



**CONSUMERS' ATTITUDES TOWARD DATA SHARING: PERSONAL DATA
COLLECTION IN AN E-COMMERCE ENVIRONMENT AND SUBSEQUENT USE
IN TARGET MARKETING**

Lappeenranta–Lahti University of Technology LUT

Bachelor's thesis

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Examiners: Associate professor Sanna Heinänen

ABSTRACT

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Consumers' attitudes towards data sharing: personal data collection in an e-commerce environment and subsequent use in target marketing

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Keywords: target marketing, online behavioral advertising, behavioral targeting, electronic commerce, personal data, consumer behavior

This bachelor's thesis discusses the collection of consumers' personal data, as well as their utilization in the company's target marketing activities. The aim of this research is to create an overall understanding of how consumers perceive the personal data collected in the online environment and its subsequent use in target marketing. The theory of this research is based on the previous scientific literature on online behavior and online behavioral advertising. The empirical part was executed as quantitative research and research material was conducted by a structured questionnaire.

Electronic commerce has grown in importance in recent years, and businesses are more reliant on the usage of personal data. Personal data is particularly important in target marketing since advertisers should be able to pass on larger benefits to consumers with better data. Consumers, however, are unsure how to manage personal data gathered during the purchase process, and privacy concerns have emerged as a major concern.

The results show that the experience of data collection and target marketing is ambiguous. The sharing of personal data can be seen to have a link to consumer behavior, although the result may seem contradictory. The age of consumers has been found to have an impact on how the sharing of personal data affects consumer behavior. Consumers are concerned about their privacy online, but at the same time are seeing the potential benefits of sharing data in the form of targeted marketing. In principle, this is explained by consumers' ignorance of the collection and use of personal data.

TIIVISTELMÄ

Lappeenrannan–Lahden teknillinen yliopisto LUT

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Kauppätieteet

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Kuluttajien asenteet tietojen jakamista kohtaan: henkilötietojen kerääminen sähköisen kaupankäynnin ympäristössä ja jälkeenpäin hyödyntäminen markkinoinnin kohdentamisessa

Koulutusohjelmasi ja tutkielmasi: Kauppätieteiden kandidaatintyö

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Avainsanat: kohdemarkkinointi, kohdennettu online-mainonta, käyttäytymiseen perustuva mainonta, verkkokauppa, henkilötieto, kuluttajakäyttäytyminen

Tässä kandidaatintyössä käsitellään kuluttajien henkilötietojen keräämistä sekä niiden hyödyntämistä yrityksen kohdemarkkinointitoiminnassa. Tavoitteena on luoda kokonaiskuva kuluttajien asenteista verkkokauppaympäristössä toteutuvaan henkilötietojen keräämiseen ja niiden myöhempään käyttöön kohdemarkkinoinnissa. Tämän tutkimuksen teoria perustuu aikaisempaan verkkokäyttäytymistä ja online-käyttäytymismainontaa käsittelevään tieteelliseen kirjallisuuteen. Empiirinen osa toteutettiin kvantitatiivisena tutkimuksena ja tutkimusaineisto kerättiin strukturoidulla kyselylomakkeella.

Sähköisen kaupankäynnin merkitys on kasvanut viime vuosina, ja yritykset ovat entistä riippuvaisempia henkilötietojen käytöstä. Henkilötiedot ovat erityisen tärkeitä yrityksen kohdemarkkinoinnissa, koska mainostajien pitäisi pystyä välittämään kuluttajille etuja parempien tietojen avulla. Kuluttajat ovat kuitenkin epävarmoja kuinka käsitellä ostoprosessin aikana kerättyjä henkilötietoja ja tietosuojangelmat ovat nousseet suureksi huolenaiheeksi.

Tulokset osoittavat, että kuluttajien kokemukset tietojen keräämisestä ja kohdemarkkinoinnista ovat moniselitteisiä ja osin ristiriitaisia. Tietojen jakamisella voidaan nähdä olevan yhteys kuluttajakäyttäytymiseen. Myös kuluttajien iän on havaittu vaikuttavan siihen, miten henkilötietojen jakaminen vaikuttaa kuluttajakäyttäytymiseen. Kuluttajat ovat huolissaan yksityisyydestään verkossa, mutta samalla havaitsevat hyödyt joita tietojen jakamisesta voi seurata kohdistetun markkinoinnin muodossa. Lähtökohtaisesti tämä selittyy kuluttajien tietämättömyydellä henkilötietojen keräämisestä ja hyödyntämisestä.

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1. INTRODUCTION

With the emergence of the internet, e-commerce has become one of its most useful applications, allowing for a variety of business-to-consumer interactions, including online purchasing (Kaur & Khanam, 2015). Many consumers have discovered the power of the Internet, which provides them with convenience, more product and service options, vast amounts of information and time savings. Simultaneously, companies have become increasingly reliant on the use of personal data, to understand consumers' personal interests and preferences. (Liu, Marchewka, Lu & Yu, 2015). The use of personal data, particularly in marketing, is extremely significant. Personalized product offerings and other benefits are partially due to the sophisticated utilization of personal data. Marketers, in theory, should be able to pass on greater benefits to consumers because improved data allows them to operate more efficiently. (Martin & Murphy, 2017). Users should be drawn to more self-relevant advertisement material as a result of targeting. However, little is known about how targeted versus non-targeted advertisements affect consumers' actual attention allocation when viewing web pages. (Kaspar, Weber & Wilbers 2019)

In today's digital world advertisers have seized the opportunity to personalize and target advertisements by using personal data about consumers. Targeted marketing is becoming increasingly important, because advertisers who empower and engage consumers with relevant, dependable, and targeted communications, treating them as equal relationship partners rather than statistical data points, will have a great potential in the future (Kumar & Gupta, 2016). The practice involves the use of personal data in a variety of ways, leaving consumers unsure how to handle personal data collected during the purchase process. (Grabner-Kräuter & Kaluscha, 2003; Nill & Aalberts, 2014; Boerman, Kruikemeier, Zuiderveen, Borgesius, 2017). While many consumers profit from the web data collected about them, it also has the technological potential to violate consumers' privacy rights to a dangerous and unprecedented extent. Privacy concerns have emerged as a major concern and potential roadblock (Liu et al., 2015; Nill & Aalberts 2014). Because consumers increasingly rely on the internet for their everyday information search and purchase, addressing these consumer concerns is critical (Shukla, 2014).

1.1 Research questions, objectives, and delimitations

The aim of this research is to gain a broader understanding of how consumers perceive the sharing of personal data as affecting consumer behavior in the e-commerce environment. From the consumer's perspective, we study how consumers perceive the subsequent use of personal data in target marketing and consumers' attitudes target marketing in general.

The main research question has been set for the research, which aims to achieve the goals set above. In addition, two sub-questions have been formed in order to answer the main questions and deepen understanding.

Main research question:

“How does the sharing of personal data affect consumer behavior?”

Sub-research questions:

“How do consumers experience the sharing of personal data in an e-commerce environment?”

“How do consumers see the benefits and disadvantages of targeted marketing?”

The purpose of the first sub-question is to find out how consumers experience the sharing of personal data specified in the context of e-commerce purchases and the registration process. The question seeks to limit the topic to the e-commerce environment.

The second sub-research question relates to how consumers see the benefits and disadvantages of targeted marketing. The research question aims to expand the topic from the point of view of marketing and to form a broader overall picture of the utilization of the collected personal data.

Based on the research questions, the research is limited to the sharing of personal data in the e-commerce environment, so that the research does not become too extensive. The research

is also limited to the use of personal data in targeted marketing, although personal data can also be used in other areas of business. The sharing of personal data and targeted marketing are viewed from the perspective of consumers. Specifically, from the perspective of consumers shopping online. The research empirically focuses on examining the attitudes of consumers living in Finland and therefore Finland is set as a geographical limitation. Respondents have not been further delineated based on cognitive or other factors to obtain the most realistic result possible.

1.2 Theoretical framework

The theoretical framework serves as the basis for the research and seeks to present how the aspects of the research are combined into a whole. The framework of this research (Figure 1) includes four main components, which are electronic commerce, consumer behavior, behavioral targeting, and personal data. The theoretical framework consists of the EKB-model designed by Engel, Kollating, and Blackwell (1968) which is regarded as one of the most important theories of consumer behavior. It sees the buying process as a series of discrete activities that are stimulated by a conscious realization of an unmet need (Ashman, Solomon & Wolny, 2015). Another important basis consists of the proposed framework of online behavioral advertising by Boerman, Kruikemeier, and Zuiderveen Borgesius (2017) which explains how consumers respond to online behavioral advertising and how consumers perceive online advertisements.

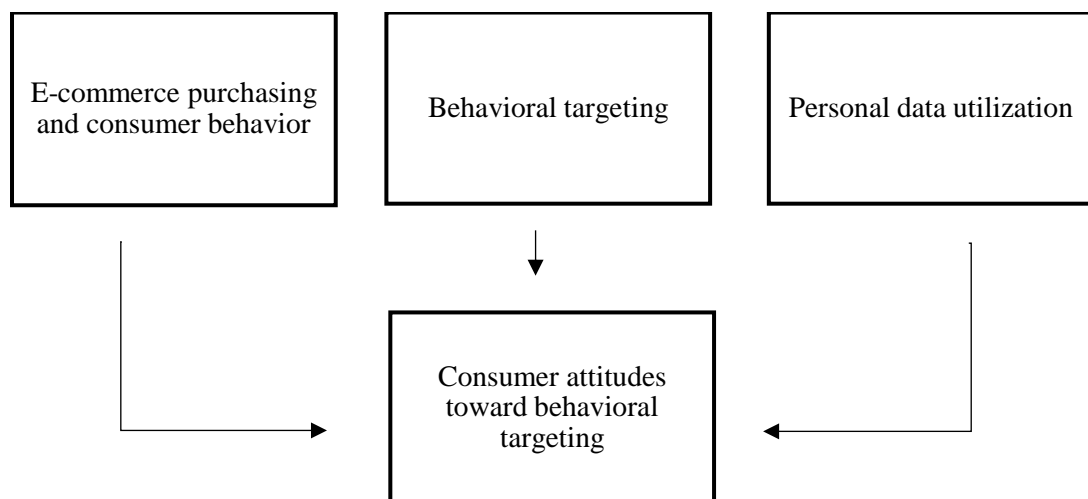


Figure 1. Theoretical framework

1.3 Definitions and concepts

This section defines the most relevant key concepts for research to assist the reader in gaining a better understanding of them. The key concepts are electronic commerce, consumer behavior, behavioral targeting, and personal data.

Electronic commerce

Electronic commerce, also known as e-commerce, is a powerful concept and practice that has transformed consumers' lives. It is one of the most important aspects of the information technology and communication revolution in the realm of business. Because of the immense benefits to humans, this type of trading has spread quickly. (Nanehkaran, 2013) Consumers may purchase online at any time and from anywhere, comparing products and pricing with a few clicks and reading other buyers' experiences with the desired product and the chosen e-commerce. Over the last two decades, the technical, legal, and security requirements of internet buying have progressively increased. (Balogh & Mészáros, 2020) E-commerce has changed industry structure by giving corporations new ways to operate their enterprises. It has also empowered consumers by giving them more options, information, and ways to buy. While the digital economy has the potential to enhance many consumers lives, there are still significant challenges to overcome. The business logic that links IT capabilities to company value, enterprise adoption, and consumers' acceptance is still a work in progress. Security, risk, and legal concerns are still largely unsolved. The lack of trust in business-to-customer (B2C) and business-to-business (B2B) connections continues to be a significant barrier to moving e-commerce and the digital economy ahead. (Shaw, 2015)

Consumer behavior

Processes occur when individuals or groups choose, purchase, use, or dispose of items, services, ideas, or experiences to meet needs and desires (Solomon, 2009). According to Butler & Preppard (1998) understanding how individual consumers make buying decisions is critical to understanding consumer behavior. Marketers will be able to identify the stages in the buying decision as a result of this knowledge and will be able to build marketing plans analytically.

Online behavioral advertising / Behavioral targeting

The process of addressing advertisements to a specific group of people or individual consumers is known as behavioral targeting or online behavioral advertising (Saia, Boratto, Carta & Fenu, 2016). As Chen, Pavlov & Canny (2009) present, behavioral targeting (BT) is a method of selecting the most relevant advertisements for consumers based on their previous actions. Behavioral targeting is another example of how new statistical machine learning approaches are being applied to online advertising. Behavioral targeting, however, differs from other computational advertising strategies in that it does not rely just on contextual data. Rather, it learns from previous user behavior.

Personal data

Personal data is data that can be used to identify or locate a specific individual. In legal terms, this is known as 'personally identifiable information. (Pangrazio & Selwyn, 2019) Digital personal data is of particular interest because it can be generated by a variety of software and hardware sources and saved in a variety of formats (Kitchin, 2014). This is referred to as 'information asymmetry' by Brunton and Nissenbaum (2015, 3), where “data on us is obtained in circumstances we may not understand, for purposes we may not understand and is used in ways we may not comprehend.” In light of this conflict, more consumers are realizing that they need to be more aware and cautious about how and why their data is utilized. While many digital technology users knowingly contribute large amounts of data on a daily basis, data is often acquired without their awareness. This is especially true when it comes to personal data, which consumers typically collect subconsciously and with little understanding of where, how, or why the information is acquired. Non-specialists are finding it more challenging to explain and comprehend digital data as it grows more widespread in everyday life. (Pangrazio & Selwyn, 2019)

1.4 Literature review

Consumer behavior in different contexts, as well as different forms of target marketing, has been much examined in recent years, both from the perspectives of companies and consumers. Changes brought about by the online environment have also been included at the heart of the studies. Li & Nill (2020) raised the effect of knowledge on consumers' desire to maintain or trade their personal data. Consumers who are more informed about online behavioral targeting are willing to spend more money to keep their data private, according to the findings. Simultaneously, they are willing to sell their data for less money than less informed consumers. Tsai, Egelman, Cranor & Acquisti (2011) questioned whether a more prominent display of private data might encourage consumers to consider privacy when making online purchases. According to the findings, when privacy information is made more prominent and accessible, some consumers are willing to pay a higher price for products purchased from privacy-protecting websites. As a result of this finding, companies may be able to utilize privacy protection as a selling feature. Consumers' reactions toward businesses' use of product preferences and names for personalization have been studied by Wattal, Telang, Mukhopadhyay & Boatwright (2012). Results suggest that consumers respond favourably when businesses embrace product-based personalization, but on the other hand, react unfavourably when businesses are open about their use of personally identifiable information. Consumers' familiarity with companies moderates negative responses to personalized greetings. Ham's (2016) study focused on how consumers react to behavioral advertising. Persuasion knowledge, cognitive evaluation, and cognitive processing features were used to create this model. The findings show that throughout the cognitive assessment process, persuasion expertise was indirectly linked to ad avoidance coping behavior. Such connections with advertisement avoidance were partially mediated by privacy concerns. Without being connected to persuasion knowledge, cognitive processing characteristics were strongly correlated with advertisement avoidance.

1.5 Research method and material

The research is executed as quantitative research. Quantitative research traditionally examines the interdependence of authors and changes occurring (Heikkilä, 2014, 15). The empirical evidence is collected with a survey. The collection of data is carried out using a

structured questionnaire in which all the respondents are asked the same questions. The factors to be examined in quantitative research are described by natural values, which are later illustrated by different methods (Heikkilä, 2014, 15). The closed-ended questions seek to provide answers on the subject under consideration. The survey also utilizes open-ended questions that will increase the dimensions of the themes to be studied. The survey is implemented to the widest possible public through the internet to be able to generalize the result through statistical reasoning. The aim is to share a questionnaire via different contacts, and as a result of the snowball effect, get the most comprehensive sample possible. After collecting the material, the material is analyzed by multivariate regression, Kruskal-Wallis and cross tabulation.

1.6 Structure of the research

The research is divided into seven chapters. The first chapter of the research introduces the topic in general and defines the research questions and objectives. In addition, the first chapter specifies the methods, delimitations, and concepts relevant to the research. The second and third chapters deal with the theoretical framework of the research. The second chapter examines the connection between online purchasing and consumer behavior. The chapter outlines the steps in the online purchase decision process. The third chapter discusses online behavioral advertising, the advantages, and disadvantages of targeting from a consumer perspective, and privacy concerns among consumers. The fourth part of the research comprises the methodology, describing the research method used and the research data collected. The fifth chapter reviews the results of the research, and the sixth discusses the results more specifically. The seventh chapter presents conclusions based on the research as well as limitations, reliability, and suggestions for future research.



Figure 2. Structure of the research

2. ONLINE PURCHASING AND CONSUMER BEHAVIOR

The most well-known model of consumer purchasing decision-making is presented by Engel, Blackwell, and Miniard (1995). The purchase decision process for consumers is divided into five steps under this model: problem recognition, information search, alternative evaluation, purchase decision, and post-purchase behavior.

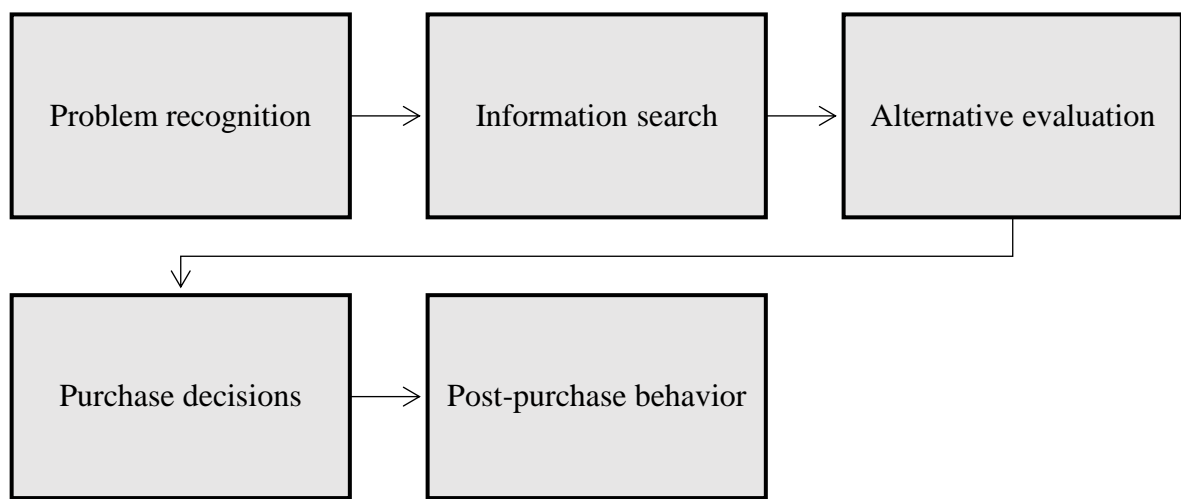


Figure 3. Purchasing process

2.1 Problem recognition

The first step of the decision-making process is problem recognition. This indicates that the consumer perceives a disparity between what he or she has, or has had, and what he or she desires, or wants to experience. (Hofacker, Malthouse & Sultan, 2016) A variety of external and internal causes might lead to the recognition of a problem. Changes in a consumer's financial situation can simulate a consumption decision; running out of stock results in depletion, which demands to restock, and marketing stimuli, such as a new product announcement or a sales promotion campaign, might encourage the consumer to experience a specific desire for the product. External marketing methods are evolving. In traditional markets, traditional marketing communications, such as television advertisements, create demand

through traditional media. However, because the Internet is a new medium, new types of communication are required. Advertising and other traditional mass marketing methods reflect a single mass marketer expressing a common message to a large number of consumers. Of course, a large portion of the audience will be uninterested, resulting in significant waste. New information technologies, on the other hand, radically alter this. Personalized consumer requirements and wants can be identified in computer-mediated environments, and then individual, tailored communications can be designed and delivered to the one individual by numerous companies. As a result, the old 'one-to-many' technique is obsolete. (Butler & Peppard, 1998)

2.2 Information search

During the information search stage, consumers take action to gain knowledge. This step of the consumer purchase decision process revolves around information gathering. In essence, the consumer is looking for information to support decision-making. (Butler & Peppard, 1998) Consumers in the traditional offline environment have difficulty discovering alternatives. The difficulty in the digital era is that there are too many options. Every step of the enriched search process now generates digital data. (Hofacker et al., 2016) Communications can now be sent on a regular basis to target recipients who have been identified as being interested based on previous visits to the website, queries, and general web browsing and purchasing behavior. The information is expected with more clarity and focus; the information provider's capacity to proactively seek the interested searcher and give the needed information has greatly improved. It should be noted, however, that when consumers obtain more knowledge, their sense of uncertainty may increase. (Butler & Peppard, 1998)

2.3 Alternative evaluation

The examination and assessment of potential options is the third stage of the consumer purchase decision process. The consumer has searched for and discovered the necessary information, and now must use it to make a purchasing decision. (Butler & Peppard, 1998) The consumer's selection criteria are those characteristics that she or he considers essential, and which provide the value she or he expects (Bergström & Leppänen, 2021). According to Lindsey-Mullikin and Borin (2017), consumers have more power over the evaluation

process as additional information sources become available. Consumers actively seek information from other consumers rather than passively absorbing information from company-controlled touchpoints. The evaluation step tends to prolong as more active information searches are conducted.

2.4 Purchase decisions

After weighing the options, the consumer decides whether to purchase. Even if the consumer has made their purchase decision, the purchasing process may be interrupted due to other factors. The actual purchase transaction is often very straightforward. (Bergström & Leppänen, 2021) The primary strategic challenges in terms of the marketing consequences of consumer behavior at the choice and purchase stage of the decision framework are ordering, payment, and delivery. Consumers must feel secure while making selections about where and how to buy. To achieve this, clarity of knowledge, compatibility with behavior patterns, and a sense of security must all be handled. (Butler & Peppard, 1998)

2.5 Post-purchase behavior

The purchase process does not end with the purchase. The purchase is followed by the consumption of the service, the use of the product, and the weighing of the solution. Consumer satisfaction and dissatisfaction influence subsequent behavior. (Bergström & Leppänen, 2021) Fornell, Rust & Dekimpe (2010) mention the consumer builds expectations about a product during the pre-purchase process. Similarly, depending on how well the product performed throughout the post-purchase period, the consumer re-evaluates and creates new expectations about future levels of pleasure. The company must seek a long-term consumer relationship that ensures its operations' profitability. Consumer satisfaction is measured and can be affected by a combination of methods, such as advertisements. A satisfied consumer is more likely to purchase again and to recommend a product or service to others. If a consumer is dissatisfied, he will seek out other options to meet wanted requirements. (Bergström & Leppänen, 2021)

3. ONLINE BEHAVIORAL ADVERTISING / BEHAVIORAL TARGETING

Advertisers are increasingly tracking consumers' online activities and exploiting the data to present consumers with specifically customized advertisements. This is known as online behavioral advertising (OBA). Advertisers consider OBA to be one of the most essential new techniques to reach out to target audiences (Boerman, Kruikemeier & Zuiderveen Borgesius, 2017). As Bennett (2011) mentions OBA, also known as “online profiling” and “behavioral targeting”, has a variety of definitions. The monitoring or tracking of consumers' online behavior, and the use of the obtained data to individually target advertisements, are two common elements of these definitions. As a result, OBA can be defined as the process of tracking consumers' online activities and using that data to serve them individually targeted advertisements. (Boerman et al., 2017) This is accomplished by marketers creating personalized profiles for each consumer based on numerous aspects of their online behavior, such as recorded browsing history and purchasing behavior (Summers et al., 2016). It goes beyond targeting based on broad criteria such as demographics or psychographics to include individual-specific behaviors as a sort of data-driven advertising (Labrecque, Markos & Darmody, 2021).

Consumers' perceptions of OBA tend to be divided. Some consumers believe that tailored advertisements are beneficial (McDonald & Cranor, 2010; Ur, Leon, Cranor, Shay & Wang, 2012), but the majority of consumers appear to be wary of OBA, believing it to be intrusive and “creepy” (Smit, Van Noort & Voorveld, 2013; Ur et al., 2012). Invasive practices such as collecting and obtaining personal data, tracking, and breaching a consumer's personal space are seen as “creepy marketing” by consumers (Moore S., Moore M., Shanahan, Horky & Mack, 2015). Companies know a lot about their consumers, but consumers don't know much about what happens to their personal data. Determining which companies acquire which personal data online and what happens to the data appears to be a practical challenge. Consumers who believe they have an understanding of how OBA works are more likely to exaggerate the impacts of OBA on others while underestimating the effects on themselves. (Ham & Nelson, 2016).

Boerman et al. (2017) created a framework (Figure 4) that explains consumers' reactance to online behavioral advertising and online advertisements are perceived by consumers. This framework separates three categories of components: advertiser-controlled factors, consumer-controlled factors, and advertising outcomes, and explains how consumers see and interpret online advertisements. The factors that are controlled by the advertiser include those that are part of the advertisement itself and can vary between different online behavioral advertisements, as well as the types of transparency that advertisers use to communicate that an advertisement is based on online behavior. A cognitive aspect, such as consumer's knowledge and abilities regarding OBA, an emotive aspect, such as consumers views of OBA in general or of a specific advertisement, and personal traits, such as age or desire for privacy, are among the consumer-controlled factors. Consumer responses to OBA in terms of real advertising effects and the degree to which consumers accept or reject OBA are among the outcomes.

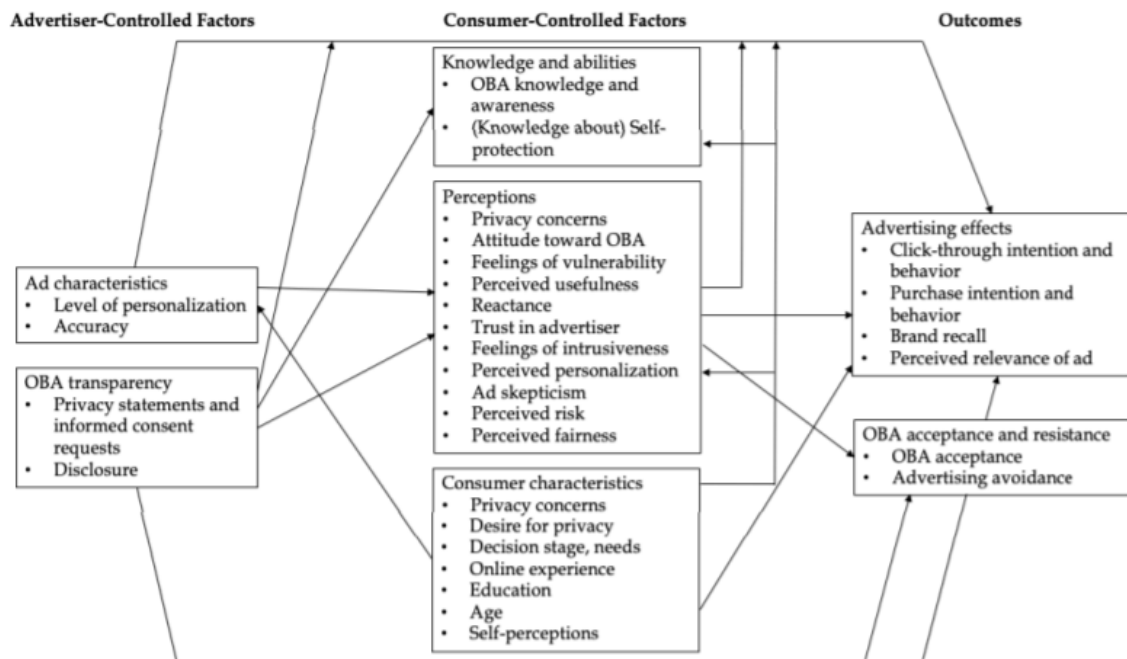


Figure 4. Consumers' reactance to online behavioral advertising

3.1 Benefits of targeting

Targeted advertising benefits both advertisers and users. Companies can improve revenue by advertising to users who are more inclined to purchase, using easily applicable offers and pricing experiments based on website visitor purchases, matching the company's prices with

those of its competitors, and increasing relevancy of consumer-targeted messages (Alreck, 2008 & Wang et al., 2015). The results of the various advertisements varied depending on the consumer's decision stage, with OBA being more effective when consumers had narrowly specified preferences and so placed a larger emphasis on particular and comprehensive information. Generic advertisements led to a higher likelihood of purchases while consumers' tastes remained diverse, and they were in the early stages of a buying decision. (Lambrecht & Tucker, 2013)

The data which is used to create OBA varies wildly. Because advertisers rarely use all of this information in a single advertisement, the levels of personalization vary. (Boerman et al., 2017) From a consumer perspective, the benefit is receiving more relevant and useful adverts that correspond to their preferences and interests (Wang et al., 2015). When an advertisement accurately reflects a consumer's behavior and perceptions, it can improve their potential of making a purchase (Summers, Smith & Reczek, 2016). According to Dehling, Zhang & Sunyaev (2019) consumers may see tailored advertising as a way to focus on their own thoughts and filter the avalanche of information available in internet environments. OBA can serve as an implicit social designation. When consumers realize an advertisement is based on their previous online activity, they realize the marketer has made assumptions about them. As a result, OBA gives an external characterization of the self, prompting consumers to modify their self-views and use these perceptions to guide their purchasing decisions. (Summers et al., 2016) When the advertisement meets the demands of the consumer, the impacts of OBA on consumer behavior and purchase intentions are more beneficial (Van Doorn & Hoekstra, 2013) and when consumers' preferences are narrowly defined (Lambrecht & Tucker, 2013). In addition, responses to OBA appear to be connected to age, education, and previous internet experience. (Lee, S., Lee, Y., Lee, J. & Park, 2015; Miyazaki, 2008; Smit et al., 2014; Turow, King, Hoofnagle, Bleakley & Hennessy, 2009). Consumers are reminded of their aspirations by OBA. Furthermore, online behavioral advertising can be viewed as a means of saving money and time. (Dehling et al., 2019)

3.2 Concerns over online privacy

Consumer acceptance and the effectiveness of OBA are influenced by privacy concerns and trust. Trust has a beneficial impact on consumers' impressions of the advertiser's

trustworthiness, reduces privacy worries, and results in more positive behavioral intentions. (Bleier & Eisenbeiss, 2015; Stanaland, Lwin & Miyazaki, 2011) Because OBA -process involves collecting, using, and sharing personal data, it raises privacy issues among consumers. To personalize their offers, contemporary firms rely on a steady influx of personal data (Jones, 1991). Personal data collecting, on the other hand, has raised concerns about consumer privacy. Culcan (2000, 20) states that “Privacy can be defined as consumer’s ability to control the terms under which their personal data is acquired and used”. Consumers must increasingly cope with privacy concerns as a result of new marketing technologies such as online behavioral targeting, in addition to the expanding Internet fraud, such as identity theft or phishing (Spake, 2011). When an advertiser collects and utilizes information without disclosing it or obtaining consent, it may constitute a breach of the social contract, a violation of personal space, and, as a result, a reduction in trust. There is information asymmetry, which can be problematic since faulty mental models, a lack of persuasion knowledge, and an underestimation of OBA impacts can all undermine deliberate and knowledgeable decision-making. (Boerman et al., 2017)

Consumers' lack of understanding of OBA makes it difficult to maintain control over their personal data (Cranor, 2003). Consumers demand control over the collecting and use of their personal data, and a small percentage of consumers try to do so by deleting cookies, denying allowing the storage of cookies, or using software that deletes cookies. Despite doing such activities, it appears that consumers are unsure why they are doing so. (McDonald & Cranor, 2008) Not all accessible technologies and techniques for protecting privacy are effective. Furthermore, consumers appear to be unaware of the available methods, making it difficult to defend their online privacy (Cranor 2012; Ur, et al., 2012). To deal effectively with OBA, consumers must first have a basic understanding of how tracking technology works. Many consumers are unaware that their online behavior is being recorded, let alone that the information is being utilized to send them personalized messages. (Ham, 2017) When consumers feel threatened, they want their freedom of power, choice, and ownership restored. Consumers who see highly tailored advertisements perceive a loss of control, choice, or ownership, resulting in unfavourable thoughts and responses. (Boerman et al., 2017)

Consumers demand transparency and to understand how their personal data is collected, used, and shared (Gomez, Pinnick & Soltani, 2009; Turow, Delli Carpini & Draper 2012).

Consumers are more vulnerable when companies don't publicly mention that they utilize personal data to personalize advertising and then offer highly targeted advertisements. Companies that are transparent about data collecting, on the other hand, have no effect on perceived vulnerability. (Aguirre, Mahr, Grewal, de Ruyter & Wetzels, 2015) If consumers are aware of the impact of OBA, they will be able to assess the risks and advantages deliberately (Ham, 2017).

Protective behavior appears to be influenced by consumer characteristics. The more concerned consumers are about their privacy, the more they try to preserve it. (Smit et al., 2014) When the obtained information is detrimental or makes a consumer uncomfortable, the costs of OBA don't outweigh the benefits (Boerman et al., 2017). A key hurdle to consumer acceptance of OBA is the dearth of research on how websites address these privacy concerns (Schumann & Wangenheim, 2014). Consumers have previously expressed tension over privacy versus personalization, demonstrating uncertainty regarding the benefits and risks of online marketing methods, even when they are aware of how the method works (Mahoney, 2015). Consumers who have lower privacy concerns or lower demand for privacy are more accepting of OBA (Baek & Morimoto 2012; Miyazaki 2008; Smit et al., Stanaland, Lwin, and Miyazaki 2011). In the context of OBA, consumers will analyze their own abilities to control the sharing of personal data after realistically assessing OBA. Beyond just assessing the risks and benefits of OBA and their ability to manage them, consumers can process their awareness of OBA in a variety of ways. (Maslowska, 2013)

Regulators have given OBA a lot of thought to preserve consumer privacy and describe how to tell consumers about data collection and use. (Boerman et al., 2017) Under privacy rules, companies have to be transparent about their data processing procedures, and the goal is to promote transparency by requiring companies to get consent before utilizing OBA. Whenever possible, personal data should be gathered with the knowledge or agreement of the data subject. One of the objectives of these activities is to empower consumers. Most privacy regulations require consumers to be able to make informed decisions about their privacy and personal data. Some consumers may choose OBA and allow corporations to track them, whereas others may prefer more privacy and opt-out of tracking. Through companies revealing information to consumers, these statements should assist lessen information asymmetry between companies and consumers. (McDonald & Cranor, 2008) Despite the fact that the

number of privacy statements disclosed has increased they are rarely read and consequently fail to inform consumers (Cranor 2003; McDonald and Cranor 2008; Milne & Culnan, 2004; Miyazaki, 2008). Almost all requests are met with an agreement or simply ignored by consumers (Marreiros, Gomer, Vlassopoulos & Tonin, 2015; Zuiderveen Borgesius, 2015). As a result, informed consent requests appear to be an effective approach to give consumers control, although they don't adequately inform or empower consumers. To promote transparency, the online marketing sector has established self-regulatory measures that include explicit disclosure of data collection, utilization, and distribution. Consumers appear to value companies' transparency efforts. (Van Noort, Smit & Voorveld, 2013) Concerns about privacy and advertising annoyance both enhance advertisement suspicion, which leads to more OBA avoidance (Baek & Morimoto, 2012).

4. METHODOLOGY

This chapter discusses the data used in the research, its method of collection, and the research method used. It will also be discussed how the research questionnaire was constructed based on a theoretical framework. The research was conducted as quantitative research. Numerical quantities are used to describe things in quantitative research, and the outcrops can be represented with tables or figures (Heikkilä, 2014, 15). The statistics were processed using a computer program that processed the collected data (STATA 16.1).

4.1 Multivariate regression

To perform a multivariate regression, two commands are required: `manova` and `mvreg`. A MANOVA (multivariate analysis of variance) analyzes the means of two or more groups across multiple dependent variables. One or more independent variables can be included in a MANOVA. (Ross & Willson, 2017) It's an appropriate method whenever a comparison of mean scores is part of the research question and when comparing the means of numerous separate variables at the same time (Bray & Maxwell, 1985). The MANOVA will notify if all the equations are statistically significant when combined. Wilks' lambda, Lawley-Hotelling trace, Pillai's trace, and Roy's largest root are the four multivariate criteria that provide f-ratios and p-values. The variables are also examined using multivariate regression to obtain a refinement result for MANOVA analysis. By using multivariate regression, the actual coefficient estimates and tests for each dependent variable are possible to detect (Williams, 2015). Multivariate regression requires both outcome and predictor variables to be specified. Because the MANOVA command is used before multivariate regression, it is possible to use multivariate regression to the model without any additional input.

While this research does not focus on examining the impact on certain selected demographic factors that affect the sharing of personal data and consumer behavior, consumers' age, gender, and education have been included in the MANOVA and multivariate regression analyses. It is, therefore, possible to have a broader understanding in addition to the overall picture of whether consumers' opinions and attitudes are evenly distributed between the groups or whether some factors have a greater impact. MANOVA and multivariate regression were used for questions 5, 6, 7, 9, 12, 14, 15, 17, 18, and 20. The groups were modified to obtain

the most concrete result possible. Age groups were treated as a continuous variable. From education group comparison included a primary school, secondary education, and higher education groups. In the gender group, men and women were excluded from the comparison. Groups of a few respondents were excluded from the comparison, as these groups might otherwise have a distorting effect on the results.

4.2 Kruskal-Wallis

When the data is divided into more than two groups with examination properties, a test of several independent samples is considered in connection with the testing of statistical significance (Kanninen, 1999). The Kruskal-Wallis test is a non-parametric statistical test that compares the mean value of the rank values. It is used to determine whether two or more independently sampled come from the same distribution. (Guo, Zhong & Zhang, 2013) The test is appropriate for non-normally distributed data (McKnight & Najab, 2010). Questions 8, 11, 16, 21, and 22 were examined by the Kruskal-Wallis test. The test examines the possible impact of age on questions.

4.3 Cross tabulation

Cross tabulation examines the relationship between the two variables provided and how these variables affect each other (Heikkilä, 2014). Cross tabulation is typically applied to categorical data. It is useful method for determining how the values of two variables are related, which cross-classification is preferred by respondents, and how these cross-classifications differ from each other. (Dass, 2010) To determine to the relationship between the relationship between gender and education to questions, cross tabulation is used for questions 8, 11, 16, 21, and 22.

4.4 Data collection

The data of the research was conducted with an anonymous online survey questionnaire. The questionnaire was generated using the web-based survey tool Qualtrics and the response link was open to everyone for 18 days. The questions were presented in Finnish to minimize misunderstandings and to obtain the most realistic responses possible. Snowball sampling

was used as a sampling method in the research. Goodwill (2015) describes the snowball sampling method as follows “participant informants with whom contact has already been made use their social networks to refer the researcher to other consumers who could potentially participate in or contribute to the research”. The link to the questionnaire was distributed via own contacts through the instant messaging service WhatsApp, the online community service LinkedIn, and a few other social media channels. At the same time, it was requested to forward the link to other persons. In addition, LUT-university channels were used to distribute the questionnaire. The total number of responses to the questionnaire was 103.

The survey (Appendix 1) contained a total of 22 questions of which three were open-ended questions and the rest closed-ended questions. The first three questions dealt with the respondents' general demographic data. To form an overall picture of the respondents to the survey, age, gender, and educational level were asked. Questions number four, five, and six generally dealt with respondents' internet experiences and e-commerce habits. Questions related to personal data and target marketing were divided into two different sections, and at the beginning of both sections, the respondents have explained the concepts related to the questions. Questions 7, 8, 9, 10, 11, 12, 13, and 14 dealt with personal data habits, opinions, and attitudes. The questions aimed to answer the sub-question in more detail “How do consumers experience the sharing of personal data in an e-commerce environment?” Questions 15, 16, 17, 18, 19, 20, 21, and 22 dealt with attitudes, opinions, and habits towards the target marketing. The aim of these questions was to answer the sub-question “How do consumers see the benefits and disadvantages of targeted marketing?” The main research question “How do consumers experience the sharing of personal data in an e-commerce environment?” can be answered by combining the results of the sub-questions.

4.5 Data description in general

The survey reached a total of 103 consumers. Of the total number of respondents, 52 (50%) respondents belonged to the age group 18–24. The next largest age group among respondents was those aged 25 to 34 (34%). Age groups 35–44, 45–54, and 55–64 were evenly distributed, together forming 16 respondents (16%). Looking at the gender balance of respondents, 64 (62%) of the respondents were women and thus formed the largest group. Thirty-seven (36%) of the respondents were men. The remaining 2 (2%) of respondents belong to the

groups “non-binary/third gender” and “prefer not to say”. Most of the respondents, 69 (67%) respondents, are of higher education level. Secondary school students were next represented with a total of 31 (30%) respondents. Three (3%) of the respondents, consisted of respondents who had completed other education or primary school.

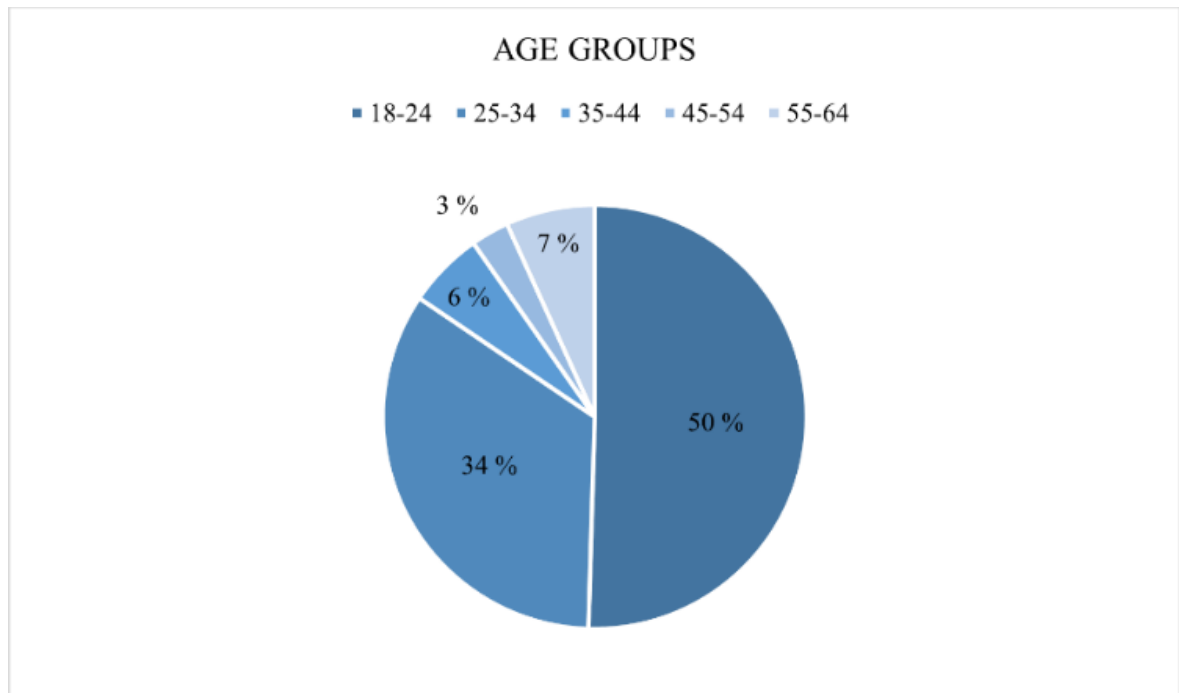


Figure 5. Age groups

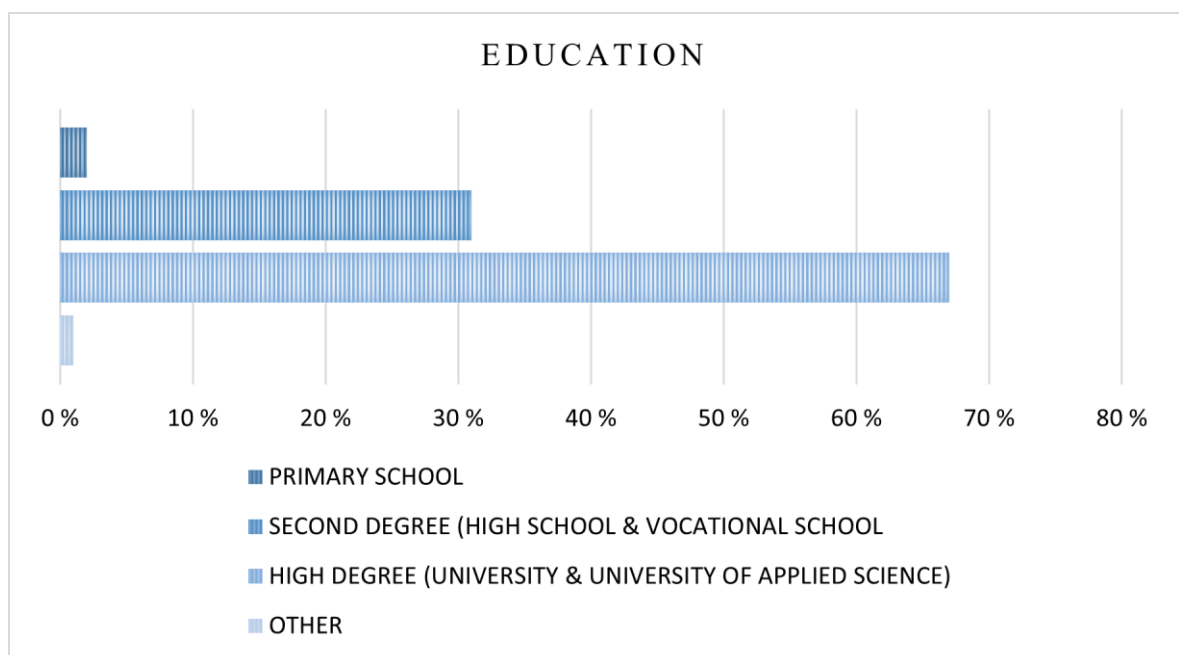


Figure 6. Education

5. RESULTS

This chapter presents and analyzes the results of the questionnaire. The analysis answers the research questions and provides an overview of the result achieved. Statistical key figures are used to present the findings of the research. The findings are subdivided into chapters which are consumer online behavior, sharing personal data online and, attitudes toward target marketing.

5.1 Consumer online behavior

Consumer online behavior was approached with three questions. The first one focuses on consumers' internet usage habits. The aim of the second question is to find out consumers' attitudes towards online purchasing. The third question examines how often consumers shop online. The results show that the majority of consumers use the internet daily. Daily users account for 98 respondents (99%) and 1 respondent (1%) uses the internet weekly.

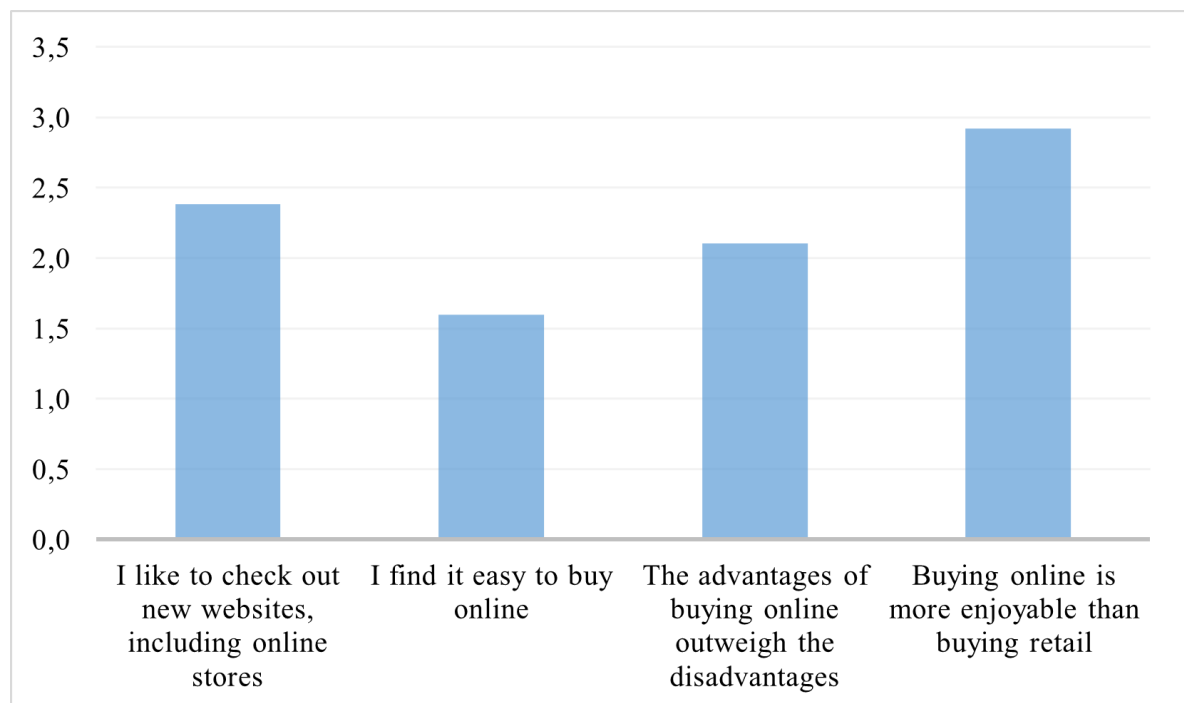


Figure 7. Attitudes toward purchasing online

Attitude towards purchasing online was approached with four statements (Figure 7) The results show that consumers somewhat agree with the statement that checking out new

websites, including online stores is likable (2.4). This is also supported by the following statement, in which most of the consumers strongly agree purchasing online is easy (1.6). Most consumers somewhat agree that the benefits of buying online outweigh the disadvantages (2.1). Attitudes on the statement that buying online is more enjoyable than buying retail results consumers somewhat agree with the statement (2.9). In the MANOVA analysis (Appendix 2) individual factors had no statistical significance in attitudes toward browsing new websites, online buying easiness, advantages, and enjoyability.

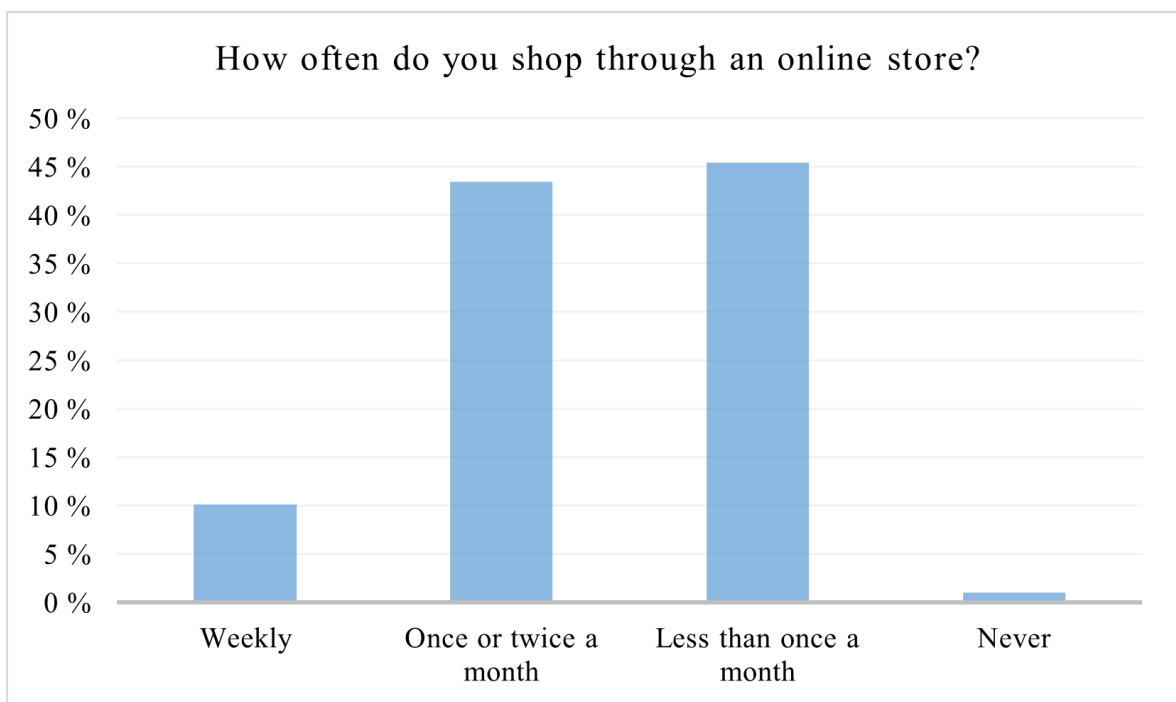


Figure 8. The number of purchases made online

Figure 8 illustrates the number of purchases consumers made online. According to results most of the consumers with 45 respondents (45%) buy products online less often than once a month. However, also a large proportion of consumers with 43 (43%) respondents buy products online once or twice a month. In the MANOVA analysis (Appendix 2), individual factors had no statistical significance on how often consumers shop through an online store.

5.2 Sharing personal data online

Attitudes toward sharing personal data were approached with eight questions aiming to understand consumers' attitudes toward sharing, consumers' knowledge toward it, and how consumers seek to make an influence.

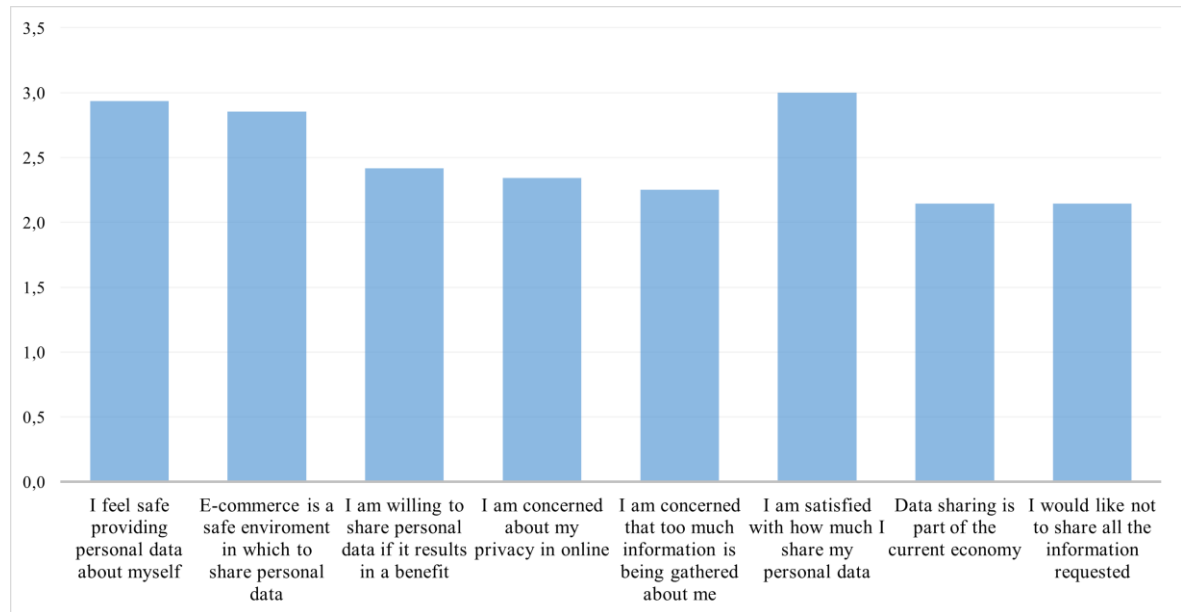


Figure 9. Attitudes toward sharing personal data

Attitude towards sharing personal data was approached with eight statements (Figure 9). The result shows that most of the consumers somewhat agree they feel safe providing personal data about themselves (2.9). To statement e-commerce is a safe environment in which to share personal data consumers somewhat agree (2.9). Attitudes emphasize consumers somewhat agree they are willing to share personal data if it results in a benefit (2.4). Most consumers somewhat agree with the statement that they are concerned about privacy online (2.3). The same attitudes are supported by the statement that consumers are concerned that too much information is being gathered about them (2.3). Consumers' attitudes towards being satisfied with how much they share personal data are evenly distributed and these results consumers neither agree nor disagree how satisfied they are (3). Attitudes emphasize that most consumers somewhat think that data sharing is part of the current economy (2.1). The result shows that most of the consumers somewhat agree that they don't like to share all the information requested (2.1). In the MANOVA analysis (Appendix 2), individual factors have statistical significance in attitudes. Based on the multivariate regression (Appendix 3) group

age is statistically significant when measuring whether consumers feel safe when sharing personal data about themselves and whether consumers feel that the e-commerce environment is a safe environment to share personal data. The age group is also statistically significant in terms of consumers' concerns about collecting too much data and whether sharing data is perceived as part of the current economy. As a result, age has an impact on how safe consumers feel when sharing data, how safe consumers perceive an e-commerce environment, how concerned consumers are about collecting too much data, and whether consumers are experiencing data sharing to be part of the current economy.

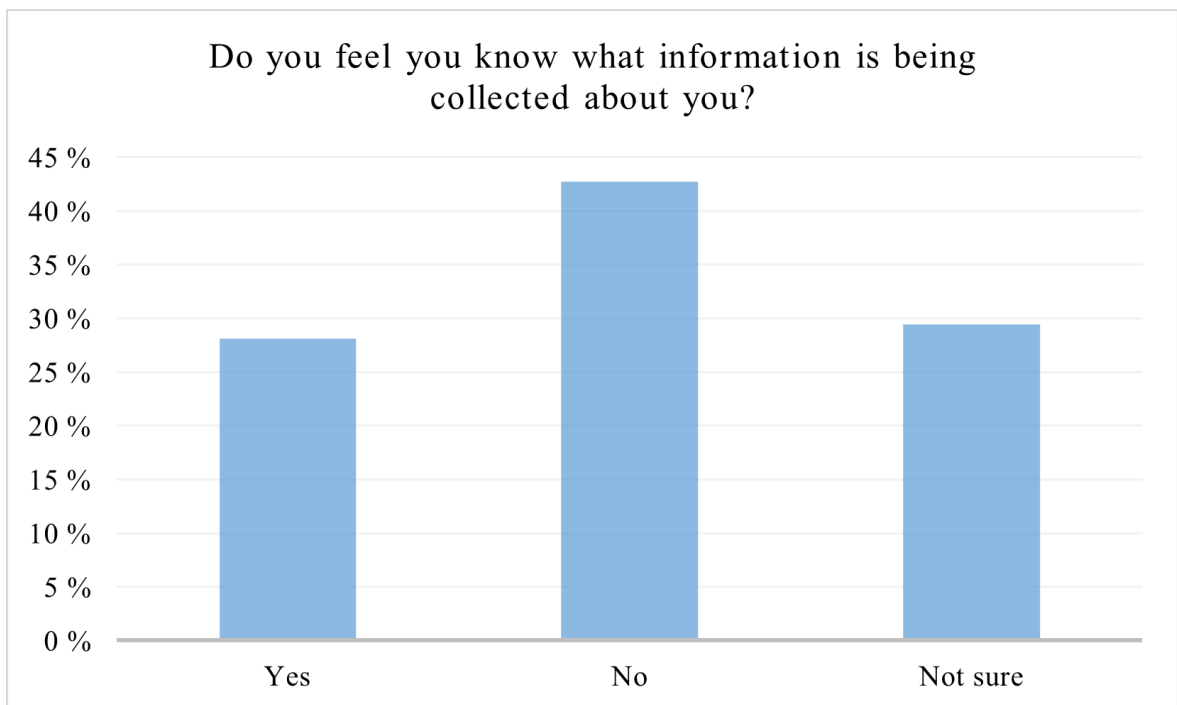


Figure 10. Knowledge of the information collected

Figure 10 illustrates consumers' knowledge of the information collected. Results show that 41 (43%) of consumers don't know what information is being collected about them in the context of online platforms. Altogether 28 (29%) of consumers are unsure of what information is being collected. Many of the consumers 27 (28%) also think they know what information is being collected about them. In the Kruskal-Wallis test (Appendix 4), age doesn't have a statistical significance and cannot be said to have a very significant impact on the consumer's knowledge of the information collected about them. The result of cross tabulation proves that group education (Appendix 6) does not have a statistical significance, but gender (Appendix 5) has statistical significance, so it can be assumed that gender will have

an impact on whether to know what information is collected. The results show that women don't believe they know what information is collected about them and the knowledge of collected data is affected by a lot of uncertainty. For men, responses are evenly distributed, indicating that men know or don't know what information is being collected about them.

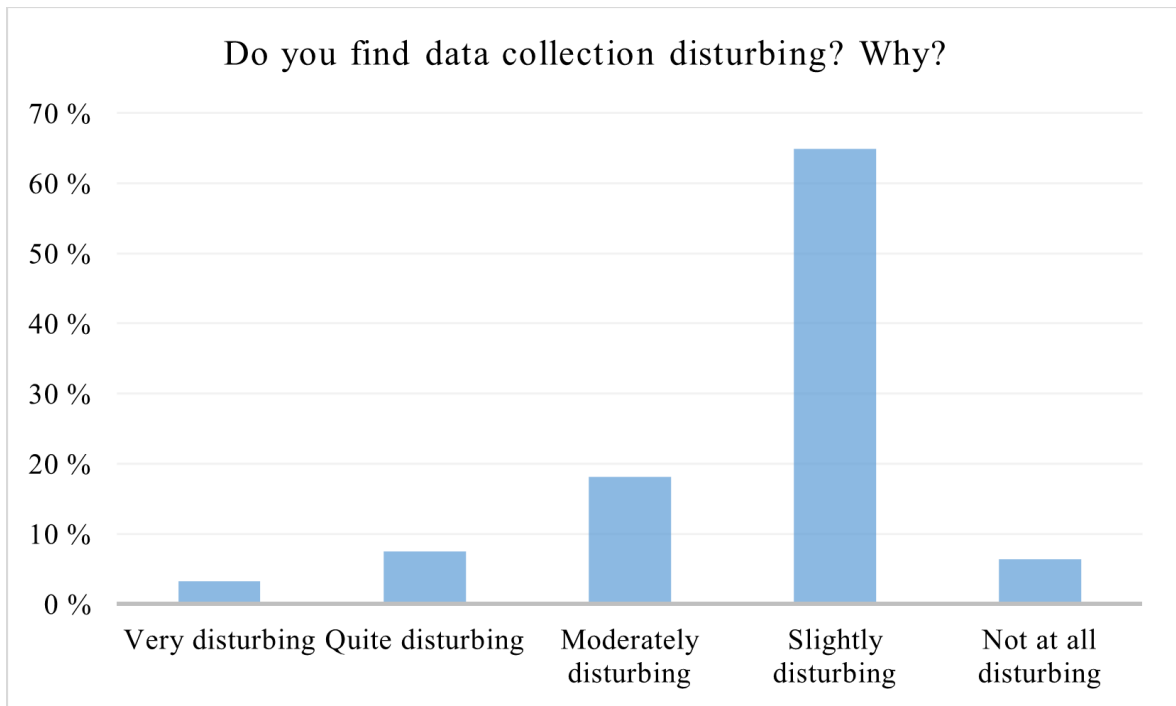


Figure 11. Perceived disruption in data collecting

Figure 11 illustrates do consumers perceive data collection as disturbing. According to the results, 61 (65%) of consumers find data collecting slightly disturbing. An open-ended question was also attached to the question to gain more consumer awareness. It is clear from consumers' responses that consumers don't know where the data will be used and where it will end up. Consumers are also concerned that the data will remain online. Among other things, consumers have said "I understand that in order to monitor algorithms and develop their operations, online stores should collect as much information as possible about their consumers to be able to create as realistic buyer profiles as possible, but I feel that not all of my personal data is necessary for the operation of the online store. In addition, in smaller and more unknown online stores, sharing personal data feels more disturbing". Consumers also find data protection problematic. For example, consumers have commented as follows "Because I don't know how good security the company has" and also consumers are particularly concerned about personal data "Due to the possibility of misuse of personal data". In

MANOVA analysis (Appendix 2), individual factors have a statistical significance on the perceived disruption of data collection in consumer opinions. Multivariate regression (Appendix 3) suggests age group has statistical significance and therefore has the greatest impact on how disturbing data collection is perceived. Gender and education don't have a significant impact.

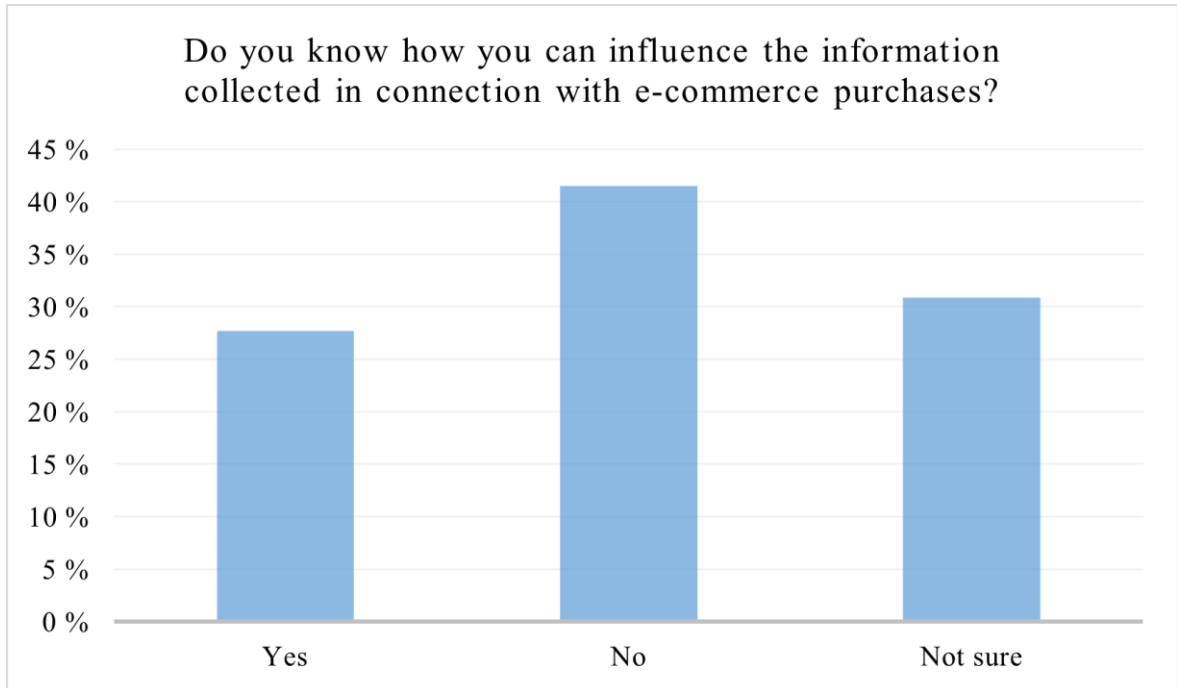


Figure 12. Influence on information collected

Figure 12 illustrates whether consumers are aware of the ways they can influence the collected information in connection with e-commerce purchases. The results show that 39 (41%) of consumers don't know how they can influence the information collected in connection with e-commerce purchases. This is also supported by the fact that 29 (31%) of consumers answered they are not sure how to have an influence. However, 26 (28%) of consumers believe they understand how they can influence the information being collected. Age has a statistical significance in the Kruskal-Wallis test (Appendix 4) and therefore has an impact on how consumers believe they can influence the information collected about them in the context of e-commerce purchases. According to cross tabulation, education (Appendix 6) has no statistical significance, but gender (Appendix 5) does. The results show, men believe that they know how they can influence the information collected about them in connection with e-commerce purchases, but women's responses reveal they don't know.

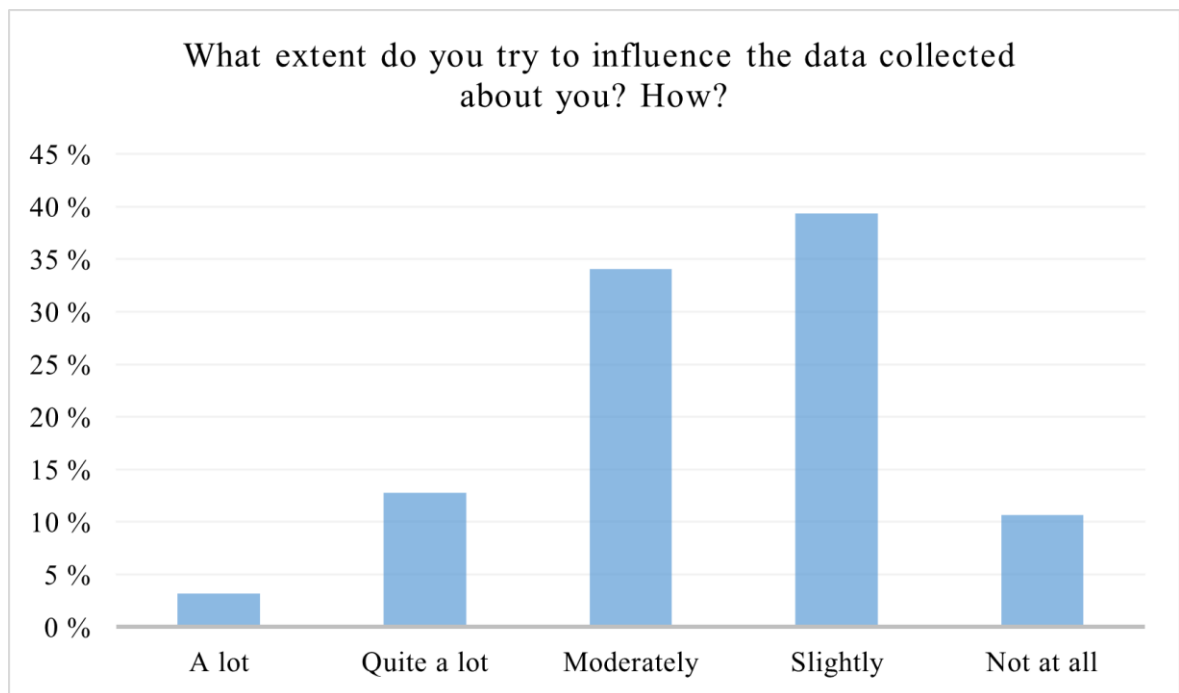


Figure 13. Influencing on data collected

Figure 13 illustrates to what extent consumers are trying to influence the data collected about them. The results show that most of the consumers, 37 (39%) slightly or moderately try to influence the data collected online. This question also included an open-ended question to get a broader picture of consumer thoughts. Consumers seek to provide only mandatory information about themselves and prohibit the use of cookies. For example, consumers comment that “Providing as little information as possible and accepting only necessary cookies” and “I haven't put in any information that isn't needed or authorized the use of cookies if I haven't wanted to. I also try to avoid sites that I find unreliable.” Consumers also take advantage of various blocking programs that can affect the data collected. In the MANOVA analysis (Appendix 2), individual factors had no statistical significance in the extent to which consumers try to influence the information collected about them.

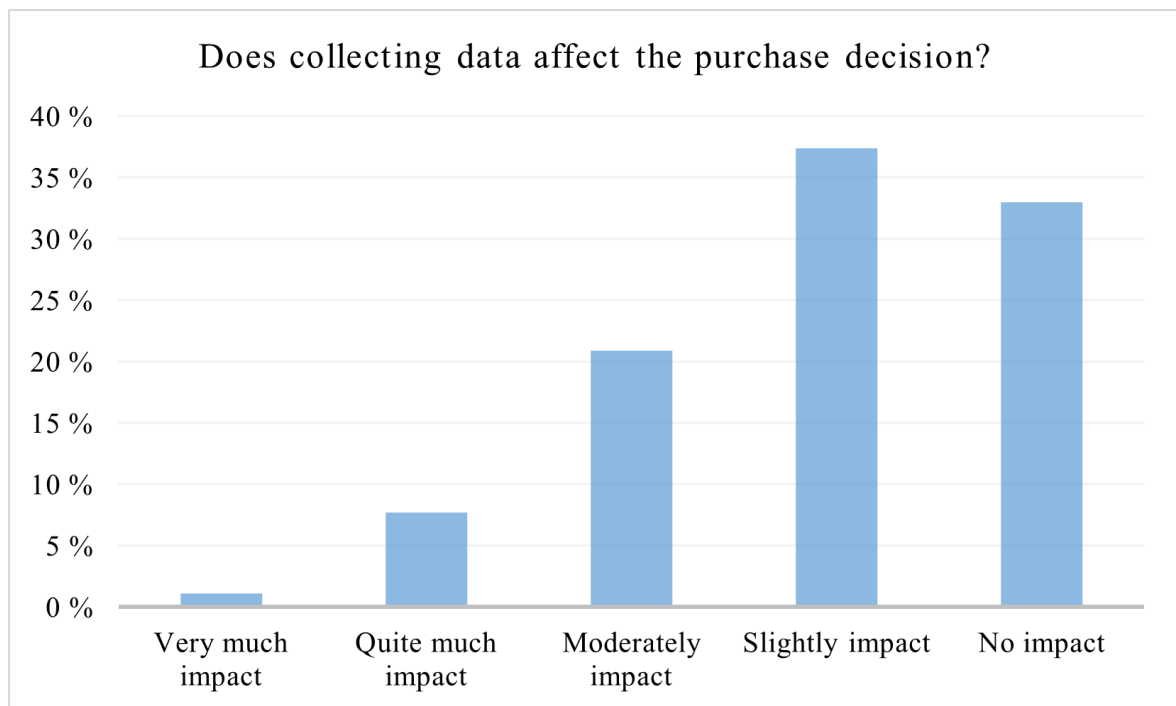


Figure 14. Affect on purchase decision – collecting data

Figure 14 illustrates consumers' thoughts on whether data collection will influence their purchasing decisions. According to results 34 (37%) of consumers believe collecting data has a slightly impact on their purchasing decision. A large proportion of consumers, 30 (33%) also feel that it has no influence on their purchasing decisions. In the MANOVA analysis (Appendix 2), individual factors have statistical significance in the impact of data collection on the purchasing decision. The result of multivariate regression (Appendix 3) shows group age and education have no statistical significance, but group gender does. The women's group is statistically significant and therefore has an impact on whether the collection of data affects the purchase decisions.

5.3 Attitudes toward target marketing

Attitudes toward target marketing were approached with seven questions aiming to understand consumers' attitudes toward target marketing actions and what are the advantages and disadvantages of target marketing from a consumer perspective.



Figure 15. Paid attention to target marketing

Figure 15 illustrates how much consumers pay attention to target marketing. The result shows that 54 (61%) of consumers continually pay attention to target marketing actions. The figure shows that consumers perceive target marketing. Consumers who pay slightly attention to target marketing also account for 33 (37%). From this, it can be concluded that consumers are vigilant to understand what the means of target marketing are. Individual factors don't have statistical significance in the MANOVA analysis (Appendix 2) when it comes to how much consumers pay attention to target marketing.

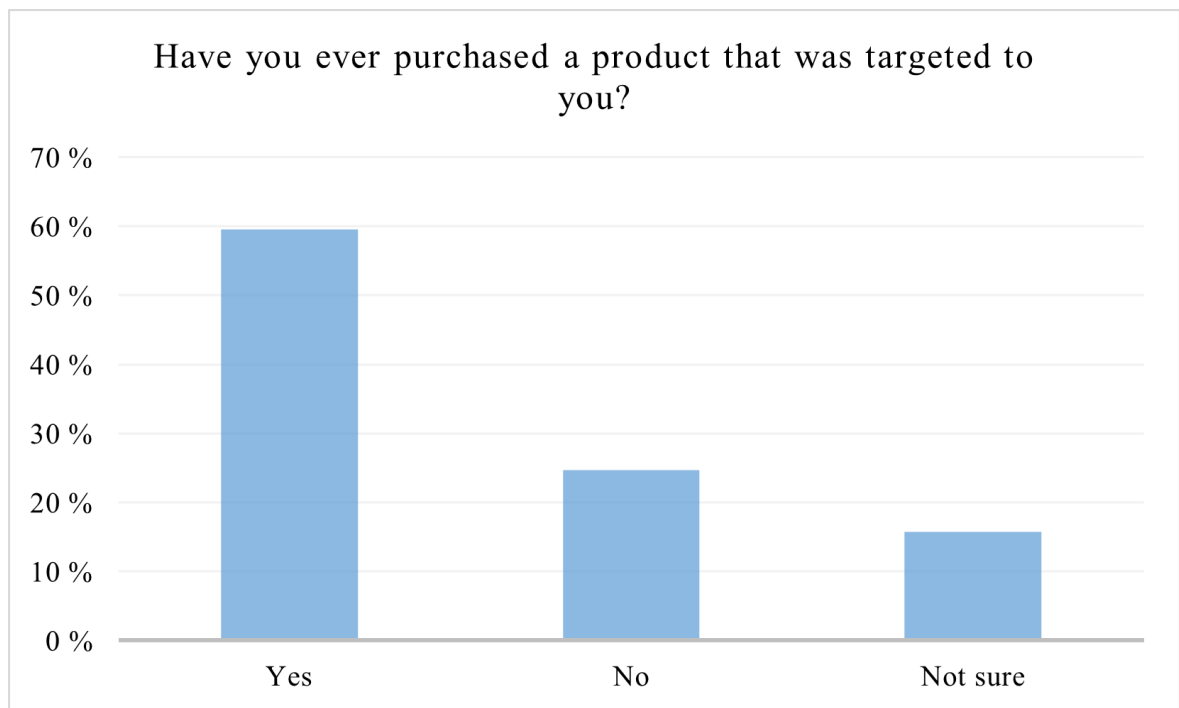


Figure 16. Purchased product through targeting

Figure 16 illustrates whether consumers have ever purchased a product that was particularly targeted to them. The results demonstrate that 53 (60%) of consumers have taken advantage of targeting and purchased products based on it. Altogether 22 (25%) of consumers have not purchased a product via targeting and 14 (16%) of consumers are not sure. Age has no statistical significance in whether consumers purchased products through targeted marketing, according to the Kruskal-Wallis test (Appendix 4). The results of cross-tabulation provide gender (Appendix 5) and education (Appendix 6) are also not statistically significant and therefore does not have much effect.

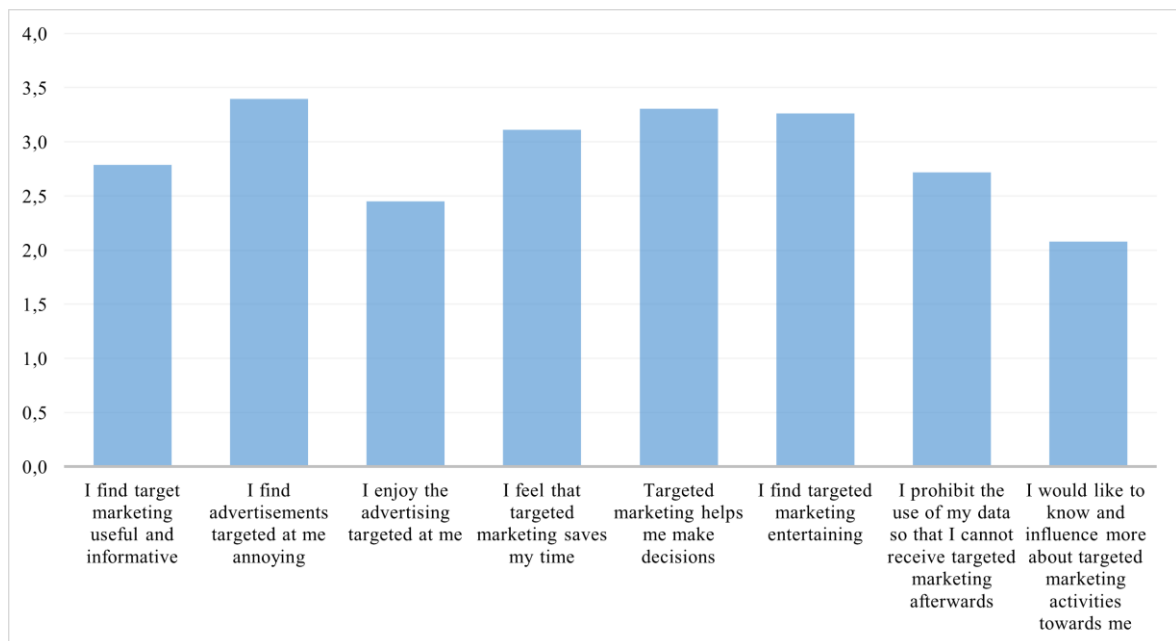


Figure 17. Attitudes toward target marketing

Attitude towards target marketing was approached with eight statements (Figure 17). Consumers somewhat agree with the statement they find target marketing useful and informative (2.8). The results indicate consumers neither agree nor disagree with targeted advertisements to be found annoying (3.4). Consumers somewhat agree with the statement that target marketing is enjoyable (2.4). Attitudes to the statement that target marketing save time result in consumers neither agreeing nor disagreeing with the statement (3.1). Most consumers neither agree nor disagree with the statement that target marketing helps make a decision (3.3) and neither agree nor disagree if they find targeted marketing entertaining (3.3). Consumers somewhat agree and admit to prohibiting access to their data that cannot benefit from targeting marketing afterward (2.7). The above statement is supported by the results consumers somewhat agree they would like to know more and influence target marketing actions toward them (2.1). According to MANOVA analysis (Appendix 2) individual factors have statistical significance in consumers' attitudes about how useful and informative targeted marketing is perceived, as well as attitudes about how enjoyable targeted advertisements are recognized. Individual factors also have statistical significance in whether target marketing is perceived as time-saving and entertaining, and whether consumers seek to prohibit their data to avoid target marketing. Based on multivariate regression (Appendix 3) age group is statistically significant and has an impact on whether target marketing is perceived as useful, informative, time-saving or entertaining. The age group also explains whether targeted

advertisements are perceived as enjoyable and whether the consumers prevent target marketing by denying access to personal data. Gender and education don't have a significant impact on attitudes and therefore cannot be seen to have much effect.

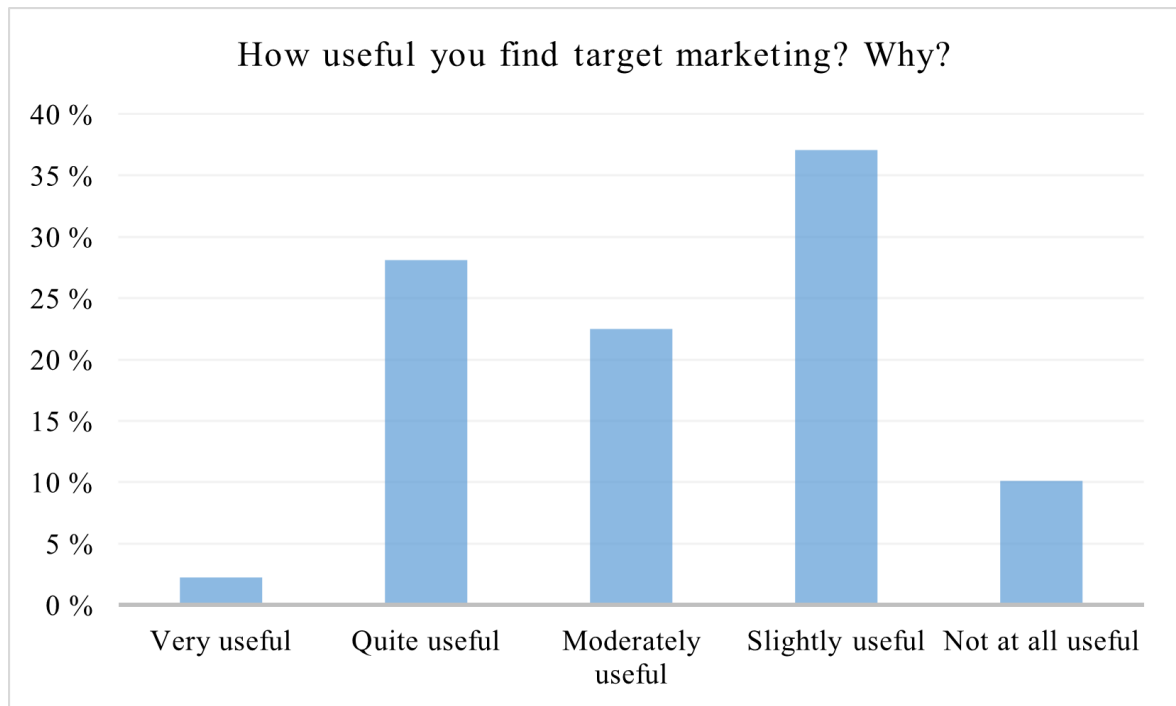


Figure 18. Perception of the usefulness of target marketing

Figure 18 illustrates how consumers perceive the usefulness of target marketing. Most consumers, 33 (37%) find target marketing slightly useful for them. However, also a large proportion of consumers think target marketing is quite useful 25 (28 %) or moderately useful 20 (22%). Consumers were asked an open-ended question for more detailed information on how target marketing is perceived as useful or unethical. Consumers' responses highlight the fact that consumers feel that target marketing can help them find new products, compare prices and, at the same time get discounts. Among other things, consumers described that “It brings to my attention brands and products that might interest me”, “I achieve information that is useful to me and possibly necessary products that I might not otherwise know how to look for. “Useful because it can make you consider making a purchase decision”, “It saves me time by not having to browse the website for long to find something that you like” and “That way it is possible to get offer price, that I wouldn't otherwise buy.” Some consumers also feel that target marketing is of no use to them “I feel useless because it is often not targeted ‘correctly’”. “Also raises questions about advertisements that may not be seen

“Advertisements do hit their targets but does a certain kind of bubble create and also exclude good advertisements?”. Individual factors have statistical significance in MANOVA analysis (Appendix 2). Based on the multivariate regression (Appendix 3) gender and education are not statistically significant, but the age group has statistical significance and therefore has an impact on how useful target marketing is found.



Figure 19. The impact of target marketing on privacy

Figure 19 illustrates to what extent consumers feel that target marketing has an impact on their privacy. Altogether 30 (34%) of consumers experience that target marketing has a moderately impact on privacy. Also, 26 (29%) of consumers do think target marketing has quite a much impact on their privacy, and 24 (27%) of consumers in turn think target marketing has a slightly impact in terms of privacy. In the MANOVA analysis (Appendix 2), individual factors did not have a statistical significance of the extent to which consumers perceive target marketing to have an impact on privacy.

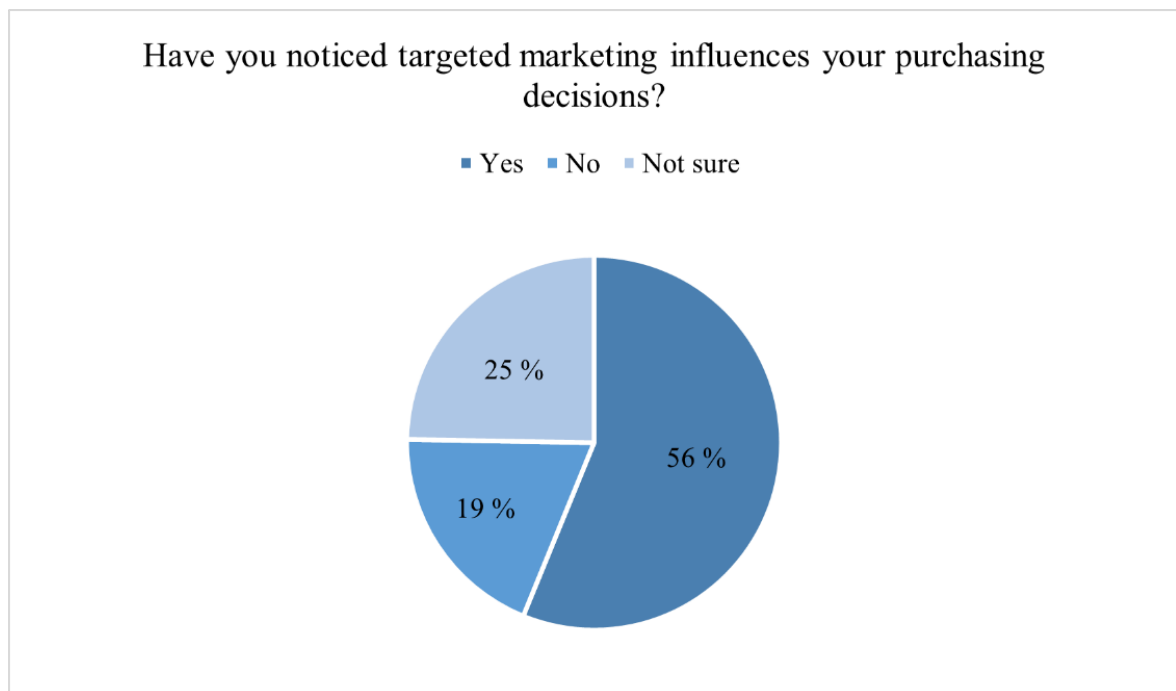


Figure 20. Target marketing affects on purchasing decisions

Figure 20 illustrates how target marketing affects on purchasing decisions. Results show that 50 (56%) of consumers' experience that target marketing has had an impact on their purchasing decisions. Consumers who are not sure if target marketing influences on purchasing decisions account for 22 (25%) of respondents and 17 (19%) of respondents have not noticed that target marketing and purchasing decisions have an impact on each other. Age has no statistical significance in how target marketing influences purchasing decisions according to the Kruskal-Wallis test (Appendix 4). The results of cross-tabulation provide that gender (Appendix 5) and education (Appendix 6) are not statistically significant and are not seen to affect purchasing decisions.

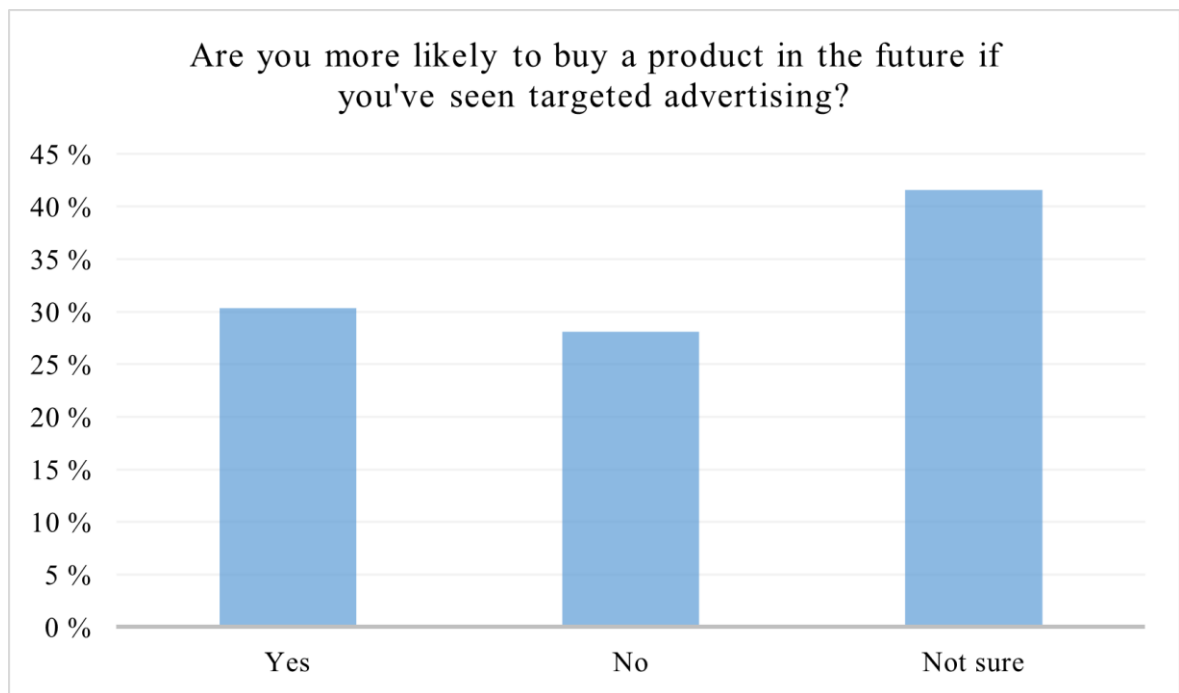


Figure 21. The impact of target marketing on future purchases

Figure 21 illustrates the impact of target marketing on future purchases. The majority of consumers with 37 (42%) respondents are unsure whether they are more likely to buy the product in the future if they have seen target marketing. No, and yes options were fairly evenly distributed at 25 (28%) and 27 (30%) consumers. In the Kruskal-Wallis test (Appendix 4), age has no statistical significance on whether consumers prefer to buy products in the future through targeted marketing. Gender (Appendix 5) or education (Appendix 6) are not statistically significant and therefore do not appear to have a significant effect.

6. DISCUSSION

The main objective of this research was to find out how sharing personal data affect consumer behavior. How do consumers experience the sharing of personal data in an e-commerce environment, and how do consumers see the benefits and disadvantages of targeted marketing. This section reviews the conclusions of the research based on the theoretical research previously presented and, on the other hand, on the results of the empirical contribution and their analysis of their similarities.

6.1 Sharing of personal data

Generally, consumers are concerned about privacy online and don't want to share all the information requested, and are concerned that too much information is being gathered on them. Although consumers' attitudes were underlined by the fact that consumers feel like data sharing is part of the current economy and e-commerce is a safe environment in which to share personal data. All in all, consumers' willingness to share personal data is more positive if it results in benefits. Consumers feel that data collection only slightly affects the purchase decision, which differs from previous research by Van Doorn and Hoekstra (2013) where is seen that more personalization and privacy concerns increase raise intrusiveness, which has a negative impact on purchase intentions.

Consumers are unsure what information is being collected about them and they don't surely know how they can influence the information collected about them with e-commerce purchases. The result supports the observations made in the theoretical part that consumers only try to alter the data obtained in a moderate or minor way, and they are unaware of why they are doing so. Many consumers have no idea that their online behavior is being recorded, much less than the data is being used (McDonald & Cranor, 2008; Ham, 2017). This also supports Ur et al. (2012) and Cranor (2012) results consumers appear to be unaware of the various options, making protecting one's online privacy challenging.

Consumers find data collecting slightly disturbing and consumers' diverse attitudes toward whether they are satisfied with the amount of information they share are supporting the statement that consumers may not know what information is being collected about them. Also,

the divergence of consumer opinion as to whether consumers feel safe providing personal data shows that there is a lot of uncertainty in consumer perception. This is supported by Gomez et al. (2009) and Turow et al. (2012) according to which consumers desire transparency and understanding of how personal data is collected, utilized, and shared. When companies don't publicly disclose the use of personal data, consumers are more vulnerable, but if consumers are aware of the impact, they will be able to weigh the disadvantages and advantages more carefully (Aguirre et al., 201; Ham, 2017). However, consumers only to a small extent try to influence the data collected about them. Cranor (2003), McDonald and Crabnoring (2003) research supports this result. According to it, consumers are willing to control the collection and use of their personal data, and a small percentage of consumers attempt to do so. Despite attempts, it appears that consumers are unaware of why they are doing so, and lack of knowledge makes maintaining control over personal data challenging. The result is partially inconsistent with Smith et al. (2014) statement, according to which consumers who are concerned about their privacy are more likely to try to protect their privacy. Admittedly, this can be based on the view that consumers comprehend what happens to their personal data after consumers have a basic understanding of how tracking technology works.

6.2 Benefits and disadvantages of target marketing

Overall, consumers pay attention to target marketing continually and consumers have found that they have bought products that have been intentionally targeted at them. Nevertheless, consumers are not sure whether they will buy products through targeted marketing in the future or whether target marketing is seen somewhat by consumers as just for entertainment.

Consumers find target marketing somewhat useful and informative. The result supports the theoretical part where Wang et al. (2015) research suggest that from a consumer perspective, the benefit of target marketing is to receive more useful advertisements that are tailored to consumers' preferences and interest. The results show similarities to Delight et al. (2019) research that there is a possibility for OBA to save consumers' time. The opinions are not clearly divided, but we can assume that targeted advertisements help consumers same time in some manner. OBA is used to create an external characterization of consumers, as described in the theory section, which causes consumers to modify their perceptions of

themselves and use these perceptions to guide purchasing decisions (Summers et al., 2016). There is, however, a lot to consider, as OBA has the potential to undermine decision-making (Boerman et al. 2017) The results are consistent with the previous research since consumer responses have shown that target marketing has an influence on purchasing decisions and does not in principle have a positive impact on decision-making.

Consumer attitudes indicate that consumers to some degree enjoy the advertising targeted at them, which may contribute to the explaining that consumers feel target marketing has an impact on privacy. This supports previous research where privacy concerns and trust are seen as influential factors in considering acceptance and the effectiveness of OBA (Bleier & Eisenbeiss, 2015; Stanaland, et al., 2011). Consumers' responses indicated that consumers would like to know more about the actions of target marketing towards them and at the same time have more influence over how targeted advertising is used for them. There is a fragmentation in consumer responses in that some consumers prohibit the use of their information so that it cannot be used in target marketing afterward, but at the same time, many consumers don't. This contributes to previous results consumers perceive targeted marketing in diverse ways, whit some consumers finding it useful while others perceive it as a more gruesome pursuit of their own space (McDonald & Cranor, 2010; Ur et al. 2012 & Smith et al. 2013).

7. CONCLUSIONS

This research focused on the collection of consumers' personal data in an e-commerce environment and the subsequent use of consumers' personal data in the target marketing actions taken by the company. The research looked for an answer to the research question:

“How does the sharing of personal data affect consumer behavior?”

The research confirms, both empirically and theoretically, that consumers' experiences are often ambiguous when it comes to sharing personal data. Consumers' relationship with the sharing of personal data can be described as rather ambivalent. As found by analysis methods, there was not a very statistical significance between individual factors, but age can be expected to have the greatest impact on the sharing of personal data affects on consumer behavior.

According to this research, sharing personal data can be seen to have an impact on consumer behavior, especially when companies are using consumers' private data in target marketing actions. Although consumers perceive the benefits of data sharing in targeted marketing and the willingness to share data increases through potential benefits, there is also a lot of uncertainty among consumers. In principle, consumers are concerned about their privacy when sharing personal data and, it arouses a lot of insecurity among consumers. As a result, the impact of data sharing on consumer behavior may seem contradictory. While at the same time consumers seek to prevent the use of their data because they perceive targeted marketing as having an impact on privacy but on the other hand target marketing is perceived as reasonably beneficial from a consumer perspective.

Consumers' ignorance of what information about them is collected in an e-commerce environment, results in data collection being perceived as disruptive. General uncertainty among consumers about data collection, as well as uncertainty about the possibilities of influencing the data collected, leads to unwanted consumer behavior. In the future, transparency in how companies obtain, manage, and share personal data is critical to maintaining consumer trust and consumer behavior.

7.1 Limitations and reliability

There are several limitations to this research. The survey itself poses limitations, as the results of the survey are not, in general, considered for the individual respondent. It is therefore important, that the statistically generated summary of the responses gives a true picture of the sample and that results from a sample can be extrapolated to a meaningful population. Although the number of respondents to the survey was good enough to describe the results statistically, the number of respondents is still quite low so that the results can be fully generalized. The survey is also limited by the possibility of poor reliability. The possibility of misunderstanding questions or the fact that respondents don't answer questions honestly is always possible when conducting surveys. For this reason, the questions were carried out in Finnish to help achieve better reliability.

The research empirically focuses on examining the perceptions of consumers in Finland, and therefore Finland was used as a geographical limitation. The findings in different countries may differ, but in countries with very similar technological developments and cultures, similar results may be achieved, and therefore the results may be somewhat generalized in that sense.

7.2 Future research

In the future, the research could be conducted with a real company to obtain more information related to how consumer perceptions are focused on a particular company and how these perceptions could be used to build trust between the consumer and the company. This research was conducted in Finland, but future research could be replicated in another country to determine if the results are similar and understand cultural differences in the context of behavioral targeting, personal data, and consumer behavior. Future research could also focus on the company's perspectives to gain a broader understanding of the company's actions and how the company itself experiences, for example, data collection and consumer concerns.

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APPENDICES

APPENDIX 1: WEB-QUESTIONNAIRE

Miten kuluttajat kokevat verkkokauppaostosten yhteydessä kerättyjen asiakastietojen hyödyntämisen jälkeenpäin kohdemarkkinoinnissa? / How do consumers feel that personal data collected in connection with e-commerce purchases is used afterwards in target marketing?

Ikä? / Age?

Alle 18 / Under 18

18–24

25–34

35–44

45–54

55–64

65–74

75–84

85 tai vanhempi / 85 or older

Sukupuoli? / Gender

Mies / Man

Nainen / Woman

Ei-binäärinen / kolmas sukupuoli / Non-binary / Third gender

En halua sanoa / Prefer not to say

Koulutus? / Education?

Peruskoulu / Primary school

Toinen aste (lukio & ammattikoulu) / Secondary education

Korkea-aste (yliopisto & ammattikorkeakoulu) / Higher education

Muu / Other

Miten kuvailisit internetin käyttökokemuksiasi? / How would you describe your internet usage habits?

Käytän päivittäin / Daily

Viikottain / Weekly

Kerran tai pari kuukaudessa / Once or twice in a month

Harvemmin kuin kerran kuukaudessa / Less than once a month

En koskaan / Never

Kuinka samaa tai eri mieltä olet seuraavien väittämien kanssa? (Täysin samaa mieltä, jokseenkin samaa mieltä, en samaa mieltä tai eri mieltä, jokseenkin eri mieltä, täysin eri mieltä) / How do you agree or disagree with the following statements? (Strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree)

Tykkään tutustua uusiin verkkosivustoihin, mukaan lukien verkkokaupat / I like to check out new websites, including online stores

Verkkokaupasta ostaminen on mielestäni helppoa / I find it easy to buy online

Verkosta ostamisen edut ovat haittoja suuremmat / The advantages of buying online outweigh the disadvantages

Verkosta ostaminen on mieltäisempää verrattuna vähittäiskauppaan / Buying online is more enjoyable than buying retail

Kuinka usein teet ostoksia verkkokaupan kautta? / How often do you shop through an online store?

Päivittäin / Daily

Viikottain / Weekly

Kerran tai pari kuukaudessa / Once or twice in a month

Harvemmin kuin kerran kuukaudessa / Less than once a month

En koskaan / Never

“Seuraavissa kysymyksissä käsitellään asiakastietojen jakamista verkkokauppaympäristössä. Asiakastiedoilla tarkoitetaan kaikkia henkilö-, käyttäytymis- ja demografisia tietoja, joita kerätään asiakkaista.” / “The following questions discuss sharing personal data in an electronic commerce environment. Personal data refers to all personal, behavioural and demographic data collected about consumers.”

Miten koet asiakastietojen jakamisen verkkokauppaympäristössä? (Täysin samaa mieltä, jokseenkin samaa mieltä, en samaa mieltä tai eri mieltä, jokseenkin eri mieltä, täysin eri mieltä) / How do you experience information sharing in e-commerce? (Strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree) /

Tunnen oloni turvalliseksi jakaessani henkilökohtaisia tietoja itsestäni / I feel safe providing personal data about myself

Verkkokauppa on turvallinen ympäristö tietojen jakamiseen / E-commerce is a safe environment in which to share personal data

Olen valmis jakamaan tietoja, jos siitä on hyötyä minulle / I am willing to share personal data if it results in a benefit

Olen huolissani yksityisyydestäni verkossa / I am concerned about my privacy in online

Olen huolissani siitä, että minusta kerätään liikaa tietoa / I am concerned that too much information is being gathered about me

Olen tyytyväinen siihen, kuinka paljon jaan tietojani itsestäni / I am satisfied with how much I share my personal data

Tietojen jakaminen on osa nykytaloutta / Data sharing is part of the current economy

Haluaisin olla jakamatta kaikkia pyydettyjä tietoja / I would like not to share all the information requested

Uskotko tietäväsi, mitä tietoa sinusta kerätään ostoprosessin yhteydessä? / Do you feel you know what information is being collected about you?

Kyllä / Yes

Ei / No

En osaa sanoa / Not sure

Koetko asiakastietojen keräämisen häiritseväksi? Miksi? / Do you find data collection disturbing? Why?

Erittäin häiritseväksi / Extremely disturbing

Todella häiritseväksi / Very disturbing

Kohtalaisen häiritseväksi / Moderately disturbing

Hieman häiritseväksi / Slightly disturbing

En yhtään häiritseväksi / Not at all disturbing

Tiedätkö miten voit vaikuttaa sinusta kerättyihin tietoihin verkkokauppaostoksen yhteydessä? / Do you know how you can influence the information collected in connection with e-commerce purchases?

Kyllä / Yes

En / No

En osaa sanoa / Not sure

Missä määrin pyrit vaikuttamaan sinusta kerättyihin tietoihin? Miten? / What extent do you try to influence the data collected about you? How?

Erittäin paljon / A lot

Melko paljon / Quite a lot

Kohtalaisesti / Moderately

Hieman / A bit

En lainkaan / Not at all

Onko asiakastietojen keräämisellä vaikutusta ostopäätökseesi? / Does collecting data affect the purchase decision?

Erittäin paljon vaikutusta / Extremely much affect

Melko paljon vaikutusta / Very much affect

Kohtalaisesti vaikutusta / Moderately affect

On hieman vaikutusta / Slightly affect

Ei ole vaikutusta / Not affect at all

“Seuraavissa kysymyksissä käsitellään kohdemarkkinointia. Kohdemarkkinointi on menetelmä, jossa kuluttajien tietoja käytetään markkinointitoimenpiteiden kohdistamiseen tietyille henkilöille tai ryhmille.” / “The following questions cover target marketing. Target marketing is a method of using personal data to target marketing activities to specific individuals or groups.”

Missä määrin olet kiinnittänyt huomiota kohdennettuun markkinointiin? / To what extent have you paid attention to targeted marketing?

Jatkuvasti / Continually

Vähän / A little

En ollenkaan / Not at all

Oletko koskaan ostanut tuotetta, jota mainostettiin kohdennetusti sinulle? / Have you ever purchased a product that was targeted to you?

Kyllä / Yes

Ei / No

En osaa sanoa / Not sure

Mitä mieltä olet siitä, että yritys käyttää verkkokauppaostosten yhteydessä kerättyjä tietojasi markkinoinnissa jälkikäteen? (Täysin samaa mieltä, jokseenkin samaa mieltä, en samaa mieltä tai eri mieltä, jokseenkin eri mieltä, täysin eri mieltä) / How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? (Strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree)

Koen kohdemarkkinoinnin hyödylliseksi ja informatiiviseksi / I find target marketing useful and informative

Koen minulle kohdennetut mainokset ärsyttävinä / I find advertisements targeted at me annoying

Nautin minulle kohdennetusta mainonnasta / I enjoy the advertising targeted at me

Koen, että kohdennettu markkinointi säästää aikaani / I feel that targeted marketing saves my time

Kohdennettu markkinointi auttaa minua tekemään päätöksiä / Targeted marketing helps me make decisions

Pidän minulle kohdennettua markkinointia viihdyttävänä / I find targeted marketing entertaining

Kiellän tietojeni käytön, jotta en voi vastaanottaa kohdennettua markkinointia jälkikäteen / I prohibit the use of my data so that I cannot receive targeted marketing afterwards

Haluaisin enemmän tietää ja vaikuttaa minuun kohdennettuun markkinointiin / I would like to know and influence more about targeted marketing activities towards me

Miten hyödyllisenä pidät kohdemarkkinointia? Miksi? / How useful you find target marketing? Why?

En lainkaan hyödyllisenä / Not useful at all

Hieman hyödyllisenä / Slightly useful

Kohtalaisen hyödyllisenä / Moderately useful

Melko hyödyllisenä / Very useful

Erittäin hyödyllisenä / Extremely useful

Missä määrin koet, että kohdemarkkinoinnilla on vaikutusta yksityisyyteesi? / To what extent do you feel that target marketing has an impact on your privacy?

Ei lainkaan / Not at all

Vähän / A little

Kohtalaisesti / A moderate amount

Paljon / A lot

Erittäin paljon / Very much

Oletko huomannut kohdennetun markkinoinnin vaikuttaneen ostopäätöksiisi? / Have you noticed targeted marketing influences your purchasing decisions?

Kyllä / Yes

Ei / No

En ole varma / Not sure

Ostatko todennäköisemmin tuotetta tulevaisuudessa, jos olet nähnyt kohdistettua mainontaa/ Are you more likely to buy a product in the future if you've seen targeted advertising?

Kyllä / Yes

Ei / No

En osaa sanoa / Not sure

APPENDIX 2: MANOVA

Variables	Wilks' lambda F + P-value	Result
How do you agree or disagree with the following statements? - I like to check out new websites, including online stores	0.61 (0.6079)	> 0.05
How do you agree or disagree with the following statements? - I find it easy to buy online	1.19 (0.3173)	> 0.05
How do you agree or disagree with the following statements? - The advantages of buying online outweigh the disadvantages	0.45 (0.7177)	> 0.05
How do you agree or disagree with the following statements? - Buying online is more enjoyable than buying retail	0.53 (0.6652)	> 0.05
How often do you shop through an online store?	0.75 (0.5252)	> 0.05
How do you experience information sharing in e-commerce? - I feel safe providing personal data about myself	3.67 (0.0153)	< 0.05
How do you experience information sharing in e-commerce? - E-commerce is a safe environment in which to share personal data	3.69 (0.0149)	< 0.05
How do you experience information sharing in e-commerce? - I am willing to share personal data if it results in a benefit	1.58 (0.2001)	> 0.05
How do you experience information sharing in e-commerce? - I am concerned about my privacy in online	2.17 (0.0978)	> 0.05
How do you experience information sharing in e-commerce? - I am concerned that too much information is being gathered about me	3.90 (0.0116)	< 0.05

How do you experience information sharing in e-commerce? - I am satisfied with how much I share my personal data	1.87 (0.1401)	> 0.05
How do you experience information sharing in e-commerce? - Data sharing is part of the current economy	3.98 (0.0105)	< 0.05
How do you experience information sharing in e-commerce? - I would like not to share all the information requested	1.74 (0.1645)	> 0.05
Do you find data collection disturbing?	5.82 (0.0012)	< 0.05
What extent do you try to influence the data collected about you?	0.28 (0.8413)	> 0.05
Does collecting data affect the purchase decision?	2.80 (0.0450)	< 0.05
To what extent have you paid attention to targeted marketing?	1.59 (0.1981)	> 0.05
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I find target marketing useful and informative	6.32 (0.0007)	< 0.05
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I find advertisements targeted at me annoying	1.81 (0.1512)	> 0.05
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I enjoy the advertising targeted at me	2.89 (0.0404)	< 0.05
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I feel that targeted marketing saves my time	3.25 (0.0259)	< 0.05

How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - Targeted marketing helps me make decisions	2.60 (0.0578)	> 0.05
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I find targeted marketing entertaining	3.84 (0.0127)	< 0.05
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I prohibit the use of my data so that I cannot receive targeted marketing afterwards	3.62 (0.0165)	< 0.05
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I would like to know and influence more about targeted marketing activities towards me	2.42 (0.0719)	> 0.05
How useful you find target marketing?	9.99 (0.000)	< 0.05
To what extent do you feel that target marketing has an impact on your privacy?	1.40 (0.2489)	> 0.05

APPENDIX 3: MULTIVARIATE REGRESSION

How do you experience information sharing in e-commerce? - I feel safe providing personal data about myself					
	b	t	p	Mean	Std
Age	0.29	2.79	0.006	N/A	N/A
Gender					
Male	(base level)				
Female	0.29	1.24	0.217	3.03	1.05
Education					
Secondary education	(base level)				
Higher education	-0.03	-0.13	0.893	2.85	1.11
R-sq	0.11				
F + p-value	3.66 (0.0153)				
How do you experience information sharing in e-commerce? - E-commerce is a safe environment in which to share personal data					
	b	t	p	Mean	Std
Age	0.31	3.05	0.003	N/A	N/A
Gender					
Male	(base level)				
Female	0.19	0.82	0.413	2.93	1.02
Education					
Secondary education	(base level)				
Higher education	0.04	0.18	0.861	2.80	1.06
R-sq	0.11				
F + p-value	3.69 (0.0149)				

How do you experience information sharing in e-commerce? - I am concerned that too much information is being gathered about me					
	b	t	p	Mean	Std
Age	-0.37	-3.37	0.001	N/A	N/A
Gender					
Male	(base level)				
Female	0.02	0.12	0.905	2.22	1.07
Education					
Secondary education	(base level)				
Higher education	-0.08	-0.35	0.729	2.29	1.19
R-sq	0.11				
F + p-value	3.89 (0.0116)				
How do you experience information sharing in e-commerce? - Data sharing is part of the current economy					
	b	t	p	Mean	Std
Age	0.19	2.84	0.006	N/A	N/A
Gender					
Male	(base level)				
Female	-0.08	-0.54	0.593	2.09	0.56
Education					
Secondary education	(base level)				
Higher education	-0.19	-1.20	0.234	2.01	0.65
R-sq	0.12				
F + p-value	3.97 (0.0105)				

Do you find data collection disturbing?					
	b	t	p	Mean	Std
Age	-0.30	-3.80	0.000	N/A	N/A
Gender					
Male	(base level)				
Female	-0.04	-0.26	0.798	3.59	0.81
Education					
Secondary education	(base level)				
Higher education	0.10	0.54	0.588	3.72	0.71
R-sq	0.17				
F + p-value	5.82 (0.0012)				
Does collecting data affect the purchase decision?					
	b	t	p	Mean	Std
Age	-0.10	-1.05	0.297	N/A	N/A
Gender					
Male	(base level)				
Female	-0.55	-2.49	0.015	3.74	0.94
Education					
Secondary education	(base level)				
Higher education	0.05	0.22	0.826	3.95	1.01
R-sq	0.09				
F + p-value	2.80 (0.0450)				

How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I find target marketing useful and informative					
	b	t	p	Mean	Std
Age	0.39	3.78	0.000	N/A	N/A
Gender					
Male	(base level)				
Female	-0.11	-0.49	0.625	2.75	1.02
Education					
Secondary education	(base level)				
Higher education	-0.27	-1.13	0.262	3.60	0.93
R-sq	0.19				
F + p-value	6.32 (0.0007)				
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I enjoy the advertising targeted at me					
	b	t	p	Mean	Std
Age	-0.30	-2.84	0.006	N/A	N/A
Gender					
Male	(base level)				
Female	-0.00	-0.02	0.983	2.45	0.98
Education					
Secondary education	(base level)				
Higher education	-0.02	-0.09	0.926	2.53	1.07
R-sq	0.09				
F + p-value	2.89 (0.0404)				

How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I feel that targeted marketing saves my time					
	b	t	p	Mean	Std
Age	0.27	2.68	0.009	N/A	N/A
Gender					
Male	(base level)				
Female	-0.31	-1.33	0.188	3.01	1.02
Education					
Secondary education	(base level)				
Higher education	-0.12	-0.49	0.623	3.00	0.99
R-sq	0.10				
F + p-value	3.25 (0.0259)				
How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I find targeted marketing entertaining					
	b	t	p	Mean	Std
Age	0.32	2.81	0.006	N/A	N/A
Gender					
Male	(base level)				
Female	-0.12	-0.45	0.655	3.21	1.17
Education					
Secondary education	(base level)				
Higher education	-0.30	-1.12	0.267	3.06	1.21
R-sq	0.12				
F + p-value	3.84 (0.0127)				

How do you feel about the company using your data collected in connection with e-commerce purchases in marketing afterward? - I prohibit the use of my data so that I cannot receive targeted marketing afterwards					
	b	t	p	Mean	Std
Age	-0.37	-2.92	0.005	N/A	N/A
Gender					
Male	(base level)				
Female	-0.07	-0.24	0.809	2.68	1.25
Education					
Secondary education	(base level)				
Higher education	0.19	0.63	0.528	2.86	1.29
R-sq	0.11				
F + p-value	3.62 (0.0165)				
How useful you find target marketing?					
	b	t	p	Mean	Std
Age	0.49	5.33	0.000	N/A	N/A
Gender					
Male	(base level)				
Female	-0.27	-1.29	0.201	3.14	0.97
Education					
Secondary education	(base level)				
Higher education	0.06	0.30	0.768	3.10	0.94
R-sq	0.27				
F + p-value	9.98 (0.0000)				

APPENDIX 4: KRUSKAL-WALLIS

Do you feel you know what information is being collected about you?	Rank Sum	Chi-squared	Probability
Age		4.313	0.3653
18-24	2017.00		
25-34	1469.50		
35-44	199.50		
45-54	171.50		
55-64	328.50		
Do you know how you can influence the information collected in connection with e-commerce purchases?	Rank Sum	Chi-squared	Probability
Age		12.070	0.0168
18-24	2079.00		
25-34	1026.00		
35-44	309.50		
45-54	160.50		
55-64	341.00		
Have you ever purchased a product that was targeted to you?	Rank Sum	Chi-squared	Probability
Age		1.626	0.8042
18-24	1811.50		
25-34	1218.00		
35-44	168.50		
45-54	167.50		
55-64	204.50		

Have you noticed targeted marketing influences your purchasing decisions?	Rank Sum	Chi-squared	Probability
Age		2.616	0.6241
18-24	1756.00		
25-34	1162.50		
35-44	207.50		
45-54	156.50		
55-64	287.50		
Are you more likely to buy a product in the future if you've seen targeted advertising?	Rank Sum	Chi-squared	Probability
Age		1.590	0.8105
18-24	1848.50		
25-34	1104.50		
35-44	223.00		
45-54	171.00		
55-64	223.00		

APPENDIX 5: CROSS TABULATION - GENDER

Do you feel you know what information is being collected about you?	Male	Female
Yes	44,83%	22,58%
No	44,83%	40,32%
Not sure	10,34%	37,10%
Chi-squared	8.3410	
Pr	0.015	
Do you know how you can influence the information collected in connection with e-commerce purchases?	Male	Female
Yes	48,28%	18,64%
No	34,48%	42,37%
Not sure	17,24%	38,98%
Chi-squared	9.2022	
Pr	0.010	
Have you ever purchased a product that was targeted to you?	Male	Female
Yes	48,15%	68,24%
No	29,63%	21,05%
Not sure	22,22%	10,53%
Chi-squared	3.5368	
Pr	0.171	

Have you noticed targeted marketing influences your purchasing decisions?	Male	Female
Yes	51,85%	63,16%
No	18,52%	14,042%
Not sure	29,63%	22,81%
Chi-squared	0.9725	
Pr	0.615	
Are you more likely to buy a product in the future if you've seen targeted advertising?	Male	Female
Yes	18,52%	38,60%
No	29,63%	22,81%
Not sure	51,85%	38,60%
Chi-squared	3.3901	
Pr	0.184	

APPENDIX 6: CROSS TABULATION - EDUCATION

Do you feel you know what information is being collected about you?	Secondary education	Higher education
Yes	28,57%	30,16%
No	32,14%	46,03%
Not sure	39,29%	23,81%
Chi-squared	2.5369	
Pr	0.281	
Do you know how you can influence the information collected in connection with e-commerce purchases?	Secondary education	Higher education
Yes	14,81%	34,43%
No	51,85%	34,43%
Not sure	33,33%	31,15%
Chi-squared	3.9908	
Pr	0.136	
Have you ever purchased a product that was targeted to you?	Secondary education	Higher education
Yes	53,85%	65,52%
No	30,77%	20,69%
Not sure	15,38%	13,79%
Chi-squared	1.1929	
Pr	0.551	

Have you noticed targeted marketing influences your purchasing decisions?	Secondary education	Higher education
Yes	50,00%	63,79%
No	23,08%	12,07%
Not sure	26,92%	34,14%
Chi-squared	2.0351	
Pr	0.361	
Are you more likely to buy a product in the future if you've seen targeted advertising?	Secondary education	Higher education
Yes	30,77%	32,76%
No	26,92%	24,14%
Not sure	42,31%	43,10%
Chi-squared	0.0805	
Pr	0.961	