

Consumer Perception and Behaviour towards Sustainable Clothing among International Students in Finland

Abstract

Author(s)	Publication type	Completion year
Harshani Abeynayaka	Thesis, UAS	2025
	Number of pages	
43		
Title of the thesis		
Consumer Perception and Behaviour towards Sustainable Clothing among International Students in Finland		
Degree, Field of Study		
Bachelor's degree in international business		
Name, title and organisation of the client		
LAB University of Applied Sciences		
Abstract		
<p>The study was conducted to explore consumer perception and behaviour towards sustainable clothing among international students in Finland. The study investigates how attitudes, subjective norms, and perceived behavioural control influence consumer choices in the context of sustainability. Theory of Planned Behavior (TPB) used as a guiding framework for the study. For the literature review, existing data from sustainability was broadly reviewed. Data was collected through a structured questionnaire targeting international students in Finland.</p> <p>The findings reveal a growing awareness of sustainable fashion among international students in Finland. Branding and marketing play a crucial role in shaping awareness. But it implies a limited direct influence on purchasing decisions.</p>		
Keywords		
sustainable clothing, sustainable fashion, sustainability, the Theory of Planned Behavior, consumer perception, consumer behaviour		

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1 Introduction

1.1 Research Background

Sustainability impacts various areas such as industries, legislation, and consumer behaviors and is a major concept in modern society. According to Perugia (2024), as environmental concerns such as pollution, resource depletion, and climate change increase, both individuals and businesses have recognized the necessity of implementing sustainable practices. To build a more resilient and balanced global economy, the need for sustainable solutions is more crucial than ever before. Sustainability promotes ethical consumption, minimizes environmental harm, and reduces waste. These factors help secure the welfare of future generations. The fashion sector is one of the sectors that has been highly impacted by this evolution. Especially since consumers get more environmentally concerned and looking for eco-friendly options. United Nations Sustainable Development Goals (SDGs) provide a strong aspiration towards achieving a sustainable future world for all, with governments, businesses, and society, pioneering most of the economic activities in the world as a need to achieve their sustainable goals by 2030 (United Nations).

As a key contributor to economic growth, the global clothing industry has a significant impact worldwide. In 2023, the EU textile and clothing sector had a turnover of EUR170 billion, employing over 1.3 million people across 197,000 companies (European Environment Agency 2025). Also, it contributes largely towards environmental damage. Concern over the environmental effects of clothing, manufacture, and usage is increasing, which include excessive water use pollution textile waste, and carbon emissions.

In 2022, the value chain of textile products consumed in the EU caused total GHG emissions of 159 million tonnes of CO₂ equivalents. This corresponds to 355kg of CO₂e per person per year, or the equivalent of 1,800km of travel by a standard petrol car. Textiles are thereby the sixth largest household consumption category in terms of pressures on the climate, after housing, food and mobility and comparable to restaurants and hotels as well as recreation and culture. About 70% of emissions are released outside Europe, mostly in Asia where the majority of textile production takes place. This is a higher share than for other household consumption categories. (European Environment Agency (2025)

According to European Parliament (2025), The European Commission presented an EU strategy for sustainable and circular textiles in March 2022. In their new Circular Economy Action Plan, textiles were recognized as a critical product value chain that requires prompt EU action because of its high resource consumption and environmental effects. In addition

to outlining some important initiatives the commission plans to perform; the strategy outlines the Commission's vision for the textile sector. By 2030, textiles marketed in the EU should be long-lasting, recyclable, mostly made of recycled fibers, devoid of hazardous substances, and produced in a way that preserves social rights and the environment. Reuse and repair services should be readily accessible, and fast fashion should be considered "out of fashion." Thanks to creative Fiber-to-Fiber recycling, textiles should be gathered at the end of their useful lives and their burning and landfilling minimized.

All these facts mentioned above show that sustainable clothing has come up as a possible solution in response, encouraging individuals to follow better disposal and buying practices. However, there are many ways that consumers interact with sustainable fashion, depending on things like awareness, cost, branding, and individual values.

As a leading country in sustainability, Finland has strong legislation and economic concepts that relate to eco-friendly processes. The Finnish National Commission on Sustainable Development has established a new strategy for 2022-2030; with the aim of a prosperous and globally responsible Finland that protects the carrying capacity of nature as suggested by the United Nations Global Sustainable Development Reports 2019, 2023 (Finnish National Commission on Sustainable Development). According to Kamppuri et al. (2021, 29.), "Finland will become a global leader in the sustainable and knowledge-driven textile sector by 2035. In practice, the first step to force the transition is the establishing of Future proof loop pilot and ecological system around the pilot, where numerous parties could act and verify sustainability and responsibility as well as the business potential of innovate ideas". Apart from this new economic concept, a survey has found, that Finnish people are interested in buying sustainable clothes and are aware of how fashion impacts society and the environment (Federiko J. 2022). And the country has a thriving second-hand clothing market and a well-established sustainable fashion industry.

Finnish Immigration Servis states (2025), that since 2021, the number of foreign students in Finland has been increasing significantly. According to Finnish Immigration Servis statistics 2022 (2022), 7,060 non-EU applicants had received first-time residence permits for studies by the end of October 2022. In comparison, 4,595 candidates received study-based residence permits between January and October of 2021. This is roughly a 54% increase. According to Finnish Immigration Servis statistics 2024 (2025), In 2024, 14,163 applications submitted for the first residence permit for studies, which is a record number (2023: 12,867). Furthermore, The Finnish Immigration Service has estimated; that 15,000 applications for a first study-related residence permit will be received in 2025.

International students arrived in Finland from different countries, with varying cultures, customs, traditions, and degrees of sustainability consciousness. Their perception and behavior regarding sustainable clothing may differ. Consumer perception and behavior are critical factors of the success of sustainable fashion. While research on sustainable clothing consumption has increased, existing studies focus on consumer behaviors, buying habits, sustainability training programs, or specific geographic locations. There is a notable gap in research concerning international students, a unique and diverse consumer group whose purchasing decisions and sustainability habits are shaped by their cultural backgrounds and previous consumer experiences.

This study aims to find out how international students in Finland perceive sustainable clothing, what factors affect their buying decisions, and how they discard their clothes. Additionally, the research will evaluate whether international students consider bio-based and recycled materials when selecting clothes.

1.2 Thesis Objectives, Research Questions, and Limitations

Objectives

The purpose of this thesis is to find out the perception and behaviour of international students in Finland regarding sustainable clothing. The research seeks to:

- Find out how international students define and understand sustainable clothing.
- Get to know the factors influencing their purchasing decisions, particularly the role of branding, marketing, and sustainability.
- Investigate the role of recycling and end-of-life disposal options on their clothing consumption behaviour.

Research Questions

The main research question is:

- How do international students in Finland define and understand sustainable clothing?

The following sub-questions are formulated in order to get at the answer to the main question.

- What role do branding and marketing play in shaping their perceptions and purchasing decisions?

- How does the availability of recycling options influence their behaviour towards sustainable clothing products?

Limitations

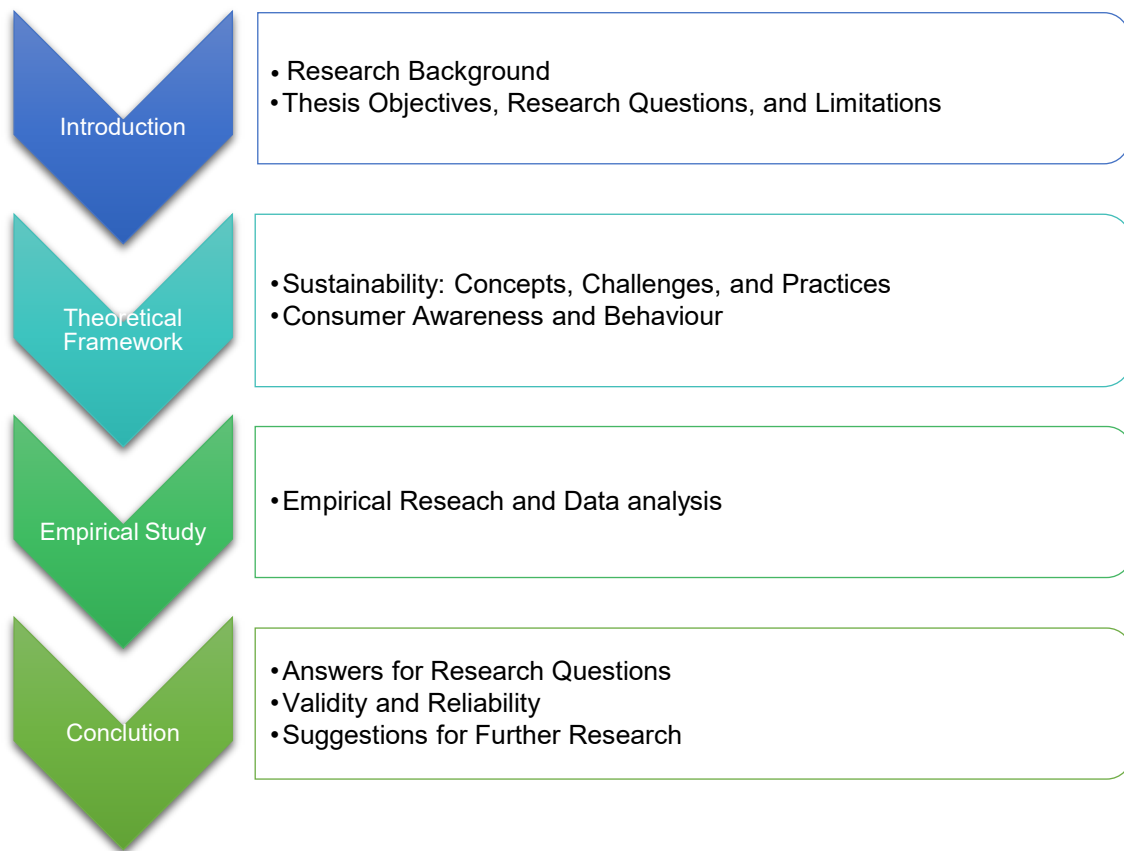
Due to time and resource constraints, the sample size will be limited, and the participants of the study will not represent every part of the country according to the level of population. This may be affected by the basic result. This survey focuses on international students studying in Finland. So, the findings would not be fully relevant to all international students worldwide.

1.3 Theoretical Framework

This thesis is based on the Theory of Planned Behaviour (TPB), developed by Icek Ajzen. It explains and predicts individual decision-making. The theory suggests how behaviour is influenced by three key factors: attitude towards the behaviour, subjective norms, and perceived behavioural control (Ajzen 1991,179-211). TPB provides a valuable foundation for understanding the drivers and barriers affecting students' sustainable clothing behaviour in Finland.

In addition, the study also considers broader ideas from sustainability literature. According to Perugia (2024), sustainable practices are needed to build a more resilient and balanced global economy. Sustainable clothing involves using eco-friendly materials, reducing waste, and supporting ethical labour practices. According to (The Guardian, 2017). educational workshops and social media influence are some of the strategies that can help promote more responsible clothing behaviours among international students in Finland.

1.4 Thesis Structure



2 Sustainability: Concepts, Challenges, and Practices

2.1 Climate change

Climate change indicates changes for a long period of time in weather and temperature conditions, can evolve from naturally due to activities of the sun or gigantic eruptions from volcanoes. However, it is found that climate change mainly caused by human activities since the 1800s due to greenhouse gas emissions that harm the Earth's atmosphere and contribute to rising temperatures. (United Nations 2025)

The burning of fossil fuels produces greenhouse gas emissions. These emissions blanket the Earth's atmosphere, trap the sun's heat, and cause temperatures to rise. Carbon dioxide and methane are the primary greenhouse gases driving climate change. Apart from that, the energy, industrial, transportation, construction, agricultural, and land use sectors are the main contributors to these emissions. (United Nations 2025)

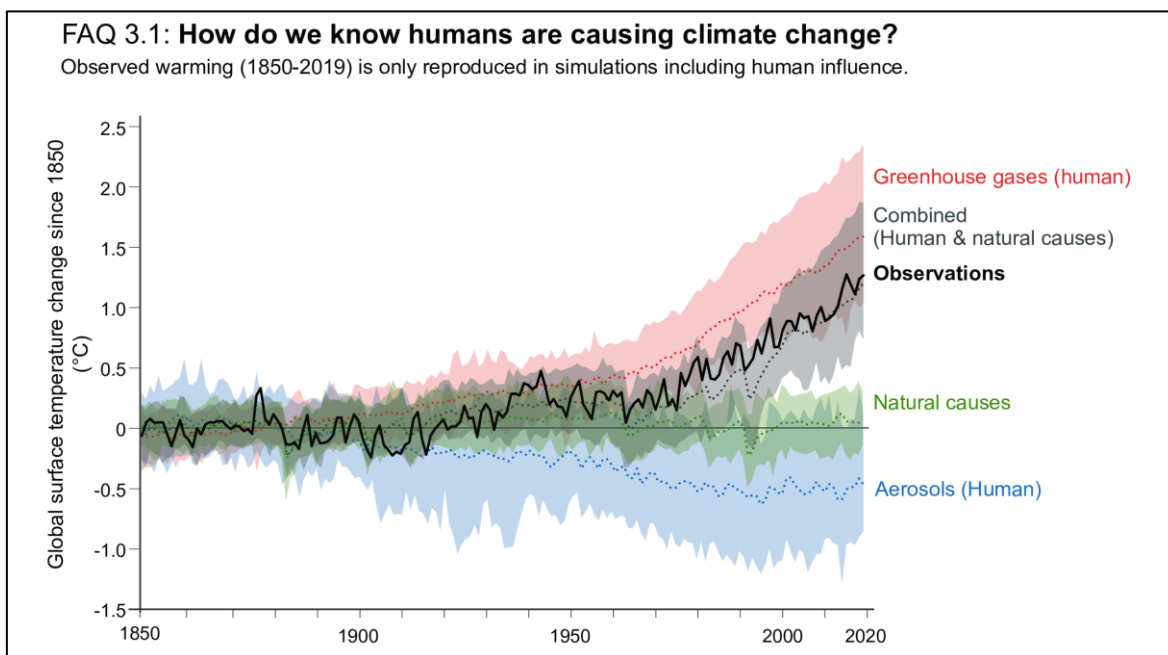


Figure 1. Observed warming (1850–2019) is only reproduced in simulations including human influence. (IPCC Sixth Assessment Report 2022)

Figure 1 shows humans are responsible for warming the climate change in the global surface temperature that have been observed compared to climate model simulations of the response to all human and natural forcings (grey band), greenhouse emission only (red band), aerosols and other human drivers only (blue band) and natural influence only (green

band). Solid colored lines indicate the average of all models and shading shows the uncertainty ranges of the simulations. (IPCC Sixth Assessment Report 2022)

United Nations (2025) explains, the earth's surface is now about 1.2°C warmer than in the late 1800s and the decade 2011–2020 was the hottest on record. Climate change can impact our health, food production, housing, safety and work. Some people are already exposed to climate impact. due to weather conditions such as sea level rising, droughts communities have had to relocate, and these kinds of situations expected to rise in the future.

According to United Nations (2025), to minimized greenhouse gas emissions driving to climate change can reduce by shifting energy systems from fossil fuels to renewables like solar or wind. To achieve net zero emissions by 2050, emissions must be cut in half by 2030 to keep warming below 1.5°C. To prevent catastrophic levels of climate change, production and consumption of all fossil fuels must be reduced by at least 30% by 2030. This would require significant reductions in the usage of coal, oil, and gas.

Sustainable development and climate action are linked – and both are vital to the present and future well-being of humanity. The United Nations launched its sustainable development agenda in 2015, recognizing the essentiality of sustainable approach to mitigating poverty and enhancing lives worldwide. Reducing greenhouse gas emissions requires to create a sustainable global economy. It is crucial that the international community meet the UN's Sustainable Development Goals – and the targets for reducing emissions set in the Paris Climate Agreement of 2015. (United Nations 2025)

2.2 Sustainability

United Nations Brundtland Commission described sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” (United Nations 2025)

United Nations furthermore explains, 140 countries are still developing and trying to improve their economies and living standards. However, it is important to do development effort in a way that does not harm the environment or reduce the quality of life for future generations as the increase of climate change.

Circular Ecology (2025), states that sustainability is a widely understood idea. It needs a balanced access giving equal importance to sustainability concerns named; environmental, economic, and social sustainability.

2.3 Three pillars of sustainability

According to GEP (2025), environment, society and the economy are three interconnected pillars of sustainability. While the environmental factor emphasis on sustainable business processes regarding mitigating environmental impact, the societal factor focuses on stakeholder and employee relations. The economic factor emphasizes the business's bottom line. These three interrelated models of sustainability facilitate businesses to take active, solutions-oriented approaches to complicated supply chain and procurement processes.

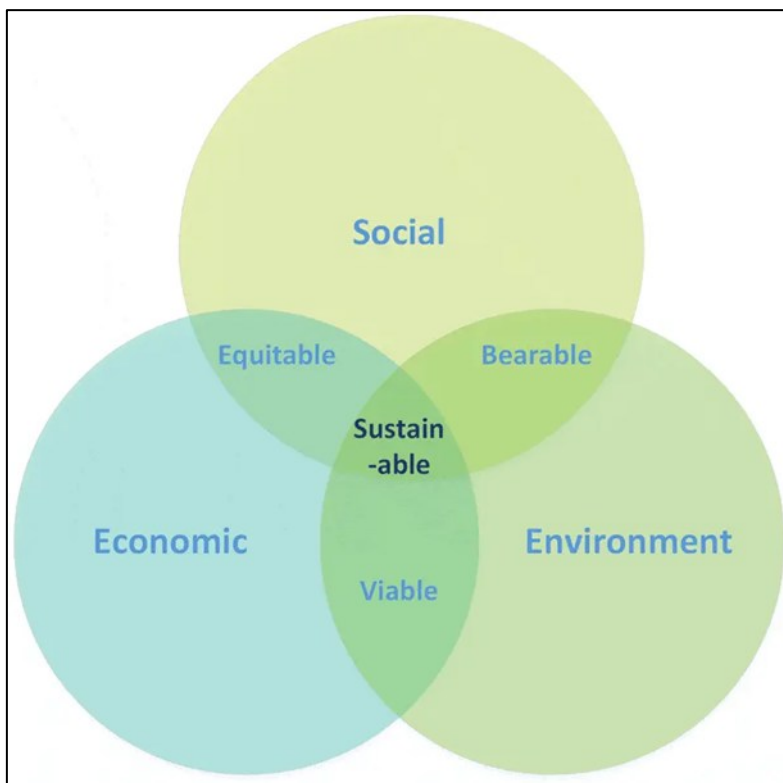


Figure 2. Three pillars of sustainability (Circular Ecology 2025)

The diagram (Figure 2) illustrates the three interconnected pillars of sustainability: social, economic, and environmental. By achieving only two out of three pillars, it ends up with equitable, bearable or viable.

- equitable (Social + Economic Sustainability),
- bearable (Environmental Sustainability),
- viable (Economic + Environmental Sustainability) (Circular Ecology 2025).

It shows that all the three pillars need to improve to achieve actual sustainability or circular economy. (Circular Ecology 2025)

Environmental Sustainability

Environmental sustainability refers to preserve the natural environment for a long period of time throughout the suitable practices and policies without harming future availability of resources. This aims to achieve environmental sustainability facts such as minimising greenhouse gas emissions, use of energy from renewable sources, preserving the biodiversity, improving soil quality, adopting sustainable practices in agriculture, minimise food waste and promoting circular economy. (Enel 2024.)

Circular Ecology (2025) explains the essential of ensuring the consuming natural resources at a sustainable rate. It is crucial to prevent from environmental damage that happen from extraction of rare or abundant material considering material scarcity and promoting circular economy principles. Aspiring net zero carbon and achieving climate positive fundamentals also important concern environmental sustainability.

Social Sustainability

Enel (2024) describes that, social sustainability refers with the well-being of people and communities and It advocates equity, human rights, access to education and health care, and decent work. It aims to build inclusive societies, reduce inequality, and ensure long-term social justice and cohesion. social sustainability focuses on overcome poverty, discrimination, deficit of access to resources, vulnerability, and poor governance.

Furthermore, Enel (2024) exemplifies key goals of social sustainability include respecting human rights (e.g., health and education), approaches that value and support individuals from various backgrounds (including differences in gender, ethnicity, abilities, and sexual orientation), create risk-free environments, and providing a quality health service.

Economic Sustainability

Economic sustainability refers leading economic activities ensuring long-term prosperity and maintaining a balance between economic growth, resource efficiency, financial stability, and social equity. It emphasizes the proper management of resources, capability for efficiency and innovation of economic patterns and enterprises. Financial stability at the macro level, sustainable innovation, promoting ecofriendly economic policies, international cooperation and collaborations between public management and private enterprises. Enel (2024)

It is essential to adopt renewable energy sources, implement circular economy models, and promote ethical business practices to achieve economic sustainability. Economic sustainability leads to minimize environmental impact fostering social and economic inclusion to strengthens economic resilience. Transparent governance, investment in innovation, and public awareness are crucial in sustainable economy. Enel (2024)

2.4 Triple Bottom Line

The Triple Bottom Line approach is a sustainability framework that focuses on measuring businesses success through economic (Profit), social (People), and environmental (Planet) performance. This highlights importance of considering not only economic growth, but also social and environmental performance are collectively contributing to sustainable development. (esgthereport 2024)

Profit (financial performance)

In the Triple Bottom Line Approach, economic benefits include ethical income and social responsibility behalf of traditional metrics such as net income, profit margins, and cash flow. This emphasize reaching financial success and maximising profits with creating values as sustainably for everyone involved. (esgthereport 2024)

People (Social impact)

This emphasize that companies need to consider how their activities effect people, how they deal with their employees and how they interact with the communities where they operate. This aims to make a positive contribution to society ensuring, fair wages, safe and healthy work environment, considering health care and education. (esgthereport 2024)

Planet (Environmental Responsibility)

This concerns companies' actions to minimize businesses ecological footprint, reduce waste, and secure biodiversity, in order to contribute to a sustainable future. It's about recognizing that businesses are part of the environment and that they have a responsibility to protect it. (esgthereport 2024)

2.5 ESG

ESG; stands for environmental, social, and governance is a way to evaluate and estimate how sustainable and ethical a company is (Dangelo, J. G. 2023). Environmental, Social, and Governance (ESG) criteria are essential for modern businesses—not only for ethical and sustainable practices, but also for financial success. (Henisz et al. 2019)

E - environmental criteria

This refers to how a company impacts the natural environment. It includes energy use, waste management, resource consumption, carbon emissions, and efforts to address climate change. (Henisz et al. 2019)

S - social criteria

This addresses a company's relationships with people and society. It includes equitable employment, workplace diversity, community engagement, and consumer welfare. (Henisz et al. 2019)

G - Governance

Governance refers to how a company is managed and controlled. It covers transparency, ethical business practices, compliance with laws, and meet the needs of external stakeholders. (Henisz et al. 2019)

2.6 UN's Sustainable Development Goals

The Sustainable Development Goals (SDGs) provide a global roadmap for achieve a better and eco friendly future for all. They address range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection and the promotion of peace and justice. All 17 goals are deeply interconnected. It is crucial to achieving them collectively by 2030 to ensuring that no one is left behind. (United Nations 2025)



Figure 3. Sustainable Development Goals (myclimate)

2.7 Circular economy

The circular economy is a system that avoids material waste and allows nature to renew itself. Disparate the traditional linear economy which follows a take, make, dispose model, the circular economy intends to construct a closed-loop system. In a circular economy, products and materials are continuously reused as long as possible by procedures like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. This approach helps to tackle with climate change and other environmental challenges allowing the economy to grow and function without continuously using up limited natural resources. (Ellen MacArthur Foundation 2025)

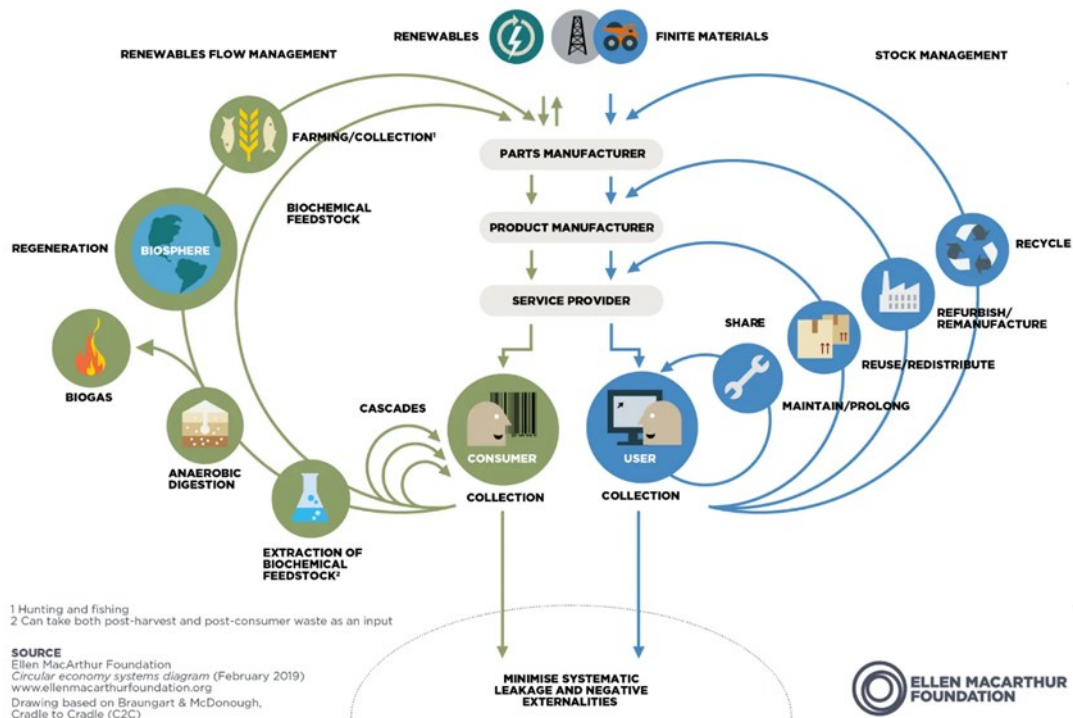


Figure 4. The butterfly diagram, illustrates the continuous flow of materials in a circular economy (Ellen MacArthur Foundation 2025)

2.8 Textile Industry Waste

According to European Parliament (2024), the quantity of clothes produced and thrown away has raised with fast fashion. Furthermore, European Parliament points out that textile production requires a lot of amounts of water, as well as large areas of land to grow cotton and other natural fibres. Furthermore, 2,700 litres of fresh water are required to make a one cotton t-shirt, according to estimates, enough to meet one person's drinking needs for approximately 2.5 years.

In 2020, the textile industry was the third largest contributor to water pollution and land use in the EU. In that year, on average ,9 cubic meters of water, 400 square meters of land, and 391 kilograms of raw materials was required for supplying clothing and footwear for each EU citizen. (European Parliament 2024)

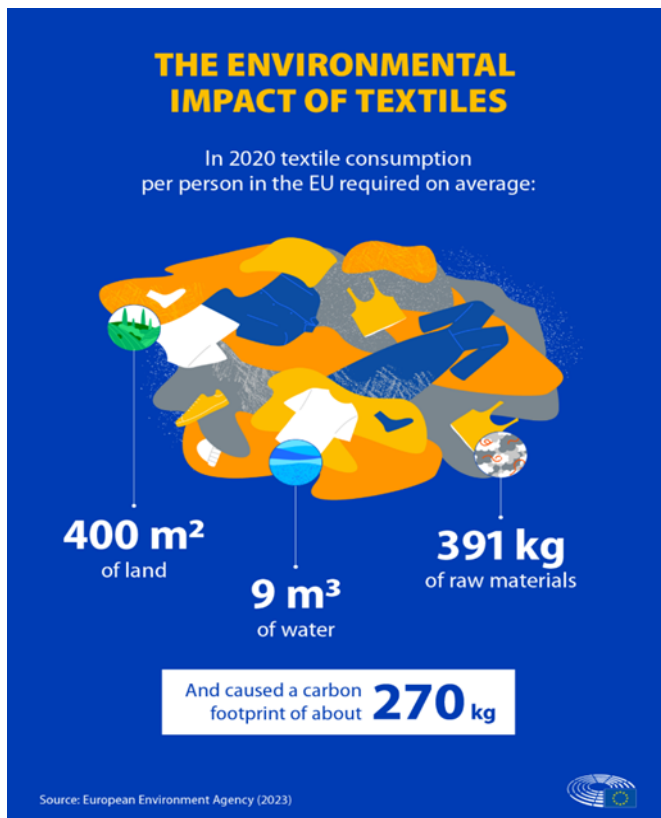


Figure 5. The environment impact of textiles (European Parliament. 2024)

2.9 Sustainable clothing

At each phase of consumption, the fashion industry impacts the environment. (Centobelli et al.2022,1-2). The textile Industry releases 40 million tons of clothing waste and is responsible for more than 10% of global greenhouse emissions to the planet annually. (European Commission, 2022). The pressure induced by humans on the planet is drastically increasing since the consumption patterns in the fashion industry is unsustainable. (McKinsey, 2022). According to Schiaroli et al. (2024,1-2), In terms of the fashion industry, sustainable solutions mean not only intrinsic garment policies but also eco-friendly practices for disposals along with consumer maintenance. Different solutions can be used to make the textile and fashion industry a more sustainable one by using specific raw materials, using different strategies for designing, and in terms of disposing to recycle or to re-use as raw material.

3 Consumer Awareness and Behaviour

3.1 Consumer Awareness on Sustainable Clothing

Consumer awareness about sustainable clothing means the details that are known to customers. As per Connell (2010,279-286) most of the customers are not aware of the environmental issues regarding the production of clothing and the consumption of sustainable clothing. They are struggling to define the characteristics of sustainable products. In terms of building and increasing awareness, social media is playing a vital role. Hence the ordinary public is rallying around celebrities and social media influencers to follow the fashion trends and purchasing process, they can play a crucial role in reversing the stereotypes and negative myths. Wang et al. (2022,157-167). Argues that to make awareness among the consumers the textile companies should highlight the sustainable characteristics To convince the consumers to change their buying patterns. He further states that companies should make it easy to recognize the characteristics of consumers to identify the difference between traditional alternatives and sustainable products.

3.2 Consumer behaviour towards sustainable clothing

According to Bangsa and Schlegelmilch, (2020,14) three categories are identified that affect consumer behavior towards buying sustainable solutions. Those are consumers, marketing and purchase desire, and social context. These categories further elaborate and focus on the consumer's personal sphere such as feelings, attitude and value, marketing strategies, and the product features used by the companies such as price, corporate social responsibility (CSR), and the influence of external factors such as social media fluency, celebrities and different communities from online platforms. They further categorize consumers into five subcategories, values, environment, control, fashion, and personal norms. Subcategory value comprises the factors that define psychological traits and the characteristics such as judging criteria and goals. Environment means how much the consumer is attached to the natural environment. The control means to perform a behavior towards a sustainable product, the factors affecting to consumer's capabilities. Fashion is playing a vital part in consumer's life. Consumers use clothes to present their identity to the community. By the time they make the purchasing choice, they give priority to style and fashion. Additionally, the importance of fashion in consumer's life matters. Personal norms an individual expectation that guide an action towards a certain situation that are designed by the individual.

3.3 Barriers to Sustainable Clothing Adoption

The study identifies few key factors affect to adoption of sustainable clothing among international students in Finland. Financial concern is one of the key factors since the sustainable clothing is coming expensive price tags more often and it is not affordable for students who are living in low budgets. The students cannot prioritize sustainable clothing options with high prices though they are aware about climate change and environmental effects. (Tiainen, 2024.) In a time like this, where inflation going up and recession taken place, the economic situation impacts the buying power of the consumers and for what and how they spend their money. Most of the consumers are not fully aware about unethical labor procedures, environmental pollution and other harmful impacts related to clothing industry. (Bondarev, 2021.) Also, consumers do not have access to sustainable clothing in their usual stores. Cultural values play a vital part in defining the clothing consumption behaviour of consumers. Most of the societies encourages to purchase new fashion and it is based on the latest trends. A move towards a sustainable model in terms of fashion and clothing, needs change of cultural inherent value.

3.4 Strategies to Promote Sustainable Clothing among Students

In order to promote sustainable clothing practices among international students in Finland, different initiatives need to be done such as educational programs, through commit engagements and by practical use and experience. To promote sustainable clothing fashions, having workshops organized which allow the students to design think of their clothing choices is a good option. (Prits et al,2023). With that more actionable ideas will come since it encourages collaboration and empathy, and companies can have a deeper understanding of developing their products further. Organizing thrift events in order for students to exchange their cloths will impact for less demand for new clothes and it will minimize the waste as well. To promote circular fashion practices, this kind of activities will help a lot. (Forward Pathway, 2025). According to (The Guardian, 2017). Educational workshops and campaigns also are helpful to raise the awareness among students. How the fast fashion can impact to the environment, benefits of upcycling can be discussed in these workshops. To give insights about sustainable practices and to provide hands-on experience partnerships and MOUs can be established with students. To bridge the gap between academic side and practical aspect and in order to que the students towards sustainable fashion internships, lectures and discussions with industry experts can be arranged. Using these strategies Finland universities can create a culture with more tendency to sustainable fashion among international students in order to encourage responsible consumption.

3.5 Theory of Planned Behavior

In 1985, Icek Ajzen developed the Theory of Planned behaviour (TPB) psychological framework, and it discusses how the attitude of individual, social influence and control shape the consumer's desires and actions (Ajzen 1991,179-211). To understand the behaviour towards sustainable clothing among international students in Finland, this theory is useful. In the theory of TPB, the components have identified as attitude towards the behaviour, subjective norms and perceived behavioural control. Attitude towards the behaviour means before performing a behaviour, a negative or positive evaluation. Regarding the subject discussing, it means how lenient students in Finland to buy eco-friendly clothing. Subjective norms refer to perceived social pressure which impact the behaviour to perform or not to perform. In this context for students in Finland to buy sustainable fashion clothing the influence they are getting from peers, social environment and friends. Perceived behavioural control refers to the perceived ability or disability to perform the behaviour which are influenced skills, resources and external challenges. In the current subject, this means the limited access to purchase sustainable clothing and the financial challenges faced when buying the sustainable clothing options.

However, by applying TPB to get a prediction about consumption of sustainable fashion, (Saricam & Okur 2019,1-37).discuss and identified the attitude as the powerful predictor of buying environment friendly buying intention among customers. Nevertheless, he further argues that subjective norm is the most crucial and the powerful predictor while perceived behavioural control plays a neutral role when influencing the purchase desires. Adding an extension to the TPB, (Lambert 2019)., states that additional elements such as self-identity, fashion consciousness and perceived consumer effectiveness has huge impact on environment friendly purchase desires. A better understanding of TBP will lead to increase sustainable fashion consumption among international students in Finland. Organizations can encourage students to use more sustainable fashion by giving easy access to affordable sustainable clothing in order to improve perceived behavioural control, paying more attention attitude and enhancing the social influence.

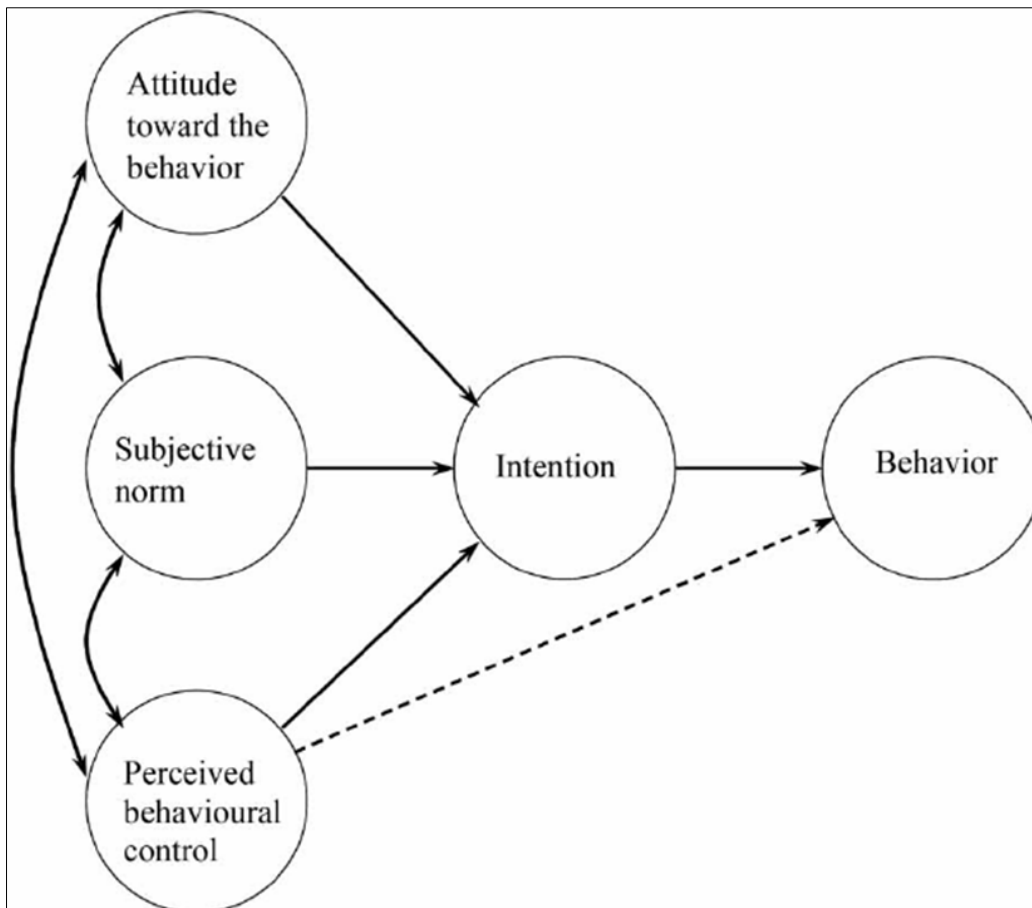


Figure 6. Theory of Planned Behavior (Ajzen, I. 1991, 182.)

The diagram (Figure 6) illustrates that how individual behavior is shaped by intention, which influenced by three key factors: attitude toward the behavior, subjective norms, and perceived behavioral control in the Theory of Planned Behavior.

4 Analysis

4.1 Data Acquisition Process

A google Form survey was created and distributed to acquire the quantitative data for this study. Emails and WhatsApp were used to share the survey link with international students in Finland that were known to the researcher. Furthermore, to expand and to increase the response rate of the survey, the researcher invited the student who received the link to share with their contacts.

International students answer the survey by preference. Respondents' anonymity and privacy were secured all over the process. A period of several weeks was taken to collect data in order to receive sufficient time for participation.

Microsoft Excel used to analyse gathered data throughout the survey. Pie charts and bar charts generated to explain key trends, distributions, and contrasting different elements to gain a deeper understanding across different variables of visual representations. For supporting the subsequent stages of data analysis and reporting, these visual tools provided an efficacious means to summarize and interpret the quantitative data.

4.2 Questionnaire

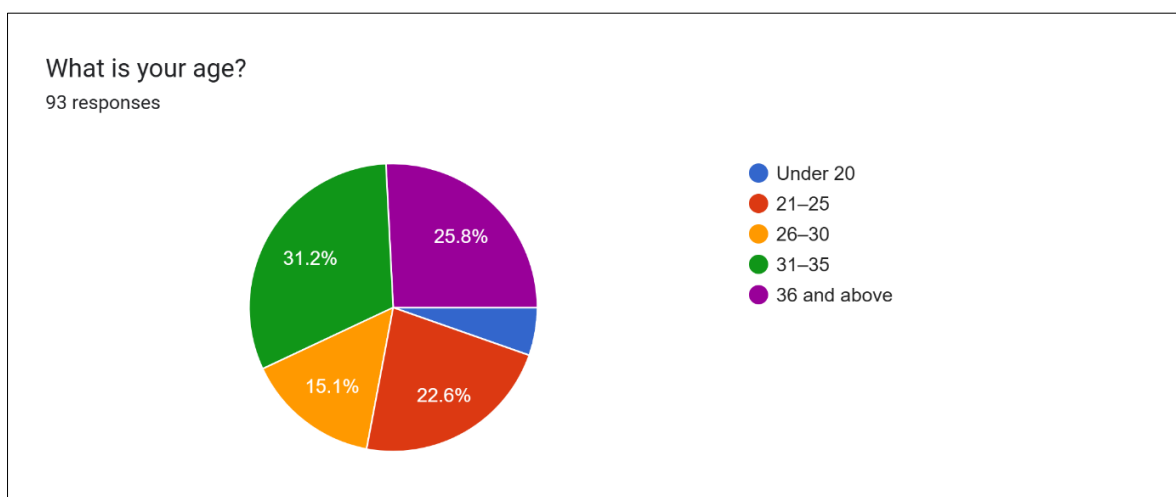


Figure 7. Age of the participants of the survey

The first question of the survey was about the age of the participants. (Figure 7) shows the percentage of participants' age. Participants were divided into five age categories. The largest group of respondents was from the 31–35 age category (31.2%), followed by those 36

and above (25.8%). The 21–25 group made up 22.6% of responses. This shows that the survey mostly captured the views of mature young adults and older students.

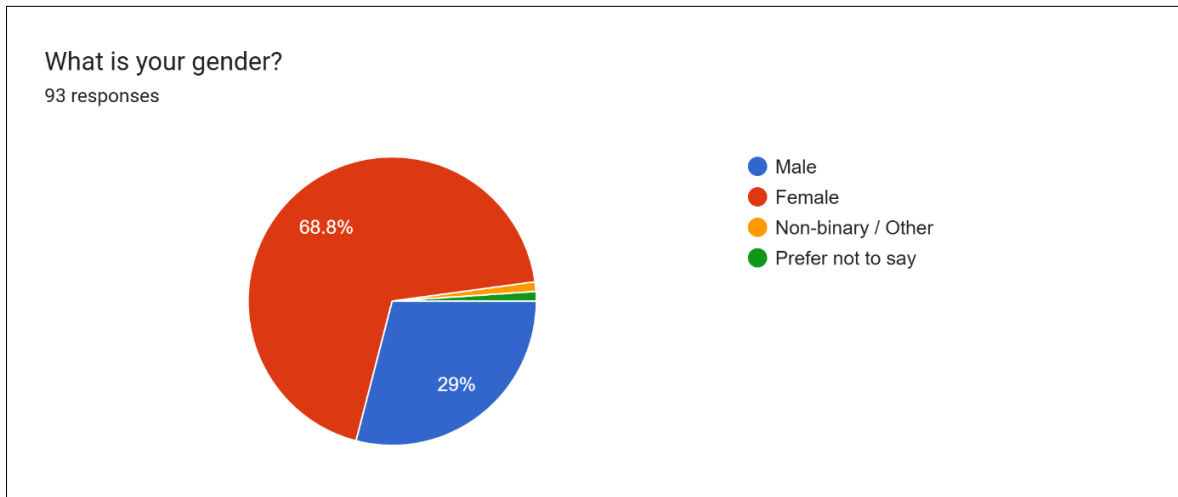


Figure 8. Gender of the participants of the survey

Figure 8 shows the percentage of participants' genders. Majority of the respondents identified as female, and males and a small percentage selected as non-binary or other. Accordingly, the participants reasonably represented diverse gender categories.

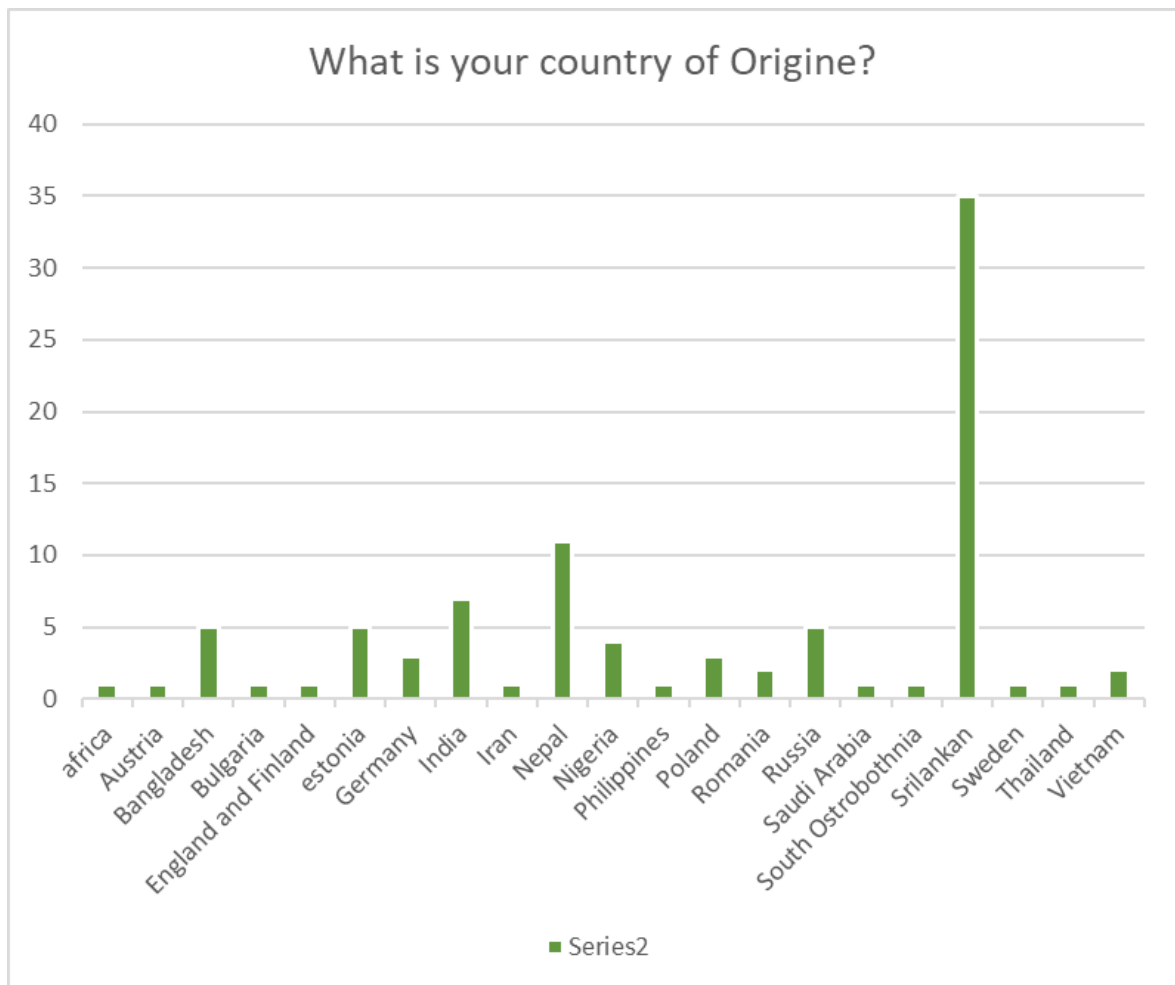


Figure 9. The percentage of participants from different countries

The third question was about the origin countries of participants (Figure 9). Participants came from various countries reflecting multicultural backgrounds of international students studying in Finland. The majority of respondents are from South Asian countries, especially Sri Lanka, Nepal and India. This may affect the results and cultural views on sustainable clothing, as attitudes and behaviours can be different by region.

Respondents entered their country of origin in an open-ended format. This referred to varied responses such as country names (e.g., Finland, Nigeria), continents (e.g., Africa), and regional areas (e.g., South Ostrobothnia). These responses were not standardized by the researcher to preserve original input. However, this could account some of the inconsistencies in the geographic distribution shown in Figure 3.

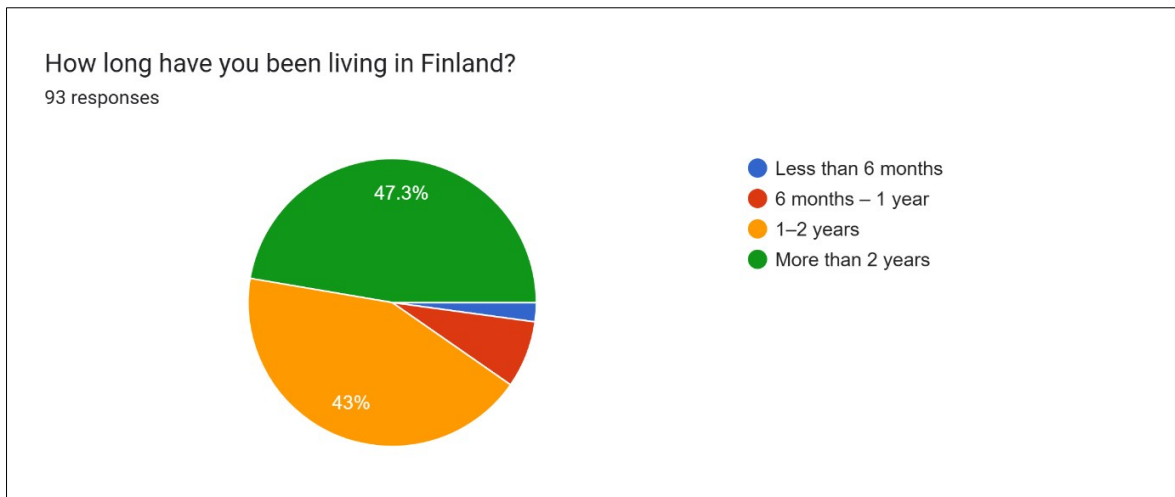


Figure 10. The percentage of participants based on their duration of stay in Finland

Figure 10 shows the percentage of participants based on their duration of stay in Finland. Most respondents have been in Finland for 1 to 2 years with the next largest group having stayed for one to two years. This suggests that most respondents were fairly new to Finland but had enough exposure to understand local culture and shopping behaviours.

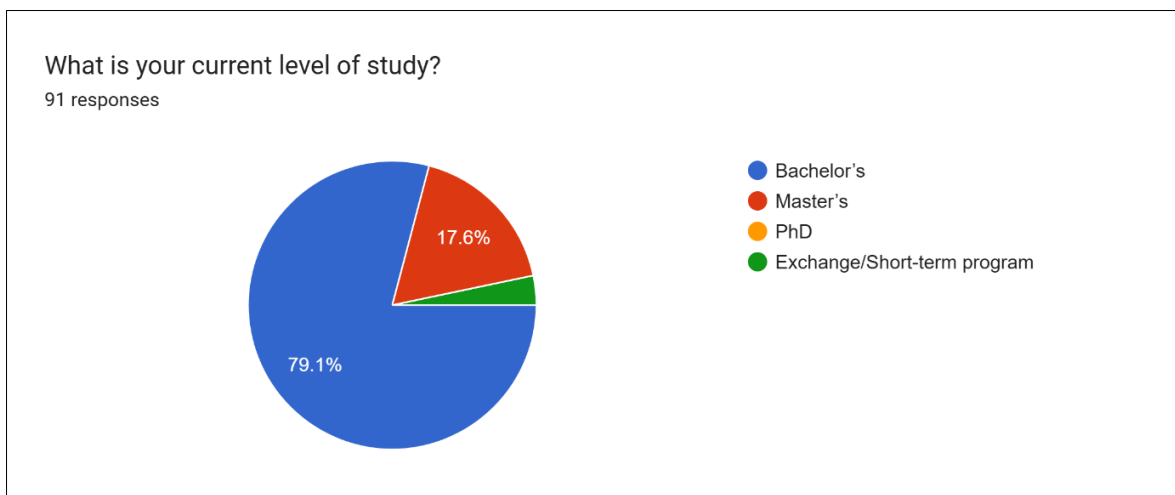


Figure 11. The educational level of the participants of the survey

Figure 11 shows the percentage of participants having different educational levels. The majority of students were Bachelor's and master's levels. This aligns with the general structure

of international education in Finland and reflects the views of students who may be in the early stages of their academic and consumer journeys.

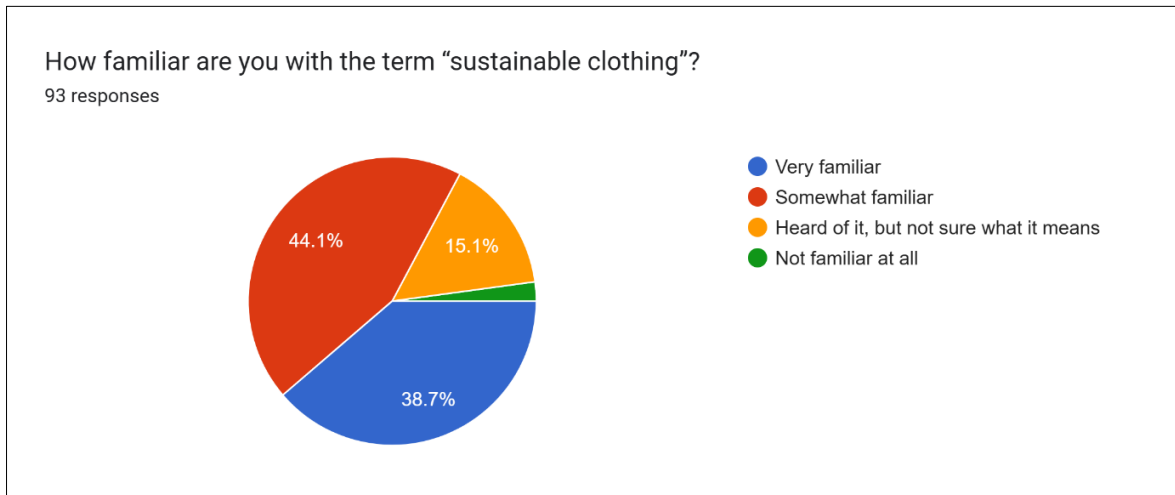


Figure 12. The participants according to their familiarity about sustainable clothing

Figure 12 shows the percentage of participants according to their familiarity about sustainable clothing. A significant number of the respondents answered that they were somewhat familiar (44.1%) with the concept of sustainable clothing. A smaller percentage reported that they were very familiar (38.7%). This shows a generally good level of awareness among international students.

The seventh question was to describe sustainable clothing in participants' own words. This open-ended question was designed to study about participants' personal interpretations of sustainability. Responses were identified and grouped into five groups under common key words that described in answers as below.

- Eco-Friendly Materials
- Eco-Friendly Materials
- Durability and Long Use
- Ethical Practices
- Recycling and Reuse
- Opposition to Fast Fashion

Most of the responses described sustainable clothing as made from eco-friendly, natural, recycled, or biodegradable materials. A significant number of answers explained sustaina-

bility clothing as long-lasting and reusable clothes. Moreover, those answers outlined sustainability clothing should have an ability to be used for as long as possible instead of being quickly discarded. Some answers indicate socially responsible sustainability, mentioning ethical labour, fair wages, and safe working conditions in their answers. Recycling, donating, repurposing, and second-hand shopping were common ways participants explained in their answers, contributing to sustainability in fashion. Some respondents defined sustainable clothing as the opposite of fast fashion thus valuing quality and mindful consumption over trends and mass production.

According to answers, participants had a good understanding of sustainable clothing. The variety of definitions reflected those participants who understood sustainability in fashion in multiple ways, combining environmental, social, and practical aspects.

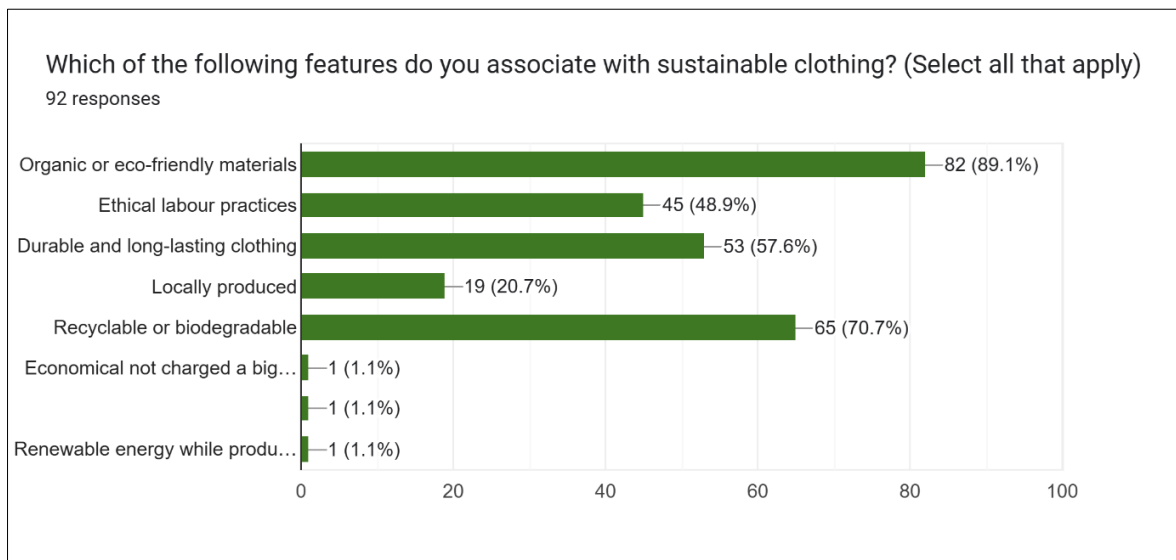


Figure 13. The features and percentage of participants associated with sustainable clothing

The chart (Figure 13) shows the features and percentage of participants associated with sustainable clothing. Being the most selected feature, organic or eco friendly materials (89.1%) shows that most participants strongly link to sustainable clothing with natural and eco-friendly fabrics. Many participants see sustainable clothing as recyclable or biodegradable (70.7%). Over half of the respondents see sustainable clothing as Durable and long lasting (57.6%). Nearly half of the respondent's value sustainable clothing as Ethical labour practices (48.9%). Fewer respondents recognised sustainable clothing with Local production (20.7%). A small number of participants provided their own ideas.

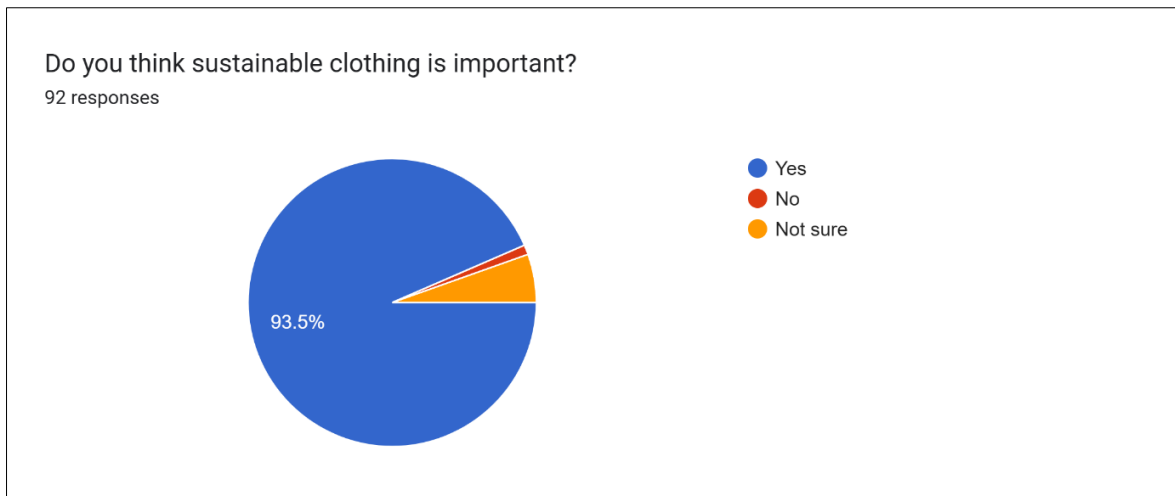


Figure 14. The percentage of participants that think sustainable clothing is important

The pie chart (Figure 14) shows the percentage of participants that think sustainable clothing is important. A large number of the respondents responded that sustainable clothing is important. This reflects a positive attitude towards sustainable practices.

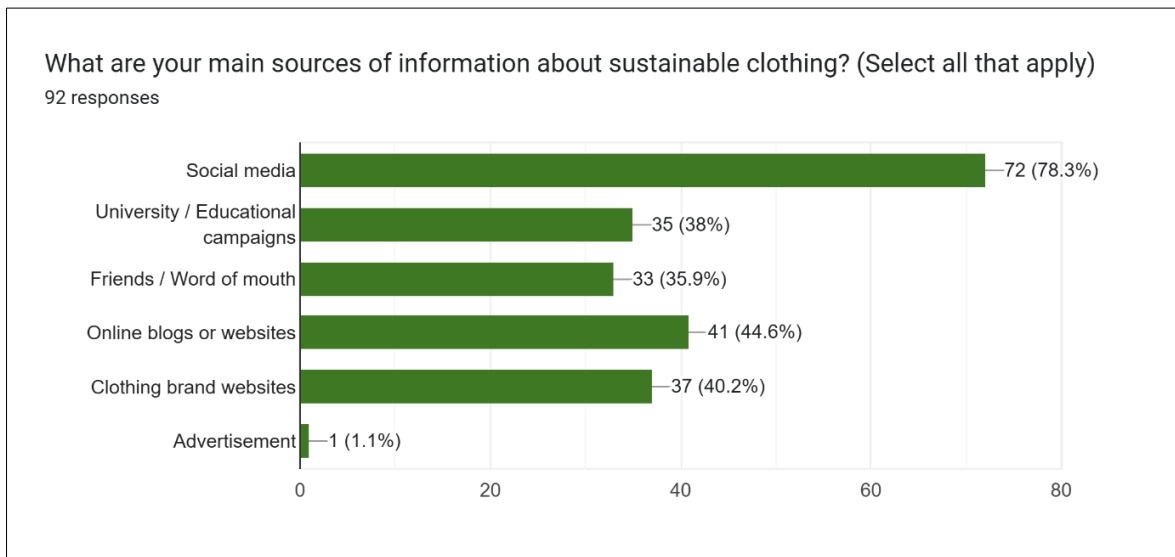


Figure 15. The participants information source of sustainable cloths

The bar chart (Figure 15) shows the percentage of participants and the source of information. Most participants said their main source of information about sustainable clothing is social media (78.3%), making it the top source. While 44.6% of participants use blogs or

websites for information, 40.2% of them use Clothing brand websites as their information source. Some participants learn about sustainable clothing through university programs or campaigns (38%) and fewer participants get the information via friends (35.9%). Very few participants mentioned other sources (1.1%).

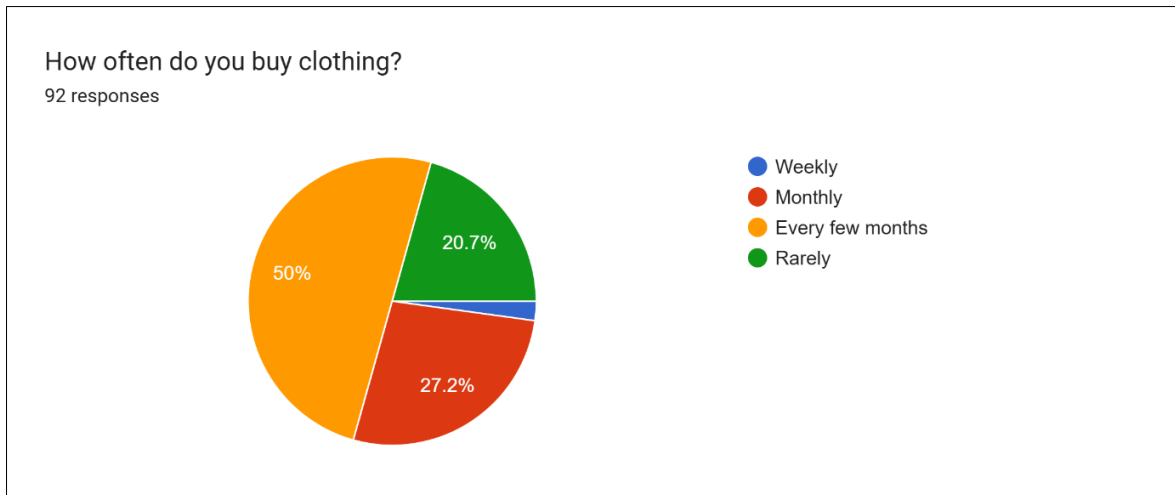


Figure 16. The participants buying frequency of clothes

Figure 16 shows the percentage of participants and their buying frequency of clothes. Most participants purchase clothing every few months (50%), reflecting moderate consumer behaviour rather than impulsive shopping. Over a quarter (27.2%) of respondents purchase clothing about once a month. A smaller group (20.7%) buys clothes only once in a while.

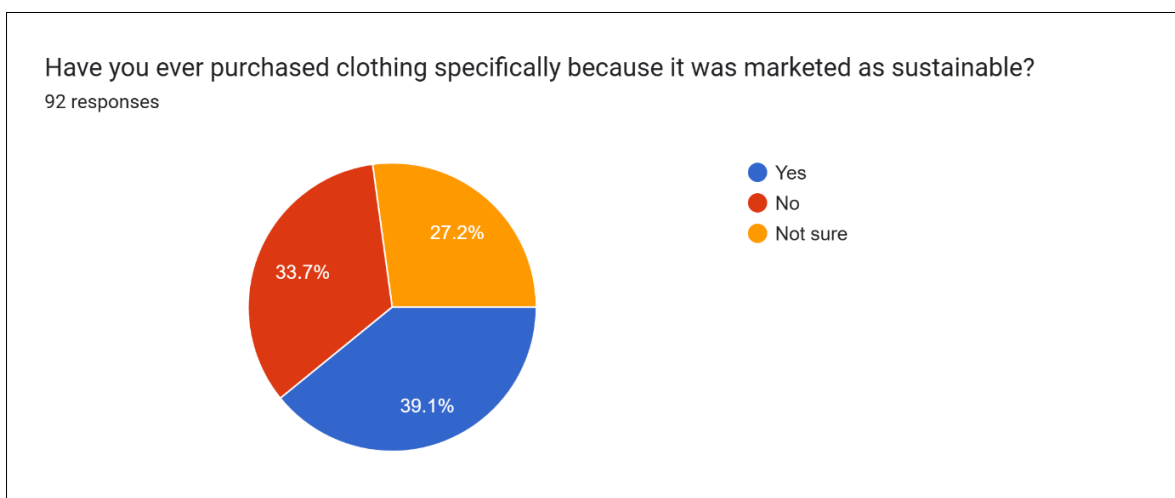


Figure 17. The participants' purchasing behaviour in relation to sustainable clothing

Figure 17 illustrates participants' purchasing behaviour in relation to sustainable clothing, presented as percentages. Responses were mixed, many participants (39.1%) stating that they had purchased clothing because of its sustainable label. This shows that marketing emphasizing sustainability has affected notably, but a large portion either haven't or are unsure.



Figure 18. participants view on the importance of sustainability in clothing purchase decisions

Figure 18 shows the percentage of participants and their views on the importance of sustainability in clothing purchase decisions. Sustainability was found to be somewhat important for nearly half of the respondents (45.7%). A smaller percentage (39.1%) found it very important. Few participants admitted that it is not important, or they do not consider sustainability at all.

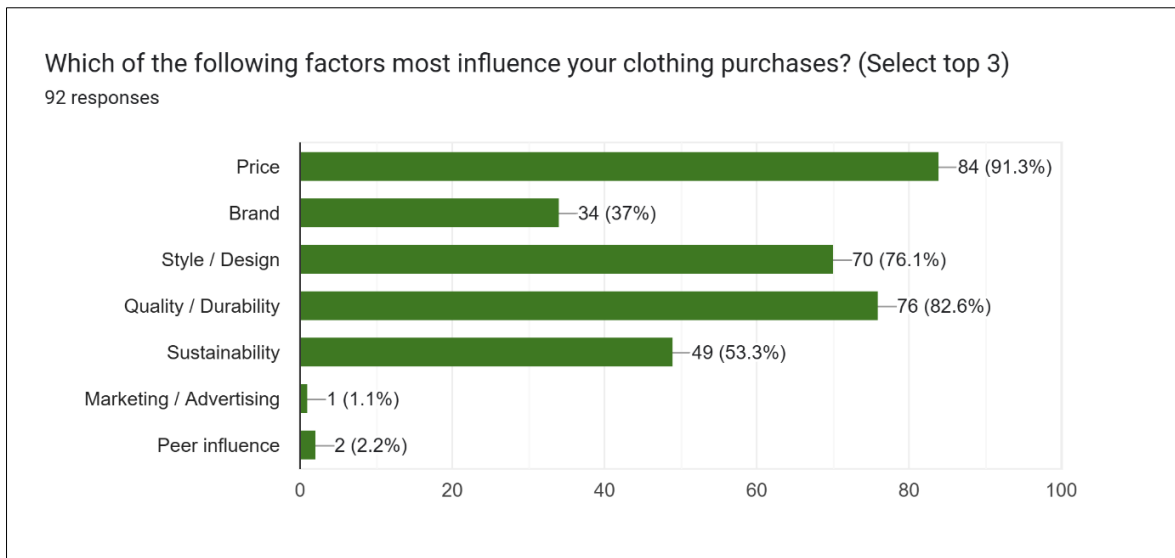


Figure 19. factors that influence participants purchase decisions

Figure 19 shows the percentage of participants and factors that influence their purchase decisions. Price, quality, and style are the top factors that influence clothing choices. While price is the biggest factor, nearly all participants (91.3%) consider it important when buying clothes, sustainability is important to many (53.3%); it still ranks below practical and visual factors for most respondents. Brand matters to some of the respondents (37%), but it's not as crucial as price or quality.

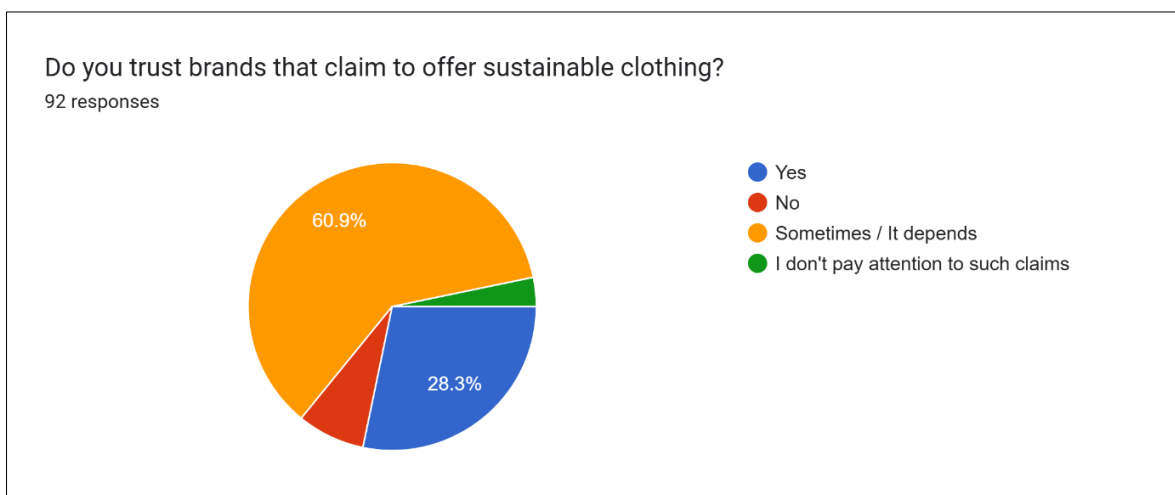


Figure 20. level of trust in brands of participants

Figure 20 shows the percentage of participants and level of trust in brands that claim to offer sustainable clothing. More than half of participants responded as “Sometimes / It depends” (60.9%), reflecting that they are cautious—they only trust such claims in certain situations or if the brand proves it. A smaller group (28.3%) fully trusts brands that claim to be sustainable. The rest of the participants either don’t trust the claims or don’t notice them at all.

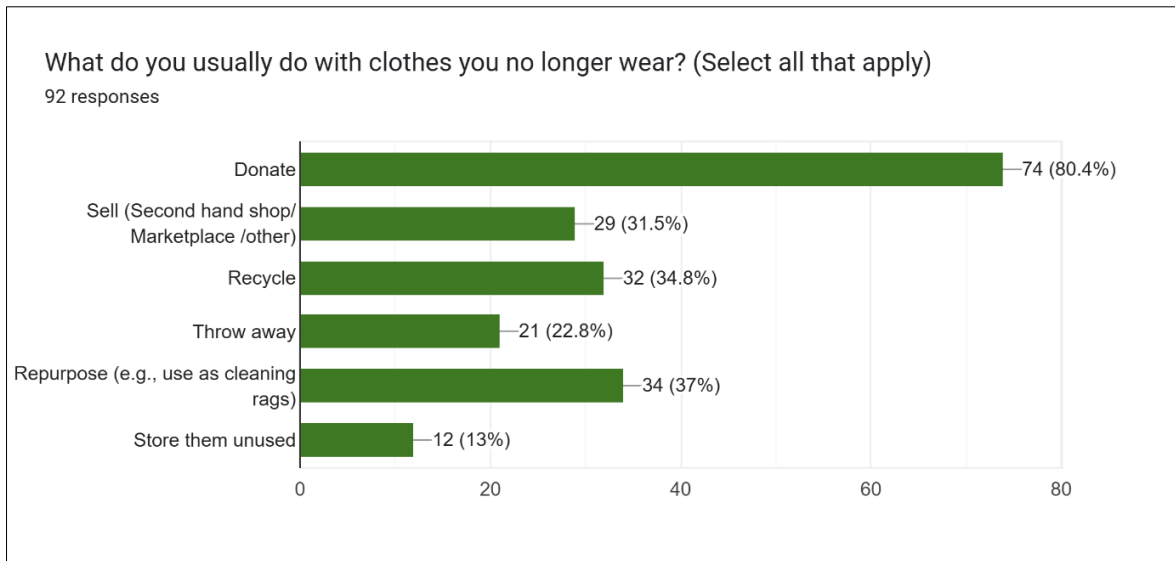


Figure 21. Participant preferred methods of disposing of unwanted clothing

Figure 21 shows the percentage of participants and their preferred methods of disposing of unwanted clothing. Most participants (80.4%) donate their unwanted clothes. Some participants use them as a repurpose (37%) such as cleaning rags. While A good number of participants (34.8%) recycle their clothes properly, some participants (31.5%) sell their clothes through second-hand shops or online marketplaces. A smaller group (22.8%) simply discards their old clothing.

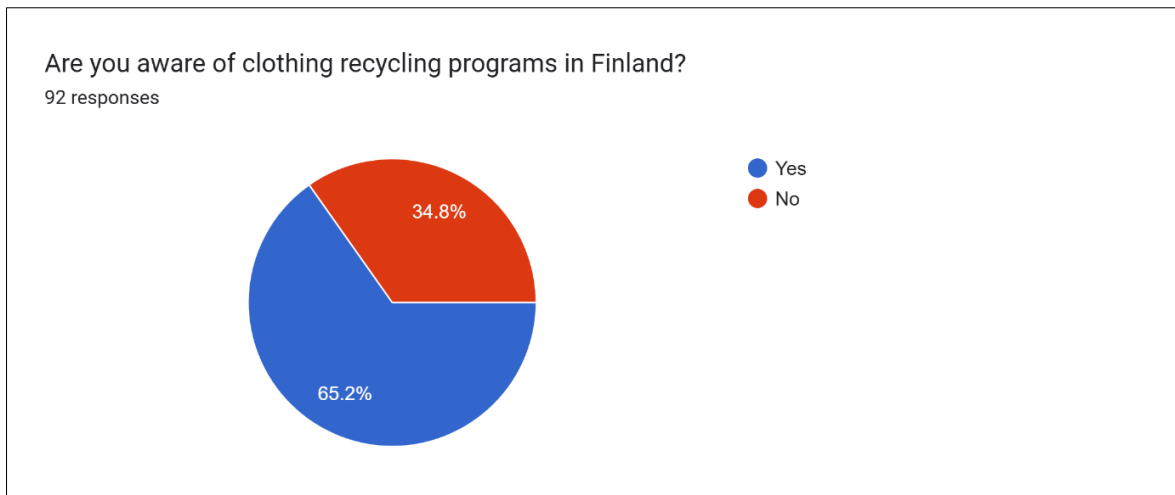


Figure 22. Participants and their awareness about recycling program in Finland

The pie chart (Figure 22) shows the percentage of participants and their awareness about recycling program in Finland. Most participants (65.2%) are aware of recycling options, but about one-third (34.8%) still lack awareness about sustainable disposal practices in Finland.

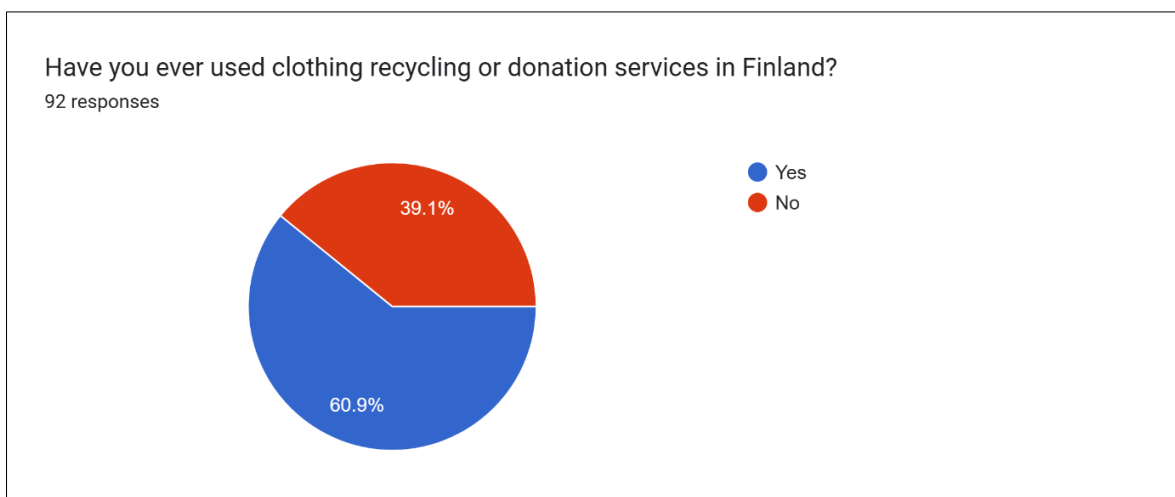


Figure 23. Participants use of clothing recycling or donation services in Finland

Figure 23 shows the percentage of participants based on their use of clothing recycling or donation services in Finland. A Majority of participants (60.9%) have used recycling or donation services for clothing in Finland. But a significant number (39.1%) of participants still have not engaged with the process.

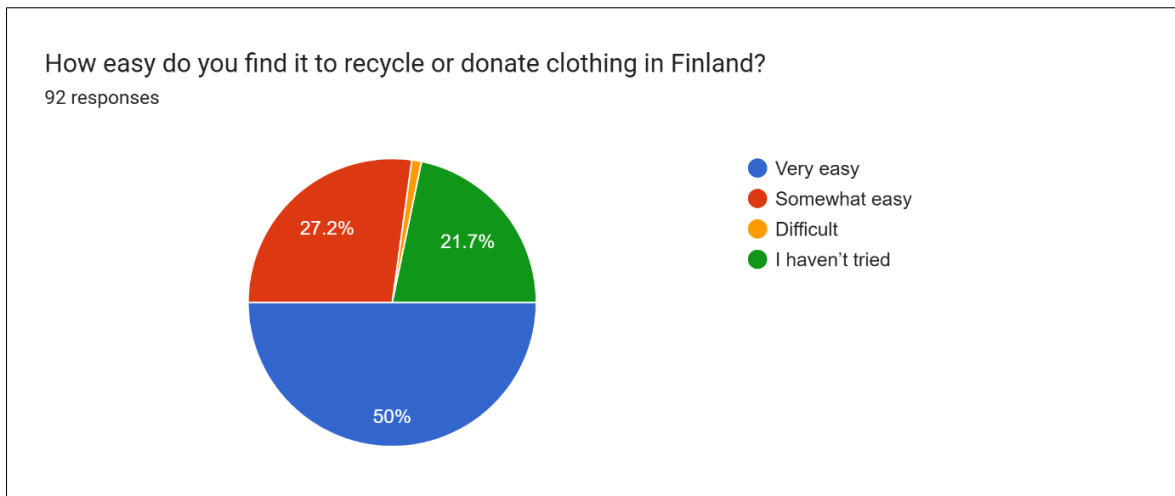


Figure 24. Participants how easily find recycling or donating clothing in Finland

Figure 24 shows the percentage of participants based on how easy they find recycling or donating clothing in Finland. Most participants found it somewhat easy (27.2%) or very easy (50%) to recycle or donate clothing. However, a significant portion (21.7%) hasn't yet engaged. This possibly implies a need for more awareness or motivation.

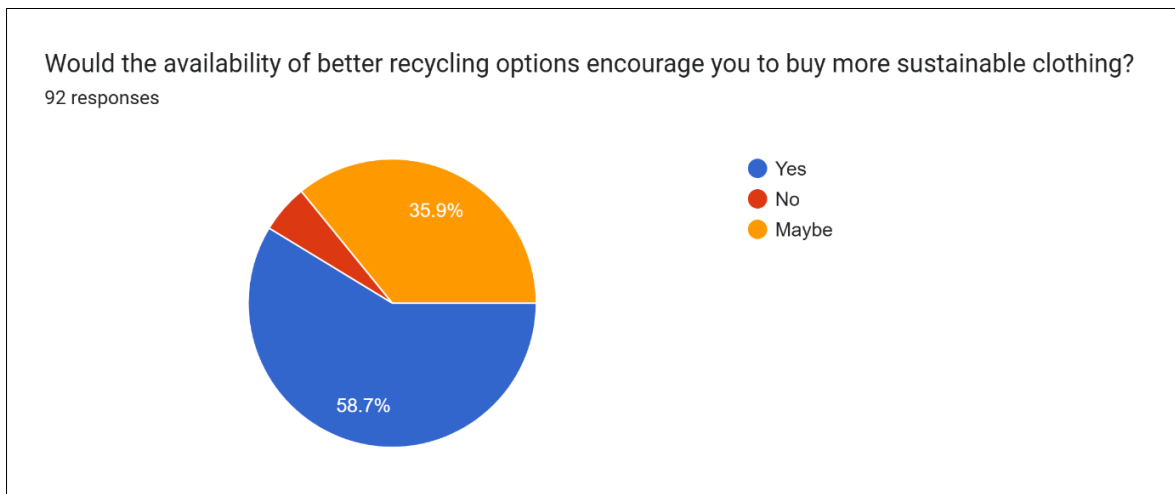


Figure 25. Impact of improved recycling options on sustainable clothing purchases

Figure 25 shows the percentage of participants and their responses regarding the impact of improved recycling options on sustainable clothing purchases. A majority responded

were yes (58.7%) or maybe (35.9%) indicating that better recycling options could positively affect purchasing behaviour among international students in Finland.

5 Conclusion

5.1 Answers for Research Questions

The main purpose of this research was to find out how international students in Finland understand sustainable clothing. A questionnaire was conducted as it was a quick and effective way to gather information from a large number of students about sustainable clothing. According to the findings from the questionnaire, international students in Finland own a generally good level of awareness and a multi-dimensional understanding of sustainable clothing. The 6th question of the questionnaire was “How familiar are you with the term sustainable clothing”? The results of question, 82.8% of respondents identified themselves as either “somewhat familiar” (44.1%) or “very familiar” (38.7%) with the concept of sustainable clothing. This high level of familiarity shows that the concept of sustainable fashion has widely recognized among the international student community in Finland.

Question 7 was an open-ended question. It was categorized into five key areas as representing a range of ideas and personal definitions of sustainable clothing. “The use of eco-friendly, natural, recycled, or biodegradable materials” was the most mentioned theme. This shows a strong environmental awareness about sustainable clothing. Furthermore, respondents described the durability and longevity of clothing. This is showing that students see sustainable clothing as should last longer and reduce the need for often replacement.

Many respondents mentioned sustainability as connecting to ethical practices, fair wages, safe working conditions, and responsible labor. And recycling, reuse, second-hand practices were also mentioned. These answers show understanding of sustainability and circular fashion.

The main source was the social media as the answer for the question 10, (What are your main sources of information about sustainable clothing?) and it was 78.3%. This highlights the strong influence of digital marketing and content exposure of the students. Clothing brands frequently promote their sustainability initiatives via social platforms.

Another 40.2% of respondent’s answers as their information from clothing brand websites. This indicates that brand communication is an important channel for shaping awareness and perception among international students in Finland. Other sources were blogs/websites (44.6%) and university campaigns (38%) also contribute to shaping their perceptions.

According to the answer of 14th question, “Which of the following factors most influence your clothing purchases?” the top factors influencing purchases are Price (91.3%) quality and style. This shows that international students in Finland are informed about sustainable

clothing through marketing efforts. but when it comes to buying, they prioritize price, quality, and style.

The second sub-question was how sustainability buying behaviour influence by availability of recycling options. Here, students said that having easy ways to recycle or donate clothes that makes them more likely to behave in a sustainable way. For example, they are probable to recycle rather than throwing clothes away if they know where to drop off old clothes or find second-hand stores nearby. From the answers, 65.2% of participants were aware of recycling options and 60.9% of the participant used recycled or donation services in Finland. If they know they can properly dispose clothes, this gives them more confidence when purchasing eco-friendly clothing.

Table 1. Answers for Research Questions.

Question number	Research Question	Findings
Main Question	How do international students in Finland define and understand sustainable clothing?	International student in Finland has a sophisticated understanding of sustainable clothing under environmental considerations, ethical considerations (social responsibility) and practical aspects.
Sub question - 1	What role do branding and marketing play in shaping their perceptions and purchasing decisions?	Branding and marketing play a crucial role in shaping awareness. But it implies a limited direct influence on purchasing decisions.
Sub question - 2	How does the availability of recycling options influence their behaviour towards sustainable clothing products?	When recycling or donation options are easy to find, students are more likely to recycle their clothes and support sustainable fashion.

5.2 Validity and Reliability

Reliability and validity are essential concepts used to evaluate the quality of research. It ensures the accuracy and consistency of research outcomes through the proper assessment of research tools. (Middleton. 2019)

Andersson et al. (2024) emphasize that, validity refers to the way in which a test measures what it aims to measure, and it reviews the accuracy and efficacy of the conclusions made from the test results. In this study, the questionnaire was designed based on the Theory of Planned Behavior (TPB) and concepts from existing literature on sustainable fashion. Questionnaire consists with key elements of TPB, such as attitudes, subjective norms, perceived behavioral control, and behavioral intention towards sustainable clothing.

The questions were developed to be clear, concise, and aligned with the research objectives. To collect quantitative and qualitative data, a combination of closed ended (e.g., multiple choice and Likert scale) and open-ended questions was used. (Andersson et al. 2024)

For evaluate the clarity, relevance, and appropriateness, the questionnaire was reviewed by academic supervisor and fellow students with relevant academic backgrounds. In addition, to ensure that all participants received the same set of questions under similar conditions, the questionnaire was administered via Google Forms. Participant anonymity and confidentiality were guaranteed all over the process in ordering to increase the response rates and honesty in answers. (Andersson et al. 2024)

Reliability refers to the consistency and stability of the measurement over time. (Andersson et al. 2024) A clear and unambiguous questionnaire helps collect accurate and reliable data from target audience, while a confusing and vague one can led to biased and misleading results (LinkedIn. 2025). In this survey, questionnaire included maintaining a clear and logical structure, using simple and unambiguous language in ordering to secure reliability.

5.3 Suggestions for future research

As the research topic was multifaceted, it appeared to several potentials approach for future investigation. As This thesis focused specifically on international students in Finland, future research could explore broader and deeper dimensions of sustainable clothing behavior. For example, studies could expand the sample to include foreign working professionals, local students or local working professionals. It could help to gain a deeper understanding of the motivations, barriers, and personal values behind sustainable clothing choices.

Furthermore, Future studies could include qualitative methods such as in-depth interviews or focus groups to gather richer insights into individual motivations and cultural influences. This would complement the quantitative findings and enrich the overall analysis.

6 Summary

This research was conducted to find out how international students in Finland perceive and behave toward sustainable clothing. The survey focused on their understanding of sustainable fashion, the factors influencing their purchasing decisions, and their clothing disposal habits. It is crucial to understand consumers behaviors due to increasing impact of clothing industry on sustainability. Finland provides a good background for this study because of its strong sustainability policies and increasing number of international students.

This research is based on the Theory of Planned Behaviour (TPB). The theory explains behavior through three key factors: attitudes, subjective norms, and perceived behavioral control. Data was collected via a Google Form survey distributed among international students through emails and WhatsApp. Microsoft Excel was employed for data analysis, with visual tools like pie and bar charts used to illustrate key findings.

Results show that of students (82.8%) are somewhat familiar with the concept of sustainable clothing. Respondents were explained sustainable clothing with eco-friendly, natural, and recycled materials, durability, ethical labor practices. And also, circular fashion concepts like second-hand use and recycling were among the answers. The basic sources of information were social media (78.3%), clothing brand websites (40.2%), blogs (44.6%), and university campaigns (38%). This was emphasizing the role of digital platforms in shaping perceptions.

Although students understand sustainability; price (91.3%), quality, and style account for the majority of their purchases. This suggests an interruption between awareness and action. This shows that sustainable solutions are not always the best option unless they meet the needs of practical consumers. Moreover, the availability of recycling options has a considerable impact on behavior. 60.9% of participants had used recycling or donation services, and 65.2% of participants were aware of such options. This figures out that having access to sustainable methods encourages people to dress ethically.

Overall, the study finds that although foreign students in Finland are aware of and knowledgeable sustainable clothing. Consumer behaviour is greatly influenced by elements like cost, fashion, and availability of recycling facilities. With the use of these findings, educational institutions, policymakers, and companies may more successfully promote sustainable fashion among populations of overseas students.

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Appendices

Appendix 1. Questionnaire

Consumer Perception and Behavior towards Sustainable Clothing among International Students in Finland

Questionnaire

Consumer Perception and Behaviour towards Sustainable Clothing among International Students in Finland.

1. What is your age?

Mark only one oval.

- Under 20
- 21–25
- 26–30
- 31–35
- 36 and above

2. What is your gender?

Mark only one oval.

- Male
- Female
- Non-binary / Other

Prefer not to say

3. What is your country of origin?

4. How long have you been living in Finland?

Mark only one oval.

Less than 6 months

6 months – 1 year

1–2 years

More than 2 years

5. What is your current level of study?

Mark only one oval.

Bachelor's

Master's

PhD

Exchange/Short-term program

6. How familiar are you with the term “sustainable clothing”?

Mark only one oval.

Very familiar

Somewhat familiar

Heard of it, but not sure what it means

Not familiar at all

7. How would you define “sustainable clothing” in your own words?

8. Which of the following features do you associate with sustainable clothing?
(Select all that apply)

Check all that apply.

Organic or eco-friendly materials

Ethical labour practices

Durable and long-lasting clothing

Locally produced

Recyclable or biodegradable

Other: _____

9. Do you think sustainable clothing is important?

Mark only one oval.

Yes

No

Not sure

10. What are your main sources of information about sustainable clothing? (Select all that apply)

Check all that apply.

Social media

University / Educational campaigns

Friends / Word of mouth

Online blogs or websites

Clothing brand websites

Other: _____

11. How often do you buy clothing?

Mark only one oval.

Weekly

Monthly

Every few months

Rarely

12. Have you ever purchased clothing specifically because it was marketed as sustainable?

Mark only one oval.

Yes

No

Not sure

13. How important is sustainability to you when making clothing purchase decisions?

Mark only one oval.

Very important

Somewhat important

Not important

I don't consider it

14. Which of the following factors most influence your clothing purchases? (Select top 3)

Check all that apply.

- Price
 Brand
 Style / Design
 Quality / Durability

Sustainability

- Marketing / Advertising
 Peer influence

15. Do you trust brands that claim to offer sustainable clothing?

Mark only one oval.

- Yes
 No
 Sometimes / It depends
 I don't pay attention to such claims

16. What do you usually do with clothes you no longer wear? (Select all that apply)

Check all that apply.

- Donate
 Sell (Second hand shop/ Marketplace /other)

Recycle

- Throw away
 Repurpose (e.g., use as cleaning rags)

Store them unused

17. Are you aware of clothing recycling programs in Finland?

Mark only one oval.

Yes

No

18. Have you ever used clothing recycling or donation services in Finland?

Mark only one oval.

Yes

No

19. How easy do you find it to recycle or donate clothing in Finland?

Mark only one oval.

Very easy

Somewhat easy

Difficult

I haven't tried

20. Would the availability of better recycling options encourage you to buy more sustainable clothing?

Mark only one oval.

Yes

No

Maybe

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