to create any account and it can be safely stored in my personal Google Disk, where I can easily access it. It also provides anonymity as the participants access it through an anonymous link, being identified only by the number that has previously been assigned to them. The document contained instructions about the experiment including a list of important information that the participants should provide as part of their daily report and an example of how their report should look like. The instructions are attached in the appendices. The information required in each report was a name and a type of a store (supermarket, convenience store, etc.), type of a product, the type of packaging, price difference compared to the product they usually buy, the time it took to search for an alternative packaging compared to their standard shopping, how did the process make them feel and, if they bought any plastic, a reason why plastic could have not been avoided.

The experiment occurred in two consecutive weeks from November 13th to 26th 2023, each part lasting for seven consecutive days during which the participants were asked to provide a written recording of their day and the purchases they have made. The participants had the option to choose which week they wish to participate based on their availability. If the participants were available on both weeks, I have chosen the week for them based on the number of participants in each week and tried to balance the numbers of participants between the two weeks equally. Originally, I intended to only observe the experiment and communicate with the participants only regarding technical issues. However, multiple participants reached out to me using their Google document asking for further instructions, or their recordings were too brief

and not of much value. Therefore, I have decided to insert comments into the documents providing some participants with guidance, asking them to elaborate further on their recordings, or asking additional questions. I have also checked daily on the each of the participants and sent out a reminder to those who have failed to write a report for previous days. After the week have passed, I sent out an email to thank the participants for their cooperation and asked them to write a small reflection of the entire experience. However, some respondents stopped communicating after the experiment ended and I was not able to gather the reflection from them. Additionally, some participants never wrote any recording despite confirming participation at the end of October and the daily reminder emails. The final number of participants that have completed the experiment is 14, including the reflection, 17 excluding the reflections.

To support the data acquired through the research and the secondary literature I have participated in two courses that would provide me with an inside look into the content of environmental education in higher education. The first course called “Environmental studies” was directly focused on environment itself and the second course called “Consumer law” offered couple of classes discussing SDG goals, the effect of consumption on the environment and other issues related to consumption in Japan. Both courses were conducted in Japanese and were primarily targeted on Japanese students. Unfortunately, the data collected through these observations are rather brief, so they are not discussed in a separate section. However, they provide an opportunity to experience Japanese environmental education from the inside. Therefore, they are included in the discussion to either support or challenge the rest of the data.

4.2 Results

Out of fifty-one questionnaire respondents, 39 were women (76,5%), eight were men (15,7%) and 4 either did not disclose or identified as other. As for occupation, almost of the respondents were housewives (22 - 43,2%), closely followed by students (17 – 33,3%), and the smallest part of the respondents were put in "other" category, which some specifying their occupation, such as a doctor, a business owner, or a part-timer, and other refusing to disclose that information. Majority of the respondents were over 50 years old (24 - 47,1%), followed by university students between 18 and 25 years old (31,3%)[7]. Due to the struggles with respondent recruitment, majority of the respondents were recruited through my personal contacts, which reflects in the demographic information of the respondents. For example, the concentration of respondents being limited to specific areas, such as towns and cities in either Tokyo or Kyoto areas. As expected, most respondents shopped primarily in supermarkets and *konbini* stores with almost half of respondents shopping two to three times per week (41%), followed by those shopping either once per week (23%) or every two days (20%) (Figure 1).

Figure 2: Where do the respondents shop most often?

[7] I assume that all people of this age were university students as the only place where I recruited people of this age.

When asked about their shopping preferences, 90% of respondents agreed that the products bought both online and in physical stores are overpackaged and about 65% stated that they do not want fruits and vegetables to be packaged in plastic. Those who claimed that they do prefer the plastic packaging selected either hygiene (15,7%) or convenience (7,8%) as a reason. Some participants provided their own reasoning (9,8%), mostly agreeing that it depends on a specific kind of fruit or, as some are more fragile than others but still agreed that the packaging is usually excessive. Similarly, almost half (45%) of respondents stated, that they do not prefer individual wrapping of candy and snacks. Those who claimed they do prefer it again chose convenience (27%) and hygiene (18%) as the reason behind this preference. Reasons provided in alternative answers were better control and manipulation with the product as a benefit of individual wrapping. Moreover, 57% of respondents answered than they always try to choose the most eco-friendly packaging. 27% of them stated, that they notice the kind of packaging used on products but feel like they do not have options in choosing between different kinds of packaging. None of them chose an option claiming that they prefer plastic packaging (Figure 2). Moreover, 90% of respondents agreed that they are willing to pay more for alternative packaging to help reduce plastic, and approximately 98% supported the idea of Japan establishing a system of returnable PET bottles and cans. Lastly, 86% of respondents stated that they purchase less than 3 bottles per week and 57% answered that they bring their own shopping bags instead of buying a plastic one at the store.

Figure 3: Consumers' attention to packaging of products.

Since this research is based on a claim that plastic overconsumption in Japan is a problem, the respondents were asked whether they agree with it and why. While all respondents agreed with the claim, many provided very vague reasoning, stating that plastic is bad for the environment. Some respondents offered an overwhelming usage of energy and non-renewable resources such as petroleum as a reason. Others mentioned release of CO_2 during incineration or how plastic waste contributes to environmental pollution, harming both animals and humans. Another frequent argument was that plastic is non-compostable and hard to recycle. Some respondents however simultaneously defended plastic, claiming that while the plastic overconsumption is a problem, plastic is convenient and has a lot of advantages. Others claimed that while plastic consumption damages the environment, they do not have other options.

Additionally, the respondents were asked to use their own words to describe the difference between global warming and climate change. For clarity's sake, this thesis defines climate change as an umbrella term for series of long-term changes in average weather and climate conditions, which is a natural occurrence to an extent, but have been rapidly sped up by destructive human activities. One of those long-term changes is global warming, which in turn is here defined as a long-term heating of Earth surface due to human activities. In other words, global warming is one of the manifestations of a great-scale phenomenon that is climate change. Unfortunately, only a couple of respondents were able to describe the difference between these two terms. Some admitted that they did not know there was a difference between these terms or that they do not feel confident to try to explain due to their limited knowledge of these phenomena. Most respondents tried to explain the difference but often either reversed the definition, claiming that climate change is a result of global warming, or failed to explain the difference completely. Majority of respondents managed to draw a connection between global warming and the CO_2 emissions but showed little understanding of climate change with many believing that climate change has nothing to do with human activities.

Similarly, while a lot of respondents knew that majority of plastic waste in Japan either gets incinerated or ends up in the ocean (69%), most were unaware that Japan is the second biggest producer of plastic waste (72%) or that over 40% of world's plastic waste is composed of PET bottles and packaging (73%). Furthermore, most participants were concerned with problems that directly concern Japan or are emphasized by media such as sea pollution caused by plastic waste (75%), climate change (73%), deforestation (31%) and the extinction of animals and plants (31%). When asked about what sources they use to gain information about environmental issues, most respondents chose Japanese mass media such as NHK, Asahi Shinbun and Nikkei (67%), followed by social media such as Facebook, Instagram, or YouTube (45%), and NGO and NPO newsletters (41%). The least common answer then was scholarly literature (27%). As expected, none of the participants chose an option stating they do not take interest in environmental issues.

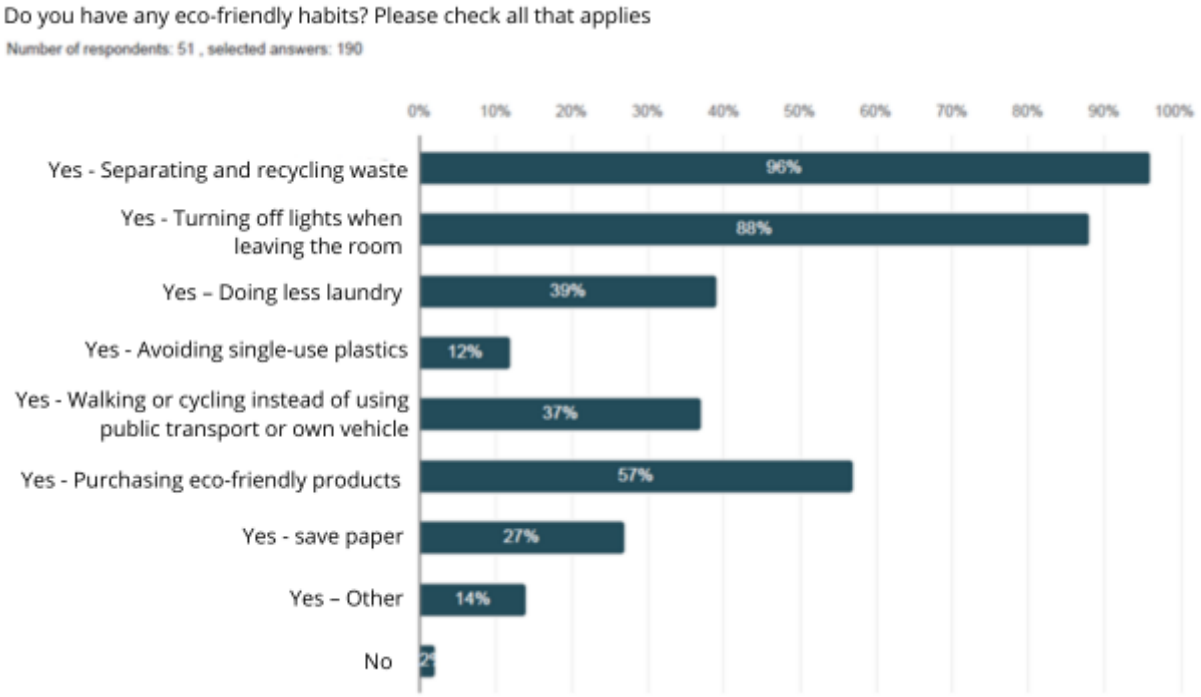

Figure 4: Environment-friendly habits

When asked about their eco-friendly habits (Figure 3), most frequent answers were recycling (96%), saving on energy and water (88%) or purchasing eco-friendly products. Interestingly, only 12% of the respondents chose limiting their consumption of plastic. 2% then admitted they do not have any eco-friendly habits. The respondents were also about what they believe are the obstacles of living more environment friendly (Figure 4), most listing high cost (65%), lack of options (57%), inconvenience (37%) or too much effort (27%). Those who provided alternative answers mentioned that they are too busy or that the environmental issues feel distant to them as they do not encounter them directly, therefore they are not motivated enough, or they do not know enough to pursue such lifestyle.

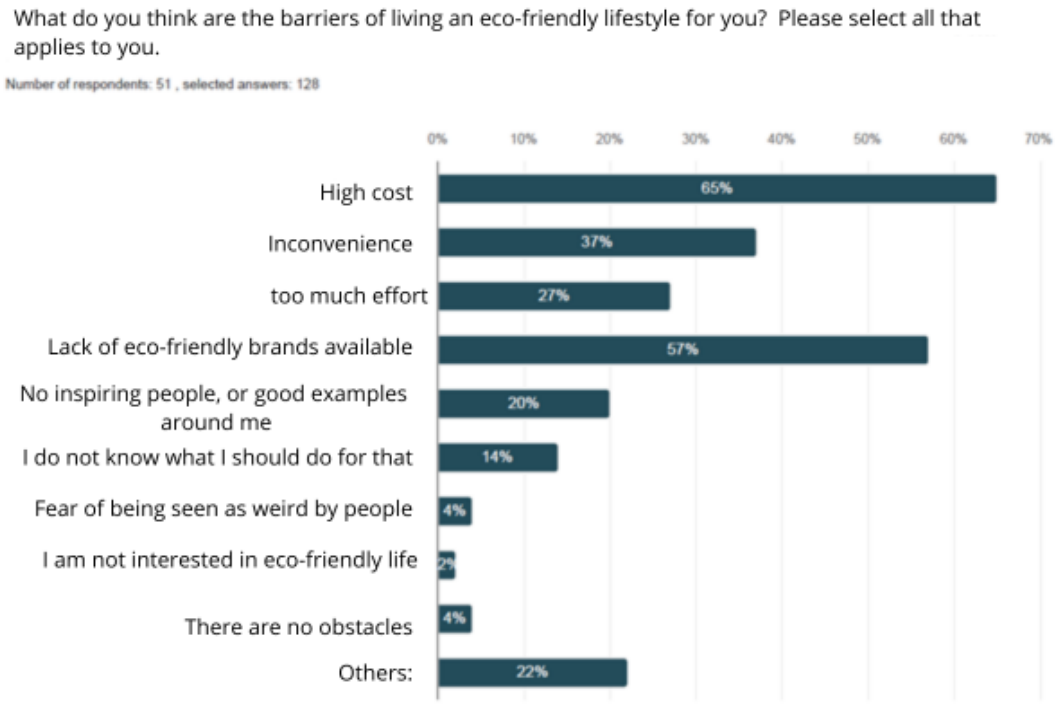

Figure 5: Obstacles of environment-friendly lifestyle

Lastly, the respondents were asked about their image of eco-friendly products, (Figure 5), most stating that they are expensive (73%) and hard to find (45%). Some respondents also admitted that they find it hard to believe whether these products are in fact eco-friendly (22%), and that these products are not as efficient as regular products (12%).

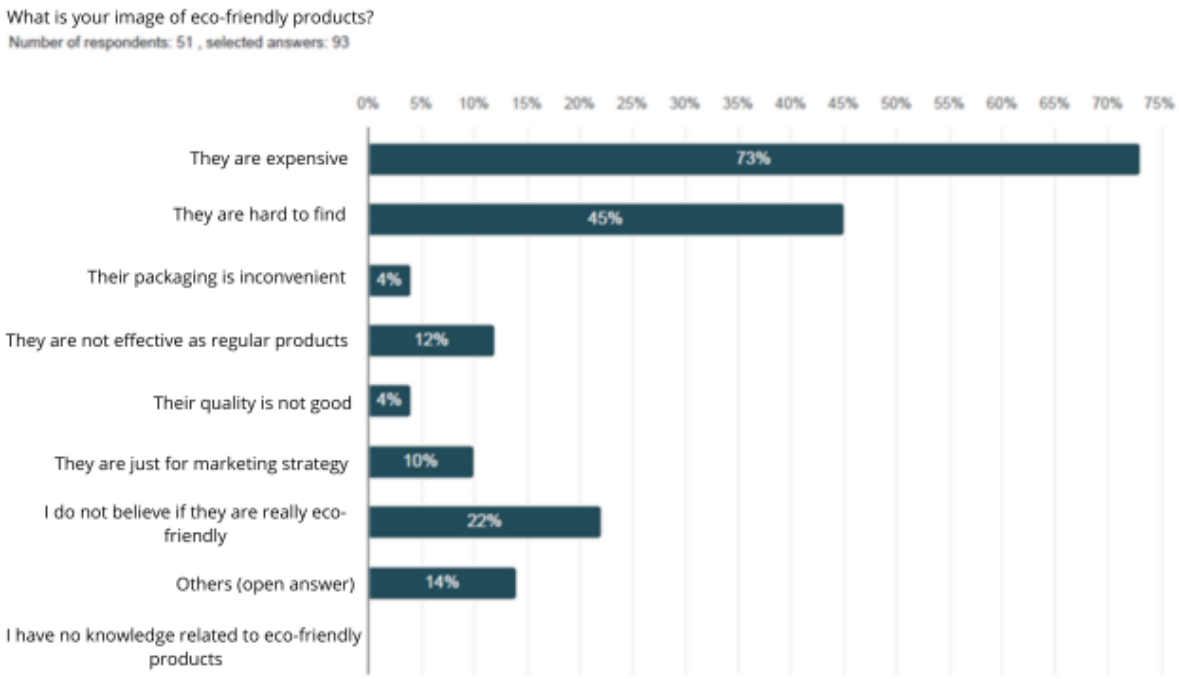

Figure 6: Consumers' image of eco-friendly products

While only seventeen questionnaire respondents participated in the experiment, they provided enough valuable data with their recordings. The most notable finding of the experiment was that none of the participants lasted the full week without buying plastic. Some participants tried their best to avoid plastic, for example by searching for alternative store options and visiting multiple different stores to find product they desired in a plastic-free alternative or bringing their own lunch to school and work. Many of them had to give up on certain products they wanted to buy, as they were unable to find a plastic-free alternative. Some even used alternative home delivery services which offer more eco-friendly packaging options, brought their own containers to stores or refused plastic products when offered by the retailers such as additional packaging, plastic bags, or disposable cutlery. One participant even showed creativity and bought baking paper to use as alternative wrapping for her vegetables. While these participants succeeded in reducing their consumption of plastic, they all concluded that avoiding plastic completely, even for just a week, is simply impossible, as most products are not offered without plastic or in any other type of packaging.

Other participants gave up immediately after realizing that most essential products such as dairy, meat, most vegetables, tofu, and rice is not offered either without or in an alternative packaging. Some of the older participants reflected on how the practices have changed over the years and how plastic has progressively replaced alternative packaging and taken over everything nowadays:

> *"I was born in 1973. When I was a child, when I bought items from the butcher, fishmonger, grocery store, etc., I received them either as they were or wrapped in paper, and liquids came in bottles or cans, not yet plastic bottles. But now the stores where you can directly hand-deliver your groceries have disappeared, and all we have are large supermarkets." (Aomi, a housewife[8])*

A few participants were brave enough to ask for alternative packaging in certain stores such as a bakery or butchers, or brought their own containers to stores and asked the retailers if they can use it instead of the regular packaging. However, their attempts were often met with strange looks and refusals from the retailers. For example, one participant asked a street vendor at the university for alternative packaging, as he wanted to buy fried chicken for lunch from him. However, his attempt resulted in the vendor giving him a strange look and asking him „why are you asking me this?" These participants also mention how difficult it was for them to gather the courage to ask for alternative packaging and how disappointed and judged they felt after such encounters with retailers.

All participants became increasingly frustrated over the lack of options when searching for products which did not contain or were not wrapped in plastic, which often left them feel powerless and like they had no choice but to consume plastic. Lack of options was the most frequent observation they made, as they became increasingly aware of their purchasing choices

[8] For the purpose of anonymity and clarity, the names of the participants have been changed to a pseudonym when quotes from their recordings are used.

and the kind of material the products were wrapped in. Many participants reflected that they did not realize the sheer amount of plastic they use on daily basis because it is included in every part of their lives.

> *"After participating in the experiment, when I tried to shop from the perspective of avoiding plastic, I realized that plastic was involved in almost everything, and I had to give up from the beginning. It is so common to be surrounded by plastic in our daily lives that I found it difficult to even realize that there is too much plastic in Japanese purchasing." (Mieko, a housewife)*

One participant even admitted that she did not think about what kind of packaging she had been buying because of the elaborate recycling system in her city, which gave her not to worry about such things.

> *"I was surprised at the number of products I had been buying without thinking about it. I realized that if I want salt, for example, it is important that it is salt, not whether it is in a plastic bag or in a paper wrapper.... In my city, we recycle plastic waste. But I realized that this is not good for me. Because I realized that I had been using it as an excuse to buy plastic products." (Satoko, a housewife)*

Multiple participants also mentioned how some products, such as fruit jelly, have always been sold in plastic packaging, therefore they did not even realize that she was buying plastic when making the purchase. Many started the experiment thinking it would be easy but increasingly realized how difficult it is to purposefully avoid plastic and there were many factors impacting to which extent specific participants were able to reduce their consumption.

Apart from the lack of choices most participants mentioned, many of them also struggled with time and financial restrictions. For example, both students and housewives often did not have enough time in the morning to make their own lunch and therefore had to buy their

lunch at a workplace or on school grounds. For students especially, that meant another obstacle, as school cafeterias were often packed with people and the students did not have time to wait in a long line, because they would be late for class. Many students described in their recordings how they consequentially had no other option than buying bento boxes or other lunch alternatives in nearby *konbini* stores or from vendors. All these options however were partially or completely wrapped in plastic, so the students were left with no other choice but to purchase products in plastic containers and at least attempted to buy products with the least amount of plastic packaging. Therefore, it was not a question of whether they could avoid plastic but how much plastic they had to purchase. Same was also true for some working participants, as most workplaces do not provide cafeterias and many of them had to either go to a restaurant or buy lunch in a nearby *konbini* store. For those, it became a question of how much they can afford to spend for lunch every day.

Another kind of time limitation was directly connected to inaccessibility and lack of alternative options. Multiple participants mentioned how they would have to travel long distances to access alternative stores. They often argued that they did not have time to make long trips to these stores and often had to settle for stores in the proximity of their workplaces or homes, which were mostly supermarkets and *konbini* stores. On the other hand, however, one participant pointed out that buying plastic free products can also be time efficient, as the lack of choices speeds up the shopping process. That is in case of course there is at least one plastic free option of the specific product available.

Financial limitations were another obstacle a lot of participants encountered. Since majority of students participants mentioned that they still live with their parents, they did not have to worry about finances so much. However, their student status also meant that they did not have enough much disposable income, therefore when they made any purchases, they usually chose the cheapest options, which unfortunately meant that they mostly chose products

wrapped in plastic. For financial as well as other reasons, students also made most of their purchases in *konbini* stores and used vending machines much more than housewives, who used much bigger variety of stores. As a result, students purchasing choices differed greatly from housewives or working participants, since their purchases were mostly personal and small such as snacks, books, or ready-made meals, while housewives and working participants bought mostly household items such as groceries, cleaning products and other. The difference of purchases showed that it was a bit easier for housewives to avoid plastic based on the content of their purchases, but produced more plastic waste due to the amount of purchases they made. However, one student participant reflected that the financial limitations often push students to make these small plastic purchases daily, even multiple times a day. He believed that it is this kind of purchases that contribute to the plastic issue the most. Additionally, he reflected that not only alternative packaging but also products without plastic are often more expensive, which pushes students to choose plastic over other packaging.

> *"I usually buy lunch at a convenience store on days when my class schedule extends beyond noon. My sense is that many students do this. The cafeteria is crowded and not cost-effective. Buying onigiri (rice balls) at a convenience store is the cheapest option. In fact, in order to avoid plastic, I did not buy lunch at a convenience store and went to a nearby inexpensive soba restaurant, but I still felt that it was expensive. The best way to reduce costs while avoiding plastic is to buy deep-fried food, which is the only thing wrapped in paper at convenience stores, but it is not possible to buy only deep-fried food every day." (Kenji, a student)*

In his reflection, the student concluded that the best way to avoid plastic for a person with limited finances is to "not buy anything at all". In fact, one other student participant did exactly that, which made his recording invaluable for the research, as there was no data to analyze. While a lot of other participants made a similar conclusion that products wrapped in plastic is

usually cheaper, one participant made an observation that certain vegetables and other produce individually wrapped in plastic can in fact be more expensive than those without packaging.

Despite these differences, money was still a considerate factor among most participants, as most, apart from one or two exceptions, described their financial situation as either regular or poor. For example, one specific participant was a student who lives alone and therefore has her own household. In her recordings she described how she often had to prioritize money, which resulted for example in her buying frozen vegetables wrapped in plastic instead of fresh vegetables without packaging, as its cheaper and lasts longer. In her reflection, she described how she believed that her limited finances might make it more difficult for her to avoid plastic than other participants.

A curious phenomenon I have noticed in multiple recordings is the case of plastic coating of specific products, such as carton boxes used for milk and juices, cup noodle package or disposable paper cups. In their quest of reducing their plastic consumption, multiple participants have chosen drinks in either cartons, such as juice or milk or coffee in a disposable cup. One participant even chose to buy regular milk instead of plant-based milk because the plant-based milk had a plastic cap. All these participants expressed joy over managing to avoid plastic and finding a plastic-free alternative. None of them seemed to be aware of the thin layer of plastic used in these products to prevent leaking of the liquid. I decided to reach out to them and ask about this phenomenon, and all of them were genuinely surprised by this information. I later decided to reach out to them again and asked about how else they thought these products could hold the liquid. One participant answered that she thought that they could be processed to withstand water like straws made from pasta or rice. Another participant stated that he thought they used wax coating. Other simply stated that they never thought about it, so they did not realize the products contained plastic when they were buying them.

The lack of education was even pointed out by multiple participants in their recordings. One participant, a business owner from Abiko, raised her concerns about the level of environmental education in Japan, claiming that she does not believe that it is sufficient. She also pointed out that while children receive at least some level of environmental educations, adults do not have the opportunity or motivation to educate themselves on these issues. She the emphasized that the situation will not improve unless courses on environmental issues are not provided and made mandatory by either municipalities or employers. In her reflection she expresses her believes that it is important to primarily educate middle-aged and elderly people about environment to reduce the plastic consumption, as they have not received sufficient education. Multiple participants have made similar comments, claiming that the environmental education is not sufficient and that it needs to improve. One participant even confessed that she does not understand environmental issues well enough and therefore is unable to evaluate what is and is not good for the environment, as she describes her struggle to decide if she should drive to an alternative store which would require use of gasoline. Some participants also admitted that they did not know what happens to the plastic waste after they dispose of it prior to the experiment.

> *In Yokosuka City, where I live, there is a plastic-only garbage collection for recycling, and until I participated in the experiment, I thought that plastic packaging that can be washed and put out for collection would be better than paper packaging that must be thrown away….The first thing I realized was that I did not know much about the actual situation of how the things I used were disposed of afterwards. (Hinamari, a housewife)*

In addition to these obstacles, participants also mention other factors that influenced purchasing choices and which they used to defend buying plastic on certain occasions. Convenience was one of the factors, which was mentioned the most often. Some participants

defended their self-proclaimed inability to reduce plastic by pointing out disadvantages of alternative packaging such as weight of a glass returnable bottle or reusable water bottle and arguing how inconvenient it is. A few participants defend their purchases at *konbini* stores arguing it is convenient to shop there since it is on their way to work or school or they argued that the products sold at the store allow them to eat on the way without wasting much time. One participant discussed convenience in her reflection, pointing out that Japan as a society is too used to convenience which makes it hard to convince people to make more eco-friendly but less convenient choices. Another participant also defended plastic material using the convenience argument and stated that instead of banning all plastic, people should substitute plastic with alternative materials as much as possible and recycle the plastic that they use.

Hygiene and protection of products was another point many participants pointed out when reflecting on the experiment. For example, one participant discussed the experiment and plastic overconsumption with her vegetarian friend who even though is concerned about the environment prefers fresh produce such as fruit and vegetables wrapped in plastic as she does not want her food to be touched by other people.

> *"I was surprised at how my friend, who usually acts very much about the environment, felt about plastic bags. This is because she asked me to put vegetables, fruits, etc. in plastic bags because others might touch them. I thought to myself, if it bothers you, just wash it. My guess is that many Japanese people are very conscious about cleanliness, which is a good thing, but they are too concerned about it and are seeking unnecessary plastic packaging, which is why companies are choosing to use it." (Naomi, a housewife)*

Her argument was supported by another participant stating that plastic packaging of vegetables and fruits is used for the appeal of safety and hygiene. Multiple participants also argued that the amount of plastic packaging increased significantly since 2020 due to the

COVID-19 pandemic, and how the strong attention to hygiene as a prevention of pandemic persist in Japan, mentioning that before covid there were occasional options of alternative packaging in stores, but after covid majority of products switched to plastic for hygienic purposes. For example, one participant mentioned that before the pandemic, she was able to purchase bento lunch in returnable boxes, but now they are only in disposable plastic. Additionally, use of excessive packaging for hygienic and protection purposes was pointed out by many participants, some of them commenting how unnecessary it seemed to them, especially with certain products where plastic packaging is used for protection such as envelopes, or books. One participant commented that some products, especially if they are advertised as presents, have so much excessive packaging that there is more packaging than the actual product.

The last factor many participants mentioned was how they automatically received products they did not ask for as part of the customer service (omotenashi), which contributed to their feeling of powerlessness in their quest of reducing their plastic consumption. Within this service, they often received plastic bags in which the person at the register wrapped their product without asking, plastic cutlery such as forks, knives and spoons when buying ready-made meals or plastic straws in drinks they ordered. Some of them also mention wet napkins received in restaurants or bars which are also sealed in plastic wrapping. As mentioned above, only few of the participants had the courage to refuse these additional products.

While most recordings were focused on groceries and other foodstuff, some participants also described their experiences in different kinds of establishments and with different kinds of products, such as refreshment at a movie theater, stationary purchases, or hygiene products at bathhouse. In all these cases however, the participants complaint about plastic packaging being involved in their purchases and not having options such as bringing their own snacks into the movie theatre or not having the option of bringing their own hygiene products due to lack of

time and inconvenience of bringing their own product from long distance from their homes. As with majority of other purchases, none of the establishments themselves offered plastic-free alternatives of their products.

In their reflections, many participants turned critical towards both the government and the businesses and pointed out the contradiction of the lack of eco-friendly products despite all the pro-environment campaigns on TV and banners, stressing that the government and businesses should make more effort towards environmental choices and options. One participant stated that she believes that more regulations regarding plastic need to be implemented. Even the participants which used alternative services such as Seikatsu club and Coop complained that these organizations are not doing enough and that although they do offer some alternative packaging such as old newspapers or returnable bottles a lot of their products is still wrapped in plastic. They also complained that these organizations do not provide sufficient information about their services, as for example Coop offer collection service of plastic food containers and bottle caps from their customers but fails to inform the customers about what they do with it afterwards.

Multiple participants emphasized that the consumers need to express their desires of reducing plastic to the retailers and create pressure to provoke change. One housewife criticized consumer behavior based on habit and argued that people should think more ahead and make more conscious choices. However, other participants argued that the consumers alone cannot change anything. They also blamed mass consumption for the lack of plastic-free choices and pointed out how “people have become so accustomed to consuming at large supermarkets and convenience stores that they may not be able to think of other options out of habit, and the reality is that there are not many options around them” (Kenji, a student). As a result, the consumers dissociate not only from the plastic issue, but also from environmental issues in overall as people are not forced to think about their choices because the impact does not affect

them directly or immediately. Therefore, the participants argue that unless people are offered options, society will not change. One participant additionally stresses that it is important for people to be educated and offered information about practices in other countries to make an informed decision.

Lastly, many participants reflected that they have learnt a lot thanks to the experiment and that it has made them more aware of the issues and their purchasing choices. Some even stated that they would like to continue reducing their consumption or that they also talked about the experiment with their friends and tried to motivate them to join. However, they were usually met with a similar response: “It is important to deal with environmental issues, but it is difficult and there is no way to do it“. Many participants concluded that plastic material should be subsidized with alternatives such as biodegradable materials and that excessive packaging should be eliminated.

5 Discussion of results

The results have shown that limiting one's plastic consumption is a very challenging task. If one attempts to do so, he is met with a series of obstacles stemming from various factors. These factors could be divided into internal and external, with cultural and social expectations falling under internal factors which then impact structural and systematic issues such as store and government policies as external factors. Additionally, these factors combined partially stem from various events from the past and are closely interconnected, influencing not only the choices of the consumers, but also leaving the consumers feeling like the system is set up for them to fail if they try to fight it.

However, there is one noteworthy phenomenon this research has revealed, which is that very often, the behavior of the experiment participants contradicted their previous claims from questionnaire. For example, more than half of the participants claimed to prefer fresh produce without plastic packaging and that they always choose the most eco-friendly packaging, yet repeatedly chose to purchase products wrapped in plastic throughout the experiment, some of them even defending plastic at times. Similarly, many admitted to becoming more aware of their purchases, and to not realizing how plastic surrounds them in their everyday lives prior to their participation in the experiment despite their claims that they always pay attention to the packaging and try to avoid plastic in the experiment. Therefore, the discussion will present factors causing not only obstacles the consumers have to deal with but also the contradictions between consumers' statements and behavior. Unfortunately, due to the space and time limitations of this thesis, I cannot address all the factors in their full complexity. Therefore I have decided to focus on obstacles, which appeared most often in the collected data and explain their roots and connections to various factors.

5.1 Lack of choices

Lack of choices is one of the most frequent obstacles which many Japanese consumers encounter daily. In both the questionnaire responses and the experiment diaries, the consumers have repeatedly expressed feelings of powerlessness and claims that they have no choice but to abide by the rules of the system. The lack of choices referred not only to products and stores but was also connected to other obstacles such as time limitations or systematic perpetuation of convenience, hygiene and *omotenashi*.

As presented by the collected data, Japanese consumers struggle significantly with time limitations caused by hectic lifestyle of Japanese society. From students to housewives, this lifestyle imposed on them by school and work environment based on hard work and efficiency prevents them from preparing their own meals, having a proper lunch at restaurants or cafeterias and forces them to purchase portable ready-made meals wrapped in plastic. The hectic environment can also be considered as the root of Japanese dependency on convenience. As the rapid growing economy required people to work as much as possible, the consumption culture adjusted to this need, resulting in a boom of supermarkets and *konbini* stores, which gradually replaced local markets and other types of alternative stores. This results in supermarkets and *konbini* stores located on every corner in both housing and commercial areas, leaving consumers no choice but to shop almost solely in these establishments as the time limitations restrict them from travelling long distances to alternative stores or farmer's markets located in more remote areas. Additionally, after plastic was introduced to Japanese market, marketers promoted it together with other products under the pretense of their twisted interpretation of *mottainai* as wasting anything including time, money, or effort. Plastic was therefore promoted as convenient and timesaving, as it allowed consumers to safely transport their meals and eat them wherever and whenever they needed, quickly gaining popularity with all kinds of stores.

The popularity of plastic, especially disposable plastic packaging, then spread into other establishments such as dining, tourism, spa or entertainment under the pretense of convenience. In combination with the hectic lifestyle perpetuating convenience, hygiene also significantly contributes to the lack of choices. As mentioned in the analyzed literature, Japanese seeming obsessiveness over hygiene seems to be stemming from mismanagement of waste which led to multiple outbreaks of diseases in the past. The emphasis on hygiene was then further perpetuated by multiple cases of food poisoning in 1950s propelling a series of food safety movements, which lead to stricter regulations and policies that stores must follow (Jussaume, Hisano, and Yoshimitsu 2000, 219). With its food safety and hygienic features to appeal to the consumers, plastic was considered a perfect solution for these concerns, replacing most of other material soon after its introduction into stores. This appeal of hygienic and food safety features which plastic offered was then further perpetuated by COVID-19 pandemic. In fear of the pandemic, businesses returned to using plastic even in case of the few products which they offered without or in alternative packaging, setting Japan back in its journey to more sustainable consumption. As a result, consumers are left to choose between products with the least amount of plastic rather than choosing between plastic and other alternative materials. This includes essential foods, such as meat, rice, dairy products, and most of fresh produce. Additionally, some participants pointed out that the only food products that are not wrapped in plastic are often unhealthy or fried food, such as hashbrowns, fried chicken or vegetables fried in tempura offered at the register in konbini, or the deli foods in supermarkets inserted into a paper sack. These findings show that to significantly reduce their plastic consumption the consumers would have to compromise their health, giving up on the essential products and limiting their diet to unhealthy food.

The need for convenience and hygiene then fuels the role of plastic in these stores and other businesses in the name of *omotenashi*. As presented in the analyzed literature, the Japanese

standard of customer service catering to the hectic environment and concerns over hygiene leads stores to provide single-use products such as additional bags, single-use cutlery and wet napkins wrapped in plastic without customers' request. As mentioned in the analysis of the collected data, many participants raised their concern over these products, expressing their discomfort upon receiving them. Despite their discomfort however, most Japanese are reluctant to raise their concerns or put pressure on retailers by rejecting these automatic products, by by which they preserve *omotenashi* practices and further perpetuate the plastic consumption.

During the experiment, only a handful of participants were brave enough to attempt to reject automatic products or to ask for alternative packaging in certain stores. However, as their efforts were mostly met with rejection and judgement, they expressed feelings of disappointment and shame from the experience. As mentioned in possible factors, it is not common for Japanese to reject products offered to them, as they do not want to disrupt the harmony of the process at the cash register. Moreover, in the questionnaire, some respondents also mentioned that one of the obstacles for them to live more eco-friendly is the fear of being perceived as weird. As explained through the secondary literature, this reluctance most likely stems from group mentality which prioritizes harmony of group over needs of individuals, and the fear of judgement which prevents them from acting in a way which would make them stand out from the certain group, in this case being Japanese society. Therefore, these characteristic traits prevent many Japanese from not only rejecting such products, but also from speaking out in general and voicing their concerns regarding plastic consumption and environmental issues. By raising their concerns, consumers would create more pressure on both the government and the retailers. In fact, many experiment participants emphasized that people need to speak up more and voice their concerns and preferences or things are not going to change. However, as this fear of standing out and disrupting the harmony is deeply rooted in Japanese society, it creates a significant obstacle for many consumers to speak up, contributing to their feeling of powerlessness.

Last factor contributing to the lack of choices is the 1995 Containers and Packaging Recycling Law. As mentioned in the possible factors, this law shifted the financial responsibility from manufacturers of packaging to local municipalities. As most of packaging and containers are made from plastic material, manufacturers face almost no penalties or financial burden for producing the large quantities of plastic every year. Therefore, in comparison to alternative packaging, plastic remains the cheapest option to use for manufacturers, while alternative packaging requires additional expenses on transportation of material and manufacture, resulting in manufacturers continuing to prefer plastic as their main material for packaging and containers. Consequently, as there is no financial or social pressure put on the manufacturers, majority of products of all kinds are packaged in plastic, offering almost no alternatives to consumers unless they go to alternative stores. In fact, when asked about eco-friendly products, many questionnaire respondents stated that these products are hard to find. Therefore, more pressure needs to put on manufacturers to limit plastic and replace it with alternative materials, which would make them more accessible and cheaper for the consumers.

While the consumers are not stripped of their freedom of choice, the combination of the above discussed factors create an illusion of no choice, which then creates an almost debilitating feeling of powerlessness. As a result consumers believe that there is nothing they can do to reduce their plastic consumption despite their expressed wishes for alternative materials and reduction of excessive packaging. Unfortunately, one also must consider to what extent these wishes are true. Comparing the results from the questionnaire and the experiment, the data has shown that many participants repeatedly chose products wrapped in plastic over other or no packaging, often using hygiene or convenience argument as the reason behind their choices. Additionally, some participants defended plastic on multiple occasions for its hygienic and convenient features or in contrast criticized alternative products for not offering the same benefits. Therefore, I believe that it is not only the store policies but also the consumers'

preferences of convenience and hygiene which limit the options in packaging materials. I believe that the concern for hygiene and dependence on convenience is so deeply engraved in minds of Japanese consumers, that it makes it almost impossible for them to give up on plastic. This notion then encourages stores to keep plastic as the main packaging material, creating a vicious cycle.

5.2 Insufficient knowledge

Insufficient knowledge is another obstacle that both the questionnaire respondents and the experiment participants raised their concerns about on multiple occasions. Either they were not able to explain certain terminology regarding environmental issues, or they admitted that they did not know enough to feel confident to determine which decision regarding certain purchases would be better. As presented in the analyzed literature, this lack of knowledge mainly stems from the historical development of environmental education, government policies and environmental movements. Starting with the above-mentioned mismanagement of the waste and the disease spreading, both government policies and environmental education prioritized proper waste disposal and recycling as main means to tackle these issues. The role of recycling was then strengthened as it was used by the marketers and the government to encourage the citizens to continue consuming despite the growing waste between the 1970s and the 1990s and remained strong until today. Furthermore, the fragmentation of waste management prompted a series of very complicated rules for citizens about how to properly dispose of waste, requiring a lot of attention to those rules and a lot of effort from the consumers.

Furthermore, the postwar era prompted a strong sense of resource consciousness in Japan, which impacted not only the market but also education and the way people think about resources. As presented in the history chapter, it rose as a response to devastation of the country not only by war but also by the series of environmental pollution cases in the 1950s, which then resulted in implementation of resource conservation and environmental protection into the

education curriculum, government policies and marketing strategies. This notion was then revived in reaction to the Oil shock in the 1970s as people were reminded of the scarcity of resources in the country and their dependence on import. Lastly, it was further intensified in 2011 by the Fukushima disaster and the following energy crisis. Due to these events, the environmental education has been primarily focusing on resource and energy conservation in all levels, providing the citizens with guidelines on how to properly recycle and save energies rather than educating them on current global environmental issues. Additionally, the current environmental education has not been reformed since 1990s, which I witnessed myself during the class observation of environmental studies and consumer law courses. The classes also focused mainly on energy and recycling, only touching on global environmental issues and disregarding Japan's role in contribution to these issues. It is also important to consider, that environmental movements and the structure of environmental education have been provoked by events effecting humans directly and therefore the motivation behind environmental concern in Japan is highly anthropocentric, which has been pointed other scholars as well (Siniawer 2018, 95; Takayama et. al 2015, 46)

As a result, many consumers admit that they do not know enough about current global environmental issues or the impact of mass consumption on these issues. Therefore, they do not feel confident enough to even form an opinion on these issues, let alone to determine how to properly change their behavior to live more eco-friendly. For example, when asked about their eco-friendly habits, most respondents chose various recycling and energy and water conservation practices, as they have been taught the same practices in school. Multiple participants also admitted that they did not know what happens to the waste after it is disposed. Additionally, some struggled with evaluating the impact of their purchasing behavior. For example one participant pointed out her struggle to determine which is worse for the environment – buying plastic in a local store or travelling to an alternative store by car,

producing CO_2. Moreover, Japanese consumers do not seem to know enough about eco-friendly products either, despite being encouraged to buy them by various campaigns. Many questionnaire participants admitted that they do not know enough about the products to believe that they are truly eco-friendly. Similarly, the participants' unawareness of plastic coating of carton boxes and paper cups also shows how little they are informed about products they purchase, as this kind of information is not disclosed on the packaging.

However, it needs to be pointed out that majority of respondents were over 50 years old. As multiple experiment participants pointed out, there is no environmental education offered to middle-aged or older people, which could be one of the reasons why the lack of knowledge among respondents was so high. As research on current environmental issues and their global scale connection to mass consumption has emerged in the last 20 years, it is understandable that older people would not be educated enough on these issues. Yet again, many students also struggled to understand these issues which in combination from class the observations shows that the environmental education is rather ineffective. Additionally, as the collected data revealed, many consumers acquire their information about environmental issues from unreliable and bias sources such as domestic mass media and social media. As many Japanese struggle with language barrier, the amount of information accessible to them is limited, preventing them from examining these issues from a global perspective, which then contributes to their knowledge gap.

While the resource consciousness is understandable considering the instability the Japanese have experience throughout the years, it breeds too much focus on resource conservation within various disciplines. This narrow focus then perpetuates the plastic consumption as people remain incapable of making fully informed decisions regarding their purchases as well as other behavior. Many participants emphasized that they need to gain access to information regarding sustainable practices from other countries and to environmental education for people of all ages.

Some participants suggested that implementing classes as part of employment trainings or mandating seminars organized by municipalities would help them stay educated on current issues and to understand the impact of their behavior.

5.3 Financial struggles

Last big obstacle that seems to significantly impact consumers' purchasing choices is financial limitations. In general, consumers tend to make shopping-related decisions based on their economic interest, which can be observed worldwide (Harada & Harrison 2017, 30). That was especially the case for the student participants, who were highly restricted by their financial situations, as they do not have much disposable income. Based on this tendency, it could be observed from the experiment that the participants often chose the cheapest products, regardless of whether they contained or were wrapped in plastic. However, I believe that in case of Japan, historical and socio-economic background of the country plays an important part that goes beyond this general tendency. As presented in the history chapter, Japanese economy over the past seventy years has been very unstable. From postwar poverty, through the economic miracle, the Oil shock, the boom and the burst of the bubble, to covid crisis, the development of Japanese economy could be compared to a roller coaster. This instability has nurtured a strong financial consciousness and insecurity in Japanese citizens, which is now boosted by the current situation as Japan's GDP fell into recess in 2023 and the country lost its spot as the third largest economy in the world ("Germany Overtakes Japan as Third-Biggest Economy - The Economic Times," n.d.).

As a result, Japanese consumers often prioritize price of products over the kind of packaging it uses, which is unfortunately mostly plastic. In fact, many participants listed financial restriction as one of the most frequent reasons for purchasing products containing or wrapped in plastic during the experiment. They also pointed out, that certain products such as fresh produce are often cheaper than the same product offered in an alternative or without packaging. This

phenomenon seems to be a standard practice of chain stores worldwide as these products are weighed, prepackaged, and sold in bulk. However, while other countries often offer many alternatives to plastic, in Japan this practice then often forces the consumers to choose the product containing plastic even in the few cases in which they are offered options. Similarly, the most frequent answer provided by the questionnaire respondents regarding their image of eco-friendly products was that they are expensive, which then discourages them from purchasing them. Therefore, the financial consciousness could partially explain the contradiction between the consumers' behavior and their responses in the questionnaire. Unfortunately, the choices consumers make to save money further perpetuates the production of plastic material as the demand remains high and the manufacturers are not pressured to use alternative packaging. This then results in the cost of the alternative packaging remaining high, creating another vicious cycle within the plastic consumption.

On the contrary however, many questionnaire respondents stated that they would be willing to pay more for the alternative packaging, leading to a question regarding reliability of their responses, which would require further research. Based on both the questionnaire responses and the experiment recordings, Japanese consumers do wish for an integration of alternative packaging and a reduction of plastic material within their purchases. Almost all respondents supported the introduction of returnable PET bottles system used in some European countries, and many participants have criticized both government and the retailer for not putting more effort into reducing plastic. Yet it seems that their economic situation along with other factors is preventing them from supporting these claims by altering their purchasing behavior, especially in the current state of the economy.

As presented above, the obstacles that consumers face seem to be tightly entangled in a web of many interconnected factors that influence not only the obstacles themselves but also each

other. To make consumers feel like they have more power over their purchasing choices and more impact with their behavior, they would need to be offered more choices and a space where they would feel free to raise their concerns without judgement, like they did during the experiment. How to achieve these goals is a question for further research. However, pointing out the factors which contribute to plastic consumption in Japan will hopefully help answering this question in the future. Furthermore, the findings might help Japan reduce its dependence on plastic, replacing it with other materials as well as addressing other issues uncovered within this research.

Conclusion

The goal of this thesis was to answer three research questions: 1) "What factors are contributing to the plastic overconsumption issue in Japan?", 2) "What limitations are Japanese consumers facing if they attempt to avoid plastic products?", 3) "What alternatives are offered to consumers who do not want to support plastic consumption?" The findings show that despite Japan presenting itself as an environmental leader, plastic consumption is still a major issue the country struggles with. The social experiment has pointed out that reducing individual's daily consumption of plastic materials is an extremely difficult task and that there is a series of obstacles one encounters if they attempt to do so. The main obstacle the Japanese consumers encounter is lack of choices not only regarding their purchases, but also in various aspects of their lives which then also limit them. Furthermore, the consumers also struggle with financial limitations and lack of knowledge which further limit their choices, resulting in a feeling of powerlessness. All these obstacles then prevent the consumers from altering their behavior to make significant impact on the environment, despite their seemingly strong desire to do so.

All these obstacles stem from a series of socio-cultural factors which have a long tradition in Japanese society and are deeply interconnected. The most common factors presented in both secondary literature and the field research was strong emphasis on convenience, hygiene and *omotenashi*, financial and recourse consciousness, and insufficient education regarding both the environmental issues and the products offered to the consumers. All these factors then create issues in structural setting of certain institutions, such as monopoly of supermarkets and *konbini* stores, preference of plastic in manufacturing and inefficient waste management, all of which contribute to plastic consumption. Furthermore, the characteristic traits of Japanese society play an important role in this issue, as they often prevent consumers from speaking up and putting pressure on both the government and the retailers, further perpetuating the plastic consumption. Lastly, the findings revealed that there are almost no alternatives offered to those who want to

reduce their plastic consumption due to the lack alternative materials and limited accessibility to alternative stores.

By focusing on the causes of plastic consumption, this thesis has filled the gap in research of plastic waste issue which mostly focused on the waste management. Moreover, by directly involving Japanese consumers, this thesis has offered a crucial perspective that is often overlooked in research, as consumers play one of the most significant roles in plastic consumption. While the government and non-governmental institutions carry the responsibility for implementing measures to tackle environmental issues, the behavior of individuals impact the decisions of these institutions. Therefore, understanding the impact behind consumer behavior is essential for implementing effective policies to achieve sustainable development and tackle pressing environmental issues, one of which is plastic waste.

The findings of this study can then be used to adjust existing policies and implement new policies according to the needs of the consumers and addressing the obstacles the consumers encounter in pursue to reduce plastic consumption. How to address these issues and which policies to implement is beyond the scope of this study and therefore is a question for further research. My suggestion is that the financial responsibility for waste management should be shifted from municipalities to manufacturers, putting more financial pressure on manufacturers to implement alternative materials, which would also make them more accessible to consumers. Furthermore, the effectiveness of environmental education needs to be reexamined and the education needs to be restructured to ensure consumers are capable of making informed decisions regarding both their behavior and their purchases. Environmental education should also be implemented by either employers or municipalities, so that consumers of all ages can educate themselves regarding the impact of their behavior on the environment. All these actions would contribute to significant reduction of plastic consumption.

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Appendices

Appendix 1 – Questionnaire

English version

Section one – Personal information

1) I am:

a man

a woman

Other

Prefer not to say

2) I am:

a student

a housewife

Other:____

3) What is your age?

18-20

21-25

26-35

36-40

41-50

Above 50

4) Where do you come from (出身)? – Please state the name of your village/town and prefecture.

_____

5) Do you currently live in a big city (Tokyo, Osaka, Kyoto,…) – population above 1 million?

Yes, I come from a big city

Yes, I currently live in a big city (commute to work/school, live in a dorm)

No

6) Do you have any special diet?

Vegetarian (a person who refuses to eat any meat, including fish and other seafood)

Vegan (a person who refuses eat or use any animal products, including eggs, milk, honey,…)

Pescatarian (a person who refuses to eat meat but eats fish and other seafood)

Lactose intolerant (a person who can not eat dairy products)

Coeliac (a person who can not eat food containing gluten like barley, rye or wheat)

Other: specify____ (fe. food allergies, digestive system disease, etc.)

No special diet

7) How do you assess your economic situation?

Very good

Good

Average

Bad

Very bad

Section two – Shopping preferences

1) Where do you mostly shop? Please select max two options. (groceries, cleaning supplies, other household products)

Convenience stores

Supermarkets

Department stores

Local markets

Vending machines

Bio or sustainable stores

2) How often do you shop?

Multiple times per day

Every day

Every other day

2-3 times a week

Once a week

3) What is most important to you when selecting a product? Please select only one option

Prize

Quality

Place of origin (fe. locally grown, imported)

Method of production (bio, GMO, mass production, sustainable)

sustainability

4) What types of products do you mainly buy? Please select max two options.

Raw ingredients – vegetable, fruit, cooking ingredients

Snackfood – candy, salty snacks, to-go drinks, …

readymade meals – bento, cup noodles, …

5) During your shopping both online and offline, do you notice if products have excessive packaging?

Yes

No

I am not sure

6) Do you prefer individual packaging for vegetables and fruit now and in the future?

Yes, purpose: cleanliness

Yes, purpose: convenience

Yes, purpose: protection for fragile products

No

Other:_____

7) Do you prefer individual packaging for snacks like biscuits, crackers now and in the future?

Yes, purpose: cleanliness

Yes, purpose: convenience

Yes, purpose: protection for fragile products

No

Other:_____

8) Do you ever think about what kind of material the products you buy are packaged in? (groceries, cleaning supplies, other household products)

Yes – I always try to choose more sustainable packaging

Yes – I prefer the plastic packaging

No – There are no alternative packaging options

No – I do not care about the packaging

9) When purchasing a product wrapped in or made of plastic, do you ever check the type of plastic it is made of? (fe. recycled, reusable, single-use)

Yes

No

sometimes

10) How willing are you to pay more than average price for eco-friendly packaging?
For example, if you are willing to pay 10% more to 100 yen products, this product's price becomes 110 yen in order to have eco-friendly packaging.

Over 15%

10% to 14%

Below 10 %

Not at all

11) How many plastic bottled drinks do you purchase per week?

up to three bottles

four to seven bottles

eight to fourteen bottles

fifteen and more bottles

12) How many plastic bags do you use during your shopping? (including register bag, pastry bag, vegetable or fruit bag, etc.)

I do not purchase a plastic bag/I use a reusable bag

one per week

two to three bags per week

four to six bags per week

seven or bags per week

Section three – Environmental awareness

1) Do you think plastic overconsumption in Japan is a problem? Please provide a reason for your answer.

Agree

Slightly agree

I don't know

Slightly disagree

Disagree

Reason: _____

2) In your own opinion what do you think is worse – plastic waste or food waste? Please provide a reason for your answer.

_____

3) In your own words please explain the difference between global warming and climate change.

_____

4) Which environmental issues are you currently concerned the most about? Please select max three options.

Plastic pollution in the oceans.

Extinction of plants and animals.

Climate change.

Air pollution.

Oil drilling.

Overfishing/Whaling

Plastic pollution.

Deforestation.

Others: _____

I am not concerned about environmental issues.

5) Where do you get your information about issues related to the environment (fe. Climate change, plastic pollution, overfishing, air and water pollution,…?

news media (Asahi Shinbun, NHK, Nikkei, …)

Social media (Facebook, Instagram, Tiktok, Youtube, Twitter,…)

Academic experts (university courses, textbooks, academic articles, books,…)

NGOs and NPOs (fe. Greenpeace, Seikatsu club, Miyako ecology center,…)

I do not follow environmental issues

6) Do you have any eco-friendly habits?

Yes - Separating and recycling waste

Yes - Turning off lights when leaving the room

Yes – Doing less laundry

Yes - Avoiding single-use plastics

Yes - Walking or cycling instead of using public transport or own vehicle

Yes - Purchasing eco-friendly products

Yes – Other:____

No

7) What do you think are the barriers of living an eco-friendly lifestyle for you? Please select all that applies to you.

High cost

Inconvenience

I am too lazy

Lack of eco-friendly brands available

No inspiring people, or good examples around me

I do not know what I should do for that

Fear of being seen as weird by people

I am not interested in eco-friendly life

There are no barriers

Others:____

8) What is your image of eco-friendly products?

They are expensive

They are hard to find

Their packaging is inconvenient

They are not effective as regular products

Their quality is not good

They are just for marketing strategy

I do not believe if they are really eco-friendly

Others(open answer)

I have no knowledge related to eco-friendly products

9) Did you know that according to the United Nations, Japan is the world's second-highest consumer of plastic per capita?

Yes

No

I do not believe the United Nations

10) Did you know that most of the plastics in Japan is incinerated or exported instead of recycled?

Yes

No

11) Did you know that almost half of the global total of plastics is produced for packaging purposes like drinking bottles and cups?

Yes

No

12) The majority of countries are making new regulations about the disposal of plastics. Do you think the Japanese government should make more regulations like them?

Agree

Slightly agree

I don’t know

Slightly disagree

Disagree

13) Finland has a system of returnable plastic bottles. The customers receive a small amount of money (approximately 20-80 JPY) for each returned bottle. Do you think that Japan should adopt a similar system?

Agree

Slightly agree

I don’t know

Slightly disagree

Disagree

Japanese version

セクション１・個人情報

１・性別

男性

女性

その他:_____

回答したくない

２・私は

学生

主婦

その他:

３・年齢

18-20

21-25

26-35

36-40

41-50

50 以上

４・出身(都道府県及び市町村も記入してください)

_____

５・現在、大都市（東京、京都、大阪など 100 万人以上の都市とする・通勤/通学を

含む）

で生活していますか。

はい（住民票あり）

はい（寮に住んでいるが、住民票はなし）

はい（通勤/通学）

いいえ。

６・特別な食習慣やアレルギーなどはありますか。

はい、ヴィーガンです。（肉、牛乳、卵などの動物性食品も食べない人）

はい、ベジタリアンです。（肉、魚、その他動物海産物も食べない人）

はい、ペスカタリアンです。（肉は食べないが、魚を食べる人）

はい、乳糖不耐症です。（乳製品が食べられない人）

はい、セリアック病・グルテン不耐性（グルテンを含む食品が食べられない人）

いいえ。

７・自身の経済状況をどう評価しますか。

とてもよい

よい

普通

悪い

とても悪い

セクション２・買い物傾向

１・最も高い頻度で買い物をする場所はどこですか。二つまで選択してください。

（食料品、　生活用品、清掃用品など）

コンビニ

スーパー

デパート/百貨店

個人商店

自動販売機

有機栽培/オーガニックの取り扱いがある店

２・どれくらいの頻度で買い物をしますか。

毎日複数回

毎日１回

２日に１回

１週間に１回

週に２～３回

３・あなたにとって商品を選ぶ上で、最も重視することは何ですか。一つだけ選択してください。

値段

商品の質

生産地（国産、輸入製品、地元など）

生産方法（オーガニック、遺伝子組み換え作物、大量生産など）

４・どんな商品を主に買いますか。二つまで選択してください。

生鮮食品（果物、野菜、肉など）

おやつ（お菓子、スナック菓子、ドリンクなど）

調理済みの食品（弁当、カップ麺など）

５・買い物をする時（店舗、インターネットなど）、商品の包装が過剰であると感じることはありますか？

はい

いいえ

分からない

６・買い物をする時に個包装されている野菜や果物が好ましいと感じますか？下の選択から選べない場合は、その他を選択し、自分の考えを書いてください。

はい - 理由：清潔だから

はい - 理由：便利だから

はい - 理由：商品を傷付けるため

いいえ

その他:_____

７・買い物をする時に小さなお菓子は個包装が好ましいと感じますか?

はい - 理由：清潔だから

はい - 理由：便利だから

はい - 理由：商品を傷付けるため

いいえ

その他:_____

８・自身が購入する商品がどのように包装されているか意識することはありますか。（食料品、　生活用品、清掃用品など）

はい・より環境にやさしい包装の商品をいつも選ぶようにしている。

はい・プラスチック包装が好ましい。

いいえ・ほかに選択肢がないと感じる。

いいえ・包装が何であっても構わない。

９・プラスチックで包装された商品、あるいはプラスチック製の商品を買うときに、どのような種類のプラスチックなのか確認することはありますか。

はい、いつも

はい、たまに

いいえ

１０・環境に優しい包装の製品を購入する際、どの程度までであれば平均価格より高価な商品を購入しますか。

例えば、平均価格が 100 円のモノを買う際に、より環境に優しい包装の商品を選びそれが 110 円だった場合、あなたは環境に優しい包装のために 10%多く払ったと想定します。

１５%以上

１０%―１４%

１０%以下

平均より高い場合購入しない

１１・一週間にどれぐらいペットボトルの飲み物を買いますか。

3本以下

4本―7本

8本―１４本

１５本以上

１２・一週間にどれぐらいビニール袋を買い物の際に使いますか。（レジ袋、野菜やパン、揚げ物などの為の個別の袋などを含む　＊持参したものは除く）

一週間に1枚

一週間に2～3枚

一週間に4～6枚

週に7枚以上

ビニール袋を使わず再利用可能な袋（マイバッグなど）を使用している

セクション３・環境知識

１・プラスチックの過剰消費は問題だと思いますか。また、その理由を教えてください。

そう思う

少しそう思う

分からない

あまりそう思わない

そう思わない

２・あなたはプラスチックの過剰利用と食品ロスのどちらが悪いとお考えですか。

答えと理由を説明してください。

_____

３・自分の言葉で気候変動と地球温暖化の違いについて説明してください。

_____

４・最近、どの環境問題をあなたは気にしていますか。３つまで選択してくださ

い。

プラスチックごみによる海洋汚染

植物と動物の絶滅

気候変動

大気汚染

石油採掘

捕鯨問題と魚の乱獲

プラスチック汚染

森林伐採

その他:_____

環境問題について特に気にしていません。

５・環境研究と関係する情報はどこから得ますか。（気候変動、プラスチック汚染、魚の乱獲、空気や水の汚染など）

ニュース媒体（朝日新聞、NHK、日経など）

ソーシャルメディア（Facebook, Instagram, Tiktok, Youtube, Twitter など）

学術・専門家（大学の講義、教科書、論文、本など）

NGO・NPO（例：グリーンピース、生活クラブ、京エコロジーセンターなど）

環境問題に関心がない

６・あなたはエコフレンドリーな習慣を持っていますか。当てはまるものをすべて選んでください。

はい - リサイクルできるごみは分別する

はい - こまめに電気を消し、水道水は出しっぱなしにしないようにする

はい - 洗濯は回数が抑える

はい - リサイクル不可のプラスチック製品は使わないようにする

はい - 公共交通機関の代わりに自転車や徒歩などで移動する

はい - 環境に優しい製品を購入する

はい - ペーパーレスを好む

はい・その他:_____

いいえ

７・環境 にやさしい生活をする上での障害は何だと思いますか。あてはまるものをすべて選択してください。下の選択から選べない場合は、自分の答えを書いてください。

お金がかかる

不便

手間がかかりすぎる

環境にやさしい製品のブランドが少ない

環境にやさしい生活を教えてくれる人や参考になる例を知らない

どうすればいいのかわからない

他人から変な人だと思われる恐怖を感じる

環境にやさしい生活に興味がない

障害はない

その他:_____

８・あなたの環境に優しい製品に対するイメージは何ですか。

高い

見つけづらい

包装が不便

通常の製品に比べて効率的ではない

品質が良くない

マーケティング戦略に過ぎない

実際に環境に優しいものであると信用できない

その他:_____

環境に優しい製品について全く知らない

９・国際連合の調査で日本は世界で二番目に人口当たりのプラスチック消費量が多いと知っていますか。

はい

いいえ

国際連合を信じていない

１０・日本では、ほとんどのプラスチックごみがリサイクルの代わりに焼却されるか、あるいは海外に輸出されると知っていますか。

はい

いいえ

１１・世界のプラスチック生産量の 40%ぐらいはカップ、ボトルなどの包装のために生産されていると知っていますか。

はい

いいえ

１２・ほとんどの国はプラスチック廃棄に対して、色々な新しい規制を実施しています。日本政府はそれらの国のようにもっと規制をするべきだと思いますか。

そう思う

少しそう思う

分からない

あまりそう思わない

そう思わない

１３・フィンランドにはペットボトルの返却システムがあります。消費者は空のペットボトルを回収場所に返却し、それぞれのボトルにつき少額のキャッシュバック（日本円で 20 円から 80 円ほど）を受け取ることができます。日本も同様のシステムを導入するべきだと思いますか。

そう思う

少しそう思う

分からない

あまりそう思わない

そう思わない

1.1. Consent form

１・回答を元に本研究においてあなたの協力が必要になった場合、後日再び連絡をさせていただくことに同意されますか？賛成したら連絡先を記入してください。

はい

email_____

電話番号_____

その他_____

いいえ

２・私は、この研究への参加が私の自由意志よるものであり、特に理由をあげることなく、いつでも参加の撤回、拒否ができることを理解しています。

はい

いいえ

３・私は、アンケートの答えが利用されることに同意します。

はい

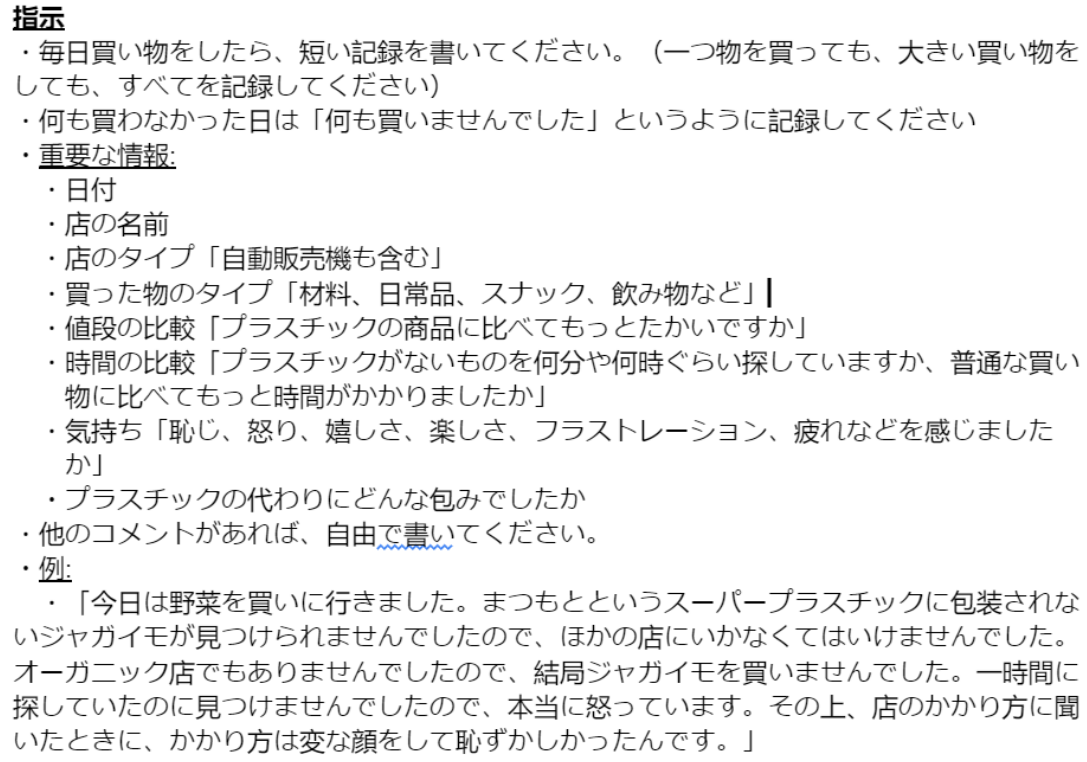
いいえ

４・私は、実験の経験の記録が利用されることに同意します。

はい

いいえ

Appendix 2 – Experiment instructions



指示

・毎日買い物をしたら、短い記録を書いてください。（一つ物を買っても、大きい買い物をしても、すべてを記録してください）
・何も買わなかった日は「何も買いませんでした」というように記録してください
・重要な情報:
　・日付
　・店の名前
　・店のタイプ「自動販売機も含む」
　・買った物のタイプ「材料、日常品、スナック、飲み物など」
　・値段の比較「プラスチックの商品に比べてもっとたかいですか」
　・時間の比較「プラスチックがないものを何分や何時ぐらい探していますか、普通な買い物に比べてもっと時間がかかりましたか」
　・気持ち「恥じ、怒り、嬉しさ、楽しさ、フラストレーション、疲れなどを感じましたか」
　・プラスチックの代わりにどんな包みでしたか
・他のコメントがあれば、自由で書いてください。
・例:
　・「今日は野菜を買いに行きました。まつもとというスーパープラスチックに包装されないジャガイモが見つけられませんでしたので、ほかの店にいかなくてはいけませんでした。オーガニック店でもありませんでしたので、結局ジャガイモを買いませんでした。一時間に探していたのに見つけませんでしたので、本当に怒っています。その上、店のかかり方に聞いたときに、かかり方は変な顔をして恥ずかしかったんです。」

Figure 7: Instructions in the google document

Appendix 3 – List of cities participants resided in

Nagoya, Yokosuka, Abiko, Amagasaki, Osaka, Kyoto, Miyazaki