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Consumer Awareness of Plastic Recycling in Jyväskylä

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Abstract

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Consumer Awareness of Plastic Recycling in Jyväskylä, 35 pages

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The objective of this study was to examine the consumer awareness of plastic recycling among the citizens in Jyväskylä. The survey was conducted based on the theory part, where the origin and history of plastics were described.

The research was reported in two sections. First, previous literature and material was reviewed, including sources such as books, previous studies and researches, news, articles and magazines. The second part was the phase when the empirical data was collected. That was conducted by a study based on interviews. The study was focused on 12 tenants of a chosen housing cooperative.

The results of the study show that the awareness of plastic recycling varies among the consumers. Consumers do believe that plastic recycling would increase with more efficient and visible marketing. Currently, there is certain uncertainty among the consumers. That might be because of a lack of appropriate marketing tools or channels.

Key concepts: plastic recycling, recycling, consumer awareness

Table of contents

1	Introduction	4
1.1	Objectives	5
1.2	Research question	5
1.3	Delimitations	6
2	Plastics and plastic recycling	7
2.1	Plastic recycling in general	8
2.2	History of waste disposal	9
2.3	Recycling in Jyväskylä	10
2.4	Developing aims of plastic recycling	12
2.5	Plastic recycling in other European countries	13
2.6	Plastic in several form	14
3	Marketing and recycling	15
3.1	Muovimuovi	18
3.2	Riihimäki and Merikarvia	19
4	Research problem	20
4.1	Research problem	20
5	Empirical research	20
5.1	Research method	20
5.1.1	Primary and secondary data	20
5.1.2	Qualitative research method	21
5.1.3	Study	21
5.1.4	Sample size	22
5.1.5	Analysis method	22
6	Findings	23
6.1	Theme 1 Basic information about the respondents	23
6.2	Theme 2 Effective factors	25
6.3	Theme 3 Attitudes and values	26
6.4	Theme 4 Marketing and recycling	27
6.5	Theme 5 Development suggestions	28
7	Conclusion	30
	List of references	32
	Appendix 1	
	Appendix 2	

1 Introduction

Global warming, overpopulation, recycling, rainforests, responsible consumption and ecology are global issues that arouse discussion as well as concern. These factors are also an actual threat for our globe. They are threatening our living environment and they occur because of the existence of human beings. Each of these phenomena has been extensively studied. Sometimes it seems consumers are receiving almost too much information since new studies and researches are continuously conducted. Nevertheless, according to the information that these studies provide, there is also ongoing development work to prevent and reduce these threats. Countries across the world are working against global warming.

A good example of current trends is plastic. There are thousands of sources including material regarding plastic. There are books written which tell how to reduce plastic as a material in households, but also corporations are participating in this trend. News can easily show only the negative effects of plastic and sometimes plastic is perceived to be infamous. Consumers might forget that the subject is not only black and white. Plastic has several forms and hundreds of useful qualities. Everything depends on what the consumers and corporations are doing after plastic comes to its lifecycle's end. When plastic is correctly recycled, it can end up in a hairbrush, for example. (Jylkkäri 2017.) This is just one example of how recycled plastic can be reused.

Reducing plastic was mentioned earlier. Nowadays corporations and brands are emphasizing their "green" values. Green Brands International is an international brand evaluation organization that awards green brand seals to brands that promises to act sustainably. Green Brands International is a great example of corporations' and brands' desire to prove that they are working responsibly. Their exclusion criteria for having a green brand seal are:

- production of or trade in weapons and military equipment
- child labor
- energy companies involved in nuclear energy companies

- genetic engineering
- companies/products violating the protection of species
- (CITES provisions/ Convention on International Trade in Endangered species of Wild Fauna and Flora)
- animal experiments
- violation of ILO criteria (respect for social justice as well as human rights and labor laws)
- tobacco industry (Green Brands International, B).

Green Brand International is a great example of the brands and corporations that are also aware of the climate issues. Consumers have started to demand more, so it is good to notice that corporations are hearing and responding.

1.1 Objectives

The major objective of this study was to discover opinions about motivations and reasons for consumers recycling packaging plastic in Jyväskylä. Furthermore, the study aimed to examine the actions of recycling centers by finding out how they offer both information on and knowledge of proper recycling. This will describe the situation of plastic recycling marketing. The study also aimed to find out the effective marketing tools and channels to reach the consumers.

Figure 4 in chapter 2.5 shows the facts about recycling plastic in European countries. Finland was ranked quite high, but there must be a reason why it was not ranked even higher. One possible and eligible argument could be a lack of consumer awareness about plastic recycling.

1.2 Research question

This study aimed at examining whether marketers and/or the society could do improvements in the current marketing efforts regarding plastic recycling.

Therefore, the major research question for the study was:

- What are the most effective marketing strategies for increasing the consumer awareness of recycling plastic?

The main question was followed by these sub-questions:

- What motivates consumers to recycle plastics?
- How to increase the motivation?
- Which are the tools to recycle more?

These questions were suitable for consumers who already recycle, but also for those who are not recycling yet. With the help of the questions, it was easier to start the research for the theory part and then move on to the empirical data. (McCombes 2019).

1.3 Delimitations

This section explains the boundaries and scope of the thesis. It includes the various factors that are considered. Influencing factors when drawing up the boundaries are geographical area, the criteria for the respondents who are part of the study, and the involved organization or profession (Leedy & Ormrod 2010).

According to data from the Finnish waste collection system Molok, only plastic packages that have been used as an actual package are suitable for plastic recycling and good examples are empty snack packages such as potato chips, chocolate bar and meatballs packages. Children's toys, furniture, shower curtains and other pieces which are made from plastic should not be brought into recycling centers. They are not packaging plastic so, therefore they must end up into energy waste (Rahkonen 2019).

Therefore, clear and specified delimitations needed to be settled for the study. It must be emphasized that, when talking about plastic or plastic recycling in the thesis, only packaging plastic is included. The secondary data gathered for the

study could be from all over Finland but the primary data gathered from a survey focused on the Jyväskylä area. Therefore, Jyväskylä was the geographical area.

2 Plastics and plastic recycling

Plastics are made from non-renewable, fossil raw materials. These materials are derived from the nature. The most important raw material for plastics is oil. According to calculations, in addition to every barrel of oil used as a raw material, a second oil barrel is needed in the plastic manufacturing process (Sareskivi 2017).

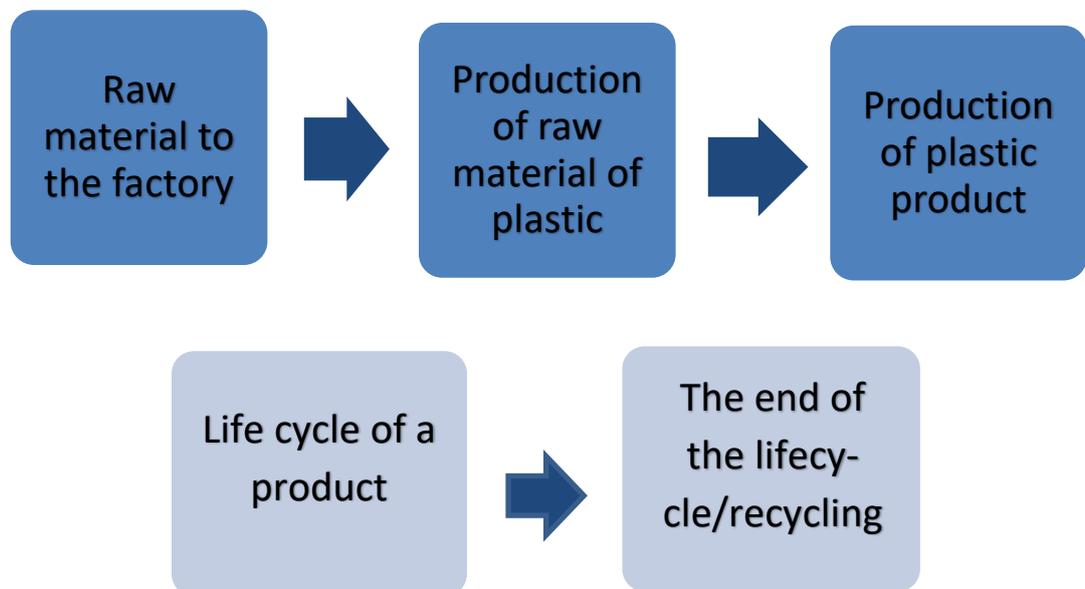


Figure 1. Life cycle of plastic (Luhtala 2018)

Plastic consists of long, large, chain-like molecules, polymers. The polymers can be blended with various additives, reinforcing agents and fillers, depending on the properties required of the final product. Plastic is widely used as a material because it prolongs the shelf life of the products that involve health risks and because it is inexpensive (Sareskivi 2017.) Eight million tons of plastics are ending up into seas all over the world. The living environment of crustacean and fish is on the brink of destruction (Ympäristörealistin Käsikirja 2019).

2.1 Plastic recycling in general

In 2016, a law in regard to plastic recycling came into force in Finland, which obliges producer organizations using plastic to collect and recycle plastic packaging purchased by the consumer. This means the shop that sold the plastic packaging is also obliged to receive and properly dispose of it. When plastic collection started in 2016, 500 plastic collection points were opened all over Finland. It was estimated that plastic collection would capture about 16% of the plastics used by households (Kohvakka & Lehtinen 2019).

The advantage of using recycled plastic as a raw material is that there is no need for the production of new, non-renewable resources. Recycled plastic is made of from example waste bags, tubes and plates, for example PET bottles can be used to make raw materials for the textile industry, as well as blanks for new bottles. However, the greatest benefit comes from avoiding the use of plastic as much as possible (Kohvakka & Lehtinen 2019).

Increased plastic recycling benefits the environment and society in many ways. The most important advantages are climate and environmental benefits, such as saving non-renewable resources and reducing climate emissions and littering. Consumers, housing cooperations and corporations can benefit from recycling plastics by more efficient sorting, which reduces the amount of mixed waste - and thus the cost of waste management. Social benefits, such as faster achievement of Finland's recycling targets and securing access to secondary raw materials for domestic industry, also play an important role. More efficient recycling of plastics promotes the reuse of plastics and thus the demand for recycled plastic products. (Lassila & Tikanoja A.)

However, there are some hindrances related to plastic recycling. One of the major issues is the lack of marketing of recycled plastics. The price and quality of recycled plastic does not meet the requirements. Only 6% of the total use of plastic is covered by recycled plastic. (Kohvakka & Lehtinen 2019.)

2.2 History of waste disposal

Figure 2 below presents the trends of waste disposal in Europe by decade.

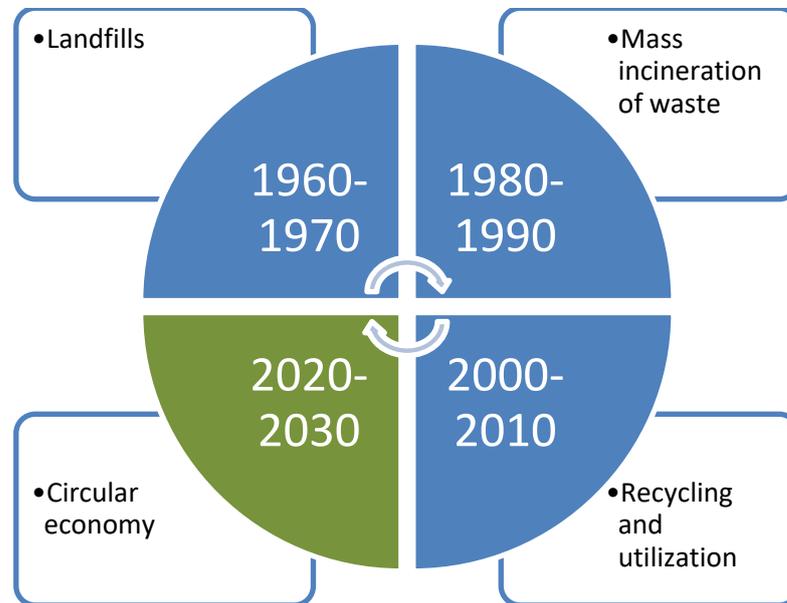


Figure 2. Waste disposal trends through decades (Järvinen 2016)

According to Järvinen (2016), the landfills were created in 1960-1970 centuries in Europe. The major aim was to improve hygiene in general. The landfills were a suitable development as regards health care. During those times, recycling and burning of the waste was minimal. Instead, the strategy was to bury the generated waste.

Over the next decade it was discovered that the burying was not efficient enough and new ways of disposing the waste were needed. This was the time of a mass incineration of waste. The purpose had changed, because now gde-destroying of the waste was wanted instead of hiding it. Recycling was still relatively small. Nevertheless, the mass incineration of the waste started. However, the utilization of energy was quite limited, and incinerators were expensive investments. (Järvinen 2016.)

Recycling and utilization began to raise their heads at the beginning of the 21st century. The trend of a new decade was that waste was wanted to be prevented

but also to utilize different materials as much as possible. It can be said that there were three distinct topics among other topics. These were preventing climate change, material efficiency, closed loop, business models include products and processes that are designed to permit the collection of material quality and value in the end of use. This way materials are always recyclable. (Suomen Tekstiili & Muoti Ry 2015.)

Utilization of energy increased considerably in European's power plants, especially in Finland. (Järvinen, 2016.)

New objectives have been made for the future. The greatest goal is to create a solution for sustainability crisis. Achieving the major one can be done by smaller aims. Nonrenewable materials should be replaced by renewables. This way all the materials are suitable for continuously use. New technology for waste processing is needed urgently. It could help people to find out new ways how to recycle various products back to their raw materials. These kinds of issues are inevitably coming. (Järvinen, 2016.)

2.3 Recycling in Jyväskylä

Mustankorkea Oy, a waste management company owned by municipalities, is responsible for organising waste management in the Jyväskylä, Laukaa, Muurame and Toivakka areas. There are more than 170,000 inhabitants in the area where Mustankorkea operates. The company also oversees:

- waste collection
- transportation
- treatment and utilization of waste
- reception
- advising on waste management. (Mustankorkea 2019.)

Mustankorkea's web pages offer plentiful of varied information and guiding on how to recycle correctly. The Figure 3 below shows that consumers are able to

search a furniture or other item, and the site tells the final location for the product.



Figure 3. Where to locate a product? (Mustankorkea 2019)

Plastic recycling has turned into an increasing trend and consumers are more enlightened but also more interested in environmental issues. This was shown in Jyväskylä's newspaper called *Keskisuomalainen*, where there was news about launching three new plastic recycling centers. Mustankorkea received several requests to increase plastic recycling centers during autumn 2019. For example, the municipality of Laukaa is a wide area with many residential centers, which are not necessarily close to each other. Previously there has been only one recycling center, but because Mustankorkea responds to consumers' hopes, Laukaa will get two new spots. (*Keskisuomalainen* 2019.)

Toivakka is a small village about 30 kilometers away from Jyväskylä. The population in 2018 was 2406. (Tilastokeskus 2018.) Before having these recycling centers their closest located centers were 30 kilometers away. It is interesting to notice that even these kinds of smaller towns have an opportunity to receive a plastic recycling center. Even though the towns are not so wide, the citizens are

still able to affect to environment by their achievements. The recycling center will be located next to a grocery store, so it is easy to reach. (Keskisuomalainen 2019.)

According to Kaleva, a newspaper in Oulu, plastic recycling centers were increased in the Oulu area too. Their requirement was a minimum of 4000 residents in a town. The plastic recycling centers were not located in the city center of Oulu, because of the lack of sufficient space. (Peltonen 2018.) That affects to recycling rates. People are more willing to recycle if the centers are located near and they do not have to travel.

2.4 Developing aims of plastic recycling

Plastic recycling and utilization are going to increase in near the future. The reasons behind this development are the European Union regulation, development of separate plastic recycling centers, new investments in waste disposal plants, and a new prohibition in Finland that disallows to take organic waste (includes plastic) to landfill sites. The last-mentioned prohibition was settled in 2016. (Kohvakka & Lehtinen 2019.)

In March 2019, the European Parliament voted on a directive proposal regarding a ban for disposal plastics. This directive will come into effect in 2021. The main objective is to prevent the contamination of the seas with, for example, straws, blending sticks of drinks, cutleries and cotton swabs. There are also an increased number of various products which should be marked correctly by the manufacturer. This marking is for consumers to guide them how to recycle or destroy the packaging/product in a right way. (Kohvakka & Lehtinen 2019.)

The directive also commits to increase the amount of plastic used in plastic bottles to 25% by 2025. The recycling rate of bottles should increase up to 90% by 2029. (Kohvakka & Lehtinen 2019.) These directives and actions are a major step forward when thinking about the globe's resources, recycling industry and

living environment. Actions, such as decreasing disposal plastics are a statement that the citizens of the globe are worried about the living condition and are willing to take care of it.

2.5 Plastic recycling in other European countries

This chapter provides information about plastic recycling in European countries. The Figure 4 below describes the plastic recycling rate in the EU in 2014.

Plastics waste treatment by country in 2014

In 2014, landfilling was still the 1st option in many EU countries. In general, countries with landfill ban achieve higher recycling rates.

Source: Consultic

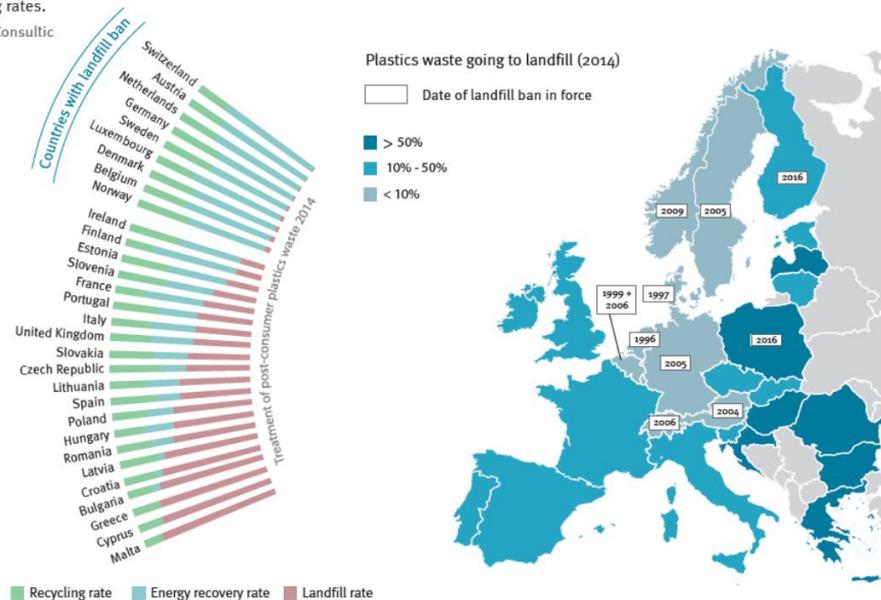


Figure 4. Plastic recycling rate in 2014 (Quora)

As the Figure 4 shows, some of the member countries already have the landfill ban. Logically, the recycling rate is higher in these countries. In Finland, the landfill ban came into force in 2016. The purpose of the landfill act (331/2013) was to

- reduce the amount and the harmfulness of waste
- prevent danger and harm for health and environment caused by waste and waste disposal
- support sustainable use of natural resources

- ensure working waste disposal and prevent litter. (Ympäristöministeriö 2018.)

Restrictions on landfills regarding biodegradable and other organic waste have been discovered to be cost efficient as well as well working for decreasing the greenhouse gases. (Ympäristöministeriö 2018.)

In order to divert waste from landfills, most of the EU Member States apply a form of landfill tax and/or a landfill ban, additionally to the requirements of the Landfill Directive. (Confederation of European Waste-to-Energy Plants 2017.) In 2017, 24 EU members had landfill tax, including Norway and Switzerland. Only four countries did not have the tax. In the same year 19 countries adopted a ban, both Norway and Switzerland too. In 2017 there were nine member countries which did not have the ban. *Stream banned from landfilling additionally to the requirements of Directive 1999/31/EC on the landfill of waste. (Confederation of European Waste-to-Energy Plants 2017.)*

In addition, *producer responsibility is a legal obligation for businesses. It applies to companies that package products in Finland or import packed products for the Finnish market and have a turnover of at least one million euros. The purpose of legislation is, among other things, to save natural resources and prevent harm to the environment. (Rinki A.)* These kinds of legislations prove that people are fighting for the globe and against the global warming.

Nonetheless, the amount of plastics that ended up into landfills in Europe in 2015 was quite high. Even 31% of plastic waste ended up into a landfill and 39% was burnt. (Kohvakka & Lehtinen 2019.)

2.6 Plastic in several forms

At the end of their life, plastics are still very valuable resources that can be transformed into new feedstock or into energy (Plastics Europe 2018). People are often talking about plastic with a negative tone. The fact is that plastic is part

of everyone's everyday life, and plastic has hundreds of excellent ways to use it. Consumers and companies just need to take care that the product ends up into a correct place. Forests or seas are not the place for them. In Finland, local waste disposal organizations have web pages and several other sources will inform how to destroy the product completely. The other option is to sell the product or recycle it so that it can be refined. Figure 5 below shows the fact that plastic is not always a bad material. Basically, each product has plastic, or it is somehow related to it. Plastic is a good material when it is recycled correctly.



Figure 5. Plastics have several lives (BPF)

3 Marketing and recycling

Finnish Packaging Recycling RINKI Ltd is a non-profit service company owned by Finnish industry and retail trade and founded in 1997. They offer services and solutions for both corporations as well consumers. Consumers have received several recycling centers by Rinki. Rinki offers over 1800 recycling centers and about 630 of those include garbage cans for plastics. (Suomen Uusi-uovi; Rinki B.) Consumers can easily find their closest recycling centers

online, for example rinkiin.fi, kierratys.info, and uusiomuovi.fi, (Suomen Uusiomuovi Oy; Kierratys.info).

These sites are only a few examples of where the consumers have been able to find information about recycling. The sites are designed so that the consumer can select the material that he would like to recycle. A map shows where the closest recycling centers are located, and the website provides information on how the material will be recycled in a right way. These recycling centers have information notes to prevent wrong material from ending up to a wrong place. A Figure 6 below presents a plastic package garbage can and the guidelines.



Figure 6. Rinki eco take-back point

Consumers' awareness has increased as Figure 7 below illustrates. Factors behind this increase are marketing, increased number of recycling centers and various campaigns.

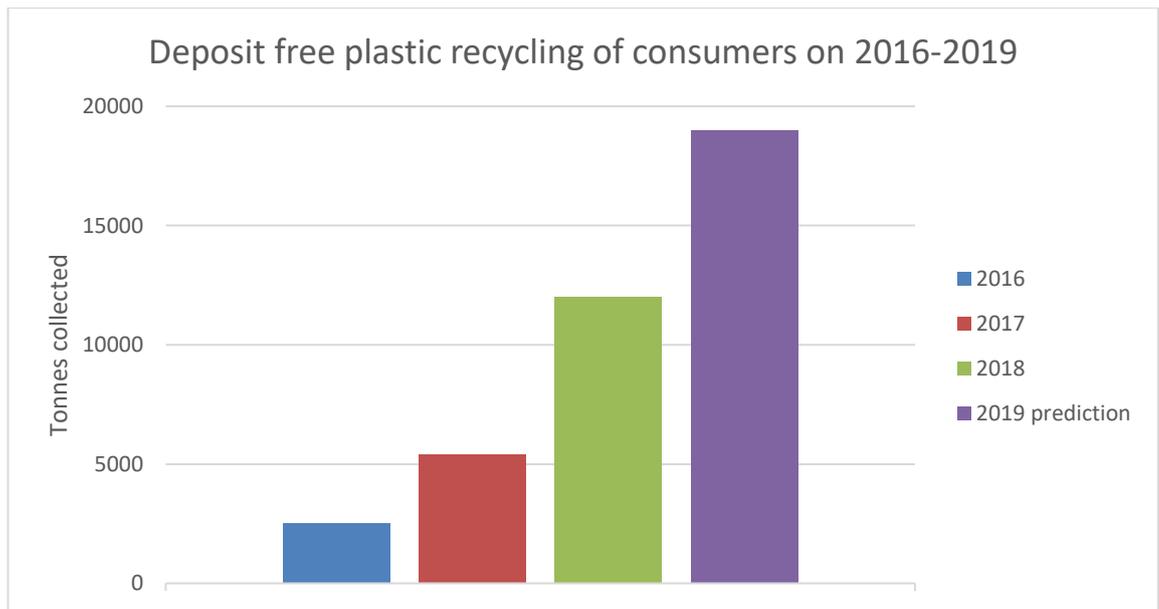


Figure 7. Deposit free plastic recycling of consumers (Suomen Uusiomuovi Oy)

One good example of campaigns are Kuluttajaliitto's (a Finnish consumer union) organized events for consumers and corporate members. The purpose of these events has been instructing people to decrease the plastic wisely. Kuluttajaliitto has organized these events all over Finland, including cities such as Kouvola, Forssa, Satakunta and Jyväskylä.

The packages for consumers include recycling information nowadays. Recycling labels have increased and well noted in plastic bags, containers that contain meat and milk cartons, for example. A Figure 8 below was one example that stood out after lip balm was opened. The figure presents how the brand has wanted to emphasize that the product is made "from naturally derived ingredients". The brand shows their values by providing information about recycling: "plastic to plastic" and "paper to paper".



Figure 8. Recycling label on a lip balm package

3.1 Muovimuuvi

Lassila & Tikanoja is a Finnish company that is working to implement the circular economy. They have created a campaign called “Muovimuuvi”. The purpose of Muovimuuvi is to get one million Finnish people into the circle of plastic recycling by 2020. It means tiny concrete acts that expand plastic recycling among both consumers and corporations. (Lassila & Tikanoja B.)

Lassila & Tikanoja wants consumers to have a possibility to recycle plastic as easily as possible. The most optimistic way would be that the recycling bin would be located on the consumer’s own yard. They are aiming to reach consumers no matter where they live, detached house, terraced house or apartment building, for example. (Lassila & Tikanoja B.)

They want to increase and encourage the Finnish companies to recycle and re-use plastic too. The objective is to increase the level of detached plastic recycling by 20% in companies by 2020. They would like to discover new materials to utilization and enhance the circular economy. (Lassila & Tikanoja B.)

3.2 Riihimäki and Merikarvia

The plastics that consumers are taking to Rinki recycling centers are delivered to Riihimäki. In Riihimäki there is a plastic refinery, run by Fortum, and its purpose is to refine the plastics so that they can be reused. (Suomen Uusiomuovi Oy 2018.) Plastic waste goes through a granulation process and after that it is a great option for a plastic industry raw material. Gathered consumer packages and plastics from industries are refined into plastic profiles. This material is great for stables, agriculture destinations as well as outdoor constructions. (Fortum.)

“Finland is able to become a country of circular economy, that Europe can be learned from example. I started in 1992. These containers was filled with waste back then, nowadays there are raw-material inside of them.” – Branch Manager of Lassila & Tikanoja (Lassila & Tikanoja, 2019.)

In the end of September 2019 news informed that Lassila & Tikanoja was launched a new plastic refinery. The refinery is able to refine plastics, that refineries could not have done before. The capacity is over 20 000 tons per year. (Lassila & Tikanoja, 2019.)

“This is a joyful day for Finland's plastic recycling.” – Chancellor of ministry of environment (Lassila & Tikanoja, 2019.)

4 Research problem

4.1 Research problem

The plastics industry in Finland includes about 500 corporations where there are over 10 000 employees. These corporations are acquiring about 600 000 tons of different plastics annually. These numbers prove that it is almost impossible to find a field that would not need a plastic, or any products made of it. (Muovit ja muovituotteiden valmistus.)

After the finished product is used and it is coming to the end of the life cycle, it is time to consider where to locate the used product. At this point, a consumer can act on multiple levels. By recycling the consumer helps the most. The problem is the low rate of recycling plastics. One reason for this might be the lack of information.

5 Empirical research

5.1 Research method

5.1.1 Primary and secondary data

Both primary data and secondary data were gathered for the thesis. *Primary data is data that is collected by a researcher from first-hand sources.* (Statistics How To.) This data is usually gathered by using surveys or interviews. Thus, an interview was the most suitable method for gathering primary data for this thesis.

When it comes to a secondary data, different sources were taken into consideration. According to Statistics How To, secondary data can be collected from sources like interviews, books and surveys, but they are conducted by another researcher. So, a thorough background was prepared for the research using existing news, interviews, books and studies related to the topic. The purpose of

these sources was to support the interviews and especially help the data analyzing.

5.1.2 Qualitative research method

When making a comparison between a qualitative and quantitative research method a researcher should understand that a final method will be determined by the interests and motivations behind the study. Both of these methods are aiming for a separate result, so therefore the destination must be clear before making the decision.

The Craft of Naturalistic Inquiry defines qualitative research method quite accurately. Broadly speaking, qualitative research in social science aims to describe, interpret, and explain social reality through the medium of language (as opposed to quantitative research, which aims to do so through the medium of mathematics). (Beuving & de Vries 2015.)

The purpose was to discover the thoughts and opinions behind the consumers' behavior as regards plastic recycling argument given above was a great statement for supporting the aim.

5.1.3 Study

In this case, only in person interviews were used. Interviews were based on the semi-structured method. Considering the objective of the study, this method was the most suitable since it allows the respondents to express themselves usually by answering open-ended questions. According to Handbook of Practical Program Evaluation, a semi-structured interview is suitable when the researcher's purpose is to define *the independent thoughts of each individual*. (Newcomer & Hatry & Wholey 2015.) As semi-structured interview is a meeting between the interviewer and interviewee where the interviewer does not have a strictly planned questionnaire but rather bigger themes. The interviewer will ask open-ended questions and during the conversations she or he is able to ask

more detailed questions. (Doyle 2019.) The interviews conducted in this study were also recorded, with the permission of each respondent, so the analysis was slightly easier.

5.1.4 Sample size

Sample size is a direct count of the number of samples measured or observations being made. (Zamboni 2018.) According to John Latham (2019) a suitable amount for an interview is an *amount where additional participants don't provide any additional insights*. Another name for this phenomenon is saturation. It means that additional interviews do not provide new material or opinions. A saturation often occurs with 12-15 respondents.

A discussion with housing a cooperative was held and 12 neighbors agreed to act as respondent on the study. A housing cooperative was chosen because of the time- and cost efficiency. Each respondent lives in the same building so avoiding the unnecessary travelling was possible. One benefit among these respondents was also that all respondents have same situation for the study. For example, the lack of a possibility to recycle plastic in their housing cooperative. The nearest recycling center was two kilometers away.

5.1.5 Analysis method

The content analysis method was used in this study. Content analysis can describe and analyze the document both objectively as well as systematically. Almost every literature form can be described as a document. These texts include materials such as books, articles, interviews, speeches, letters, diaries, conversations, dialogs and reports. The content analysis method can be used also for unstructured material. This method is used when the objective is to get a summary but also a general form for the results. (Tuomi & Sarajärvi 2009.)

There were multiple documents and sources related to content analysis but one of them was chosen to act as a base for this analysis. According to Tuomi and

Sarajärvi (2009) in their book *Laadullinen Tutkimus ja Sisältöanalyysi*, they have created a rough frame for the analysis process. That frame was also used in this study. First of all, the researcher needs to make a decision what is the interesting part in the text. In this study, the aim was to focus on the factors what are directing the consumer to recycle or not to recycle. In addition, the most suitable and effective marketing tools and channels were wanted to find out. The second step that was mentioned in the book was to getting familiar with the gathered text and highlight the relevant parts. With the help of that, the irrelevant material was left out. This phase was also called transcription.

The transcription was followed by three various steps which were all related to themes, categories and classification. In this section, the purpose was literally to analyze the results from the interview and try to develop the observations. The last part of this frame was to write the conclusion about the results and findings.

6 Findings

This chapter was focused on the findings, one theme at a time. The purpose was is to describe the answers of the respondents first and then interpret them. The first theme is handling the basic information about the respondents and the results of the study.

6.1 Theme 1 Basic information about the respondents

In total there were 12 respondents in this study. The age scale was quite wide, from 21 to 61, but the average was 38 years. Eight of these 12 respondents were females and the rest four persons were males.

Firstly, it was discovered that the recycling rate was divided into 50-50 percentages. By this is meant that half of the respondents claimed that they are recycling regularly. The other half either recycled plastic occasionally or never. This last-mentioned group can be divided into more detailed answers so, that only

three respondents answered by telling that they do not recycle plastics ever. The other three persons said that they are recycling about twice a month or more rarely.

After analyzing the results of the recycling rate and age, there was a clear distribution among the respondents. The age of the respondents who claimed to recycle was between 27 and 54. The respondents whose age was 21-23 told that they do not recycle plastic. Nevertheless, there was two respondents, 56 and 61 years of age, who said that they only recycle occasionally. One would have thought that the distribution would have divided vice versa. Nowadays people are more enlightened than they were for example 20 years ago. Each respondent said that the information about recycling and ecological issues is highly visible. In addition, when the older respondents were children, they did not have the same recycling centers as they have today. Then again, two respondents who do not recycle plastics said that they did not recycle at home when they were children. This might be one factor behind their behavior nowadays.

Another factor for not recycling regularly that stood out were also too far located plastic recycling centers. Three respondents said that starting the plastic recycling requires taking more effort because of the lack of a car. Two of them use a bicycle in their daily life, but they said that it would be easier to recycle if the garbage can would be located at the housing cooperative.

Continuing with the reasons why not to recycle plastics, one of the interviewees said that he had not heard about plastic recycling centers for consumers. The interview was a first time when he found out about the opportunity to recycle the plastics. He said that he would definitely start to recycle if the garbage can was in his yard.

Each of the respondents said that they do recycle some material daily basis, both the persons who are recycling plastics but also those who are not. Materials such as paper, organic waste, glass, metal, electronics and board were mentioned. Major reason for recycling these materials was that there has been

a chance for doing that for a long time and the recycling centers have been located well. In addition, each respondent said, that recycling these materials is easy and efficient because the housing cooperative provides the garbage cans. The lack of nearby located recycle centers has been an issue earlier already (Hallamaa & Kanerva 2019).

6.2 Theme 2 Effective factors

To start, the results of the interview are analyzed. In more detail, the results for theme two: effective factors are described. It appeared, as mentioned above, that in total six respondents recycle plastics regularly. One of the objectives of this study was to find out the reasons, motivations and factors for consumers' recycling of packaging plastics. This led to a research sub-question about what motivates consumer to recycle plastics. Theme number two was created so that the interviewer would be able to discover reasons which would answer to the sub-question. Therefore, one question for those who recycle plastics regularly was about the factors and reasons behind starting the recycling.

I'm such a nature person. I recycle so we could get new materials and to save the nature. – Female respondent, recycled plastics for over 10 years

Each respondent had good arguments and relevant thoughts. Some of the respondents recycle because it makes them feel good. However, one was over the others. This respondent was 54 years old and she had recycled plastics for over ten years already. She had recycled the longest time of all the respondents. According to this respondent, businesses should start to recycle their materials better, including plastics. She has executed small recycling campaigns at her workplace and delivered the gathered plastics to the centers by herself. This interviewee also shares self-imposed relevant news and guiding at work related to recycling and ecological issues.

Under theme two, hard work for finding out some common opinions was not needed. Among the respondents, there was a consistent motif appearing. One

could interpret the answers so, that consumers are aware about the fact that waste leads to pollution and global warming and threatens the globe. They had seen the news related to these issues. Some of the methods, marketing for example, try to intimidate the consumers, but as even the results of this study show, that does not work for everyone.

6.3 Theme 3 Attitudes and values

Under the third theme, one question asked if the consumers think that it is useful to recycle plastics. Answers varied repeatedly. There were a group who wanted to believe that there are some benefits occurring because of their actions. This group included the largest number of respondents of the sample.

A couple of the interviewees thought that their actions do not affect on any level when thinking about the entire globe. They said that it is nice that people in Finland recycle plastics, because they do not want it to end up into the nature or seas. After that, large countries like China and India were mentioned. Many respondents thought that recycling should be an issue in these very large countries, if the aim is to make some changes.

Recycling makes me feel good, so I recycle because of me. Plastic recycling is a good start and I hope that we can be an example for other countries. – 27 years old male respondent

Under this theme, the figure for deposit free plastics collected from consumers from years 2016-2019 was shown. Each of the respondents saw and understood that there is an increasing trend in recycling. All the 12 interviewees thought that this was a great situation, especially because the plastics including a deposit were not taken into account.

Many persons thought that the reason behind this increase is enhancement of plastic recycling centers as well as well-located spots, and increased knowledge among the consumers.

6.4 Theme 4 Marketing and recycling

Answers among the respondents in this section of the interview were quite unanimous. The theme dealt with marketing of plastic recycling. The aim was to discover if the respondents had seen any advertisements related to plastic recycling or recycling in general. Only two respondents said that they had seen some kind of a marketing regarding recycling, but when details were asked, the other one did not know how to answer. Only one of the 12 respondents remembered one advertisement, which was on the side of a garbage truck. Figure 9 below, found online, describes well the new direction of the waste market. Earlier people were talking about garbage collectors and the job was somewhat underrated. Nowadays the garbage can be reused so well, that the reputation of this field is also higher. The advertisement is pertinent and hilarious. Hopefully the consumers will learn something from it.



Figure 9. Advertisement of Lassila & Tikanoja (Normisuurittaja 2014)

The rest of the respondents said that they had not seen advertisements. Following that, many of them said that there should be more marketing because it would increase the recycling rate but also the awareness of consumers.

No-one tells the reason for wanted behavior (recycling plastics). I learned a lot when I was working in Greenpeace. Otherwise, too little information is given. – Male respondent, recycled plastic from summer 2019

It was interesting to hear the answers when asking about marketing channels. Finding out about the most efficient marketing channels was wanted to find out. The respondents whose ages were 21 to 27 thought that Instagram would reach them in the most suitable way. A few of them said that they listen radio at work, so that would a great way to reach them as well. The rest of the respondents mentioned Facebook, TV, newspapers and even email.

None of the interviewees was able to mention any advertisement. This shows that there is not too much marketing and advertising of plastics recycling. As the study shows, each of the respondents believed that the right kind of marketing would increase the recycling rate, awareness, interest and desire. One good example of awareness and knowledge could be the information about saving money by recycling all the materials. This way energy waste would be collected more frequently and housing cooperatives would save money but also reduce the carbon footprint.

6.5 Theme 5 Development suggestions

Under theme five, the aim was to hear about development suggestions and find out the ideas of the respondents. Each respondent had their own unique ideas. Therefore, a few of them could be mentioned.

Hopefully recycling bins will become common in shopping malls and city centers. – 2 years of plastic recycling experience

One great point was related to travelling. Both domestic and foreign journeys were mentioned. A respondent said that sometimes recycling feels tough, if they would like to recycle correctly when travelling. The interviewee also said that even trips to local city centers might be problematic, because there are no proper recycling bins in shopping malls. This person hoped that the recycling bins could be expanded into everyday life to city centers. It was nice to interpret the respondent's reaction towards the topic. However, the interviewee mentioned that inside of a local pavilion, he had seen a recycling bin. This means that the respondent has some kind of interest and he is willing to recycle in the future as well.

'Carrot and stick' (DeepL) policy will work. Then again forcing and intimidating is not the right tool. We need some inducement to increase the desire of plastic recycling. - Male respondent, recycled plastic from summer 2019

Inducement was mentioned many times, but it come up in several forms and ways. The respondents compared it with plastic bottles which include the deposit. Four respondents who were not recycling plastics said that a collateral would increase the motivation to starting it.

I miss some kind of we-spirit. – Respondent who wants plastic recycling to increase

One of the major objectives of this study, was to find out the tools how to distribute information about plastic recycling could be spread better and this way the motivation would increase. Altogether, these 12 respondents have many of suitable and probably well-working ideas. Almost everyone mentioned "old fashion" flyers. When more detailed answers were required, the respondents said that the deputy landlord could be in charge of the commission of flyers as well as delivering them.

The interviewee who has recycled the longest time told about a calendar in Tampere that their waste disposal company, Pirkanmaan jätehuolto, delivers to

the residents of Tampere every year. The calendar is not the most regular one, but it provides a lot of useful information what comes to recycling, protecting the environment and decreasing surplus waste. It also tells when the local garbage trucks are moving and where. They take hazardous waste and old electronic devices (Pirkanmaan Jätehuolto).

After doing some research, it was nice to notice how informative the calendar is. The benefit is that the calendar is cost free for everyone and every month offers useful tips. Even the smaller ones help the consumer to make right actions. (Niemi 2011.) The waste disposal in Jyväskylä could learn from Tampere and use the similar idea. The calendar would reach hundreds of consumers, marketing the local recycling opportunities, increase the awareness on consumer as well as the recycling rates.

7 Conclusion

The consumer awareness of people in Jyväskylä was aimed to find out. The study showed that consumers are aware that the climate is changing. Every one of the respondents said that they have heard and seen both news and discussions about recycling. The problem is that they have not got the right instructions how to do it and not everyone knew why recycling is important.

The next issue is the lack of marketing. If one of the respondents was able to mention an advertisement, one can interpret the situation so that there has not been enough marketing. Overall social media was the highest ranked channel. Waste disposal companies could proceed to market their services and products in social media even more.

Different campaigns could be a suitable and efficient tool for motivating the consumer to recycle more. The city of Jyväskylä and Mustankorkea could think of an information package where at least the calendar could be included. It would not be only a flyer that you can throw away after reading. Therefore, it could be

a beneficial way to market the products and services related to plastic recycling for consumers in Jyväskylä.

The waste disposal companies could proceed to offer services in the city center too. Therefore, it would not take so much effort to recycle when travelling.

Finland has made a lot of progress when it comes to plastic recycling and recycling in general. The next mission is to get the message to European countries and countries in Asia.

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Figure 1. Life cycle of plastic (Luhtala 2018).....	7
Figure 2. Waste disposal trends through decades (Järvinen 2016)	9
Figure 3. Where to locate a product? (Mustankorkea 2019)	11
Figure 4. Plastic recycling rate in 2014 (Quora)	13
Figure 5. Plastics have several lives (BPF).....	15
Figure 6. Rinki eco take-back point.....	16
Figure 7. Deposit free plastic recycling of consumers (Suomen Uusiomuovi Oy)	17
Figure 8. Recycling label on a lip balm package	18
Figure 9. Advertisement of Lassila & Tikanoja (Normisuorittaja 2014).....	27

Appendix 1

TEEMA 1. PERUSTIEDOT

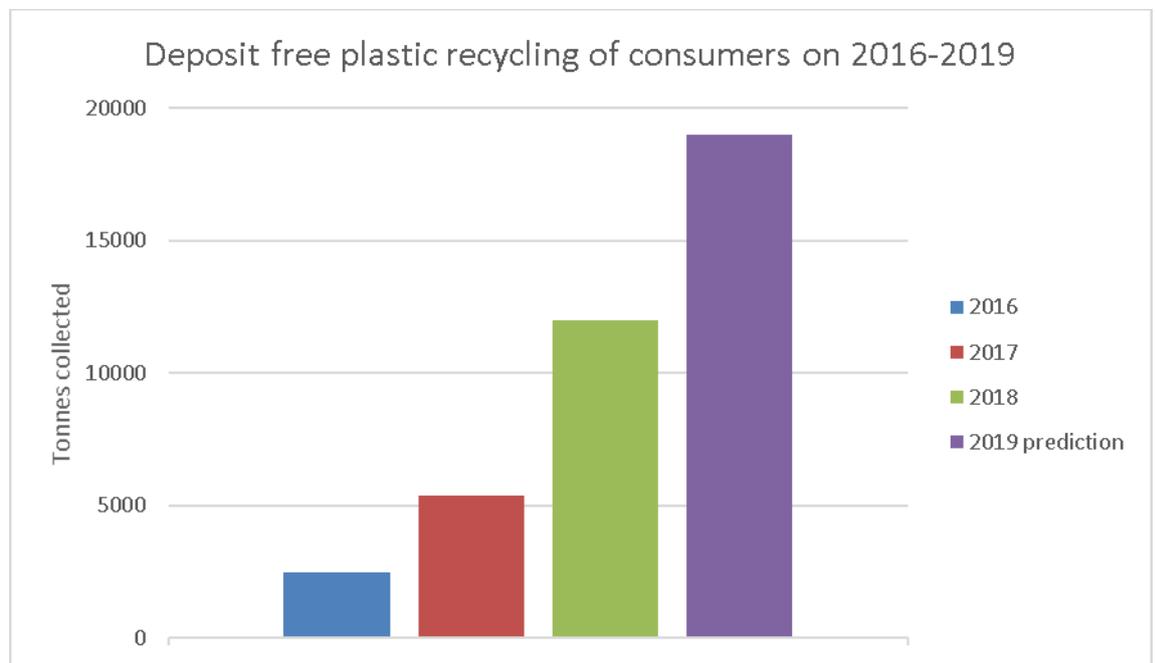
1. Ikä?
2. Sukupuoli?
3. Kierrätätkö muovia? Kauanko olet kierrättänyt? Oletko ajatellut aloittaa?
Onko sinulla tuttuja, jotka kierrättävät muovia?
4. Kierrätätkö muuta materiaalia?

TEEMA 2. VAIKUTTAVAT TEKIJÄT

1. Kierrätyksen aloittamisen syyt?
2. Minkä takia et kierrätä? Mitkä tekijät piilevät taustalla?
3. Mitkä tekijät voisivat saada sinut kierrättämään muovia?
4. Tiedätkö missä on lähin muovinkierrätyspiste?

TEEMA 3. ASENTEET JA ARVOT

1. Koetko muovien kierrättämisestä olevan hyötyä?
-Miksi? Miten? Miksi ei?
2. Mikä voisi muuttaa asennettasi?
3. Alla oleva kaavio kuvastaa kuluttajien kierrättämiä pantittomia muovipakkauksia vuosilta 2016-2019. Mitä ajatuksia tämän herättää? Miksi? Minkä uskot olevan syynä tähän nousuun?



TEEMA 4. MARKKINOINTI JA KIERRÄTYS

4. Oletko nähnyt mainontaa muovien kierrättämiseen liittyen? Missä? Minkälaisista? Mitä ajatuksia se herätti?
5. Minkälaisia vaikutuksia markkinoinnilla on muovin kierrättämisessä?
6. Markkinoidaanko kierrättämisestä ja sen hyödyistä tarpeeksi? Miksi?

TEEMA 5. PARANNUSEHDOTUKSET

7. Miten voisit kehittyä kierrättäjänä?
8. Miten kehittäisit kierrätysmahdollisuuksia omassa talo yhtiössäsi? Entä Jyväskylässä?
9. Onko sinulla mielessä kehittämisideoita, jonka avulla kuluttajia saataisiin kierrättämään lisää? Entä levittämään tietoa muovin kierrättämisestä.

8 Appendix 2

THEME 1. BASIC INFORMATION

1. Age?
2. Gender?
3. Do you recycle plastic? How long have you recycled? Have you considered to start? Do you know someone who recycles plastic?
4. Do you recycle other materials?

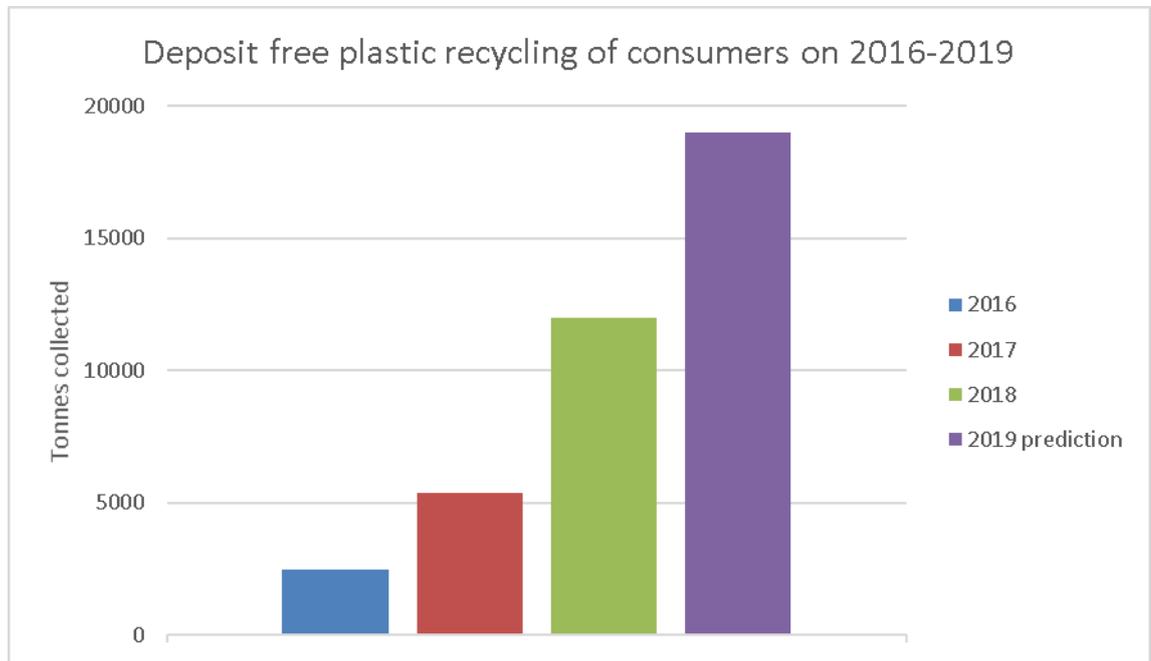
THEME 2. EFFECTIVE FACTORS

1. Factors behind starting plastic recycling?
2. Reasons why not recycle?
3. What factors could make you start plastic recycling?
4. Did your household recycle when you were a child?
5. Can you name the closest plastic recycling location of yours?

THEME 3. ATTITUDES AND VALUES

1. Do you consider plastic recycling to be beneficial?
 - Why? Why not? How?

2. A figure below shows the amount of deposit free plastic recycling of consumers on 2016-2019. What thought this evokes? Why? What do you think about the reasons behind this phenomenon?



THEME 4. MARKETING AND RECYCLING

1. Have you seen any advertisement relating to plastic recycling? Where? What kind of advertisements? What do you think about them?
2. What kind of affect marketing and advertisements have in plastic recycling if any?
3. Do you think that there are enough marketing about recycling and its benefits? Why?
4. What would be the channels were the marketers could reach you?
5. Do you know where the recycled plastic ends up?

THEME 5. DEVELOPMENT SUGGESTIONS

1. Is there something how you could develop as an recycler?
2. How would you like to develop/change the recycling opportunities in your housing cooperation? How about in Jyväskylä?

3. Do you have any suggestions how we could get the consumers recycle more? What about spreading the information about recycling?