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SCHOOL OF ECONOMICS AND BUSINESS

MASTER'S THESIS

**THE IMPACT OF DIGITAL NUDGES ON CONSUMER ONLINE
PURCHASING**

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MARTINA EFTIMOVA

AUTHORSHIP STATEMENT

The undersigned Martina Eftimova, a student at the University of Ljubljana, School of Economics and Business, (hereafter: SEB LU), author of this written final work of studies with the title The impact of digital nudges on consumer online purchasing, prepared under supervision of Assoc. Prof. Mateja Kos Koklič.

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LIST OF ABBREVIATIONS

SD- Standard deviation

eWOM- electronic Word of Mouth

INTRODUCTION

In today's world, consumers have so many options to choose from, it is making it harder for them to choose. Especially with the increase of online offers, the supply for consumers has also increased; so many stores are looking for additional solutions to convince consumers to buy. With more information available, more decision support is needed (Lembcke et al., 2019). Moreover, humans do not always act rationally as by neoclassical economic theory, in decision-making cases, people usually make decisions based on their judgments, environment, status, availability, and other factors that affect consumer behavior. It took decades to change this thinking to incorporate these systematic and predictable deviations into a more empirical and behaviorally sound policy approach. An essential part was the development of empirically informed, less intrusive, and behavioral mechanisms that maintain choice, namely the so-called nudges (Reisch & Zhao, 2017).

According to the definition by Thaler and Sunstein (2008, p. 6), a nudge is »any aspect of the choice architecture that predictably alters people's behaviors without forbidding any options or significantly changing their economic incentives«. These authors mention the concept of nudging as a mechanism of behavioral economics for the first time. Due to these characteristics, ethical considerations need to be followed. Ethical premises are freedom of choice, transparency, and goal-oriented justification (Clavien, 2018).

People are unpredictable when making choices, we can never know what the outcome will be and what they will choose, but we can influence their decisions with nudging. The more a consumer uses digital devices, the more data a software engine will have, and this software can help to design a process in such a way that the engines will become online architects of choice and influence the consumer's decisions (Weinmann et al., 2016). There are many challenges in the digital world, but there are also many tools that help to increase the effectiveness of nudging, such as filter options, intelligent tracking, feedback tools, and many more (Mirsch et al., 2017).

Digital nudging is described as »the use of user-interface design elements to guide people's behavior in digital choice environments« (Weinmann et al., 2016). Digital nudges can also be used as manipulation in marketing so companies can sell more (Schneider et al., 2018). A typical digital nudge is a recommendation, tailored from customized information, which reflects the consumer's current needs. The recommendation also reduces physical effort, so the consumer does not have to spend that much time searching; therefore, it simplifies the process for them (Jannach & Jesse, 2021). A large amount of data is collected that allows nudges to be tailored based on past decisions. Demographic characteristics are also observed in real-time to match consumers' personalities (Hibbeln et al., 2017). One of the disadvantages is that customer privacy is not secured, but with increased awareness, policymakers are trying to protect individual privacy, and this may have a strong effect on nudging since the data will not be collected as easily as without data protection (Bergram et

al., 2020). For example, in 2016 general data protection regulations were adopted in the EU, the goal of which is to create standards for data protection legislation (Esposito et al., 2017).

The purpose of my master's thesis is to theoretically and empirically examine the impact of digital nudges on consumer online purchasing. Following this purpose, the thesis has several goals. The main goal of the master's thesis is to present the impact of digital nudges on consumers when making an online purchase with the analysis of secondary and primary data. The analysis of existing studies will provide a framework for nudging and what has been found so far, which will then form the basis for the empirical study.

The empirical research aims to explore how digital nudging affects consumers' choice when it comes to online purchasing, specifically, to what extent digital nudges influence consumers when they are deciding to purchase an item online. Furthermore, I am interested in the consumers' level of awareness when they were nudged and what helps them make the final decision. The survey will be focused on the Slovenian market as the nudge theory is quite new and not much research has been done on this topic. Digital nudging will primarily be explored from the consumers' point of view.

The thesis will aim to answer the following research questions arising from the findings so far:

- How does digital nudging influence consumers in their online purchase process?
- How do consumers feel about their privacy when exposed to digital nudging?
- How are different types of nudges such as retargeting offers in online stores perceived by consumers in terms of being helpful in their online purchase process?

The thesis will provide insight into consumer behavior when shopping online and being exposed to nudging. New findings in this area will help marketers to better understand how using digital nudging influences consumer behavior. These insights will serve as guidelines to create an overview of digital nudging from the consumer's point of view so marketers can apply new strategies to improve the purchasing process. In addition, this knowledge will pave the way for further research.

The thesis is divided into two parts, the theoretical and the empirical part. The theoretical part has three chapters. The first chapter describes the concept of nudge theory and its background of how it evolved from behavioral economics to nudge theory over time. It describes the history of behavioral economics itself since this is the base of the theory. In this chapter, we can also find how nudges influence decisions people make and how we can change this influence with the use of policies and choice architecture. It also describes the advantages and disadvantages that nudging brings to the table. The second chapter focuses on online purchases, it describes how shopping behavior has changed with the use of the internet and how it is increasing every year. Moreover, it describes how online shopping behavior differs from in-store behavior, and what motivates people to buy online. Of course, online purchasing is not always the safest or best option because with the increase in online

purchases different types of risks also occur that may lead to customers not deciding to buy. The last chapter of the theoretical part is dedicated to digital nudging in an online purchase and the types of digital nudging that exist. It also describes the process of how to create digital nudges and what steps are needed to create a useful nudge. The goal of the nudge is also to help make better decisions. The fourth chapter covers the empirical part, for which quantitative research was carried out on many customers who have shopped during the last three months and are aware of the nudge. We explored how this influences their shopping purchases. The survey was conducted in the 1KA application. With the help of the collected data, I verified the set hypotheses, and in the fifth chapter, I formulated the final findings of the research. The last part of the master's thesis is the conclusion, which consists of key findings.

1 NUDGE THEORY

The neoclassical economic theory states that humans do not always act rationally in decision-making cases. Moreover, humans behave in a way that economic theory finds difficult to predict (Thaler & Sunstein, 2008). Over the past few years, a cognitive revolution has occurred in psychology that has influenced economics, sociology, and political science. The first known use of the term behavioral economics begins with Adam Smith, and from there on, many other researchers have been trying to research how behavior influences economics. Factors such as a change of thinking or a traditional paradigm, new psychological models, trying to help people make better decisions, and new researchers that were interested in the topic contributed to the growth of behavioral economics (Barberis, 2018). In 2008, Richard Thaler together with Cass Sunstein wrote and published a book about nudges, which drew attention to this topic, and today we can find nudges everywhere from being used in marketing, for governmental purposes and even in schools (Bergman, 2021).

In the following Chapter 1.1 I focused on the overview of nudge theory. The Chapter 1.2 describes the history and beginnings of nudge theory and how it evolved from behavioral economics. The 1.3 Chapter is about influencing and how nudge itself influences the decisions consumers make. The last section, Chapter 1.4, is about advantages and disadvantages that nudges bring to the table.

1.1 From Behavioral Economics to Nudge Theory

The use of the term »behavioral economics« goes back to 1957, while the idea itself can be traced way back to the 18th century, when it was used by Adam Smith. Smith's fundamental conception of behavioral economics was the idea that people are overconfident, seek what is best for them in the short term rather than the long term, and also lose resilience and self-control (Loewenstein et al., 2005). One of the best-known representatives of behavioral economics are Israeli psychologists Amos Tversky and Daniel Kahneman. In the 80s, they identified several consistent biases on how people make decisions and how they judge, and

they found that people rely on information they receive rather than the actual data. They also developed »prospect theory«, which states that a decision-making choice relies on a biased judgment. The theory demonstrates that loss aversion is a cognitive bias and we feel losses more keenly than actual wins, and that pain of loss is twice as intensive as the pleasure of a win (Kahneman & Tversky, 1979).

In social science, the last 40 years have seen the most significant conceptual developments in the evolution of behavioral economics. Several factors attributed to the growth of behavioral economics such as a change of thinking within the traditional paradigm, new psychological models, aiming to help people make better decisions, new researchers that were interested in the topic, and the efforts to obtain more information with research (Barberis, 2018). Richard Thaler plays a big role in behavioral economics, especially in terms of developing the nudge theory, which is a concept in behavior economics. In the 1980s, he worked on Tversky and Kahneman's work and tried to build up from that. Thaler received the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel in 2017 for his research on economic decision-making (Barberis, 2018). He is also known for the nudge theory which is designed to lead people into making better decisions. Together with Cass Sunstein, he wrote a book on this topic, which also became a best-selling book named *Nudge* (Thaler & Sunstein, 2008).

Nudge caught attention all around the world, especially among governments. In 2010, the UK's conservative party established a government department called Behavioral Insight Team, which uses the ideas from behavioral science to try to solve policy problems. The studies of psychologist Robert Cialdini have also revealed that people will comply with a rule if they are shown that most people have already complied with it. Today, nudges are used everywhere, they can be used to motivate participation in elections with the social comparison technique or send parents a message that their child missed an assignment, which can lead children to improve their performance in school (Bergman, 2021).

1.2 Overview of Nudge Theory

Nudge theory has largely attracted the interests of policymakers. This new concept uses behavioral economics to adapt the way governments intervene to change people's behavior. In 2004, the United Kingdom labor government's policy unit published a document about how decision-making behavior changed and what are the policy implications of this. In 2007, they published a document about how cultural changes can be achieved with the use of policy instruments. What took nudge theory to a higher level was Richard Thaler and Cass Sunstein's book *Nudge*, which was published in 2008. Because of this book, Sunstein became head of Office for Information and Regulation, while President Obama's advisers in the United States have also been enthusiastic about the ideas (John et al., 2013).

People are decision-makers, but the problem is that our cognitive abilities are limited, we are goal-oriented, realistically understand the environment, and adapt to the changing circumstances we are facing, but we do have cognitive limitations that strongly influence human decision-making (Jones, 2001). In psychology, a dual-process theory is used to explain our deciding as having two modes: reflective and automatic. Automatic mode or System 1 is when we make decisions based on our feelings and mood, in case we do not have a lot of information or do not receive feedback. Reflective or System 2 mode is the opposite of automatic, it considers analyzing before making decisions (Selinger & Whyte, 2011). But by using the automatic mode, we can also increase the negative effect of making the wrong decision, as a decision we made with the automatic mode was based on current feelings, so what felt right then does not mean the best decision for the future. To decrease the negative effect, Thaler and Sunstein's (2008) approach is that people who design the »architecture of choice« or decide on conditions are the ones who also decide which biases are likely to prevail. Choice architects are people who design the choice architecture. They can be found anywhere and range from planners to clockmakers. As choice architects, they should identify the biases that might negatively affect the chooser's decision and after that create the policies, plans, or devices. Thaler and Sunstein (2008) call this »nudging« and its definition is »any aspect of the choice architecture that predictably alters people's behaviors without forbidding any options or significantly changing their economic incentives«.

Nudges can be seen almost every day. For example, nudges can be placing healthy food at the eye level to capture more consumer attention. Nudges can also be pictures, such as horrifying pictures on a pack of cigarettes showing what can happen if you smoke, with this nudge trying to reduce the consumption of cigarettes (Fong et al., 2009). A nudge is not coercive and should not ban anything, and people are not punished if they choose differently (Arno & Thomas, 2016).

Many critics see nudging as a manipulative way of forcing people to do something. But according to Thaler and Sunstein (2008), people have the choice to opt-out if they find nudges misleading or unsuitable for them. The nudge itself should be without the intention of manipulating people into something they do not want. However, there is no general approach that will prevent this from happening, we can only conclude about specific nudges. Choice architects might design the nudge in such a way that it manipulates people into making a certain decision. If users do not give consent to those nudges, the targets will be manipulated, and nudging will violate the targets' autonomy (Wilkinson, 2012).

A nudge can often also be mistaken with other techniques used by marketers to convince consumers to purchase. The nudge itself is straightforward, but when it comes to designing it, it can be confusing. For example, the website Stickk.com, which aims to help people achieve their goals, suggests that if you want to stop using money on martinis during happy hour, you can put away 100 euro. If you do not spend money during happy hour, you keep the money, but if you spend it, you can donate it to charity or another recipient. This is an

example that does not use nudges. This mechanism helps people stick to the objectives they are trying to achieve. If this was a nudge it should be designed in a way that people will continue to respond according to biases.

Another example of what seems like a nudge but is not the case of Toxic Release Inventory, which publicly publishes data on how much a company pollutes the environment. Due to that companies can have bad publicity, which is a threat to them, therefore, they are forced to improve. Here, the social norm strategy is used to decrease pollution. We must be aware that not every strategy that uses psychology and behavioral economics is a nudge. Nudges do use psychology and behavioral economics, but what differentiates nudges from other strategies is that they use biases and preserve choice and incentives, moreover, nudges should not limit any people's choices. But sometimes the nudge might be debatable and create concerns. These concerns are ethical, with everything depending on how an individual perceives the information, consequently, the strategy should be explored in greater detail (Selinger & Whyte, 2011). Such an example could be Ambient Orb, which is a technology that provides an overview of energy use consumption. In case a household uses a lot of energy, the orb is red, in case it uses less, it is green. Due to this orb the users that have been using it have reduced their energy use by 40 percent (Thaler & Sunstein, 2008, 196). The critique is that this is not a nudge since the Orb is only informing the users about the energy use. On the other hand, it can be seen as nudge because it is affecting people's automatic thinking in such a way as to make them reduce the energy consumption. In this case, this is referred to as a fuzzy nudge. These create different concerns whenever we think something is a nudge or a different strategy (Selinger & Whyte, 2011).

1.3 Nudge Influence on Decision

Nudging is related to persuasion technique, both aiming to influence user decision or behavior, but the main difference is that nudges use push approach, which means that in the case of a nudge we are pushing the user to certain behavior while persuasion techniques use psychological principles to influence the decision (De Troyer, 2021).

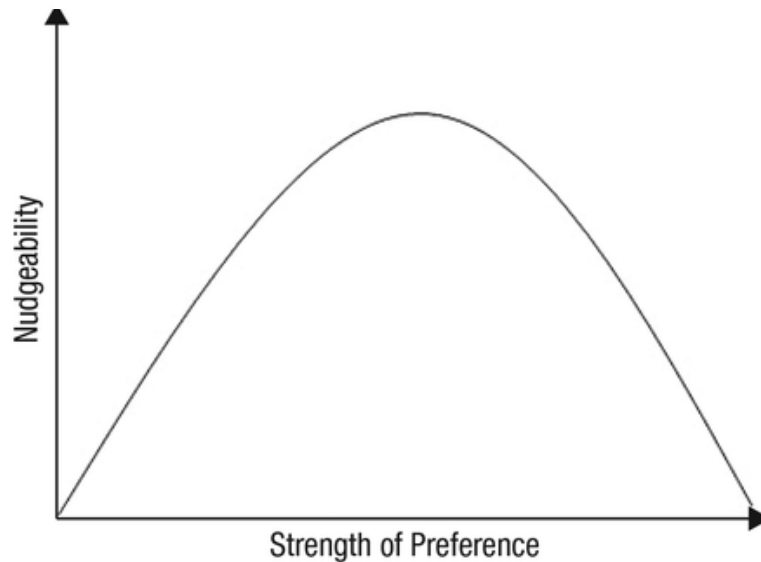
There are assumptions that nudges influence those people who are unaware of being nudged and that nudges have an impact on the choice regardless of pre-existing preferences or choices. This can be seen as an advantage if the nudge strategy rests on consistency with what is known about humans and their actions. Nudges will use a strategy people are comfortable with, so they can get individuals to cooperate. The issue is that a nudge is not able to fully understand and address fundamental problems, which can then lead to modest results (John et al., 2009). The nudge policy is defined as paternalistic, which means that it tries to influence in a way that will help individuals to choose a better option. As opposed to beneficence, the goal of paternalism is to benefit people and help them to make a better choice rather than providing benefits in some other way, the choice and evaluation also rest with the chooser. What Thaler and Sunstein (2008) mention in their work is that nudges

should respect individual freedom, and everyone should have their own choice. For example, in the student cafeteria, employees put cake behind the fruit to foster a healthier lifestyle in students. Namely, if a student wants the cake they will need to reach over the fruit, which requires some effort and is less likely to be done. Therefore, people can still choose what they prefer, and nudges do not limit their choice (Hausman & Welch, 2010).

When it comes to influencing the decisions a consumer makes, it all depends on how policymakers form the input. Policymakers can use the framing effect so they can make the option, which is provided by a nudge, more appealing. The effective way is to present the options indirectly, in this case, the framework will be narrowed. This would make it clear that even a fairer option would not be beneficial to everyone (Li & Chapman, 2013). Furthermore, a decision can be influenced by emotions, for example, when there is a decision to be made about donating to some humanitarian disaster. If you show a picture of the disaster or have someone that survived the disaster telling the story, people will more likely donate than if you had just provided information on the damage (Slovic, 2007).

The effectiveness of the nudge is presented in a graph that can be seen in Figure 1. The graph looks like an inverted U curve, where the x-axis depicts the strength of preference toward a product, while the y-axis shows nudgeability.

Figure 1: Inverted U curve of nudgeability



Source: de Ridder et al. (2022).

We can discern from the graph that people with an average strength of preference will be more easily nudged than people with a very weak or very strong preference. The second group is people on the extreme left as they have more preference for alternatives (de Ridder et al., 2022).

Changing consumer choice with nudges and the use of policies is not the easiest. If we decide to use nudges, they should be created with choice architects who know what is best for others. For choice architects, it is required that they do not have a conflict of interest, that they understand scientific evidence and do not use defensive decision-making (Gigerenzer, 2015). However, the issue is that many choice architects do not meet these three conditions (Gigerenzer & Muir Gray, 2011). There is no formula or method to create a nudge. The only things the creator needs to be careful about are the bias and the subject and how this will influence decision-making. Creators of choice architecture can be either policy professionals or anyone who has the power to improve the greater good; these can also be parents (Rizzo & Whitman, 2008).

However, we need to be aware that many other factors also determine when and if people are going to be affected by nudges. This topic has not been researched enough yet, and due to that there is no systematic aggregation of the important characteristics. Regardless of whether the purpose, working mechanism, or presence are disclosed or not, people will respond equally to nudges, which shows that transparency does not have an effect. Nudges have the most impact on people with less developed choices since they are still in the decision-making phase and have mixed feelings or doubts about the choice. However, people who make decisions based on feeling or mood (system 1) are harder to influence with nudges (de Ridder et al., 2022).

1.4 Advantages and Disadvantages of Using Nudges

The goal of nudge policy is to improve the decisions people make by changing how options are presented to them. Many see nudging as an opportunity for changing the way how decisions are made; however, it also receives criticism (Schmidt & Engelen, 2020). Researchers are questioning the ethics of using nudges. Some think that nudges will be insufficient for policy problems, others are claiming that using nudge tactics should not be treated as a panacea and that nudges are not a »magic bullet« (Mols et al., 2015). In the next two sections, the advantages and disadvantages of nudges are presented.

1.4.1 Advantages of Nudges

A nudge's goal is to help individuals choose better options by providing information that affects our emotions and prompts people to change their behavior. For example, if there is information provided to someone who is a drug addict and this addiction can lead to death, this person may change their habits (Bovens, 2009). With nudging, we can have better outcomes for society, we can encourage people to become organ donors, which leads to saving lives, we can influence their health by nudging them into not smoking, or into reducing waste and so on.

The nudge method promises cost-effective policies and is cheap and easy to implement. It gives policymakers new tools, which they can use to promote better health and environmental behavior, and higher tax compliance (Schmidt & Engelen, 2020).

If a nudge is created correctly, it should, and most of them do, respect the freedom of choice. Nudges should not limit the buyer's free decision. A nudge is only an incentive to buy, whereby the buyer has the option not to decide to buy and to choose another product. Due to respect for autonomy, freedom of choice is necessary. Everyone should have the possibility of opting-out, and nudges should meet the substantial non-control condition (Saghai, 2013).

1.4.2 Disadvantages of Nudges

Nudges have received some critiques, as some people have doubts about using them and argue that this encourages people to make decisions they might not have made (Hausman & Welch, 2010). Therefore, making and setting the choices on behalf of someone else is definitely hard and there might be risks involved.

The nudge theory is most critiqued in that it is violating the principle of freedom. The arguments against it state that due to nudges individuals cannot make their own decisions and that the government is forcing them into making the »right« choice (Bradbury et al., 2013). This echoes Taylorism, Frederic Taylor's ideas about how to motivate workers. His idea was that workers will only try harder if there is a clear potential for profits, and management has since been conceived as an exercise in persuading workers into certain behaviors by creating the right incentive structure (Mols et al., 2015). Nudges also violate autonomy, as people should be able to choose their preferences and desires based on their expectations without any help or support (Garnett, 2014). The issue is that people are not authors of their own choices, and if nudges violate their autonomy their choices do not reflect the consumer's desire. Since a nudge's goal is to help choose what is best for consumers, this means a nudge is influencing consumers and the decision is not fully their own (Hausman & Welch, 2010).

While some nudges respect people's freedom and promote their goals and well-being, exploiting their irrational heuristics and biases means they are not treated like rational people, which is condescending, and makes them out to be naive (Schmidt & Engelen, 2020). Proponents of nudges may also admit that nudges are not always the best political solution. If strategies that respect or encourage people's reason (such as informing them or rationally persuading them) do work, then we have preliminary reasons to support them. In some cases, we can even try to »enhance« their cognitive abilities instead of taking them for granted (Barton & Grüne-Yanoff, 2015). Opponents are more optimistic in this regard, and nudge advocates typically highlight situations where external nudges perform better. Moreover,

people are not as rational as they think or hope they are, and we should respect them as actors and not treat them as fully rational decision-makers.

There is also the issue of choice architects creating nudges that are against people's best interests. One such case is for example breast self-examination. The US Preventive Services Task Force nudges people with stating that if women do not perform breast self-examination, they are prone to the risk of developing cancer over time. However, no evidence confirms that self-examination reduces breast cancer, moreover, it increases the number of biopsies (Kösters & Gøtzsche, 2003). In this case, the nudge does not give enough evidence and information to women for them to have more knowledge, rather it serves the interest of the mammography industry.

Many critics are also claiming that nudges are manipulative, that they have a bad influence, and that they influence people »behind their backs«. An example of manipulation is the act of influencing someone by subverting their abilities to understand or by exploiting their cognitive weaknesses (Noggle, 2018).

If a nudge is not set up correctly, it cannot be effective. One of the reasons why nudges are not effective is because the buyers have strong preferences, or the nudge persuades people to make choices in a way that confuses the efforts of selected architects. The other reason can be that nudges confuse the target audience, some of them are only created for short-term effect, or some are inaccurate. The issue can also be that with numerous policymakers, nudges can turn into social standard, which can harm the mental wellbeing of people who do not fit this social standard. Choice architectures should, therefore, design the nudge in a way that is not going to damage societal well-being (Sunstein, 2017).

Nudges can also have negative consequences for the consumer. According to Bovens (2009), nudges can leave us with »fragmented selves«, which means that while under nudge influence, we can act differently than if there is no nudge. He explained that people might eat healthier if the apple in the cafeteria is put in front of the cake; however, there is also the possibility that people would adopt unhealthy eating habits in other choice architecture. Another criticism, when it comes to the influence of nudges, is that even with a small influence on people's behavior, nudges can lead people to adapt to external control over their lives (Rizzo & Whitman, 2008).

2 ONLINE PURCHASING

The retail world changed with the invention of the World Wide Web. The shopping shifted from only in-store to online as well, which also propelled the development of digital nudges for use in online purchasing, especially because this type of purchasing has been increasing over the years. In 2021, e-commercial sales reached 4.9 trillion U.S. dollars worldwide, and they are predicted to amount to 7.4 trillion dollars by 2025, which shows an almost 50%

increase (Statista, 2022). This data indicates the revolution of online shopping as more and more customers prefer to buy online. It is suggested that online shopping will still increase over the years; consumers are opting for online shopping over physical shopping due to factors such as increasing gas prices, living far from the shopping malls, and due to a larger variety of choices. On websites, consumers have more information about the product; furthermore, many online sites provide reviews from customers who have already purchased that particular product (Iqbal, 2019).

In Chapter 2.1, I describe how consumers behave when shopping online and explain the difference between online and in-store shopping behavior. In the following 2.2 Chapter, I provide an overview of what motivates people to actually purchase online. While buying, consumers might face several risks as online websites are not always protected, the risk of online purchasing is described in Chapter 2.3.

2.1 Online Shopping Behavior

With the availability of the internet, consumers can purchase from different devices such as mobile phones, computers, laptops, and tablets. They can search and make purchases at the office, at home, or in a public place – anywhere where there is internet and access to the device. Online shopping becomes a part of daily life; people can purchase almost anything, from groceries, clothes, beauty products, hotels, and many other things (Iqbal, 2019). With the increased use of e-commerce, the risks and challenges also increase, and are even greater than with in-store shopping. When purchasing, consumers might perceive the risks such as data protection, payment security, validity, quality of product, and many others (Zhang et al., 2011).

With online shopping, we cannot expect that shoppers will behave the same as if they were buying in-store. To help understand online purchase behavior, different models have been proposed, for example, the technology acceptance model (TAM) and the online pre-purchase intentions models. But shopper behavior is also culture-dependent, so the findings cannot be applied to all. One of the frameworks that explains cultural differences is also Hofstede's cultural dimensions theory (Kwek et al., 2010).

Making decisions online and offline are two very similar processes but different in terms of the shopping environment and marketing communication. The difference between the in-store and the online shopping environment is basically that in a store people have personal contact with the salesperson, consumers can also see and touch the product or try it on. They can also see store displays, but the store can be crowded, which can dissuades buyer from buying (Ali & Hasnu, 2013). While from the marketing perspective both the in-store and online shopping environments can have ads, banners, and commercials, the in-store environment has the advantage of engaging with customers in real-time; a salesperson can offer a product and convince people to purchase it. The decision to purchase starts with the

awareness of a need, consumers then search for information, evaluate alternatives, decide to purchase, and finally, engage in post-purchasing behavior (Katawetawaraks & Wang, 2013).

What attracts and stimulates the interest of online customers might be banner ads, online commercials, or some online promotions. Once the customer is interested in the product, he or she will want to get more information. To do this, customers can simply search the internet and more information will pop up (Laudon & Traver, 2009). Consumer experience with the website and their own skills will influence their shopping behavior. What is also very popular with consumers when buying online is clickstream behavior. This means that while consumers are searching for information, they have many different websites open at the same time and are collecting information from each one. Once they collect information, they chose the website they find the most optimal and proceed with purchasing on that site (Laudon & Traver, 2009). The advantage of online purchasing is that the consumer can compare services or products. From the seller's perspective, it is important that the website has good structure and design, which will increase consumer interest (Koo et al., 2008). One of the most useful characteristics of internet use while purchasing is that it supports the pre-purchase stage; it gives consumers many options and opportunities to compare (Dickson, 2000). When choosing a seller, the following aspects are particularly important during the purchase stage: the selection of products, quality of sales service, and product information availability. When consumers decide to purchase, they will first look at the brand and its characteristics. They will also look at the features of the website. Due to that many retailers invest in advanced technology so they can improve their website and the consumers' brand perception. For example, if the website does not look safe, it is loading too slowly, or is not navigable, the consumer will most likely decide to check another website and buy from those that appear safer (Prasad & Aryasri, 2009). Once the product or service is bought, the post-purchase behavior is also important since customers might have an issue or some question about the product, or they might as well want to change or return the product. The seller must also be able to support their customer at the post-purchase stage, with which they might gain customer loyalty (Liang & Lai, 2002).

2.2 Motivation to Buy Online

People buy online for many reasons, but one of the most common reasons is that they can buy anytime from anywhere with just one click. Moreover, they can find the same product for a lower price and even search between different sites to find the cheapest option of the same product. If they need help, websites usually provide a contact salesperson they can chat with, and they will help without having a face-to-face conversation (Katawetawaraks & Wang, 2013). What we have is two major shopping motivations, hedonic and utilitarian, while utilitarian is mission-oriented and rational, the hedonic is more about the customer's desire and feelings. But those major categories are not equally represented in all cultures. For example, while the Chinese are more hedonic, the Dutch are more utilitarian-oriented (Kumar & Kashyap, 2018). With internet use, online shoppers can have both motivations,

the utilitarian and the hedonic (To et al., 2007). What motivates consumers to buy online is a mix of different factors such as information availability, product availability, convenience, and price (Kumar & Kashyap, 2018).

Price is the number one factor that influences consumers when they are deciding to buy products. With the range of choices online shopping provides, it is important for sellers to set the appropriate prices so they can attract the target consumer without the risk of them choosing or looking up other products for a cheaper price (Sinha & Batra, 1999). When it comes to price, search time also has an influence. People that spend more time online when searching for a product, search for lower price options (Jang et al., 2017).

Convenience is the reason why people prefer buying online. You can shop 24 hours a day, seven days a week regardless of where you are, all you need is internet access. Research done by the National Retail Federation shows that when people were asked what the most important thing is when buying online, their response was quality and price, and only one in ten responded conveniences. However, if it was inconvenient for them, nearly everyone withdrew from the purchase (Convenience and the Consumer, 2020).

Searching online is easy, which is one of the main reasons why consumers prefer to buy online (Punjand & Moore, 2009). With the internet, we can access data easier, and customers are able to get information about the product or service before purchasing, furthermore, online information is usually more detailed than that provided in a store (Lim & Dubinsky, 2004). Customers also get additional pieces of information from reviews past consumers post under the product they ordered.

When buying in-store, it sometimes happens that the product is not available, while online, the store can have more product availability as they stock their product in the warehouse and ship it from there. If in any case the product is not available at that store you can easily search for another online store that sells same product. Moreover, some products are not sold at the local market so people can search and buy it online from different countries (Liu et al., 2013).

2.3 Risks of Online Purchasing

When deciding to buy online, consumers might face several risks such as financial risk, product risk, security risk, time risk, social risk, and psychological risk (Ariffin et al., 2018). The concept of risk can be divided into two elements: consequences and probability. Consequences refer to the importance of losses, while indecision is the probability of unwanted results. With risk perception, we can recognize the shopping behavior of consumers and their attitude toward purchasing (Kamalul Ariffin et al., 2018). The perceived risk also has a negative impact on online shopping because the risk level of buying online is higher than in-store, and those with higher perceived risk prefer not to buy online (Almoussa,

2014). Moreover, the higher the consumer expectation, the greater the possibility of risk perception (Schierz et al., 2010).

Product risk is when the product does not meet consumer expectations, it is also called functional or performance risk (Shimp & Bearden, 1982). People prefer to touch, feel, and test the product before buying (Bhatti et al., 2018). The risk is higher when people buy online since they cannot judge and determine the quality of the product before receiving it (Goldsmith & Goldsmith, 2002). It is risky to buy online since no software can show all attributes of the product, and reviews can help only partially as they are someone else's opinion. It is hard to determine quality while ordering, therefore, there is the possible risk of making a poor decision. Moreover, some brands do not accept return, and consumers might receive a product that did not meet their expectations (Bhatnagar & Ghose, 2004). Not being able to check the quality plays an important role when deciding to buy. A study showed that 82% of people decide not to buy since they do not have enough information on quality (Bhatti et al., 2018).

Financial risk is defined as the chance of monetary loss related to shopping, and the probability that the product will not be worth the price (Schiffman & Kanuk, 2004). With buying online, there is also the possibility that the product does not arrive, even if it was paid for. While purchasing online, consumers have concerns regarding sufficient safety and fear that credit card fraud could happen if they provide their personal details. The fear of fraud increases with price, if there is a big discount, or the product on the shopping site is much cheaper than on other websites. With the website's low security and the increase in cybercrimes, consumers get more worried, and this negatively impacts online purchases (Gerber et al., 2014).

Not only are consumers faced with the risk of fraud while using credit cards, there is also the risk of violating consumer privacy (Kamalul Ariffin et al., 2018). Security risks include the risk of online fraud, hacking, and exposing the consumer's privacy, mostly because of low security mechanisms (Meskaran et al., 2013). Security risks negatively impact purchases. Consumers will not purchase if the website does not look safe, and they will also not give their real information, however, they might give false or incomplete information. When shopping online, more personal information will be needed, mostly due to delivery and payment (Kamalul Ariffin et al., 2018).

There is also the possibility of social risk, for example, friends or family members might be unsatisfied with a consumer's choice of product or service (Ueltschy et al., 2004). If the purchase will result in being less favored by others, this is a social risk that has an influence on the consumers' ego and their disappointment, which can also be connected with psychological risk (Schiffman & Kanuk, 2004). If consumers face this risk, they will try to avoid purchasing online due to the possibility of disapproval by their social group (Zhang et al., 2011).

Buying online might sometimes take more time than buying in a physical store, mostly because we have more options, and we might take more time to decide what to choose, which leads to time risk. After we choose the product, we need to take the time to write down all our details that are needed for the purchase and wait for the product to be delivered. Some companies have started to offer same-day delivery, but not all of them, and it usually takes two to three working days or even more, depending on where the purchase was made, for the product to be delivered to the consumer's address. Time risk also refers to cases when a product is rapidly obsolete and does not satisfy the needs (Chen & Dubinsky, 2003). It also relates to the time and effort we put in while purchasing in return for what we perceived from the product, and whether the product is worth the time that was spent. Online purchasing can be time-consuming if delivery is delayed; moreover, the consumer needs to be at home to receive the delivery. After the delivery, the product might need to be adjusted, repaired, or replaced (Forsythe & Shi, 2003).

Companies that are providing online website purchases should take the above-mentioned risks into consideration and try to solve them so that their consumers will be satisfied and their purchases will increase. For example, to solve the issue regarding perceived risk, companies should provide more information about the product on their website. They can establish a call center or a chat where the consumer might ask some product-related questions. If people are in contact with the seller or an agent, this can also help with security risks, as they can feel safer. Offering a guarantee for products could partially solve the financial risk. To lower time risk, companies might offer same-day delivery or tracking data so consumers can check where their product is currently located (Iqbal, 2019).

3 DIGITAL NUDGING IN ONLINE PURCHASING

With the growing use of the internet, the number of decisions made in the digital world has also increased, and nudging has become more important in information system research (Weinmann et al., 2016). Nudging uses user-interface design, which helps to guide people's behavior in digital environments used by consumers such as websites, mobile apps, games, and software (Fogg, 2009). In the 3.1 Chapter, digital nudging is described in greater detail. When creating a digital nudge, there are five steps that need to be taken into consideration, and they are described in Chapter 3.2. Chapter 3.3 describes how we can influence online purchasing with the use of nudges and Chapter 3.4 is dedicated to how digital nudging is impacting the information security of consumers.

3.1 Digital Nudging

When it comes to digital nudging, choice architects design nudge elements so that they will influence consumer behavior in a digital world. To help create better solutions, the creators need to know their consumers' judgments and decisions. For example, they need to know about the challenges people are facing when they are buying a product online. With the increased use of digital technologies such as social networks, different websites, and apps, we are now constantly making virtual decisions. When it comes to choices, consumers are not only influenced by their own rational thinking but also by the design of the choice environment and how and what information is presented (Weinmann et al., 2016).

Until recently, the focus was on offline nudges and their choice environment, but today there is an increasing interest in the choice environment of digital nudging (Mirsch et al., 2017). When it comes to digital nudges, the goal is the same as for traditional nudges, to influence people in such a way as to encourage them to make better choices. The only difference is that it is digital and in the digital world nudges use different techniques, for example, default options or star ratings (Johnson et al., 2012). Nudging relies on different cognitive stages of information processing, there are 20 underlying psychological mechanisms that are used (Mirsch et al., 2017). The internet is good in that there is an availability of information, but due to a big amount of data individuals are not capable of processing all the important information so they fail to choose the optimal option. By offering digital nudges such as default choices, suggestions, or ranking, people might decide quicker, and this will automate their work as they will put less effort into collecting pieces of information and comparing products (Evans, 2008).

In Table 1, we can see some examples of nudges in the e-commerce context and what psychological effect they have. For instance, if the type of nudge is a pressure cue, an example of the nudge is product limitation, for example, when hotel sites show there is only a specific room left. This then has a psychological effect on consumers such as loss aversion. There are many nudge examples and plenty of research has been done, however, not many experiments have been done on the effects of different nudging possibilities (Eigenbrod & Janson, 2018). Some examples of nudges are provided in Appendix 2.

Table 1: Application examples of nudges in the e-commerce context

NUDGE	EXAMPLE	PSYCHOLOGICAL MECHANISMS
Product recommendation	Presentation of product-similar articles on product pages	Framing

(table continues)

Table 1: Application examples of nudges in the e-commerce context (continuing)

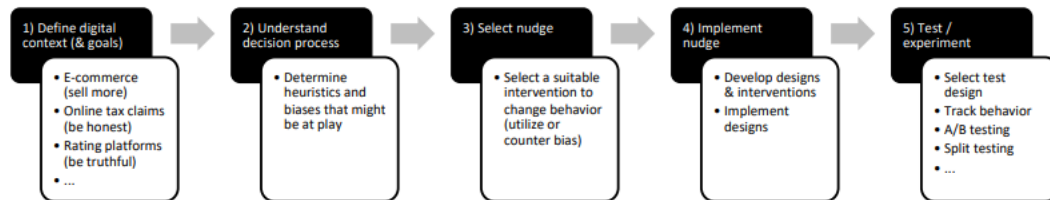
NUDGE	EXAMPLE	PSYCHOLOGICAL MECHANISMS
Social influence cue	Social popularity (number of likes)/Social Rankings (product ratings)	Social norms
Disclosure	Disclosure of privacy policy	Priming
Defaults	Making a preselection by settings defaults, e. g. a travel insurance	Status quo bias

Source: Eigenbrod & Janson (2018).

3.2 Digital Nudging Process

With the use of the right choice architecture, nudges can shape the environment in such a way that it can influence the probability of choosing one product over another one (Sunstein, 2015b). In choice architecture, it is important to understand how nudges can influence consumers. Researchers have also suggested how to select, implement, and test the effectiveness of nudges. There are five steps of the digital nudging process (Weinmann et al., 2016). In Figure 2, we can see the five steps that are considered when creating a nudge.

Figure 2: Digital nudging process



Source: Weinmann et al., 2016.

The context influences people's behavior so the first step is to define the context and the goal. With identifying the goal, we can determine how the choices are going to be designed, and those choices will define the nudge. When thinking of the goal, some key questions need to be answered such as: what is the digital context, what are the overall goals and ethical implications. For example, if a business is in e-commerce, then their goal will be to sell more, or if they have rating platforms, they will want truthful ratings from their consumers.

The second step is to understand the decision process, which depends on heuristics and biases. A suitable nudge will guide consumers' online choices and nudge them into making decisions that were set up. Here, the creator should ask what the user's goals are and what heuristics will influence the user's choices.

The third step is to select the nudge. Depending on the heuristics used in a nudge, they can be more or less effective. For example, if the consumers are requested to rate the products before they give an overall evaluation, those attributes can be different from those provided if they were immediately asked for the overall evaluation. Moreover, when it comes to purchasing, consumers will check previous users' ratings, and this will influence their decision.

Once all those steps have been completed, it is time to implement a nudge. What is the advantage of digital nudges is that implementation can be done at a lower cost than if the nudge was offline. It also allows testing multiple different designs with little effort. Based on previous information about the consumers, the digital world allows tracking this information, which is helpful for creators when adjusting the decision-making environment. Therefore, once there is big data available on users, this data can be used to get to know more about consumer demographics, emotional states, and personalities based on real-time.

The last step is to test the nudge. We can test them with an online experiment, which will provide us with how effective the nudge is. The most known experiments are A/B and split testing. In comparison with offline nudges, the digital nudge can show effectiveness in real-time, and it is easier to get this information. This is good for the creators so they can redesign if needed, go back to previous steps and change some tactics (Weinmann et al., 2016).

Digital nudging in the customers' journey on their way to a purchase can be described as a series of touchpoints in a customer purchasing decision-making process. We distinguish between three touchpoints, which are: pre-purchase, purchase, and post-purchase. During these stages, choice architectures can be designed to guide people's behavior toward a better decision (Schär & Stanoevska-Slabeva, 2019). Research shows that, in the pre-purchase stage, nudges have been used in a variety of contexts such as branded keywords in a search context, while some use retargeting methods. When it comes to purchasing, research shows that the appropriate nudge in this case depends on what channels customers are going to use, and how they can be approached with push or pull marketing. Studies also show that nudges in the purchase stage are more effective than in the other two stages (Roscoe et al., 2016). The last stage, post-purchase, is about interaction with the brand after purchase (Lemon & Verhoef, 2016). Studies show that repurchase will more likely occur if consumers had positive experiences with the brand (Shankar et al., 2016).

The online world provides us with many options to choose from, many online stores we can buy from, which also means high competition in e-commerce (Frick & Li, 2016). Due to that companies need to look into more innovative online marketing that will increase their purchase by creating an advertisement, which will send the correct message to the consumers (Zarouali et al., 2017).

One of the tactics they use as retargeting is the example of a product recommendation nudge, where advertising is shown based on the consumers' previous search and causes the framing psychological effect in the consumers (Bleier & Eisenbeiss, 2015). With retargeting banners, 75% of customers are reached, and about 40% describe personalized banners as helpful in the buying process. One of the benefits is that targeted advertising fulfills consumer preferences, however, this also poses risks because customers feel they are constantly being watched, which also leads to privacy and security concerns (King & Jessen, 2010).

Retargeting is aimed only at customers who have already visited the website. It is a promising strategy as it brings back the consumers because around 95% leave without purchasing the first time they check the site (Fösken, 2012). The technology used for retargeting are the so-called cookies that identify the internet user. We know two types of retargeting, one is generic the other is dynamic. Generic retargeting shows pictures of previously visited sides, while the dynamic one is characterized by the products the potential consumer has previously looked at (Lambrecht & Tucker, 2013).

3.3 Impact of Digital Nudging on the Information Security of Consumers

As online use increases, cybercrime also increases. People are facing a growing number of privacy and security issues. Security breaches, invasions of privacy, and unfortunate disclosures are one of the privacy and security issues people are encountering (Acquisti et al., 2017).

»I have read, and I agree to the terms and conditions« is one of the biggest lies on the internet. With online browsing, we need to make choices whether to accept the terms of service and privacy policy regarding how our personal data will be collected and shared. Many people do not read the terms due to a lack of motivation or they find it hard to understand (Obar & Oeldorf-Hirsch, 2020). Online privacy is also a problem for choice architecture and nudging (Acquisti, 2009).

What can help overcome information obstacles is greater transparency and awareness. However, too much information can also have a negative impact and is not always a solution to privacy and security problems (Adjerid et al., 2013). The goal is to overcome the complexity of decisions by designing interfaces that offer easy-to-understand options. The issue is that usability does not guarantee better decisions will be made, as it may not consider other barriers to decision-making, such as heuristics and cognitive or behavioral biases, which could outweigh all the benefits offered by more useful interfaces. Default settings can be an example of this as they can lead users to choose something that is not aligned with their goals (Stutzman et al., 2013).

The goal of providing information is to mitigate negative effects such as asymmetric information. The information needs to create awareness about privacy and security risks. The biases consumers are subjected to can have beneficial effects or can prevent unintended

outcomes. Internet users have to decide if they want to trust the website when shopping online. With a nudge, we can improve that information in many different ways. For example, we can inform consumers about web tracking or notify them about who can see their photos. Password meters that show how strong our password are also nudges, however, even if the metric improves password safety, people still find it annoying (Shay et al., 2016). When we decide to use a nudge regarding privacy, we first need to clarify if the nudge will be appropriate for all users, and to what extent we wish to influence the user's security and privacy decisions (Acquisti et al., 2017).

4 EMPIRICAL RESEARCH ON THE IMPACT OF DIGITAL NUDGES ON CONSUMER ONLINE PURCHASING

The purpose of the empirical study is to examine the impact of digital nudges on consumers' online purchasing. The main goal is to present the impact of digital nudges on consumers when making an online purchase based on the analysis of primary data.

With the empirical research, I want to explore how digital nudging affects consumers' choices when it comes to online purchasing. Specifically, I am interested in whether digital nudges positively influence consumers when they are deciding to purchase an item online. Furthermore, I want to explore the consumers' level of awareness when they have been nudged and what helps them make the final decision.

The survey will be focused on the Slovenian market as the nudge theory is quite new and not much research has been done on this topic. Primarily, digital nudging will be explored from the consumers' point of view.

4.1 Research Questions and Hypotheses

The empirical study will aim to answer the following research questions arising from the findings so far:

- How are retargeting offers in online stores perceived by consumers in terms of being helpful in their online purchase process?
- How does digital nudging influence consumers in their online purchase process?
- How do consumers feel about their privacy when exposed to digital nudging?

In my master's thesis, I want to test four hypotheses that are based on the existing literature and should provide answers to the above-mentioned research questions.

The word-of-mouth effect reveals that the more satisfied the consumers are, the less they will talk about it and they will tell only a few people about their experience. On the other hand, the less satisfied the consumers are, the more people will be informed about their bad

experience. Online stores now provide an option for consumers to evaluate the product by giving a review (Armstrong & Hagel, 1996). Past ratings from previous consumers of the products usually influence the decision to purchase (Babić et al., 2016). Due to that customers do not rely only on the seller's information but also on other buyers. Zhang and Xu (2016) said that information influences people's buying behavior and concluded that people use ratings as a source of information. Here, we can use social nudges, which for example show how popular the product is by displaying customer reviews (Deng et al., 2016). Consumers can be influenced more easily if more people have the same opinion on a particular product, and they worry less since others have ordered the same product, which leads to lower privacy concerns (Zhang & Xu, 2016).

H1a: More consumers will choose products that have more reviews over products with fewer reviews.

H1b: More consumers will choose products that have higher ratings over products that have lower ratings.

One of the nudges that is used in e-commerce is purchase pressure to speed up the buyer's decision-making. The product can be shown as limited or to be sold out soon, or with special offers and deals. For example, Amazon puts up a limited label to push interest in buyers to buy immediately, otherwise they will miss this offer. Interestingly, Amirpur and Benlian (2015) found that limited time pressure had more effect on product purchase than limited availability.

H2: More consumers will choose a product that is time-limited over a product without time limitation.

The data collection and storage of personal information are improving, and websites can save more data. With this data, e-retailers can create retargeting banners to personalize the advertisement (Lee et al., 2011). With this type of nudging, the consumers can understand that the e-retailer is doing this in their interest and is only showing products they prefer (Eigenbrod & Janson, 2018). With personalized banners, consumers might find the product they were looking for faster, thus, personalized banners are useful, however, this could also increase ad avoidance (McKee, 2021). Overall, consumers find advertisements useful when it comes to their purchase decisions. But adapting ads to each consumer increases their perceived usefulness, which then leads consumers to be more interested in further exploring the advertised product. Previous research has shown that showing limited selections of relevant options has a positive effect on consumers' choice decisions since it increases their trust in the choices and subsequent satisfaction (Bleier & Eisenbeiss, 2015)

H3: Consumers find retargeting banners helpful.

One of the threats to e-commerce is concern about personal information (Li et al, 2011). There are big privacy concerns especially since the consumer does not know who will use their data and how, and they have a feeling of losing control over the use of their personal data (Hong & Thong, 2013). The privacy concern and online trust vary depending on the consumers' characteristics like gender, age, and education level (Riquelme & Román 2014). When it comes to nudging, the seller could use the consumers' data to create a nudge that will be based on those data. The consumers usually agree to that, for example, through web cookies, which are placed on websites with the intention of storing stateful information (Acquisti et al., 2017). If consumers are not aware of what they are agreeing to they might feel threatened because they are, for example, shown ads for products they have viewed previously. For them, this means that their privacy is being compromised by tracking what they browse on the internet, and this could decrease their purchase intention on that site (Bleier & Eisenbeiss, 2015).

H4: Consumers experience privacy concerns when shopping online.

4.2 Methodology

To provide data relevant for testing the hypotheses, I decided to use an online questionnaire. One of the advantages of this is that it is easier to collect the data, furthermore, manual entering of data is not required due to automatic recording. Moreover, the questionnaire's online link can be sent to anyone, anytime, and the target respondent can answer the questions anytime they want and can take as much time as they need, without feeling the need to rush. The respondent might feel more anonymous and due to that, the data can be more accurate especially when it comes to sensitive questions to answer. Online surveys also offer many visual and sound effects that can make the questionnaire more interesting. Of course, it is also cheaper than ordinary advertising, as there is no need to print questionnaires (Ball, 2019).

The disadvantage of the online survey method is that the response rate is worse compared to other research methods, such as interviews or focus groups. In addition, problems may arise due to incomplete questionnaires, as some people lose interest during answering and drop out of the survey. Some also do other things while answering, this affects their concentration and, consequently, the accuracy of their answers. Also, technical problems or vagueness with questions may arise, which might contribute to the fact that the respondent is no longer interested in finishing the survey (Ball, 2019).

The questionnaire has 22 questions and can be found in Appendices 3 and 4 (in the Slovenian and English language, respectively). The first six questions refer to online shopping, questions from 7 to 9 refer to the terms of security and privacy, questions from 10 to 18 refer

to nudges, and the last four questions are demographic ones. The first question is used as a filter question, according to which I excluded all respondents who have no experience with online shopping. Only two questions have more than one answer possible, while all other questions have only one answer possible, and eight of them are based on a five-point rating scale.

The questions were designed on the basis of research objectives and hypotheses, and were derived from the existing measurement scales. The first six questions from the questionnaire are basic questions about online shopping that I find important to know, and were compiled on the basis of articles I have read while writing the theoretical part. Question six is adopted from Lim and Dubinsky (2004), who wrote about what the consumers' expected values are when purchasing online and what is their perception of e-shopping. The other source is an article by Liu et al. (2013), where the authors compared online and offline shopping and explained how behavior differs based on that, and what characteristic consumers found more important when making an online or offline purchase. Question seven is based on an article from Obar and Oeldorf-Hirsch (2020), where they studied consumer behavior regarding the terms of privacy. The eighth question is also based on the same article as question seven, but this question was also sourced from Acquisti et al. (2017), who wrote about privacy and security, how people make decisions on that, and how the use of a nudge can help make better decisions. The Questions 15, 16, 17 and 18 are based on an article by Babić et al. (2016), where they studied how electronic word of mouth affects consumers' purchase decisions. Questions 13 and 14 were summarized from an article by Amirpur and Benlian (2015), who studied the impact of buying under pressure on customers. Question 12 regarding retargeting banners was based on an article by Eigenbrod and Janson (2018), who wrote about how retargeting is an innovation in modern age technology and what effect it has on consumer behavior. The second article I used was Bleier and Eisenbeiss (2015), as they have done research on how important trust is for personalized advertising.

The target population was anyone who lives in Slovenia and has had experience with online shopping in the past three months. As there is no existing online data regarding people that purchase, I used the non-probability sampling method, more specifically the snowball method, where the respondents to whom I had sent the survey myself shared the survey among their acquaintances.

The questionnaire was created in the online application 1KA, through which I also conducted the survey. I sent the questionnaire to ten individuals in order to determine if the survey is comprehensible and if any technical or grammatical corrections are needed. Each individual sent me their comments after the review. The comments were mostly about grammatical errors. After receiving the comments, I corrected the questionnaire and started collecting data. I published the link to the questionnaire on the Facebook and Instagram social networks; I also shared the link with friends and acquaintances, who shared this link with their friends and acquaintances.

I analyzed the data obtained through the online survey by using the specialized statistical analysis program SPSS, and I used Microsoft Excel for the graphic presentations.

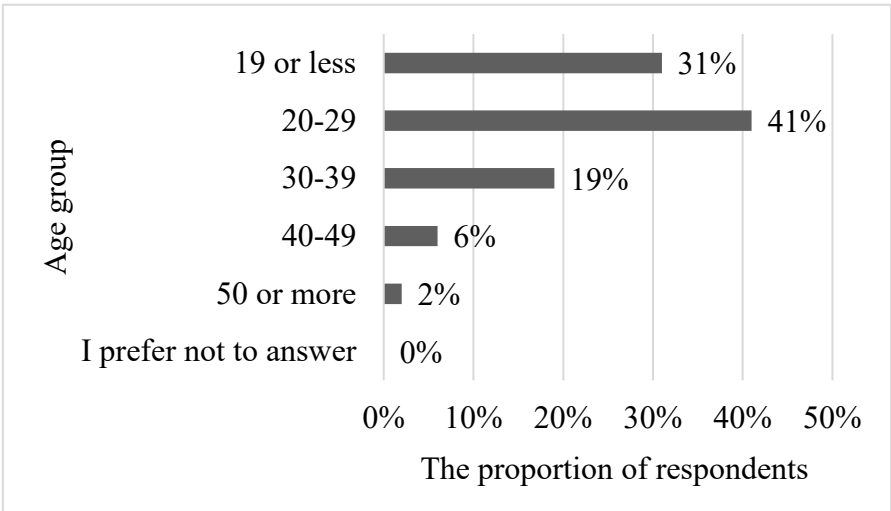
4.3 Results

The online survey that I conducted with the help of the online application 1KA was active from December 6, 2022, to December 16, 2022. In total, 445 people clicked on the link, of which 261 people started filling out the questionnaire. While 29 of them did not finish the survey completely, 22 respondents had not made an online purchase in the last three months, and 5 said they do not remember, which means that they were automatically excluded from further answering the questionnaire. That resulted in 205 eligible respondents who answered all the questions in the questionnaire. In this section, I first analyze the characteristics of the samples, then I continue with the descriptive statistics of each question, and finally test the research hypotheses.

4.3.1 Description of sample characteristics

The sample comprises 205 respondents, of which 71% were female, 28% male and 1% marked as other. When it comes to age, most respondents were between 20 and 29 years old (41%), followed by respondents aged 19 years or younger (31%). The smallest share of respondents was 50 years old or older (2 %). This data is presented in Figure 3.

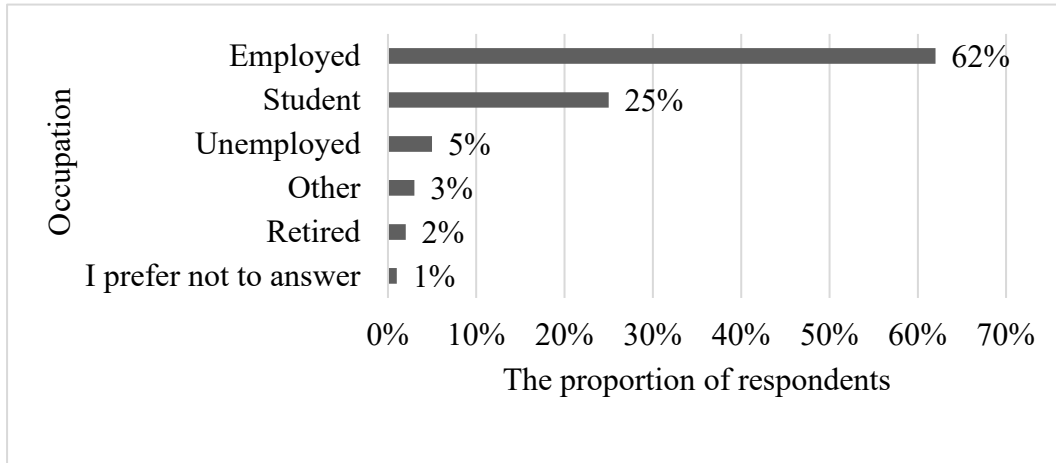
Figure 3: Share of respondents by age



Source: Own work.

In Figure 4, we can see the share of respondents by occupation. When it comes to occupation, 62% of them are employed, 25% of respondents are students, 5% are unemployed, 2% are retired and 1% did not want to answer. In addition to all the answers, 3% chose the last option »other« and wrote »high school student«.

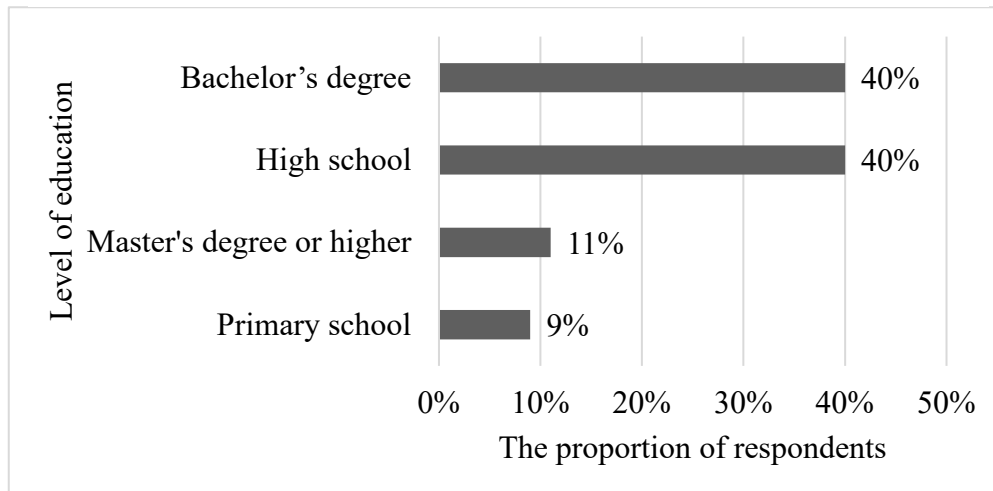
Figure 4: Share of respondents by occupation



Source: Own work.

40% of the respondents have a bachelor's degree and the same percentage of people also have a high school degree as their achieved level of education. Only 11% of people have a master's degree or higher, while 9% have completed primary school. This data can be seen in Figure 5.

Figure 5: Share of respondents by level of education



Source: Own work.

4.3.2 Descriptive statistics of the individual questions

In this chapter, I will present the analysis of the substantive part of the questions. As already mentioned, 232 people answered the first question, of which 22 did not shop online in the

last three months, and 5 do not remember. Therefore, 205 valid answers were taken into account.

The second question was about how often they shop online. Since one person answered never, I removed this respondent from this question’s analysis. This error might have happened as an accident and the person meant to click on another answer or did not fully understand the question. The largest share of the respondents, 38%, buys online a few times a month, followed by 31% of those who buy online a few times a year. The third largest group comprises of those who buy online once a week (10%). Table 2 displays all the proportions of respondents based on their frequency of purchasing online.

Table 2: The proportion of respondents according to how often they buy online

Answers	Frequency	Valid
Never	0	0 %
Less than once a year	15	7 %
Once a year	18	9 %
A few times a year	63	31 %
A few times a month	77	38 %
Once a week	21	10 %
A few times a week	3	1 %
Every day	7	3 %
Valid	204	100 %

Source: Own work.

In the third question, the respondents answered which devices they use when they purchase online. They could choose multiple answers as consumers usually do not shop only through one device. Based on the responses, the most used device is the mobile phone, where 168 out of 205 respondents (82%) use this device for purchasing online. The second most popular device is the computer selected by 124 respondents (60%), while only 61 respondents (30%) use a tablet. Five respondents chose other, but they misunderstood the question, since they wrote clothes, cosmetics, and shoes. In Table 3, we can see the frequency of each answer.

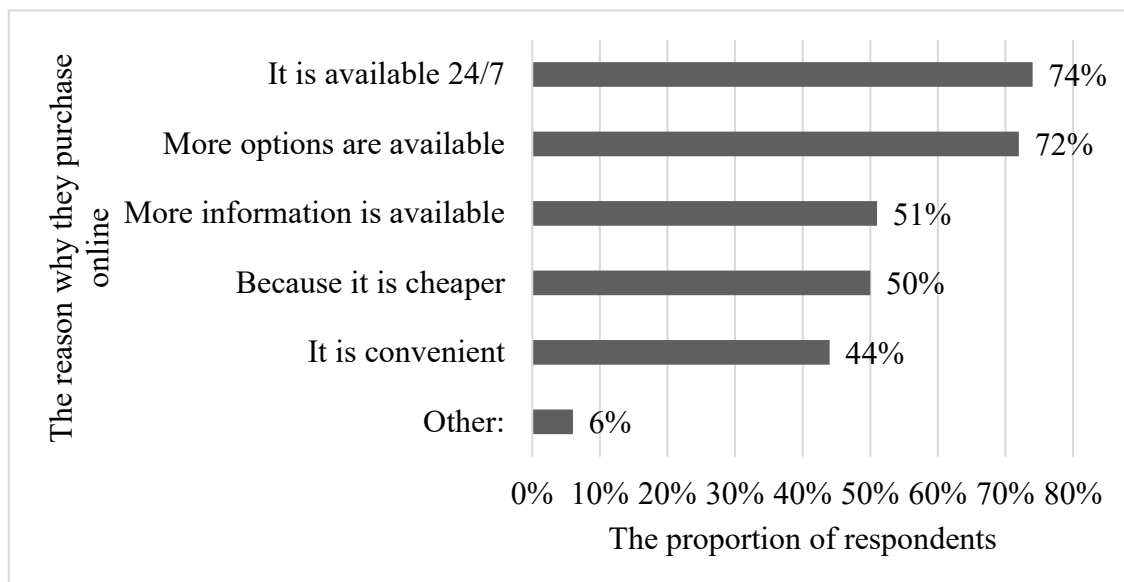
Table 3: The proportion of respondents according to what device they use when purchasing online

Answers	Frequency (%)
Mobile	168 (82 %)
Computer	124 (60 %)
Tablet	61 (30 %)
Other:	5 (2 %)

Source: Own work.

Question 4 asked the respondents why they usually buy online, and multiple answers were possible. The largest share of answers to why they shop online was »because it is available 24/7«, as many as 151 respondents (74%) selected this. The next most popular answer was »because there are more options«, which was selected by 148 respondents (72%). This was followed by the answer that »more information is available« (104 respondents or 51%) and »because it is cheaper« (102 respondents or 50%). The smallest share of respondents with 91 answers (44%) selected the statement »it is convenient«, and only 14 (6%) of respondents chose »Other«. Under other, they wrote answers such as: because it is more time-optimized, because it is easier, because they cannot physically go to the store, because it is only available online. In Figure 6, we can see the shares for each answer.

Figure 6: The proportion of respondents according to why they prefer to purchase online



Source: Own work.

The fifth question was about how much money the respondents usually spend on online purchases per month. I counted a total of 205 valid responses. I divided the answers into categories as can be seen in Table 4. The lowest answer was 10 euro per month, while the highest was 3,000 euro per month. The survey showed that the maximum number of respondents, 110 (54%), answered that they spend between 51 euro and 100 euro per month. They peak in at 100 euro as 47 (23%) people answered that they spend this much per month. The smallest number of answers, 4 (2%), fell into the category between 101 euro and 150 euro per month, followed by the category of 201 euro and more, which includes 16 (7%) respondents. There are 26 (13%) answers that belong in the category from 151 euro to 200 euro, and 49 (24%) answers belong to the category from 0 euro to 50 euro. The average spending is 105 euro per month.

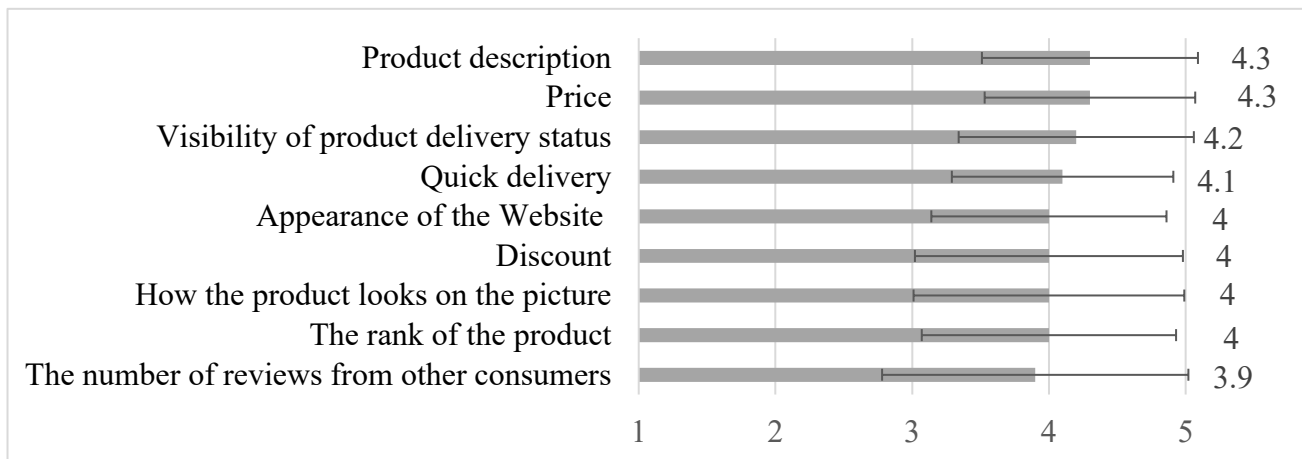
Table 4: The proportion of respondents according to how much they spend per month on online shopping in €

Money spends per month for online shopping (€)	Frequency (%)
0-50	49 (24 %)
51-100	110 (54 %)
101-150	4 (2 %)
151-200	26 (13 %)
201+	16 (7 %)

Source: Own work.

In the sixth question, the respondents evaluated the importance of individual attributes according to how much they help when shopping online. These attributes were evaluated using a 5-point rating scale, where 1 indicated that the attribute was not important at all and 5 indicated that the attribute was very important. A more detailed analysis is shown in Appendix 6, while I only summarize the main findings in Figure 8. The average estimates of the importance of sources vary between 3.9 and 4.3. Based on the average values, two attributes are the most important when purchasing online, Product description and Price. Product description received an average value of 4.3 (standard deviation, SD = 0.79) and is very important for 97% of the respondents. Price average is the same as Product description, 4.3 (SD = 0.77). When it comes to price, most people, 101 (49%), indicated that it is a very important factor in convincing them to buy the product online. Visibility of the product delivery status has a slightly lower average of 4.2 (SD = 0.86). For visibility, most people, 85 (41%), indicated that it is a fairly important factor in convincing them to buy the product online. The least important in the case of an online purchase seems to be the number of reviews from other consumers, with the average importance of 3.9 (SD = 1.12). Regarding this attribute, 3% answered that it is not important at all, and 8% said it is slightly important. Average values and standard deviations for all attributes are depicted in Figure 7.

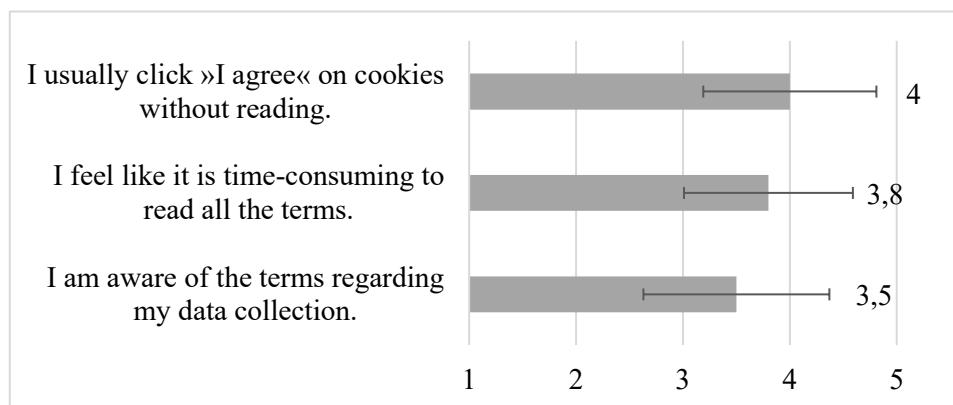
Figure 7: The average degree of importance of individual attributes in convincing to buy the product online



Source: Own work.

For questions seven, eight and nine, the respondents indicated their level of agreement with several statements about the terms of security and privacy. All three sets of statements were based on 5-point rating scale, with 1 standing for »not important at all « and 5 standing for »very important«. In the seventh question, the respondents evaluated statements about online cookies. According to the data, the statement »I usually click “I agree” on cookies without reading« received the highest average value of 4.0 (SD = 0.81). More specifically, 25% of the respondents answered that they strongly agree, and more than half, that is 51%, agreed. The second statement »I feel like it is time-consuming to read all the terms« was graded with an average value of 3.8 (SD = 0.79). More than half (52%) answered that they agree with this statement, but at the same time 26% answered that they neither agree nor disagree. The lowest average of 3.5 (SD = 0.87) was received by the statement »I am aware of the terms regarding my data collection«. Almost half of the respondents (48%) said they agree with this statement, while 11% answered that they disagree. Figure 8 displays the average values and standard deviations for each statement. A more detailed breakdown of the answers is provided in Appendix 7.

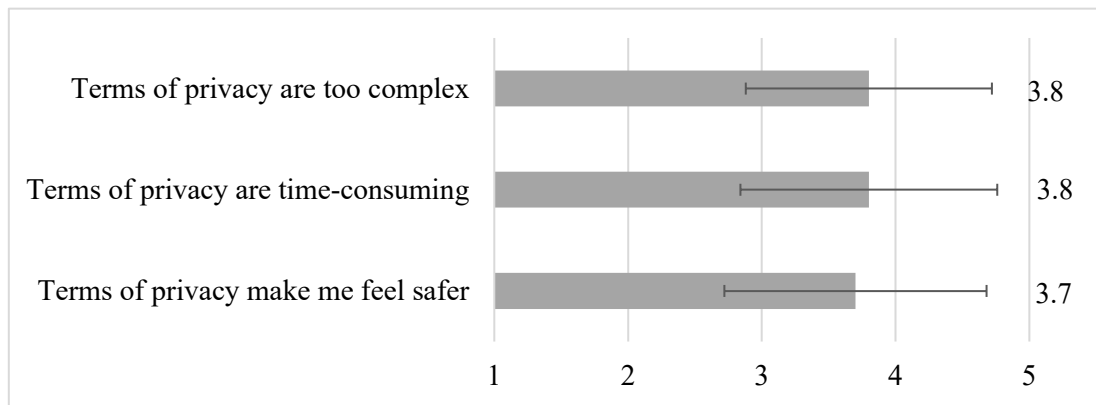
Figure 8: The average level of agreement with the statements about digital cookies



Source: Own work.

The eighth question was about how much respondents agree with online privacy terms. The results showed that the respondents estimated all three statements similarly. The majority agrees on all the statements. In Figure 9, we can see the average is between 3.7 and 3.8, and the standard deviation is between 0.92 and 0.98. The statements »Terms of privacy are too complex« and »Terms of privacy are time-consuming« have the same average values of 3.8, with standard deviations being 0.92 and 0.96, respectively. For the statement »Terms of privacy make me feel safer«, the average is 3.7 (SD = 0.98). A more detailed analysis can be found in Appendix 8.

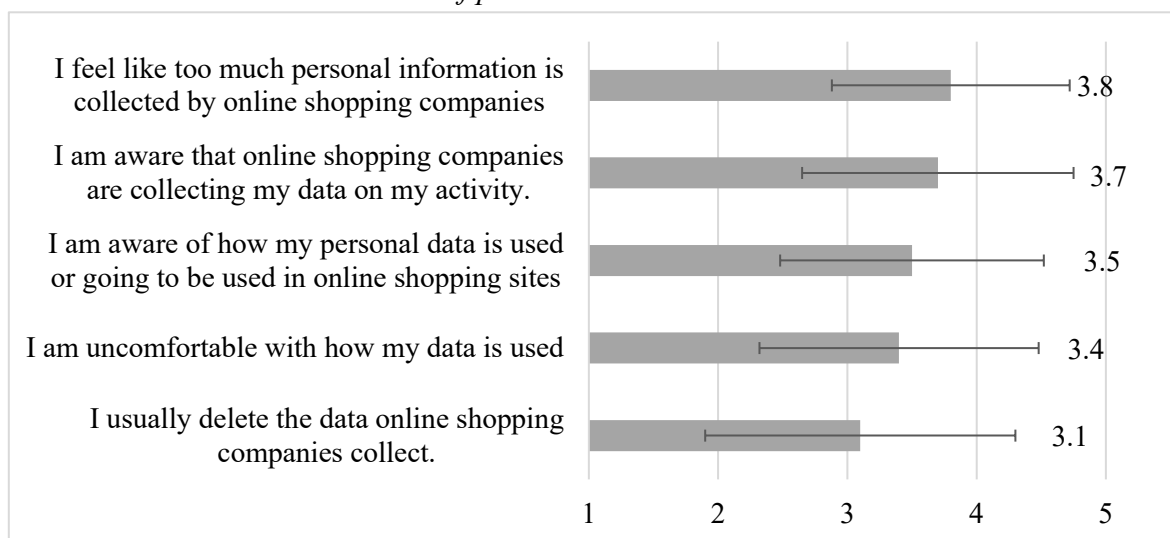
Figure 9: The average level of agreement with the statements regarding online privacy terms.



Source: Own work.

The ninth question was about the respondents' agreement with statements about the collection of personal data online. A more detailed analysis of the answers is available in Appendix 9, and Figure 10 below depicts the average values for each item. The statement »I usually delete the data online shopping companies collect« received the lowest average value of 3.1 (SD = 1.2). Although the largest share (30%) answered that they agreed with this statement, 12% answered that they strongly disagree, and 22% disagreed. The statement most respondents agreed to was »I feel like too much personal information is collected by online shopping companies«, where the average value was 3.8 (SD = 0.92). This was followed by an average of 3.7 for the statement »I am aware that online shopping companies are collecting data on my activity« (SD = 1.05). The statement »I am aware of how my personal data is used or going to be used in online shopping sites« was evaluated with an average value of 3.5 (SD = 1.02), and the statement »I am uncomfortable with how my data is used« with an average value of 3.4 (SD = 1.08).

Figure 10: The average level of agreement with the statements about the collection of personal data online

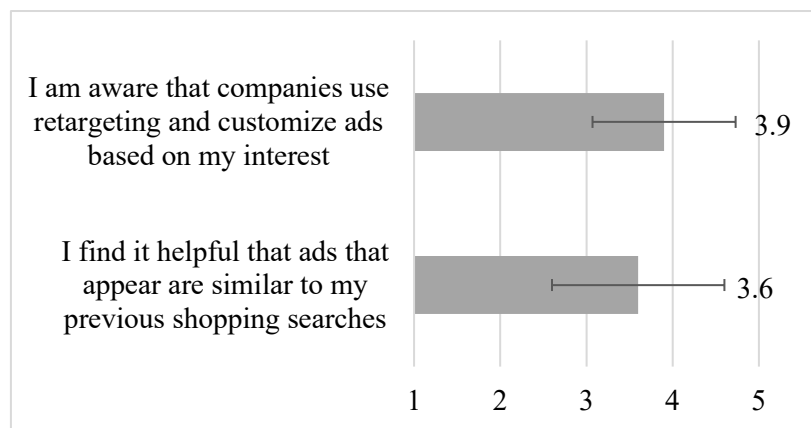


Source: Own work.

In Question 10, respondents were asked whether they know the term »nudging«, to which only 4% answered that they do. For those who answered that they know this term, Question 11 was opened, where they were asked what this term means. In Question 11, they mostly answered that a nudge is a marketing tool, which is a subtle way to influence consumer decision making, or that it convinces people to buy the product. All the answers from Q11 can be found in Appendix 10.

Question 12 presented two statements about personalized ads and asked the respondents to indicate their level of agreement or disagreement using a 5-point rating scale (1 = not important at all, 5 = very important). The average value of answers indicates that respondents are aware that companies personalize ads based on the buyer's interest (average value, AV = 3.9; SD = 0.83). Most people (107 or 52%) agreed, and 42 people (20%) chose »strongly agree«. 45 respondents (22%) chose the answer »neither agree nor disagree«, only a small proportion of respondents chose »strongly disagree« (3 individuals or 1%) and »disagree« (8 individuals or 4 %). On average, the respondents also agree that these ads are helpful when shopping (AV = 3.6, SD = 1). Here, the majority of people also agreed: 100 respondents (49%) chose the answer »agree«, 33 individuals (16%) »strongly agree«, while some also chose »strongly disagree« (10 individuals or 5%) and »disagree« (16 individuals or 8%). There were 46 (22%) respondents who »neither agreed nor disagreed«. An in-depth analysis of the answers is available in Appendix 11. In Figure 11, we can see the average answers to this question.

Figure 11: The average level of agreement with the statements regarding personalized ads

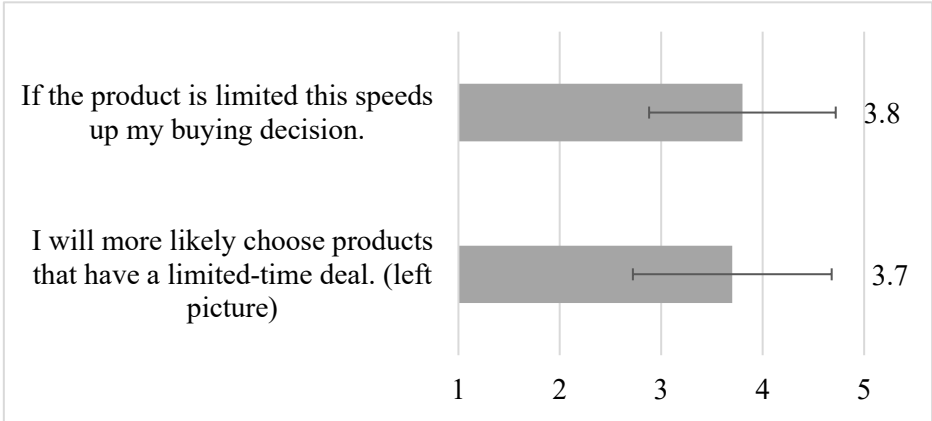


Source: Own work.

In Question 13, the respondents were presented with two images of the same product, the only difference being that one of them had a limited-time deal (the images can be seen in Appendix 3 in Question 13). Most people (181 or 88%) clicked to select the left image, i.e., the product that had a limited-time deal. 12 people (6%) chose a product without a time-limited deal, and 6 people (6%) did not choose any product.

Relating to Question 13, respondents then estimated two statements about the impact of limited-time deals in Question 14. Most of the respondents (more than 60%) agreed that if the product is limited this would also speed up their buying procedure and that they would most likely buy a time-limited product. The average value of agreement with the first statements was 3.8 (SD = 0.98), while with the second statement it was 3.7 (SD = 0.92). Figure 12 shows the average values of agreement with the statements on a 5-point rating scale and Appendix 12 provides a more detailed insight into the answers.

Figure 12: The average level of agreement with statements regarding limited offers

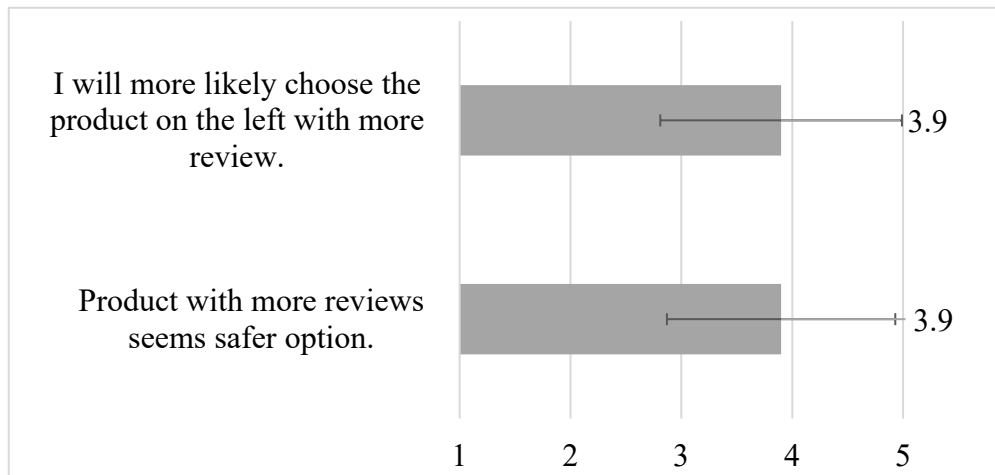


Source: Own work.

In Question 15, the respondents were presented with pictures of two products, one of which had more reviews than the other product. The pictures can be seen in Appendix 3 in Question 15. Most people chose the product that was on the left side, which had more reviews, i.e. 174 (85%), only 8 (4%) of respondents answered that they would choose the right product or the product with fewer reviews, and 23 (11%) decided not to choose any product. Appendix 13 shows more detail on the answers to Question 16.

In Question 16, the respondents provided their level of agreement with two statements: »I will more likely choose the product on the left« and »The product with more reviews seems a safer option«. In Figure 13, we can see the average answers for both statements are 3.9, while SD for the statement »I will more likely choose the product on the left« is 1.09, and for »Product with more reviews seems safer option« it is 1.03. Most of the respondents agree that they will most likely choose the product with more reviews and that the product that has more reviews is also a safer option.

Figure 13: The average level of agreement regarding number of reviews on the product

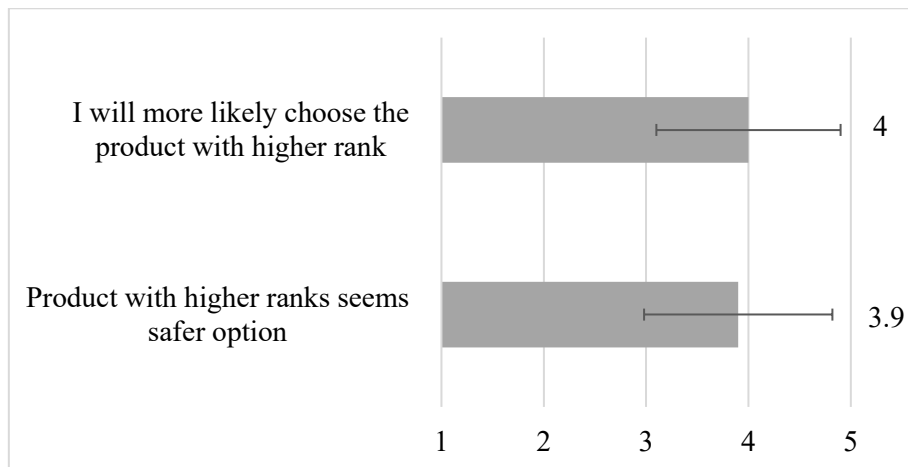


Source: Own work.

In Question 17, the respondents selected between two products, one of which had a higher rating than the other. The pictures can be seen in Appendix 3 for Question 17. For Question 17, 189 people (92%) chose the product that has a higher rating (upper image), only 5 (2%) choose the product that has a lower rating (lower image), and 11 (5%) respondents choose the answer »none«.

In Appendix 14, we can find more detail on the answers to Question 18. In Figure 14, we can see the average answers for both questions are similar. For the statement »I will more likely choose the product with a higher rank« the average is 4.0 (SD = 0.9), 76% of respondents choose that they »agree« or »strongly agree«. For »The product with higher ranks seems a safer option« the average is 3.9 (SD = 0.92), where 74% of respondents choose that they »agree« or »strongly agree«. Therefore, respondents mostly agree that they will choose the product that has a higher rank, and that this product is also a safer option.

Figure 14: The average level of agreement regarding the rank of the product



Source: Own work.

4.3.3 Results of Hypotheses Testing

In the following section, I present the results of testing the previously stated research hypotheses, which was carried out with statistical tests in the SPSS program.

H1a: More consumers will choose products that have more reviews over products with fewer reviews.

To test Hypothesis 1a, I first used the binomial test. Here I used the Question 15, where respondents answer which product from the picture they will most likely choose. For the binomial test, I set the test probability to 0.5. Results can be seen in Appendix 15. The results showed that p-value is lower than 5%, so due to that we can reject the null hypothesis.

As an additional test, I also used a one sample t-test where I checked whether the average value of Sub-question 16a (agreement with statement »I will more likely choose the product on the left«) in Question 16 is statistically different from the test value of 3.0. The average value of the statement about choosing the product with more reviews was 3.95. Based on the sample data, I can reject the null hypothesis, as shown by the test printout in Appendix 15, and I can confirm H1a that more consumers will choose products that have more reviews.

H1b: More consumers will choose products that have higher ratings over products that have lower ratings.

For H1b, I used the same type of tests as for H1a. First, I also did a binomial test, where I used Question 17 asking the respondents to choose one of the two pictures differing in terms of customer ratings. To conduct the test, I assumed that test probability was 0.5. The results showed that the p-value is lower than 5%, which means we can reject the null hypothesis and confirm that there is a higher probability that the product with a higher rating will be chosen. The results of the test can be seen in Appendix 16.

The second test I performed to test this hypothesis was the t-test based on Sub-question 18a of Question 18 (agreement with statement »I will more likely choose the product with a higher rank«). To conduct the test, I used the mean that was 3.97 and compared it with the test mean of 3.0. Based on the results available in Appendix 16, we can see that the p-value is below 0.05, therefore, we can reject the null hypothesis and confirm that consumers will choose products that have a higher rating.

H2: More consumers will choose a product that is time-limited over a product without time limitation.

Hypothesis 2 was also tested with two tests, the same as for the previous two hypotheses. First, I used the binomial test based on Question 13. In this question, the respondents were

asked to choose between two pictures that differed in terms of offer availability. For this test, I also set the test probability to 0.5. The results of the test can be seen in Appendix 17. We can reject the null hypothesis and confirm that a product with a limited-time deal will be most likely chosen.

I also tested Hypothesis 2 with a t-test. For the t-test, I used Sub-question 14a from Question 14, where the respondents indicated their level of agreement with the statement »I will more likely choose products that have a limited-time deal«. The mean value was 3.68 and the test value was 3.0. The full calculation can be seen in Appendix 17, where we can also see that p is less than 0.05, which means that we can discard the null hypothesis and confirm that the time-limited product will be more likely chosen.

H3: Consumers find retargeting banners helpful.

I tested Hypothesis 3 based on the statement »I find it helpful that ads that appear are similar to my previous shopping searches« in Question 12. The question was based on a five-point scale. I used a one sample t-test to test the assumption about the arithmetic mean, where I compared the mean value of 3.63 with the test value of 3.0. Based on the sample data, I can reject the null hypothesis, as shown by the test printout in Appendix 18, and accept the conclusion that consumers find retargeting banners helpful when shopping.

H4: Customers experience privacy concerns when shopping online.

Hypothesis 4 states that customers experience privacy concerns when shopping online. I used Sub-question 9d in Question 9 »I am concerned with how my data is used«, where the respondents indicated their level of agreement. I tested this hypothesis with a one sample t-test, in which I compared the mean value of answers to this statement, which was 3.44, with the test value of 3.0. In Appendix 19, a more detailed calculation of the test is provided. Based on the results, I can reject the null hypothesis and confirm that customers experience privacy concerns when shopping online.

5 DISCUSSION

5.1 Interpretation of Findings

In this chapter, I will summarize the main findings of the quantitative research regarding the impact of digital nudges on consumer online purchasing.

The empirical part was written based on a thorough review of the existing literature. I conducted the empirical study using an online survey on the 1KA.si website. The analysis of the questionnaire gave the following results. The respondents most often buy online a

couple of times a month (38%), while the lowest percentage buy online once a week (1%). When it comes to the devices where they shop, most of them buy via a mobile phone (82%). The most common reason why they shop online is because it is available 24/7 (25%) and because there is more choice (24%). The average amount that the respondents spend per month for online purchases ranges between 10 euro and 3,000 euro, the average is 105 euro.

What the respondents estimated as the most important factor when buying an item online were product description and price, with an average value of 4.3. Jang et al. (2017) also mentioned that price is the most important factor when shopping and that most people will choose or look for a cheaper product. Convenience is also an important factor, as already proven in the research done by the National Retail Federation, which showed that if the product is inconvenient, almost no one will buy it (Convenience and the Consumer, 2020).

I also examined the consumers' opinion on the terms of privacy. On average, the respondents agreed that the terms of privacy are time-consuming, as well as that the terms of privacy are too complex (both having an average of 3.8). They agreed slightly less with the statement that terms of privacy make them feel safer (an average of 3.7). The purpose of the terms of privacy is to reduce security risks, such as online fraud, hacking, and exposing the consumer's privacy (Meskaran et al., 2013). If on average consumers feel safer with having the terms of privacy, the goal of reducing the risk should be achieved. However, there is an issue if consumers do not read it, as they do not know what they are agreeing on. Regarding data collection, most respondents answered that they agree and are aware of the terms of it (58%), 68% also agree that reading all the terms is time-consuming, and 76% agree that they usually click »I agree« on cookies without reading. This was also mentioned by authors Obar and Oeldorf-Hirsch (2020), who state that many people do not read the terms and just click »I agree«, mostly because of lack of motivation.

Consumers usually feel like they are losing their own personal data and do not have control over the use of it (Hong & Thong, 2013). In my study, I also asked the respondents about personal data collection and usage. The majority agreed with the statement »I feel like too much personal information is collected by online shopping companies« (the average value being 3.8), followed by the statements »I am aware that online shopping companies are collecting data on my activity«, »I am aware of how my personal data is used or going to be used in online shopping sites«, »I am uncomfortable with how my data is used«, and »I usually delete the data online shopping companies collect« (average value 3.1).

When it comes to retargeting ads, the respondents' answers show the majority on average agrees that they find it helpful that ads that appear are similar to their previous shopping searches. However, they show slightly more agreement with the statement that they are aware that companies use retargeting and customize ads based on their interest. Retargeting is an example of a product recommendation nudge, and its goal is to cause a framing effect.

It is a promising strategy as it brings back around 95% of consumers (Fösken, 2012), and 40% find retargeting ads helpful (King & Jessen, 2010).

Based on the previous research, I set up five hypotheses, all of which I could support. The results are shown in Table 5.

Table 5: Review of testing the hypotheses

Hypothesis	Results
H1a: More consumers will choose products that have more reviews over products with fewer reviews.	Supported
H1b: More consumers will choose products that have higher ratings over products that have lower ratings.	Supported
H2: More consumers will choose a product that is time-limited over a product without time limitation.	Supported
H3: Consumers find retargeting banners helpful.	Supported
H4: Consumers experience privacy concerns when shopping online.	Supported

Source: Own work.

With hypotheses 1a and 1b, I delved into research and found that electronic Word of Mouth is the use of technology to share opinions and recommendations about products and services, with product ratings and reviews being an important part of eWOM (Babić et al., 2016). I found that consumers actually choose products online that have more reviews by other consumers and have higher ratings. By actively managing and promoting positive eWOM, consumers will most likely choose the product that has good eWOM. Babić et al. (2016) also conducted research on eWOM and found that eWOM is effective, and that there is a positive correlation between eWOM and sales.

With Hypothesis 2, I explored limited product availability pressure cues as being statements or visual cues, which inform consumers that only a limited number of products is available for purchase (Amirpur & Benlian, 2015). These cues have been shown to have a significant impact on consumers' purchase intentions in offline, in-store contexts. I tested the impact of time availability in an online purchasing context and found that consumers more likely choose products that are time limited. Amirpur and Benlian (2015) also found that time-limited pressure is effective in influencing consumers' purchases.

Hypotheses 3 and 4 were also based on the research papers by Bleier and Eisenbeiss (2015), and Eigenbrod and Janson (2018). Hypothesis 3 was based on the findings of Eigenbrod and Janson (2018), and Bleier and Eisenbeiss (2015), stating that the use of retargeting banners could be particularly beneficial. These show that other customers, as well as friends, have also visited and liked the e-commerce retailer's homepage. This can suggest to the consumer that others have also trusted and relied on the online retailer, potentially reducing their privacy concerns, and increasing their likelihood of making a purchase.

Previous research has shown that privacy concerns can negatively affect consumers' trust in e-retailers and their intent to make purchases, which can negatively impact success (Eigenbrod & Janson, 2018). Bleier and Eisenbeiss (2015) also said that when consumer data is used, they have increased feelings of reactance and privacy concerns when they see them. Based on these findings, H4 was proposed and tested. The data analysis confirmed that consumers on average are concerned with how their data is used and this aligns with the stated hypothesis.

5.2 Research Limitation and Further Research

The biggest limitation of the research was the collection of units. In this case, we used non-probability sampling, so generalization to the population is not possible. The survey was conducted on a relatively small sample of 232 respondents, of which only 205 had an online shopping experience in the last three months. It is possible that some respondents who had a shopping experience in this period could not recall it completely; hence, their answers would not be totally reliable.

Despite the fact that I used a snowball sampling method, I did not get the targeted number of answers. The problem was that the respondents did not complete the survey, and the potential reasons for not completing it could be lack of motivation, misunderstanding of the questions, or that it took too much time. Based on the data from 1KA, I see that 445 people clicked on the link, of which only 52% completed the survey. Another reason could be that it was an online survey, and the interviewer was not physically present. It is possible that my physical presence could help in obtaining more accurate results, because in case of ambiguity or misunderstanding, I could provide an additional explanation, which would increase the number of fully completed surveys. On the other hand, this would increase or bring additional costs and prolong the implementation of the research.

For further research, I would perhaps change the questions a little, or add a sub-question for some questions, asking the respondents to write an explanation. For example, in the second question »How often do you shop online«, I added the option »never« where, considering that the person has shopped in the last three months, it would not seem reasonable for someone to choose that. However, in my case, the respondent clicked on the »never« option, so I can only conclude that it was a clicking error, nevertheless, I still considered one less person for this question. For question five »How much do you spend per month«, I might also ask a sub-question about what they buy or add a limit to the amount of money they can enter. In our case, three people entered an amount greater than 1,000, which I had to exclude from the analysis. I concluded that it was an error when entering the amount. I would say that there are minor changes that could possibly be made in the questionnaire to make it easier for respondents to understand and avoid errors.

In order to gain even better insight into the consumers' point of view, I would use qualitative methods, such as an interview and a focus group. After all, with the help of a focus group, I would gain an in-depth and direct insight. An alternative method would be an experiment with eye-tracking, where the actors involved would actually shop. In this case you would get the best insight into how a person behaves when buying online and what catches their eye first.

In the experimental part of the survey, I used only three examples of nudging, which are the most noticeable, and we can immediately assume that, in most cases, consumers will choose a product with more reviews, higher rating, and a time-limit. Therefore, I would suggest for future studies that they add less predictable nudging methods than for example framing, decoy effect or anchoring.

5.3 Practical Implications

Based on the results from the empirical study, the following recommendations can be made for online store providers.

Given that the majority of responders stated that they use a mobile phone when shopping online, I would recommend that online retailers optimize their mobile shopping experience as this is crucial for businesses in today's digital age. The website should be designed in such a way as to provide a fast and secure checkout process, using push notifications, providing detailed product information, utilizing customer reviews and ratings, offering fast delivery and easy returns, and providing good customer service. By doing so, businesses can improve customer satisfaction and increase conversions (Saleem et al., 2019).

Since as many as 72% answered that they decide to buy online because more options are available, I would also suggest that retailers try to provide a wide variety of options and detailed product information. For example, they can include high-quality images, detailed descriptions, specifications, and customer reviews and ratings. By offering a wide range of options and detailed product information, businesses can cater to customers who have specific preferences and needs and increase the chances of making a sale. By providing detailed product information, sellers can also improve the customers' trust towards their brand and increase the chances of repeat purchases.

For customers, it is also important to have a good product description, which should be detailed, accurate and informative, providing them with all the information they need to make an informed purchase decision. 51% of the respondents stated that if more information is available, it helps them to make a purchase. The descriptions should, therefore, be written clearly and concisely, highlighting the most important features and benefits of the product. Including high-quality images and videos can also help to showcase the product and make it more appealing to customers.

Given that the majority of respondents answered that the terms of privacy are too complex, time-consuming, and that they usually click »I agree« on cookies without reading, I would suggest for companies to improve the transparency and ease of reading their website's privacy policy and cookie usage policy. It is important to make sure that these policies are easily accessible, clearly written, and written in plain language. It is also important to have a cookie usage policy to help customers understand how their browsing data is collected and used, and what options they have to manage it.

CONCLUSION

In conclusion, the increase in options available to consumers has made it more difficult for them to make decisions. This has led to the development of nudges, which are mechanisms of behavioral economics that aim to influence consumer behavior without limiting their options or changing their economic incentives (Reisch & Zhao, 2017). Nudging is a useful tool in the digital world, where it can be used to guide consumers' behavior through user-interface design elements. However, ethical considerations such as freedom of choice, transparency, and goal-oriented justification must be considered (Clavien, 2018). Digital nudging also raises privacy concerns, but policymakers are working to protect individual data (Mirsch et al., 2017). Overall, digital nudging can simplify the decision-making process for consumers and increase effectiveness in marketing, however, it should be used with care and be subject to data protection laws.

In my master's thesis, I studied how nudging influences customers in online shopping based on a review of existing literature and empirical research. In the theoretical part, I focused on the key insights in connection with online purchasing, on what is the motivation behind it and what kind of risks it brings, and how digital nudges influence the customer's purchase. In the theoretical part, I laid the foundations for the empirical research. I carried out a quantitative study of the effects of digital nudges on the customers' online purchasing using the online survey method, and then checked the hypotheses by analyzing the collected data.

The results of this study showed that the most popular device used for purchasing online is the mobile phone, followed by the desktop and the tablet. The main reasons cited for shopping online were that it is available 24 hours a day, seven days a week, and there are more options available. The average monthly amount spent on online purchases was found to be 105 euro. Respondents considered the product description to be the most important attribute when shopping online, while reviews from other consumers were considered the least important. In terms of security and privacy, many respondents agreed that they click »agree« without reading the terms and found it time-consuming to read all the terms. The results also showed that respondents generally agreed with online privacy terms but had concerns about the use of their personal data. As part of the research work, I also set five hypotheses, which were all confirmed. In conclusion, my empirical study confirms that limited product availability, the number of reviews, and higher ratings can have a positive

impact on the consumers' decision to choose an item. I also found that consumers value retargeting banners and find them helpful, while they have some privacy concerns when shopping online.

Based on the research, recommendations can also be made for online store providers. One example is optimizing the mobile shopping experience since a vast majority of customers use their mobile phones to make online purchases. The other recommendation can be to provide an extensive selection of products and detailed product information. Moreover, online stores need to be user-friendly and easy to navigate websites that are appealing to customers. Furthermore, we recommend retailers that their website's privacy policy and cookie usage policy are more transparent and easier to read and provide a secure shopping experience to protect the customer's sensitive information.

The biggest limitation of this research was the use of non-probability sampling, which makes generalization to the population impossible. The survey was conducted on a relatively small sample of 205 respondents that had online shopping experience in the last three months. This means that the results may not be entirely reliable. For future research, the researcher suggests making minor changes to the questionnaire such as adding sub-questions for certain questions or limiting the values in some questions, which would decrease errors and make it easier for the respondents to understand.

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APPENDICES

Appendix 1: Povzetek

V današnjem svetu imajo porabniki veliko možnosti izbire, kar pomeni, da se težje odločijo. Predvsem s spletno ponudbo se je ponudba za porabnike povečala, zato številne prodajalne iščejo dodatne rešitve, kako prepričati potencialne kupce v nakup. Poleg tega porabniki ne ravnajo vedno racionalno in v primerih odločanja se običajno odločamo na podlagi svojih presojev, okolja, statusa, razpoložljivosti in drugih dejavnikov, ki vplivajo na vedenje.

Da, bi pomagali pri izbiri, sta Thaler in Sunstein (2008) predstavila mehanizem imenovan spodbude (angl. nudges). Thaler in Sunstein (2008, str. 6) sta spodbudo opredelila kot »kateri koli vidik izbirne arhitekture, ki spremeni vedenje ljudi, ne da bi prepovedal katero koli možnost ali bistveno spremenil njihove ekonomske spodbude«. Temeljne etične predpostavke so svoboda izbire, preglednost in ciljno usmerjena utemeljitev (Clavien, 2018).

Digitalna spodbuda (angl. digital nudge) je opisana kot »uporaba elementov oblikovanja uporabniškega vmesnika za usmerjanje vedenja ljudi v okoljih digitalne izbire« (Weinmann et al., 2016). Digitalne spodbude je mogoče uporabiti tudi kot manipulacijo v trženju, da lahko podjetja prodajo več (Schneider et al., 2018). Podjetja zbirajo velike količine podatkov, ki omogočajo prilagajanje spodbud na podlagi porabnikovih preteklih odločitev. Ena od slabosti je, da zasebnost strank ni zavarovana, vendar s povečano ozaveščenostjo oblikovalci politik poskušajo zaščititi zasebnost posameznikov (Esposito et al., 2017).

Namen mojega magistrskega dela je bil teoretično in empirično preučiti vpliv digitalnih spodbud na spletno nakupovanje porabnikov. V skladu s tem namenom je cilj analizirati sekundarne in primarne podatke ter na njihovi osnovi predstaviti vpliv digitalnih spodbud na porabnike pri spletnem nakupu. Analiza obstoječih študij služi tudi kot okvir za empirično študijo.

S to študijo raziščem, kako digitalno spodbujanje vpliva na izbiro slovenskih porabnikov, ko gre za spletni nakup, natančneje, v kolikšni meri digitalno spodbujanje vpliva na slovenske porabnike, ko se odločajo za spletni nakup. Poleg tega me zanima, kakšna je stopnja ozaveščenosti porabnikov, kdaj so bili spodbujeni in kaj jim pomaga pri končni odločitvi. Raziskava je osredotočena na slovenski trg, saj je teorija spodbujanja precej nova in na to temo še ni veliko raziskav.

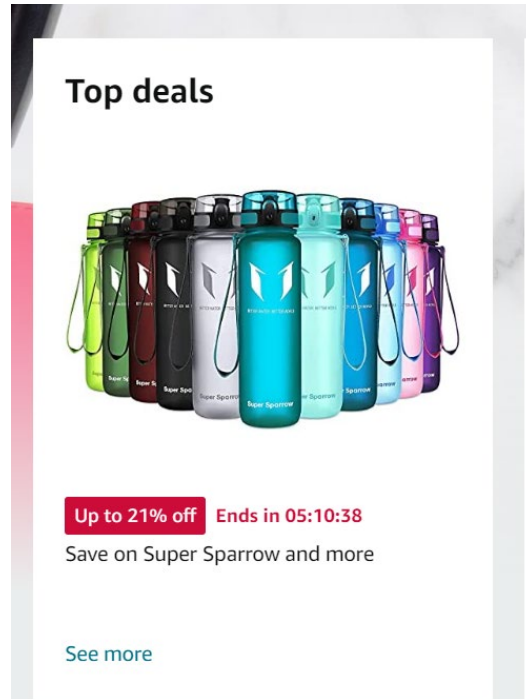
Magistrsko delo išče odgovore na naslednja raziskovalna vprašanja, ki izhajajo iz dosedanjih ugotovitev:

- Kako digitalno spodbujanje vpliva na porabnike v njihovem spletnem nakupovalnem procesu?
- Kako se porabniki počutijo glede svoje zasebnosti, ko so izpostavljeni digitalnemu spodbujanju?
- Kako porabniki dojemajo različne vrste spodbud, na primer ponudbe za ponovno ciljanje v spletnih trgovinah, kot pomoč pri spletnem nakupu?

Četrto poglavje zajema empirični del, v katerem sem izvedla kvantitativno raziskavo o tem, koliko se kupci, ki so nakupovali v zadnjih treh mesecih, zavedajo spodbude in kako ta vpliva na njihov nakup. Anketa je bila izvedena v aplikaciji 1KA, od vseh odgovorov je bilo 205 anketirancev, ki so odgovorili na vsa vprašanja v vprašalniku. Najprej sem analizirala značilnosti vzorcev, nakar sem z opisno statistiko prikazala odgovore na posamezna vprašanja. V okviru raziskovalnega dela sem postavila pet hipotez, ki sem jih vse potrdila. Natančneje, potrdila sem, da porabniki izberejo izdelek z višjo oceno, izdelek z boljšim rangom in izdelek, katerega ponudba je časovno omejena. Raziskava je pokazala tudi, da porabniki ocenjujejo oglasne pasice s ponovnim ciljanjem kot koristne. Zadnja hipoteza pa je nakazala, da porabniki izkusijo skrb glede zasebnosti, ko kupujejo prek spleta. V zadnjem petem poglavju sem oblikovala končne ugotovitve raziskave. Zadnji del magistrskega dela je zaključek, ki ga sestavljajo ključne ugotovitve ter priporočila za ponudnike spletnih trgovin, ter za nadaljnje raziskave.

Appendix 2 Examples of digital nudges

Figure 2: Pressure Cue nudge. Amazon time-limited offer.



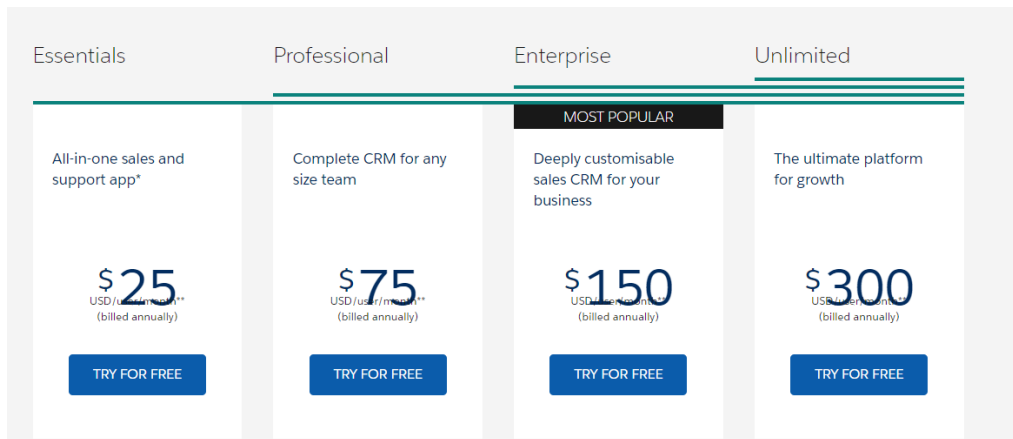
Source: Amazon (2022)

Figure 1: Pressure Cue. ASOS selling fast



Source: ASOS (2022)

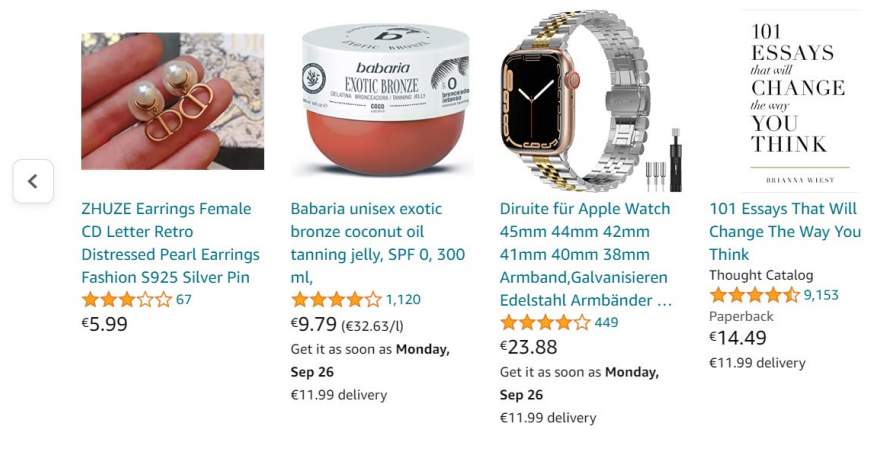
Figure 3: Social Influence Cue nudge. Salesforce Sales Cloud Pricing



Source: Salesforce (2022)

Figure 4: Product Recommendation nudge. Amazon inspired by your browsing history

Inspired by your browsing history



Source: Amazon (2022)

ppendix 3 Questionnaire (Slovenian version)

Pozdravljeni, sem Martina Eftimova, študentka magistrskega programa na Ekonomski fakulteti v Ljubljani. V magistrskem delu raziskujem vpliv digitalnih spodbud na porabnikovo vedenje na spletu. Prosim, če si vzamete 5 minut za izpolnjevanje spodnjega vprašalnika, namenjenega osebam z izkušnjo s spletnim nakupovanjem. Vprašalnik je anonimen, pridobljeni podatki bodo uporabljeni zgolj v raziskovalne namene. Vnaprej hvala!

Q1 - Ali ste v zadnjih treh mesecih kupovali preko spleta?

- Da
- Ne
- Ne spomnim se

Q2 - Kako pogosto nakupujete prek spleta.

- Nikoli
- Manj kot enkrat na leto
- Enkrat na leto
- Nekajkrat na leto
- Nekajkrat na mesec
- Enkrat tedensko
- Nekajkrat na teden
- Vsak dan

Q3 - Katere vrste naprav običajno uporabljate za spletne nakupe?

Možnih je več odgovorov

- Namizni računalnik
- Mobilni
- Tablica
- Drugo:

Q4 - Zakaj kupujete prek spleta?

Možnih je več odgovorov

- Ker je ceneje
- Na voljo je več možnosti
- Na voljo je 24/7
- Več informacij je na voljo
- Je priročno
- Drugo:

Q5 - Prosimo, napišite, koliko običajno zapravite za spletne nakupe na mesec?

Q6 - Prosimo, navedite, kako pomembni so naslednji dejavniki, da vas prepričajo v nakup izdelkov prek spleta (1- sploh ni pomembno, 5- zelo pomembno).

	1- Sploh ni pomembno	2- Ni pomembno	3-Niti pomembno niti nepomembno	4- Pomembno	5-Zelo pomembno	No opinion
Število komentarjev drugih kupcev.						
Ocena izdelka.						
Kako izdelek izgleda na sliki.						
Popust.						
Cena.						
Izgled spletne strani.						
Opis izdelka.						
Hitrost dostave.						
Preglednost, kje se pošiljka nahaja.						

Q7 - Prosimo, navedite, v kolikšni meri se strinjate z naslednjimi trditvami glede spletnih piškotkih.

	Sploh se ne strinjam	Se ne strinjam	Niti se strinjam niti ne strinjam	Strinjam se	Popolnoma se strinjam
Zavedam se pogojev na spletu glede mojih podatkov.					
Zdi se mi, da je branje vseh pogojev o zbiranju osebnih podatkov na spletni strani zamudno.					
Pri piškotkih običajno kliknem »Strinjam se«, ne da bi prebral/a vso besedilo.					

Q8 - Prosim, navedite, v kolikšni meri se strinjate z naslednjimi trditvami glede zakonodaje o zasebnosti na spletu.

	Sploh se ne strinjam	Se ne strinjam	Niti se strinjam niti ne strinjam	Strinjam se	Popolnoma se strinjam
Branje pogojev zasebnosti zahteva veliko časa.					
Pogoji zasebnosti so preveč zapleteni.					
Zaradi pogojev zasebnosti se počutim varnejše.					

Q9 - Prosim, da pri vsaki trditvi o zbiranju osebnih podatkov na spletu ustrezno označite stopnjo strinjanja ali nestrinjanja.

	Sploh se ne strinjam	Se ne strinjam	Niti se strinjam niti ne strinjam	Strinjam se	Popolnoma se strinjam

Zavedam se, da spletna trgovska podjetja zbirajo o moji aktivnosti na spletu.					
Zdi se mi, da spletna trgovska podjetja zbirajo preveč osebnih podatkov.					
Zavedam se, kako moje osebne podatke uporabljajo ali bodo uporabljali na spletnih mestih za spletno nakupovanje.					
Skrbi me, kako se uporabljajo moji podatki					
Običajno izbrišem podatke, ki jih zbirajo podjetja za spletno nakupovanje.					

Q10 - Ali poznate izraz “digitalna spodbuda” (digital nudge)?

Ja

Ne

IF Q10 = Yes

Q11 - Kaj je to spodbuda »nudge«?

Q12 - Pri vsaki trditvi ustrezno označite stopnjo strinjanja ali nestrinjanja, glede prilagojenih oglasov.

	Sploh se ne strinjam	Se ne strinjam	Niti se strinjam niti ne strinjam	Strinjam se	Popolnoma se strinjam
Koristno se mi zdi, da so prikazani oglasi podobni mojim prejšnjim nakupovalnim iskanjem.					
Zavedam se, da podjetja uporabljajo ponovno ciljanje in prilagajajo oglase glede na moje zanimanje.					

Q13 - Prosim oglejte si spodnja dva oglasa. Katerega od oglasov bi najverjetneje kliknili?



FQ1924
FQFynjard Men's Fine Knit Pullover 100% Cotton

15% off Ends in 54:26

€32⁹⁵

Lowest recent price: €38:95



FQ1924
FQFynjard Men's Fine Knit Pullover 100% Cotton

€32⁹⁵

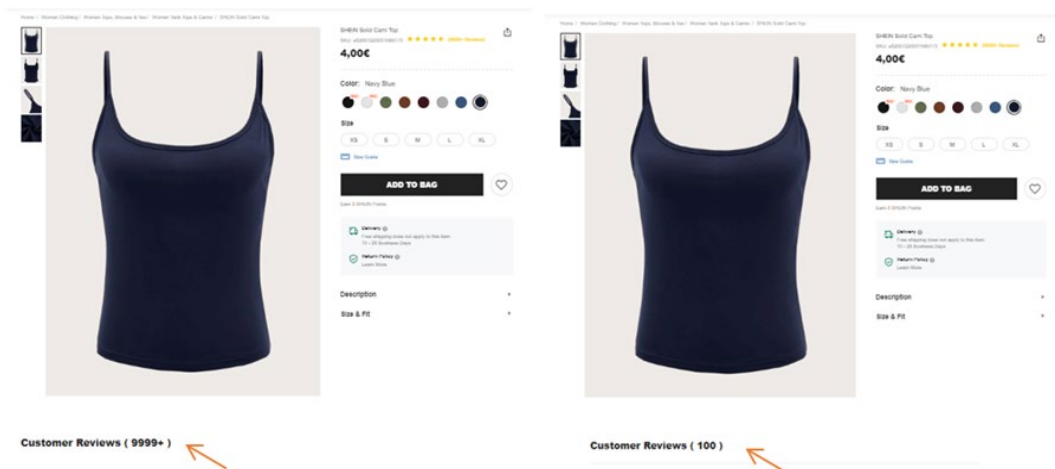
Lowest recent price: €38:95

- Levo sliko
- Desno sliko
- Nobene

Q14 - Pri vsaki izjavi ustrezno označite svojo stopnjo strinjanja ali nestrinjanja glede na prikazani sliki.

	Sploh se ne strinjam	Se ne strinjam	Niti se strinjam niti ne strinjam	Strinjam se	Popolnoma se strinjam
Bolj verjetno bom izbral/a izdelke, ki ima časovno omejeno ponudbo. (leva slika).					
Če je ponduba izdelka časovno omejen, to pospeši mojo odločitev o nakupu.					

Q15 - Prosim oglejte si spodnja dva oglasa. Katerega od oglasov bi najverjetneje kliknili?



- Levo sliko

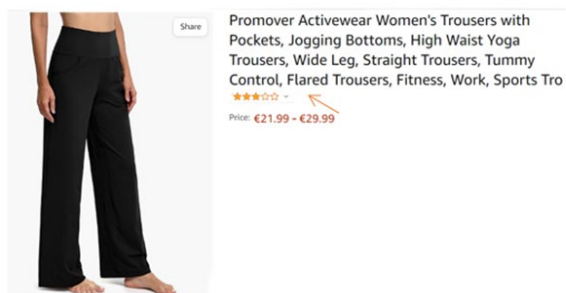
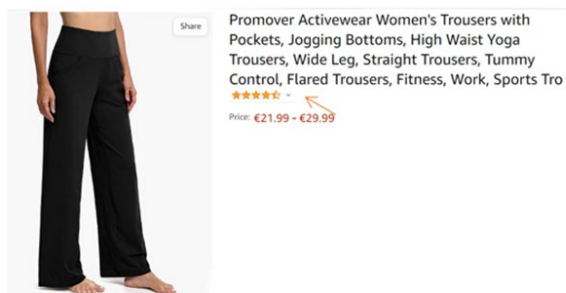
Desno sliko

Nobene

Q16 - Pri vsaki izjavi ustrezno označite svojo stopnjo strinjanja ali nestrinjanja glede na prikazani sliki.

	Sploh se ne strinjam	Se ne strinjam	Niti se strinjam niti ne strinjam	Strinjam se	Popolnoma se strinjam
Bolj verjetno bom izbral/a izdelek na levi z več komentarji.					
Izdelek z več komentarji se zdi varnejša možnost.					

Q17 - Prosim oglejte si spodnja dva oglasa. Katerega od oglasov bi najverjetneje kliknili?



Zgornjo sliko

- Spodnjo sliko
- Nobene

Q18 - Pri vsaki izjavi ustrezno označite svojo stopnjo strinjanja ali nestrinjanja glede na prikazani sliki.

	Sploh se ne strinjam	Se ne strinjam	Niti se strinjam niti ne strinjam	Strinjam se	Popolnoma se strinjam
Bolj verjetno bom izbral/a izdelek z višjo oceno (zgornjo sliko).					
Izdelek z višjo oceno se zdi varnejša izbira.					

Q19 - Vaš spol?

- Ženska
- Moški
- Drugo

Q20 - V katero starostno skupino sodite?

- 19 let ali manj
- 20-29
- 30-39
- 40-49
- 50 let ali več
- Ne želim odgovoriti

Q21 - Katera je najvišja stopnja šolanja, ki ste jo končali:

- Osnovna šola
- Srednja šola

Dodiplomski študij

Magisterij ali višje

Q22 - Trenutno imam status:

Študenta

Zaposlenega

Brezposelnega

Upokojenca

Ne želim odgovoriti

Drugo (prosimo, navedite):

Appendix 4 Questionnaire (English version)

Questionnaire:

Hello, I am Martina Eftimova, a student in the master's program at the University of Ljubljana, School of Economics and Business. In my master's thesis, I investigate the impact of digital nudges on consumer behaviour online. Please take 5 minutes to fill out the questionnaire below. The questionnaire is intended for people with an online shopping experience. The questionnaire is anonymous and in English, the data obtained will be used only for research purposes.

Q1 - Have you purchased anything online in the last three months?

- Yes
- No
- Do not remember

Q2 - How often do you shop online.

- Never
- Less than once a year
- Once a year
- A few times a year
- A few times a month
- Once a week
- A few times a week
- Every day

Q3 - What type of device(s) do you usually use to purchase online?

Multiple answers are possible

- Desktop
- Mobile
- Tablet
- Other:

Q4 - Why do you buy online?

Multiple answers are possible

- Because it is cheaper
- More options are available
- It is available 24/7
- More information is available
- It is convenient
- Other:

Q5 - Please write how much you usually spend on online purchases per month?

Q6 - Please indicate how important are the following factors into convincing you to buy the product online (1- Not at all important, 5- Very Important).

	1- Not at all important	2-Slightly important	3-important	4-Fairly important	5-Very Important	No opinion
The number of reviews from other consumers.						
The rank of the product.						
How the product looks on the picture.						
Discount.						
Price.						
Appearance of the Website.						
Product description.						
Quick delivery.						
Visibility of product delivery status.						

Q7 - Please indicate the extent to which you agree with the following statements regarding digital cookies.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I am aware of the terms regarding my data collection.					
I feel like it is time-consuming to read all the terms.					
I usually click «I agree» on cookies without reading.					

Q8 - Please indicate the extent to which you agree with the following statements regarding the terms of privacy.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Terms of privacy are time-consuming.					
Terms of privacy are too complex.					
Terms of privacy make me feel safer.					

Q9 - Please indicate the extent to which you agree with the following statements about collections of personal data.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

I am aware that online shopping companies are collecting my data on my activity.					
I feel like too much personal information is collected by online shopping companies.					
I am aware of how my personal data is used or going to be used in online shopping sites.					
I am concerned with how my data is used					
I usually delete the data online shopping companies collect.					

Q10 - Are you aware of nudging.

Yes

No

IF Q10 = (Yes)

Q11 - What is digital nudge?

Q12 - For each statement, please mark correspondingly your degree of agreement or disagreement, regarding personalized ads.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I find it helpful that ads that appear are similar to my previous shopping searches.					
I am aware that companies use retargeting and customize ads based on my interest.					

Q13 - Please have a look at the two ads below.

Which of the two ads would you more likely click on?



FQ1924
 FQFynjard Men's Fine Knit Pullover 100% Cotton
 15% off Ends in 54:26
 €32.95
 Lowest recent price: €38.95



FQ1924
 FQFynjard Men's Fine Knit Pullover 100% Cotton
 €32.95
 Lowest recent price: €38.95

The left

The Right

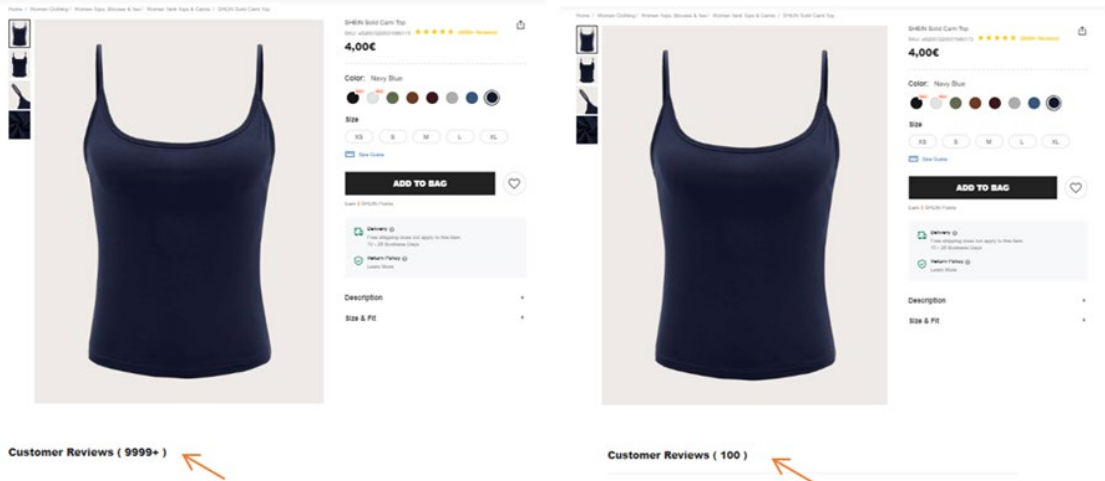
None

Q14 - For each statement, please mark correspondingly your degree of agreement or disagreement regarding the two pictures shown in the previous question.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I will more likely choose products that have a limited-time deal. (Left picture).					
If the product is limited these speeds up my buying decision.					

Q15 - Please have a look at the two ads below.

Which of the two ads would you more likely click on?



The left

The right

None

Q16 - For each statement, please mark correspondingly your degree of agreement or disagreement regarding the two pictures shown in the previous question.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I will more likely choose the product on the left.					
Product with more reviews seems safer option.					

Q17 - Please have a look at the two ads below.

Which of the two ads would you more likely click on?

Share Promover Activewear Women's Trousers with Pockets, Jogging Bottoms, High Waist Yoga Trousers, Wide Leg, Straight Trousers, Tummy Control, Flared Trousers, Fitness, Work, Sports Tro
 ★★★★★ -
 Price: €21.99 - €29.99

Share Promover Activewear Women's Trousers with Pockets, Jogging Bottoms, High Waist Yoga Trousers, Wide Leg, Straight Trousers, Tummy Control, Flared Trousers, Fitness, Work, Sports Tro
 ★★★★☆ -
 Price: €21.99 - €29.99

- The top
- The bottom

None

Q18 - For each statement, please mark correspondingly your degree of agreement or disagreement regarding the two pictures shown in the previous question.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I will more likely choose the product with higher rank.					
Product with higher ranks seems safer option.					

Q19 - What is your gender?

Female

Male

Other

Q20 - What age group do you belong to?

19 or less

20-29

30-39

40-49

50 or more

I prefer not to answer

Q21 - What is the highest degree or level of school you have completed?

Primary school

High school

Bachelor's degree

Master's degree or higher

Q22 - What is your current occupation?

Student

Employed

Unemployed

Retired

I prefer not to answer

Other:

Appendix 5 Scales of measurement by question

- Q1: online shopping experience- nominal variables
- Q2: online shopping frequency- ordinal variables
- Q3: type of device used to purchase- nominal variables
- Q4: reason purchasing online- nominal variables
- Q5: online shopping spending- Ratio variable
- Q6: factors to purchase the product- interval variables
- Q7: importance of terms regarding online cookies - interval variables
- Q8: importance of online privacy terms. - interval variables
- Q9: impact on purchase base collection of personal data online - interval variables
- Q10: awareness of nudging- nominal variables
- Q11: description of what is nudge according to interviewers – nominal variables
- Q12: helpfulness of the retargeting banners- interval variables
- Q13: choosing based on two pictures how important the time limit is in decision making - nominal variables
- Q14: importance of time limitation for purchasing of the product- interval variables
- Q15: choosing based on two pictures how important the reviews are in decision making - nominal variables
- Q16: importance of reviews of the product- interval variables
- Q17: choosing based on two pictures how important the higher rank of the product is in decision making - nominal variables
- Q18: importance of higher rank of the products- interval variables
- Q19: gender- nominal variables
- Q20: age group- ordinal variables
- Q21: level of education- ordinal variables
- Q22: occupation- nominal variables

Appendix 6: Analysis of results on how important the factors into are convincing you to buy the product online

Q6	Please indicate how important are the following factors into convincing you to buy the product online (1- Not at all important, 5- Very Important).							Valid	Units	Average	Std. deviation
	Subquestion	Answers									
		1- Not at all important	2-Slightly important	3- important	4-Fairly important	5-Very Important	Valid				
Q6a	The number of reviews from other consumers	7 3 %	17 8 %	41 20 %	56 27 %	84 41 %	205 100 %	205	232	3.9	1.12
Q6b	The rank of the product	2 1 %	9 4 %	45 22 %	71 35 %	77 38 %	204 100 %	204	232	4	0.93
Q6c	How the product looks in the picture	4 2 %	10 5 %	41 20 %	68 33 %	82 40 %	205 100 %	205	232	4	0.99
Q6d	Discount	3 1 %	12 6 %	42 21 %	71 35 %	76 37 %	204 100 %	204	232	4	0.98
Q6e	Price	0 0 %	5 2 %	22 11 %	76 37 %	101 50 %	204 100 %	204	232	4.3	0.77
Q6f	Appearance of the Website	2 1 %	5 2 %	44 21 %	86 42 %	68 33 %	205 100 %	205	232	4	0.86
Q6g	Product description	0 0 %	4 2 %	30 15 %	74 36 %	97 47 %	205 100 %	205	232	4.3	0.79
Q6h	Quick delivery	1 0 %	1 0 %	45 22 %	79 39 %	78 38 %	204 100 %	204	232	4.1	0.81
Q6i	Visibility of product delivery status	1 0 %	9 4 %	29 14 %	85 41 %	81 40 %	205 100 %	205	232	4.2	0.86

Source: Own work.

Appendix 7: Analysis of results to which extent the respondents agree with the statements regarding online cookies.

Q7		Please indicate the extent to which you agree with the following statements regarding online cookies.									
	Subquestion	Answers						Valid	Units	Average	Std. deviation
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Valid				
Q7a	I am aware of the terms regarding my data collection.	3 1 %	23 11 %	60 29 %	99 48 %	20 10 %	205 100 %	205	232	3.5	0.87
Q7b	I feel like it is time-consuming to read all the terms.	1 0 %	10 5 %	54 26 %	107 52 %	33 16 %	205 100 %	205	232	3.8	0.79
Q7c	I usually click »I agree« on cookies without reading.	0 0 %	11 5 %	37 18 %	105 51 %	52 25 %	205 100 %	205	232	4	0.81

Source: Own work.

Appendix 8: Analysis of results to which extent the respondents agree with the statements regarding online privacy terms.

Q8	Please indicate the extent to which you agree with the following statements regarding online privacy terms.							Valid	Units	Average	Std. deviation
	Subquestion	Answers									
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Valid				
Q8a	Terms of privacy are time-consuming	2 1 %	20 10 %	46 22 %	86 42 %	51 25 %	205 100 %	205	232	3.8	0.96
Q8b	Terms of privacy are too complex	2 1 %	16 8 %	46 22 %	92 45 %	49 24 %	205 100 %	205	232	3.8	0.92
Q8c	Terms of privacy make me feel safer	6 3 %	17 8 %	56 27 %	85 41 %	41 20 %	205 100 %	205	232	3.7	0.98

Source: Own work.

Appendix 9: Analysis of results to which extent the respondents agree with the statements regarding online cookies

Q9	Please indicate the extent to which you agree with the following statements about the collection of personal data online										
	Subquestion	Answers						Valid	Units	Average	Std. deviation
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Valid				
Q9a	I am aware that online shopping companies are collecting my data on my activity.	8 4 %	23 11 %	40 20 %	92 45 %	42 20 %	205 100 %	205	232	3.7	1.05
Q9b	I feel like too much personal information is collected by online shopping companies	4 2 %	12 6 %	56 27 %	89 43 %	44 21 %	205 100 %	205	232	3.8	0.92
Q9c	I am aware of how my personal data is used or going to be used in online shopping sites	9 4 %	19 9 %	70 34 %	73 36 %	34 17 %	205 100 %	205	232	3.5	1.02
Q9d	I am concerned with how my data is used	13 6 %	24 12 %	59 29 %	78 38 %	31 15 %	205 100 %	205	232	3.4	1.08
Q9e	I usually delete the data online shopping companies collect.	24 12 %	45 22 %	52 25 %	61 30 %	23 11 %	205 100 %	205	232	3.1	1.2

Source: Own work.

Appendix 10: Answers on an open Q11

Q11	What is digital nudge?				
	Answers:	Frequency	Per cent	Valid	Cumulative
	Is convincing people to buy the product.	1	0 %	13 %	13 %
	Everything that gives you the experience of buying something online.	1	0 %	13 %	25 %
	Technique.	1	0 %	13 %	38 %
	Its a subtle way to influence consumer decision making.	1	0 %	13 %	50 %
	Marketing.	2	1 %	25 %	75 %
	Acceleration of sales.	1	0 %	13 %	88 %
	using a user's historical data or searches to guide them to a new purchase? not too sure.	1	0 %	13 %	100 %
Valid	Valid	8	3 %	100 %	

Source: Own work.

Appendix 11: Analysis of results to which extent the respondents agree with regarding personalized ads statements.

Q12		For each statement, please mark correspondingly your degree of agreement or disagreement regarding personalized ads.									
	Subquestion	Answers						Valid	Units	Average	Std. deviation
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Valid				
Q12a	I find it helpful that ads that appear are similar to my previous shopping searches	10 5 %	16 8 %	46 22 %	100 49 %	33 16 %	205 100 %	205	232	3.6	1
Q12b	I am aware that companies use retargeting and customize ads based on my interest	3 1 %	8 4 %	45 22 %	107 52 %	42 20 %	205 100 %	205	232	3.9	0.83

Source: Own work.

Appendix 12: Analysis of results to which extent the respondents agree with statements about product limited-time deal.

Q14	For each statement, please mark correspondingly your degree of agreement or disagreement regarding the two pictures shown in the previous question.							Valid	Units	Average	Std. deviation
		Answers									
	Subquestion	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Valid				
Q14a	I will more likely choose products that have a limited-time deal. (Left picture)	5 2 %	21 10 %	49 24 %	90 44 %	40 20 %	205 100 %	205	232	3.7	0.98
Q14b	If the product is limited these speeds up my buying decision.	4 2 %	14 7 %	44 21 %	98 48 %	45 22 %	205 100 %	205	232	3.8	0.92

Source: Own work.

Appendix 13: Analysis of results to which extent the respondents agree with statements about product review.

Q16	For each statement, please mark correspondingly your degree of agreement or disagreement regarding the two pictures shown in the previous question.							Valid	Units	Average	Std. deviation
	Subquestion	Answers									
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Valid				
Q16a	I will more likely choose the product with more reviews.	12 6 %	11 5 %	22 11 %	91 44 %	69 34 %	205 100 %	205	232	3.9	1.09
Q16b	Product with more reviews seems safer option.	7 3 %	15 7 %	33 16 %	89 43 %	61 30 %	205 100 %	205	232	3.9	1.03

Source: Own work.

Appendix 14: Analysis of results to which extent the respondents agree with statements about product with higher rank.

Q18	For each statement, please mark correspondingly your degree of agreement or disagreement regarding the two pictures shown in the previous question.										
	Subquestion	Answers						Valid	Units	Average	Std. deviation
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Valid				
Q18a	I will more likely choose the product with higher rank	4 2 %	8 4 %	37 18 %	97 47 %	59 29 %	205 100 %	205	232	4	0.9
Q18b	Product with higher ranks seems safer option	6 3 %	6 3 %	41 20 %	97 47 %	55 27 %	205 100 %	205	232	3.9	0.92

Source: Own work.

Appendix 15: Results of hypothesis testing H1a

H1a: More consumers will choose products that have more reviews over products with fewer reviews.

- **H₀**: Consumers will not choose products that have more reviews.
- **H₁**: Consumers will choose products that have more reviews.

Table 1: Binomial test

Binomial Test						
		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
Q15: Please have a look at the two ads below. Which of the two ads would you more likely click on?	Product with more reviews	2	31	.15	.50	<.001
	Product with lower number of reviews or non of the products	1	174	.85		
	Total		205	1.00		

Source: Own work

- **H₀**: $\mu_{\text{product reviews}} \leq 3$ / Consumers will not choose products that have more reviews.
- **H₁**: $\mu_{\text{product reviews}} \geq 3$ / Consumers will choose products that have more reviews.

Table 2: The arithmetic mean of the degree of likelihood of choosing products with more review

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
I will more likely choose the product with more reviews	205	3.95	1.090	0.076

Source: Own work.

Table 3: One Sample T-test

One-Sample Test							
	Test Value = 3						
	t	df	Significance		Mean Difference	95 % Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
I will more likely choose the product with more review	12.479	204	<.001	<.001	0.946	0.80	1.10

Source: Own work.

Appendix 16: Results of hypothesis testing H1b

H1b: More consumers will choose products that have higher ratings over products that have lower ratings.

- **H₀**: Consumers will not choose products that have higher rating.
- **H₁**: Consumers will choose products that have higher rating.

Table 1: Binomial test

Binomial Test						
		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
Q17: Please have a look at the two ads below. Which of the two ads would you more likely click on?	Product with higher rank	1	189	.92	.50	<.001
	Product with lower rank or non of the products	2	16	.08		
	Total		205	1.00		

Source: Own work.

- **H₀**: $\mu_{\text{products rating}} \leq 3$ / Consumers will not choose products that have higher rating.
- **H₁**: $\mu_{\text{products rating}} \geq 3$ / Consumers will choose products that have higher rating.

Table 2: The arithmetic mean of the degree of likelihood of choosing products with higher rank

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
I will more likely choose the product with higher rank	205	3.97	0.896	0.063

Source: Own work.

Table 3: One Sample T-test

One-Sample Test							
	Test Value = 3						
	t	df	Significance		Mean Difference	95 % Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
I will more likely choose the product with higher rank	15.500	204	<.001	<.001	0.971	0.85	1.09

Source: Own work.

Appendix 17: Results of hypothesis testing H2

H2: More consumers will choose a product that is time-limited over a product without time limitation.

- **H₀**: A product that is not time-limited will be more likely chosen.
- **H₁**: A product that is time-limited will be more likely chosen.

Table 1: Binomial test

Binomial Test						
		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
Q13: Please have a look at the two ads below. Which of the two ads would you more likely click on?	Product with time-limited deal	2	24	.12	.50	<.001
	Product with no time-limited deal or non of the products	1	181	.88		
	Total		205	1.00		

Source: Own work.

- **H₀**: $\mu_{\text{time-limited product}} \leq 3$ / A product that is not time-limited will be more likely chosen.
- **H₁**: $\mu_{\text{time-limited product}} \geq 3$ / A product that is time-limited will be more likely chosen.

Table 2: The arithmetic mean of the degree of likelihood of choosing products with limited- time deal.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
I will more likely choose products that have a limited-time deal.	205	3.68	0.982	0.069

Source: Own work.

Table 3: One Sample T-test

One-Sample Test							
	Test Value = 3						
	t	df	Significance		Mean Difference	95 % Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
I will more likely choose products that have a limited-time deal.	9.914	204	<.001	<.001	0.678	0.54	0.81

Source: Own work.

Appendix 18: Results of hypothesis testing H3

H3: Consumers find retargeting banners helpful.

- **H₀**: $\mu_{\text{retargeting banners}} \leq 3$ / Consumers do not find retargeting banners helpful.
- **H₁**: $\mu_{\text{retargeting banners}} \geq 3$ / Consumers find retargeting banners helpful.

Table 1: The arithmetic mean of the degree of likelihood of finding retargeting banners helpful

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
I find it helpful that ads that appear are similar to my previous shopping searches.	205	3.63	1.004	0.070

Source: Own work.

Table 2: One Sample T-test

One-Sample Test							
	Test Value = 3						
	t	df	Significance		Mean Difference	95 % Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
I find it helpful that ads that appear are similar to my previous shopping searches.	8.984	204	<.001	<.001	0.634	0.50	0.77

Source: Own work.

Appendix 19: Results of hypothesis testing H4

H4: Customers experience privacy concerns when shopping online.

- **H₀**: $\mu_{\text{retargeting banners}} \leq 3$ / Customers do not experience privacy concerns when shopping online.
- **H₁**: $\mu_{\text{retargeting banners}} \geq 3$ / Customers experience privacy concerns when shopping online.

Table 1: The arithmetic mean of the degree of likelihood of finding retargeting banners helpful

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
I am concerned with how my data is used	205	3.44	1.081	0.076

Source: Own work.

Table 2: One Sample T-test

One-Sample Test							
	Test Value = 3						
	t	df	Significance		Mean Difference	95 % Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
I am concerned with how my data is used	5.789	204	<.001	<.001	0.439	0.29	0.59

Source: Own work.

Appendix 20: Overview table of hypotheses

	HYPOTHESIS	QUESTION NO. IN THE SURVEY	VARIABLE /CONSTRUCT	SOURCE FROM THE LITERATURE	STATISTICAL TEST
H1a	More consumers will choose products that have more reviews over products with fewer reviews.	16a 18a	reviews	Babić et al., 2016.	t-test binomial test
H1b	More consumers will choose products that have higher ratings over products that have lower ratings.				
H2	More consumers will choose a product that is time-limited over a product without time limitation.	14a	time-limited product	Amirpur & Benlian, 2015.	t-test binomial test
H3	Consumers find retargeting banners helpful.	12a	Retargeting banners	Bleier, A. & Eisenbeiss, M. (2015). Eigenbrod, L. & Janson, A. (2018).	t-test
H4	Consumers experience privacy concerns when shopping online.	9d	Privacy concern	Bleier, A. & Eisenbeiss, M. (2015). Eigenbrod, L. & Janson, A. (2018).	t-test

Source: Own work.