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# **A study of the boomerang effect created by reminder messages in e-shopping**

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## **Abstract**

The continuous expansion of the Web and the eCommerce have offered new opportunities and tools to businesses. However, one of the most common problems of online businesses is the cart abandonment phenomenon which, according to studies, results in \$18 billion annual loss in Ecommerce stores. Hence, in an effort to increase revenues and reduce the cart abandonment phenomenon, marketers have adopted practices such as reminder messages through notifications or emails. However, many consumers often see these marketing practices as pervasive or annoying, causing a negative effect rather than improving cart abandonment. Thus, the present study examines the factors that drive consumers to reject reminder messages and react to advertisements. An online survey was conducted to evaluate customers' stances towards reminder messages and discover the impact of the factors on the boomerang effect. The analysis was performed using the SPSS Software, included descriptive statistics and regression, and revealed that inferences of manipulative intent, privacy concerns, intrusiveness and creepiness have a positive effect on reactance towards reminder messages. Solutions to cart abandonment are also presented.



# 1. Introduction

Many businesses have started using the WWW as a virtual shopping mall for retail shopping over the last 20 years. However, these companies have faced struggles in increasing their sales since implementing the WWW as a tool for trade (Shukla & Poluru, 2012). One of these problems is called cart abandonment. Cart abandonment is defined by Rubin et al. (2020), as “the placement of products in the shopping basket without completing the checkout process”. According to Graham (2022), 80,68% of online shoppers abandon their virtual shopping carts before payment. Although the shopping basket is a tool offered by online businesses for gathering items and eventually purchasing them, often customers use their online shopping carts, apart from a tool for online shopping, as a tool for information gathering (i.e., utilitarian purpose) or even for amusement or enjoyment (i.e., hedonic purpose). Thus, a reason of cart abandonment is that consumers often do not have the intent to buy the added products in the cart right away as they see their online shopping carts as a utilitarian or hedonic tool (Close & Kukar-Kinney, 2010). However, the phenomenon of cart abandonment may also occur because of perceived risk or other security concerns (Bell et al., 2020; Rajamma et al., 2009), perceived long waiting time and transaction inconvenience (Rajamma et al., 2009). Moreover, unexpected handling or shipping costs at the checkout are considered to be major transaction inconveniences (Close et al., 2012). Hence, consumers, in order to cut these expenses may choose to buy their selected items from a brick-and-mortar store (Kukar-Kinney & Close, 2010). Another drive of cart abandonment is procrastination, also known as the deliberate and voluntary postponement of a planned online purchase (Negra & Mzoughi, 2012). Often, procrastination happens because consumers expect prices to drop or find a lower price somewhere else (Kukar-Kinney & Close, 2010; Negra & Mzoughi, 2012). Also, poor website design (Garaus, 2018), and the lack of brand trust and brand loyalty (Bell et al., 2020) may lead to cart abandonment. Last but not least, according to Rubin et al. (2020), concrete and abstract mentality can also affect cart abandonment.

Visitors can cancel transactions at various points during the buying process, including after the product selection, before adding an item to a Wishlist and during the checkout process. Due to the effort and expenses involved in providing services, e-businesses

suffers a huge loss because of failed transactions (Cho, 2004). Thus, online businesses have adopted strategies and practices to regain customers back, and to convince them to complete their purchases. One of them is email marketing since it is not only a widely used tool of communication, but it also allows businesses to deliver tailored messages to their clients as an effort to reduce cart abandonment for instance. These emails are known as cart and browse abandonment emails whose objective is “to incentivize the customer to complete a transaction that was started in their previous session”. Moreover, businesses can use the cross-sell recommendation emails to promote products and increase their revenue since these emails offer “product recommendations based on the client's recent purchases” (Goic et al., 2021). Another commonly used practice is push notifications. Push notifications are pop-up text messages either with or without images, that inform users directly from an app or a website (Weber et al., 2015). Push notifications can be customized to target certain users based on their preferences or behavior, but their ultimate purpose is to elicit an immediate behavioral response (Gavilan et al., 2020), which in our case is for customers to complete their purchase. Furthermore, coupons or promotional codes delivered to customer’s inboxes and mailboxes is another example of a marketing practice aimed to reduce cart abandonment. The purpose of coupons is frequently to influence consumers’ purchasing decisions, apart from being just persuasive, in a variety of ways, including the quantity purchased, the amount spent, the timing of the purchase etc. (Trump, 2016). All of these practices in order to be tailored and personalized dedicated to individuals exclusively, are using data directly obtained from consumers. For instance, profiles can be created using information about a consumer’s lifestyle, social activities etc., combining several datasets and utilizing advanced data manipulation techniques. These new technologies can have both advantages to consumers and marketers since they can offer tailored experiences to consumers and help marketers with segmentation, message formulation and campaign evaluations. Nevertheless, these developments have also prompted concerns about how far businesses should be permitted to go (Nowak & Phelps, 1997). Moreover, consumers are expressing concerns about this online tracking (Smit et al., 2014) and can perceive these practices as being monitored by online businesses (White et al., 2008). Thus, often consumers react by avoiding and having unfavorable attitudes towards these marketing techniques (Moore et al., 2015). Customers are likely to respond negative when coupons, for example, adopt these persuasive strategies since they believe that these marketing practices represent

attempts to influence consumers' choices (Trump, 2016). This effect is known as the boomerang effect, or else in psychological terms, psychological reactance. Reactance is, according to the psychological reactance theory (Brehm, 1996), when a "person's freedom of action is threatened or taken away, they feel psychological reactance, a motivational state that promotes the restoration of their freedom." Threats to freedom include for example being persuaded to purchase a particular item at a store or being told to complete a task for an employer (Steindl et al., 2015). Therefore, since the adoption of reminder messages as a solution to reduce cart abandonment is not that effective, it is valuable to find the factors contributing to the boomerang effect by reminder messages in online shopping in order for businesses to better implement these strategies.

Although there is a plethora of conducting research about what causes cart abandonment, there is little knowledge about the factors that can cause a backfire to reminder messages. Thus, this research aims to answer to three research questions:

RQ1: What are the causes of cart abandonment?

RQ2: What are the factors contributing to the boomerang effect by reminder messages?

RQ3: What are the practices to avoid the cart abandonment phenomenon?

The first and the third question are answered through a literature review. For the second research question, a survey was conducted using adapted items from the existing literature to measure the factors. More specifically, this study is structured in five parts. First, we begin with a literature review of what causes cart abandonment, what are trigger messages and what is the psychological reactance theory since it explains the motives behind this motivational reaction. Then the hypotheses are presented. The second part is about the methodology used and then, in the third part, the results are presented. Next, the results are discussed alongside with solutions to cart abandonment. Finally, study limitations and recommended future work is suggested.

## **2. Literature Review and research hypotheses**

### **2.1 The phenomenon of cart abandonment**

To better understand the motives behind cart abandonment, the reasons why consumers use an online cart are also needed. As defined by Close & Kukar-Kinney (2010), online shopping cart usage is when consumers add items, they want to their online shopping basket. Nevertheless, the shopping cart can be used as both a tool for online shopping and information gathering. E-carts can offer a utilitarian purpose since they provide space for storing items before a purchase. Customers add items to their online shopping carts in order to save them for later purchase, to create a wish list, to examine the items on a different device, or to reduce their options for purchases. More specifically, customers who shop online can use their e-cart as a virtual location to temporarily store or examine products they are interested in or are thinking about for a future purchase. Other shoppers might want to add a variety of products, they are interested to, to their carts in order to reduce some options from their consideration set. Online shoppers can frequently return to their carts later, thanks to this utilitarian use, without having to look for the items again (Close et al., 2012). Moreover, a virtual cart, apart from being utilitarian, can also be used as a hedonic tool, meaning that people often add items to their shopping carts for amusement or enjoyment even though they do not intend to buy them right away. Placing desired things in an online shopping basket can be a fun alternative to making a purchase for those who do not have the money or the intention to do so right away. Putting something in the cart, in this way, turns it into an experience rather than a way to buy something (Close & Kukar-Kinney, 2010). Thus, a reason of cart abandonment is that consumers often do not have the intent to buy the added products in the cart right away as they see their virtual cart as a utilitarian or hedonic tool. But what are the motives behind consumers that have the intention to buy?

According to Rajamma et al. (2009), perceived waiting time, perceived risk and transaction inconvenience may result to cart abandonment. To begin with, consumers look for a quick and easy shopping experience thus, consumer's expectations of this experience are likely to be disappointed by any unexpected delay and consequently, an increase in the real waiting time. This disappointment as a result, leads customers to

abandon the shopping cart. The waiting time may be increased by slow page downloads and uploads or long forms. Moreover, perceived risk, or else privacy and security threats, can be a cause of the cart abandonment phenomenon. Online buyers frequently discover that numerous websites require of the customers to provide them with a great deal of personal and financial data prior to accepting their order and completing checkout process. Despite their initial trust to the brand, it is probable that this requirement of excessive personal data will raise a red signal for customers (Rajamma et al., 2009). Moreover, customers are worried about misuse of their personal data or theft of their personal details because of poor site security. Also, this fear can be intensified if security elements are not readily apparent at the checkout (Bell et al., 2020). Generally, online buyers anticipate quick and effective transaction processing. However, lengthy registration processes, out-of-stock product information revealed at the checkout, technical issues, unexpected costs (e.g., shipping and handling), or the lack of available alternative payment methods are all considered to be major transaction inconveniences that make transactions difficult and result in disappointment and discomfort (Rajamma et al., 2009).

Apart from shipping or handling costs, customers can avoid buying the products when they see the total cost of everything in their shopping basket. The overall cost of the order could deter or prevent customers from completing the transaction. Moreover, potentials buyers can be “turned-off” from the adding shipping and handling costs to the total price since they perceive them as being excessive (Close et al., 2012).

Due to privacy and security concerns, or a desire to cut expenses overall (e.g., avoid shipping and handling costs), online buyers choose to buy their selected items at a brick-and-mortar store. Some consumers may conduct product searches and place products they are interested in an online shopping cart, but ultimately choose to make their purchases at a physical retail store, as it offers consumers the possibility to examine things closely and buy them right away. Customers also chose to purchase a product at a physical store instead of online, seeking for a lower price or at least a lower overall cost (Kukar-Kinney & Close, 2010).

Online transactions can often take longer to complete. This delay may, in some circumstances, be a methodical plan of action from consumers. The deliberate and voluntary postponement of a planned online purchase is known as online consumer

procrastination. Generally speaking, procrastination is the tendency to put off a task or choice without a valid justification. Consumer procrastination, in the context of purchases, refers to a persistent and intentional tendency to delay or postpone a planned purchase. But more specifically, procrastination in online shopping is referred as functional, meaning that there is a tendency to prioritize important demands and tasks, to gather more information, and additionally, apply pressure to the online business. Furthermore, online shoppers, put off completing purchases because they expect prices to drop, or they want to wait for a better deal (Negra & Mzoughi, 2012). Often, consumers decide to wait till a reduced-price show, on at least some of the added products in the cart, whether it is offered by the same or another business. When any of the products cost more than their reference price, buyers can assume that there is already a lower price somewhere else or that one will be available shortly (Kukar-Kinney & Close, 2010).

Moreover, poor web design, which includes navigation design, visual design and information design, can cause irritation and confusion to possible customers and as a consequence cart abandonment (Garaus, 2018; Hasan, 2016). Irritation due to poor web design, has been shown to have detrimental consequences on purchasing decisions. When consumers are annoyed by an unpleasant experience, they abandon their shopping cart and exit the website without making a purchase. Online shoppers want clear and straightforward navigation that requires the fewest possible steps to complete purchases, saving them time and effort in locating what they are looking for. Consumers do not like being overloaded with irrelevant windows, links, options, or clicks. Information that may not be useful and relevant leads to irritation. Thus, in this situation, potential buyers become disoriented, resulting in a less likely possibility to buy anything, or even come back (Hasan, 2016).

Poor website design can also create confusion to consumers, leading to cart abandonment. Although animations, color schemes and creative components compose elements that may delight visitors, often they also distract them from their initial goal, which is the purchase. Confusion is also sparked by an unclear and disorderly website layout. Malfunctioning navigational signals (e.g., buttons), can cause annoyance and confusion. As a result, poorly constructed online shops are likely to cause confusion and thus, cart abandonment. Similar to this, the abundance of information overwhelms consumers. Information that is useless, incorrect, out-of-date, or badly arranged confuse

consumers during the online purchasing process. Also, poor website functionality, which includes links, order forms and customer service, increases the likelihood of consumer confusion. Thus, since shoppers are unable to complete their buying journey or enjoy the online shopping experience, apart from abandoning their e-carts, they are even unlikely to return (Garaus, 2018).

Another important aspect for buyers to not eventually buy the added items in their basket is the lack of brand trust and brand loyalty. For fear to diminish and positive emotions to persist, familiarity and trust are essential factors. More specifically, consumers are less likely to complete an order with a secure payment system if they do not trust the online brand, and more likely to proceed with their order via an insecure payment system if they do. Therefore, it is crucial to not undervalue the importance of establishing a reliable brand. Moreover, transactional success may be indirectly correlated with brand loyalty. For instance, if a branded product is offered on several websites, customers may browse to compare prices, but they are likely to choose the website to complete their purchase based on one or more of the variables covered above. Consumers are also less inclined to forego a transaction if they have developed a loyalty to the website from prior experiences (Bell et al., 2020).

The aforementioned determinants of cart abandonment are mainly focused on external variables rather than the consumers themselves. So, according to Rubin et al. (2020), concrete and abstract mentality can also affect cart abandonment. Consumers with an abstract mindset concentrate on primary product features (e.g., those integral to a product's principal function), while those with a concrete mindset pay comparatively more attention to peripheral, secondary product features (e.g., those unrelated to a product's core function). Consumers with an abstract mentality are giving more weight in primary, goal-related, and desirability sources of value, in a decision-making process, whereas customers with a concrete mentality are focusing more on secondary, goal-irrelevant and feasibility sources of value. For instance, if both types of individuals were to buy a pair of gloves, those with an abstract mindset would concentrate on the main characteristic of a pair of gloves, which is that they keep your hands warm, while people with a concrete mindset would concentrate on secondary features, such as the color or the country of origin of the gloves. So, Rubin et al., (2020), suggest that individuals mindsets affect customers' behavior by influencing how important they perceive a product. Thus, the findings of this study show that online buyers with an

abstract (as opposed to concrete) mentality consider the items in their shopping carts to be more essential and are therefore more likely to buy them, lowering the rate of shopping cart abandonment.

## **2.2 Behavioral trigger marketing and personalization**

Personalized emails that are automatically sent in response to certain consumer behaviors or conditions are known as triggered emails. Cross-selling recommendations, cart abandonment reminders, and re-engagement emails are common instances of this type of marketing strategy. Triggered emails offer two essential elements of personalization. The first is that they offer customers content that is pertinent to them individually. When it comes to browse abandonments for instance, trigger messages include items that customers have actively chosen to see on a website, abandoned items in their shopping carts or items that may be used in combination with recent purchases. The second is that, if the content is calibrated correctly, it can be presented at the ideal moment and correspond with the customer's progress in the decision-making process (Goic et al., 2021). This technology enables businesses to identify the demographics of the target audience as well as monitor and collect data about people's behavior, making trigger messages more personalized and entertaining since they are better suited to recognize consumers' behavior and intentions (Aiolfi et al., 2021). Today, according to Epsilon, 62% of businesses, that use marketing automation due to its potential benefits, are outperforming competitors. Trigger messages enables businesses to send customized and tailored messages to their clients and even assess the messages' effectiveness. Personalized content has the benefit of offering a high significance and fit, so that it delivers the correct product at the right moment, improving in this way the efficiency of information research, saving at the same time consumers' time (van Doorn & Hoekstra, 2013). Furthermore, according to Goldfarb & Tucker (2011), retargeting encourages customers who have previously visited a website but left without making a purchase to return and complete their transaction. Additionally, increased conversion rate is another advantage that online businesses may experience when implementing retargeting methods. These could include, apart from converting consumers to buyers, sign-ups for memberships or newsletter subscriptions. All in all, triggered messages allow businesses to connect with their customers at the right time and in a more



affordable way, compared to traditional emails. However, they should be handled carefully, despite their potential advantages, as they oppose a threat of privacy to customers due to the need of personal data (Goic et al., 2021).

In general, customers' personal information is being seen from a business viewpoint as a possible drive of competitive advantage. There is a wealth of data on the internet of people who give their personal information (e.g., credit card), as well as of people who just browse online. But the same technological developments that have made the Internet an effective marketing tool also increased the risks to consumer privacy (Wirtz et al., 2007). More specifically, the perceived threat to customers' data privacy is the drawback of trigger marketing. Studies indicate that consumers' privacy concerns over marketing strategies that use their personal data are well-founded (Brinson et al., 2018). For instance, concerns about the requirement and safety of financial and personal data are arising due to cybersecurity threats on the Internet. Companies continue to have serious concerns about the perceived security dangers associated with online data-based personalization (Ozcelik & Varnali, 2019). Therefore, in terms of risks, people perceive the acquisition and use of their personal data as an intrusive strategy that supports the development of unfavorable impressions (Aiolfi et al., 2021). Nowadays, companies incorporate consumers' personal information into their strategy since in this way they can reach people with highly focused messages for a price lower than that of traditional media. Consumers' responses to these communications, however, might not be what marketers had in mind. For instance, they might be interpreted as being overly personal, going beyond perceived limits, implying an unsuitable degree of acquaintance with the target audience. Such messages may put at risk consumers' perception of their ability to avoid being monitored by businesses and consequently, elicit psychological reactance (White et al., 2008).

### **2.3 Psychological Reactance Theory**

People generally believe they have certain liberties to engage in supposedly free acts. However, there are instances when individuals are unable to do so, or at least it seems that are unable to. Threats to freedom include for example being persuaded to purchase a particular item at a store or being told to complete a task for an employer. This is when reactance shows up (Steindl et al., 2015). According to the psychological reactance theory (Brehm, 1996), when a "person's freedom of action is threatened or

taken away, they feel psychological reactance, a motivational state that promotes the restoration of their freedom.” People “value their ability to exercise a freedom that is threatened” (Brehm, 1996). The significance of the threatened freedom, the gravity of the threat, and the existence of implied threats all have a direct effect on reactance arousal (Quick, 2012). A threatened freedom can arise from both internal and external threats. Internal threats are self-imposed threats when you chose one course of action over another. External threats can be caused by social influence aimed at a specific person or by impersonal external elements that unintentionally impede someone’s independence. Reactance theory views the perceived strength of the source’s social impact and purpose to persuade as two crucial aspects. The theory also acknowledges that people might vary in their propensity for reactance and in how much they perceive someone else’s desire to convince them as threatening (Brehm & Brehm, 1981).

As the PRT suggests, people value their freedom to select among options, and when a certain freedom is taken away, people are motivated to get it back (Reynolds-Tylus et al., 2021). More specifically, people’s reaction when facing a threat or elimination to their freedom can have both behavioral and subjective outcomes. There are two primary forms related to the behavioral outcomes. The simplest type of reactance is adopting the opposite behavior (i.e., boomerang effect). For example, studies have shown that underaged students drink more than adult students since their freedom to drink is restricted. Secondly, when people are not able to act in the prohibited activity, they can regain their freedom through “social implication” (i.e., seeing another person engaging in a related behavior). Furthermore, as for the subjective outcomes, when someone’s freedom is at danger, both their desire for and attraction to the prohibited activity increases. Also, another way to alleviate the discomfort brought on by reactance is by eliciting hostile and in general negative behavior towards the source of threat (Rosenberg & Siegel, 2018).

## **2.4 Hypotheses Development**

### **2.4.1 *Autonomy and manipulation***

#### ***Autonomy***

According to self-determination theory, one of the three psychological needs is autonomy, which is defined as the need to act independently when one initiates, controls, and maintains specific activities (Kim & Lee, 2020). Accordingly, perceived autonomy is described as the extent to which a person believes that his or her behaviors are the consequence of their own free will and are not influenced by anyone else in a particular way. When people feel completely autonomous in a decision-making process, they experience psychological freedom and motivation (Jung, 2011). Moreover, autonomy enables individuals to make their own decisions and assess alternatives in order to choose the best possible option (Martin, 2022). More specifically, in terms of consumer choice autonomy, autonomy is defined as the capacity of consumers to decide and carry out actions independently of outside forces. Furthermore, since the prerequisite of perceived control is autonomy, consumers need and have to feel a sense of control over their actions and choices (Wertenbroch et al., 2020). Consumers' choices may be affected by different forms of influence. One of these forms is technological influence. Technology that has an invisible impact on consumer decisions, poses a large threat to autonomy. Instances of such technology includes online advertisement and more specifically, online behavioral advertisement. The average person elicits some sort of psychological resistance whenever certain content is recognized as advertising because they see a "threat to behavioral freedom." Therefore, advertising's ability to be easily detected often limits its influence. In this era of digitalization and personalization, customers are becoming more aware of companies using marketing practices and personal data to recommend products or remind them of abandoned items in the shopping basket. Consequently, customers frequently ignore marketing strategies that use consumer data, and choose against their own preferences as a way to maintain their autonomy. For instance, consumers may buy a product they would normally choose to avoid just so they can have a sense of autonomy and act of free will (Mik, 2016). This reactance to such marketing practices let us to assume that since reminder messages are tailored messages based on consumer

data, some people may perceive them as a threat to their autonomy, leading to psychological reactance towards them.

**H1a:** Autonomy threat by reminder messages has a positive effect on psychological reactance towards them.

### ***Manipulation***

Manipulation is one of the tactics that can influence and limit a consumer's choice in the marketplace (Wertenbroch et al., 2020). But how is manipulation, and more specifically, online manipulation defined? According to Susser et al., manipulation is an intentional attempt to sway a subject that is (1) made without the subject's knowledge, (2) made in an effort to take advantage of the subject's "cognitive, emotional, or other decision-making vulnerabilities," and (3) "focused" at those weaknesses. Susser et al. point out, however, that manipulation could be characterized as any covert impact and that the characteristics of targeting and exploiting may not be crucial to the definition. They argue that the manipulator just uses the subject's vulnerabilities as a technique of exerting the covert influence. However, they suggest that targeting makes the manipulation worse and raises more questions about manipulation as a technique (Susser et al., 2019).

Due to the ever-evolving world of the Internet, businesses can now target customers in real time based on ever-more-detailed information and personal data about their online and offline habits. In this way, marketers can have access to consumers' online interactions to design and deliver a more tailored message to them. This power over the customer experience is enhanced because of the Digital Era, resulting in an even more enhanced ability of marketers to take advantage of consumer biases and vulnerabilities. Marketers for example, may use the online behavioral advertisement to take advantage of peoples' prejudices and vulnerabilities. For instance, marketers might identify the weaknesses of a specific customer to better customize their marketing strategy in real time. Moreover, marketers can even aggravate or intensify certain people's weaknesses before use them as a tool to influence their decisions (Spencer, 2020). However, not all marketers use these kinds of practices to influence people's decisions. Still, many confuse marketing with manipulation and believe that marketing's goal is to spur demand for products and services that consumers may not actually need. This belief can even cause a resistance to marketing practices because consumers are concerned

about being used as a tool (Gatignon & le Nagard, 2015). For instance, according to studies, consumers are more likely to ignore an advertisement if they believe that the advertiser's intent is to manipulate them (Cotte et al., 2005). More specifically, the feeling that the message in an advertisement is exaggerated creates the impression that manipulation is taking place. Furthermore, consumers perceive the use of emotions in an ad as a strategy to persuade them to purchase products or services without considering the actual utility that these might offer. Thus, using emotions in advertisements can also be seen as a manipulative tactic resulting to reactance. Apart from these tactics, discounts in online stores can also be perceived as manipulative. In general, consumers are waiting for season sales to order products. However, the use of discounts is frequently considered as a way to deceive consumers into thinking they have gotten a good deal as well as a way to distort the pricing (Gatignon & le Nagard, 2015). Similarly, consumers will likely react in the same way to emails offering coupons and discounts, as these strategies are seen as overt attempts by businesses to influence consumers' decisions. When this happens, customers elicit negative feelings and since their freedom of choice is threatened, they can experience psychological reactance too (Trump, 2016). Consumers may believe that these practices are meant to sway their purchasing decisions and restrict their brand options. Such perceived threats on consumer freedom can trigger psychological reactance (Kivetz, 2005). Reminder messages can also be perceived as such practices as they include the use of emotions as well as promotion codes or recommending products. Thus, we can assume that:

**H1b:** Inferences of manipulative intent have a positive effect on consumer reactance to reminding messages.

#### **2.4.2 Persuasion Knowledge**

##### ***Persuasion vs. Manipulation***

So first, we need to define the concept of persuasion and differentiate it from that of manipulation. According to Susser et al., persuasion is the process of appealing to a subject's conscious decision-making process, while manipulation goes beyond the subject's power to make decisions. Thus, what distinguishes manipulation from persuasion is that manipulation undermines the subject's ability to make decisions,

whereas persuasion leaves the subject in control of the decision (Spencer, 2020). Nonetheless, both inferences of persuasion and manipulation can have a negative impact on consumers' perceptions towards marketing efforts.

### ***Persuasion Knowledge***

To overcome consumers' resistance to buy products or services, marketers might employ a variety of strategies; one of them is persuasion. To help them deal with marketers' persuasion strategies, the PMK (Perceived Knowledge Model), a model that focuses on how individuals interpret, assess, and react to attempts by marketers and others to persuade them, suggests that people activate their persuasion knowledge (Williams, 2002). Consumers are likely to enable this persuasion knowledge when they detect a hidden persuasion purpose, allowing them to deal with these practices by either opposing or accepting them. Rejecting harmful or unfavorable persuasion attempts and adopting constructive or desirable persuasion attempts are two ways that people can increase their positive self-esteem, as the self-enhancement hypothesis suggests (Ham & Nelson, 2016). Moreover, the PKM emphasizes that consumers' understanding of persuasion is crucial to how they interpret and react to marketing initiatives and may be applied in a variety of ways to assist consumers in achieving their own goals in the given circumstances (Hardesty et al., 2007). Customers are not always receptive to advertisements, for instance, and they frequently reject such attempts to persuade them. According to Calfee and Ringold (1994), skepticism persists on consumers' opinion about advertisement and the majority believes that advertising seeks to convince people to purchase items that they do not need or want (Fransen et al., 2015). More specifically, when consumers believe that a marketer is making an excessive effort to sell or promote a product, they are likely to react unfavorably. People seem to believe that "if a company is attempting to sway my opinion, something must be wrong." Consumers assume that the primary goal of marketers is to persuade them; as a result, interactions with any marketing efforts are frequently predicated on an attempt of persuasion. The contact between a consumer and a marketer may be marked by suspicion and caution because there is a perception that persuasion is likely to be the main goal of this interaction (Kirmani, 2009). Thus, any marketing effort can be perceived as persuasive, creating reactance and reminder messages may not be the exception. From this we can assume that:

**H2:** Persuasion knowledge has a positive effect on consumer reactance towards reminder messages.

### **2.4.3 Privacy and Intrusiveness**

#### ***Privacy Concerns***

Today, tailored online ads and in general personalized messages are available in any e-commerce channel, used by marketers all over the world. However, as awareness is rising about the collection and use of the personal data, privacy concerns are growing too. Consumers are concerned about activities that occur without their knowledge, such as cookies or page tracking which allow marketers to obtain personal data.

To begin with, numerous things can affect privacy concerns. Next, we will mention two of the most typical causes of privacy concerns; trust and social presence. In e-commerce, the impact of trust on privacy concerns has been extensively explored. Trust can override a person's general privacy concern and boost disclosure behavior. It makes sense that people who shop online value trust. Moreover, trust is more crucial when there is uncertainty, a typical feature of online privacy decisions.

Social presence refers to "the feeling of being with another in mediated communication." In our case, social presence is referring to the interaction between an online shopper and a machine. Although they are not necessary, the effect is stronger if the computer has language and interaction capabilities. Targeted marketing, for example, can develop the feeling of social presence. However, unwanted social presence is likely to elicit the same unfavorable feeling as browsing with someone watching your back. Privacy concerns may grow as a result of social presence. More than just being aware of presence is required to treat computers as social beings (Phelan et al., 2016).

According to Beak and Morimoto (2012, p. 63) privacy concern is defined as "the degree to which a consumer is worried about the potential invasion of the right to prevent the disclosure of personal information to others." Based on reports and surveys of public opinion, respondents were either feeling "very uncomfortable" or "very concerned" about online tracking and are expressing concerns about their online

privacy (Smit et al., 2014). More specifically, customers who receive unsolicited commercial e-mails typically don't know how advertisers gained their e-mail addresses and may even start to feel uncomfortable to similar marketing practices too (Morimoto & Macias, 2009). For instance, according to Alreck & Settle (2007), public reactions to online behavioral tracking and targeting range from disagreeable thoughts to disapproval.

Due to the rise in consumer Internet usage, privacy issues related to marketing tactics have the potential to have a significant impact on consumer perceptions and behaviors (Morimoto & Macias, 2009). Consequently, since reminder messages use personal behavioral data, we assume that perceived privacy concerns may influence consumers' perceptions about reminder messages.

**H3a:** Privacy concerns will have a positive effect on consumer reactance towards reminder messages.

### **Intrusiveness**

Intrusiveness is still a potential issue for consumers when it comes to internet privacy and also, a reason why people avoid marketing efforts (Wehmeyer, 2007). Intrusion, in terms of privacy, can be defined as an invasion of solitude. Similarly, unsolicited commercial e-mails can be seen as an intrusion into the private sphere, leading to perceived violation of customer privacy (Edwards et al., 2002). Furthermore, ad intrusiveness can be characterized by three dimensions. Concerning the first dimension, which is intrusion into online privacy, recipients of unsolicited emails do not believe they have given permission for the marketers to contact them, so such practice might be considered as intrusive (Milne et al., 2004). The second dimension is referred to fulfilling a task in cognitive and physical requirements (Cho & Cheon, 2004). Thus, as people use e-mail for everyday tasks, they have to browse their mailbox and delete undesired e-mails. It might take a lot of time to sort through unsolicited commercial e-mails, which makes it difficult for users to complete their online tasks. Unwanted commercial e-mails consequently tend to cause feelings of intrusion, which could lead to negative reactions to the advertising medium. Furthermore, perceived e-mail intrusiveness may also be influenced by advertising clutter. Ad clutter, according to Elliott and Speck (1998), is the idea that there is too much advertising in a certain media. For instance, users may lose resources (e.g., mailbox capacity loss) due to perceived ad



clutter brought on by a high volume of unwanted commercial e-mails in their inbox (Morimoto & Macias, 2009)

Perceptions towards unsolicited commercial emails as well as overall sentiments towards email marketing, may be negatively impacted psychologically by perceived intrusiveness, causing reactance (Edwards et al., 2002; Morimoto & Macias, 2009). But more specifically reminder messages can create a boomerang effect since they may obstruct users' internet activities or cognitive processes or even add clutter to their mailbox.

**H3b:** Intrusive feelings will have a positive effect on consumer reactance towards reminder messages.

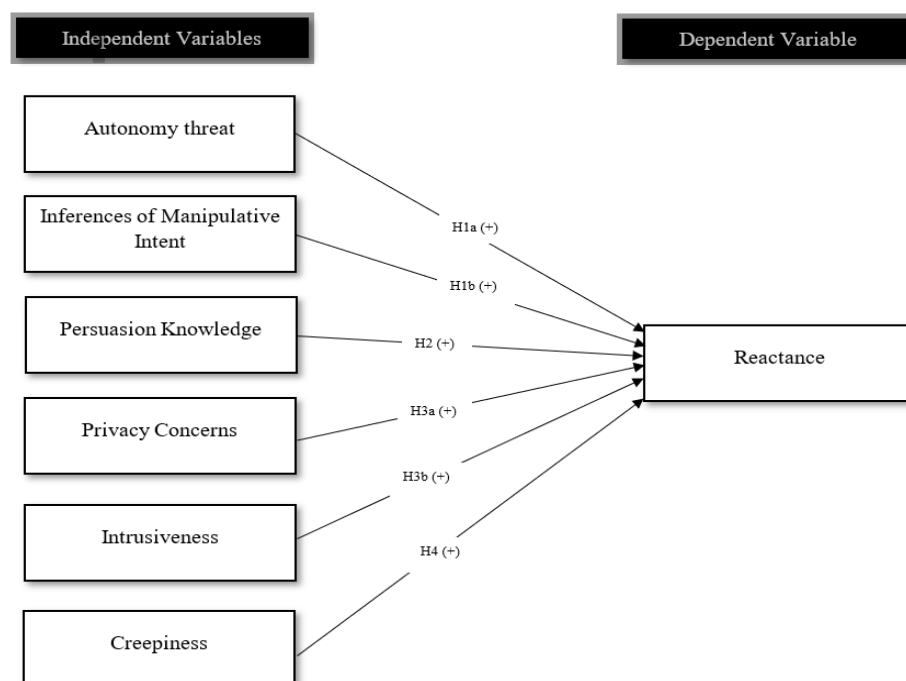
#### **2.4.4 *Creepiness and personalization***

Customer segmentation and targeting are well established in every marketing effort. Now, direct marketers may personalize any message sent to each consumer, creating a more targeted content. Formally, personalization is the choice of the marketing mix that is appropriate for each person based on previously gathered customer data (Arora et al., 2008). The academic research generally implies that personalization offers consumers a number of advantages. Customers feel more significant as individuals because of the improved communication and greater preference matching it provides. However, personalization also poses some challenges. One of them is privacy invasion. In our case, for instance, if a notification is received shortly after a navigation event (e.g., cart abandonment email), the clients understand that the business is keeping track of the pages they are viewing (Goic et al., 2021). Moreover, businesses can now reach customers with higher and more personal tailored messages. Consumer responses to these messages, however, might not be what marketers had in mind. They might be viewed, for example, as being overly personal, going beyond boundaries. Such messages may put at risk consumers' ability to avoid being monitored by businesses (White et al., 2008). To develop messages that are targeted to an individual, marketers use excessive amount of consumer data that are so intimate that the consumer finds these practices as too personalized. More specifically, the feeling that marketers are keeping an eye on, following, evaluating, and making money off of a person's internet

activities or personal information can be perceived as creepy (Barnard et al., 2014). Because they are too traceable to the marketer and have too much access to their personal information, consumers may find it creepy when marketers acquire increasing amounts of highly customized consumer data and utilize it to tailor an advertisement. Additionally, behavioral targeting could make customers cautious that unwanted data would be added to the online profile marketers are developing about them (e.g., credit card info). Customers will react by avoiding and having unfavorable attitudes as this type of personalization, that overuse people's data, as it is viewed as being excessive (Moore et al., 2015). Thus, reminder messages that include personal information may be perceived by people as creepy, leading to avoidance.

**H4:** Perceived creepiness in reminder messages will have a positive effect on consumer reactance.

**Figure 1. Conceptual Model**



### **3. Methodology**

#### **3.1 Data collection and sample**

For the purpose of this study, one questionnaire with close-ended questions was developed in Google Forms and distributed online. The questionnaire included three close-ended questions, that were related to demographics (gender, age, and education). Moreover, to detect and assess the perceptions of consumers, the questionnaire also included adapted items from previous studies that are aimed to examine autonomy threat, inferences of manipulative intent, persuasion knowledge, privacy concerns, intrusiveness, perceived creepiness, and reactance. Also, three more questions regarding how often participants shop online, how useful they find reminder messages and how often they come across these messages were added. Participants were randomly selected trying to recruit as many participants as possible. The initial study sample included 98 people and after cleaning the data, 2 respondents were eliminated as they were not online shoppers. Out of the total 96 participants, 69,8% were female. Also, the majority of the respondents were in the age group 25-34.

#### **3.2 Measures**

##### ***Autonomy threat***

In our study, two items were written by the author, measured in a 5-point scale (where 1=strongly disagree and 5=strongly agree), and one from Malhotra et al. (2004), to measure autonomy threat. Participants were asked to state their level of agreement or disagreement to the following statements: “When I receive reminder messages;”, “The information threatens my ability to make my own decisions.”, “The information puts pressure on me.”, “I don’t feel I have the right to exercise control and autonomy over decisions about how my information is collected, used, and shared.”

##### ***Inferences of manipulative intent***

Items adapted from Campbell (1995) were used to ask participants whether reminder messages are perceived to have any manipulative intent. On a 5-point Likert scale, where 1=strongly disagree and 5=strongly agree, three items were used in order for participants to state how much

they agreed or disagreed with the following statements: “The way reminder messages are trying to persuade people seems acceptable to me.”, “I am annoyed by reminder messages because businesses seem to be trying to inappropriately manage or control the consumer audience.”, “I don’t mind reminder messages; the company tries to be persuasive without being excessively manipulative.”

### ***Persuasion Knowledge***

To measure the persuasion knowledge of consumers, a 5-point scale with six items, were 1=strongly disagree and 5=strongly agree, was used from Bearden et al. (2001). The participants were asked to indicate the level of agreement in the following statements: “I know when an offer is too good to be true;”, “I can tell when an offer has strings attached;”, “I have no trouble understanding the bargaining tactics used by salespersons;”, “I know when a marketer is pressuring me to buy;”, “I can see through sales gimmicks used to get consumers to buy;”.

### ***Privacy Concerns***

A three-item scale adapted from (Baek & Morimoto, 2012) was used to measure perceived privacy issues, using a 5-point Likert scale (1=strongly disagree and 5=strongly agree), participants were asked to respond to the following statements: “When I receive reminder messages;”, “I feel uncomfortable that information may be shared without permission.”, “I am concerned about misuse of personal information.”, “I feel fear that information may not be safe while stored.”

### ***Intrusive feeling***

The measurement of the intrusive feeling of reminder messages was created by using the intrusiveness scale of a study. On a 5-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree), respondents indicated whether they believed the following (three items) about reminder messages: “distracting, disturbing, invasive” (H. Li et al., 2002).

### ***Perceived creepiness***

In an effort to check the perceived creepiness Barnard et al. (2014, used five items testing people’s feeling over an ad. In our research, respondents were asked to answer to the same items in a 5-point scale, ranging from 1 = strongly disagree to 5= strongly agree. More

specifically, respondents were asked whether reminder messages led them to believe they are being “watched, observed, followed, tracked, spied on.”

### ***Reactance***

Dillard and Shen (2005) suggested measuring reactance as a combination of anger and negative cognitions. Thus, in this study, participants were asked, on a 5-point scale where 1 = strongly disagree and 5 = strongly agree “how much reminder messages made you feel each of the following feelings”; “angry, annoyed, irritated, aggravated”, as a way to measure anger (Dillard & Shen, 2005). Moreover, a 5-point scale, from 1 (strongly disagree) to 5 (strongly agree), was used from Reynolds-Tylus et al. (2021) to assess negative cognitions. Respondents were asked what they thought about reminder messages; “The thoughts you have about reminder messages are; unfavorable/negative/bad.”. Also, to avoid bias two more items were added (“pleasant, appealing”).

### **3.3 Data analysis**

The statistical analysis of the gathered data was performed in SPSS software. At first, the Descriptive and the Frequency command was used to reveal the descriptive statistics; the means, the standard deviations, the frequencies and the histograms of the tested variables and their items. Secondly, to test the relations between the depended variable and the independent variables and thus the hypotheses, a Linear Regression was applied.

## 4. Results

### 4.1 Reliability test (Cronbach's Alpha)

Statistical tests were run on the data to guarantee its reliability before findings were analyzed. For each of the seven variables, the Cronbach Alpha was measured. The Cronbach Alpha scores for each variable are shown in Table 1. In the case of the third variable the test showed a low alpha value ( $<0,7$ ) thus, one question was removed, and we accept the 0,691.

*Table 1. Reliability Statistics*

Reliability Statistics		
Variable	Cronbach's Alpha	N of Items
Persuasion Knowledge	,776	5
Autonomy Threat	,714	3
Inferences of Manipulative Intent	,691	2
Intrusiveness	,798	3
Creepiness	,908	5
Privacy Concerns	,809	3
Reactance	,887	9

### 4.2 Descriptive Statistics

The questionnaire results will be analyzed in both a qualitatively and a quantitatively manner. The first section presents the descriptive statistics; the mean and the standard deviation of each variable and the mean, the standard deviation, and the frequency of each item. Moreover, a histogram for each of the tested variables and items is presented. The descriptive statistics reveal some useful insights about participant's perceptions towards reminder messages. The second section is about hypotheses testing.

#### 4.2.1 Demographics

This part of the questionnaire was aimed to gather some general demographic information about the respondents, such as age, gender, educational level and how often they shop online.

**Table 2. Gender**

<i>Gender</i>		
	N	%
Female	67	69,8%
Male	29	30,2%

**Table 3. Age**

<i>Age</i>		
	N	%
18-24	38	39,6%
25-34	43	44,8%
35-50	12	12,5%
51+	3	3,1%

**Table 4. Educational level**

<i>Educational level</i>		
	N	%
Some High School	1	1,0%
High School	20	20,8%
Bachelor's Degree	41	42,7%
Master's Degree	30	31,3%
Ph.D. or higher	2	2,1%
Prefer not to say	2	2,1%

**Table 5. Shopping online**

<i>Shopping online</i>		
	N	%
Rarely	7	7,3%
Sometimes	22	22,9%
Often	24	25,0%
Very often	43	44,8%

As it is depicted in Table 1, 69,8% of participants were female and 30,2% were male. Also, the majority of the respondents were in the age group 25-34 (44,8%), followed by the age group 18-24 (39,6%). The third age group 35-50 forms a 12,5%, and only a 3,1% were from the age group 51+. As for the educational level, data show in Table 3 that 42,7% of people involved in the survey had obtained a Bachelor's degree (42,7%). An equal big share 31,3%, have accomplished a Master's degree. Moreover, 20,8% of

participants graduated from high school, 1% achieved some high school and a 2,1% has accomplished a Ph.D. or higher level of education. Also, from a total of 96 answers, a 2,1% preferred not to state their educational level. Last but not least, Table 4 depicts how often do the participants shop online. Thus, the numbers indicate that in general the majority of the people involved in the survey are using often the internet for shopping. More specifically, 44,8% and 25% of the sample are shopping online “very often” and “often”, respectively. Furthermore, 22,9% of the participants stated “sometimes” and 7,3% stated “rarely” in the particular question.

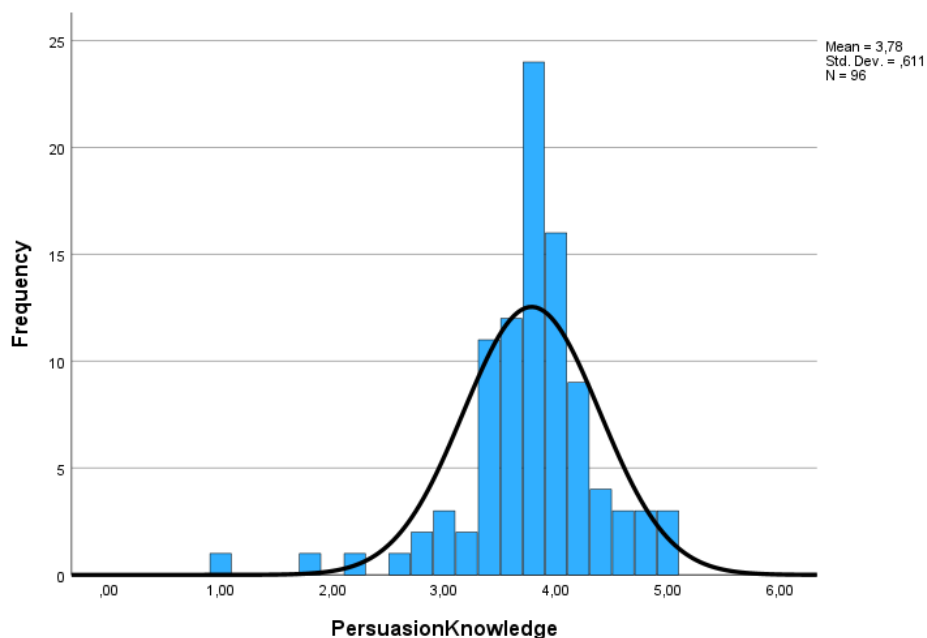
#### 4.2.2 Persuasion Knowledge

**Table 6. Descriptive Statistics on Persuasion Knowledge**

*Descriptive Statistics on Persuasion Knowledge*

	N	Minimum	Maximum	Mean	Std. Deviation
PersuasionKnowledg	96	1,00	5,00	3,7813	,61083
e					
Valid N (listwise)	96				

**Figure 2. Persuasion Knowledge**



In general, as we can see in Table 6, participants are agreeing with the statements of the examined variable “persuasion knowledge” ( $M=3,78$ ) without a wide range of opinions, as the standard deviation is relatively low ( $SD=0,61$ ).



**Table 7. Statistics persuasion knowledge***Statistics*

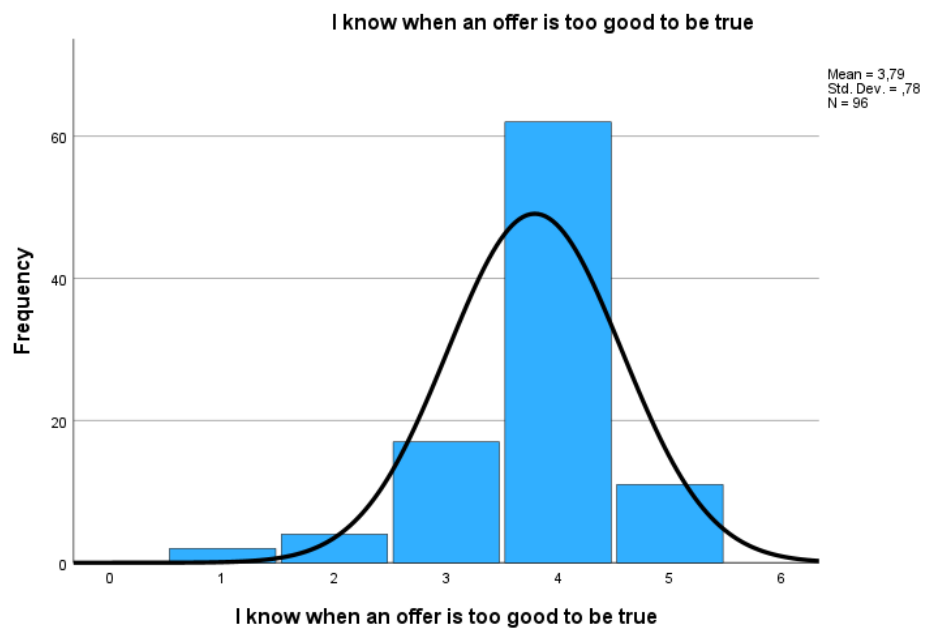
		I know when an offer is too good to be true	I can tell when an offer has strings attached	I have no trouble understanding the bargaining tactics used by salespersons	I know when a marketer is pressuring me to buy	I can see through sales gimmicks used to get consumers to buy
N	Valid	96	96	96	96	96
	Missing	0	0	0	0	0
Mean		3,79	3,60	3,66	4,09	3,76
Std. Deviation		,780	,761	,904	,919	,830

**Table 8. Frequencies persuasion knowledge***Frequencies*

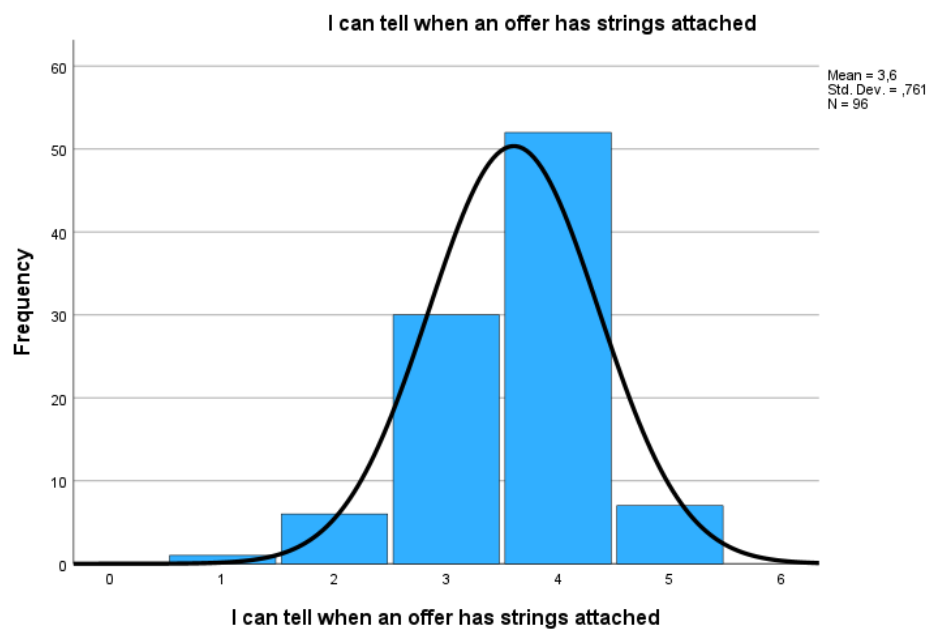
	I know when an offer is too good to be true	I can tell when an offer has strings attached	I have no trouble understanding the bargaining tactics used by salespersons	I know when a marketer is pressuring me to buy	I can see through sales gimmicks used to get consumers to buy
Strongly disagree	2,1%	1,0%	2,1%	3,1%	3,1%
Disagree	4,2%	6,3%	9,4%	3,1%	1,0%
Neutral	17,7%	31,3%	22,9%	9,4%	27,1%
Agree	64,6%	54,2%	52,1%	50,0%	54,2%
Strongly agree	11,5%	7,3%	13,5%	34,4%	14,6%

More specifically, the vast majority of respondents believe that they can see through marketing gimmicks or bargaining tactics and understand tactics that may pressure them to buy products or services. Also, it is worth mentioning that the fourth statement about marketing pressure seems to have the highest agreement score (“agree” and “strongly agree”), as a 50,0% and a 34,4% have expressed agreement and strongly agreement, respectively. This can also be seen in Table 7 since the particular item has the highest mean score of 4,09.

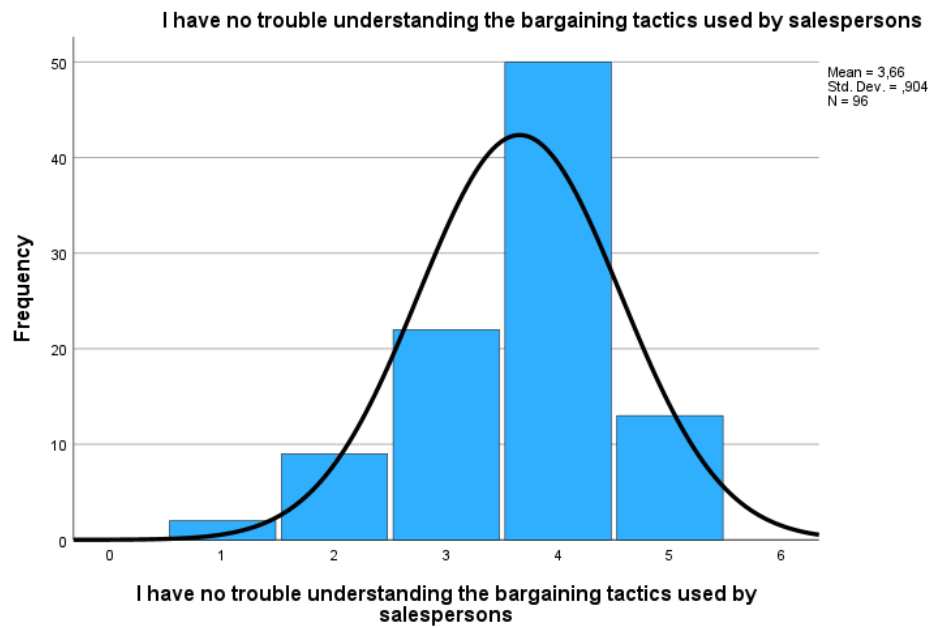
**Figure 3. PK item 1**



**Figure 4. PK item 2**



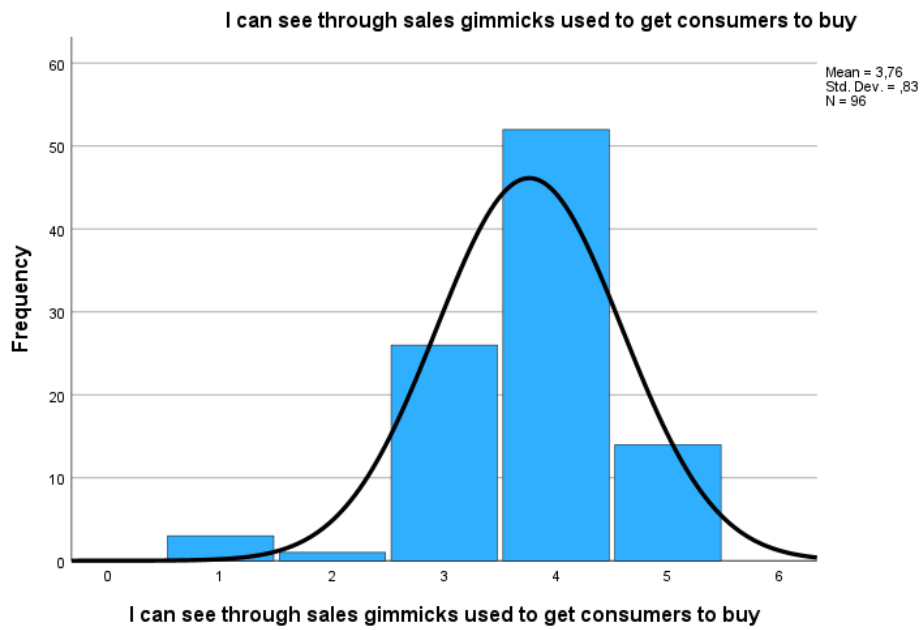
**Figure 5. PK item 3**



**Figure 6. PK item 4**



**Figure 7. PK item 5**

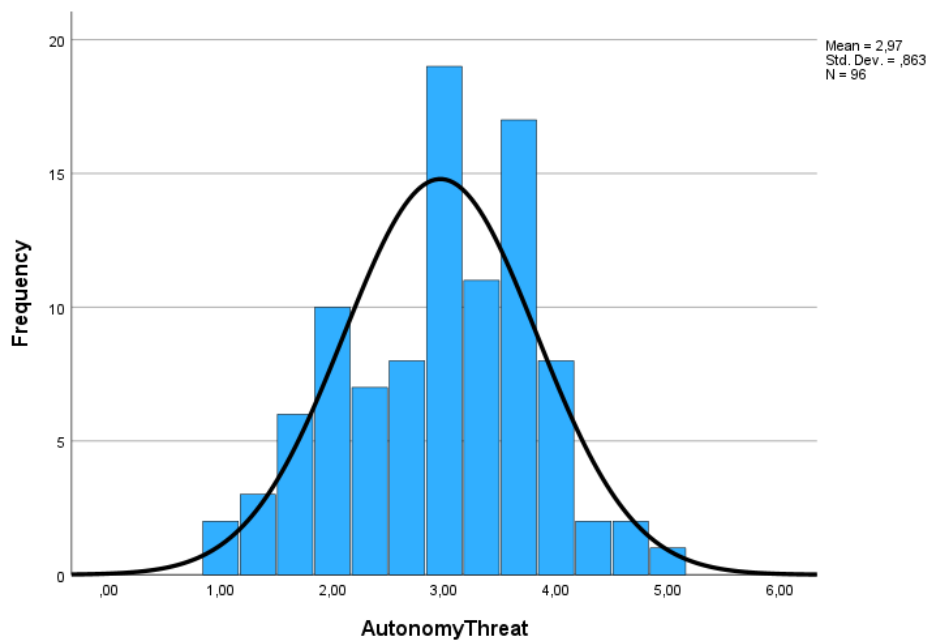


#### 4.2.3 Autonomy Threat

**Table 9. Descriptive Statistics on Autonomy Threat**

<i>Descriptive Statistics on Autonomy Threat</i>					
	N	Minimum	Maximum	Mean	Std. Deviation
AutonomyThreat	96	1,00	5,00	2,9653	,86312
Valid N (listwise)	96				

**Figure 8. Autonomy Threat**



The mean of autonomy threat is 2,96 which means that participants are neutral towards the three statements of whether reminder messages can be a threat to autonomy.

**Table 10. Statistics autonomy threat**

*Statistics*

		The information threatens my ability to make my own decisions	The information puts pressure on me	I don't feel I have the right to exercise control and autonomy over decisions about how my information is collected, used, and shared
N	Valid	96	96	96
	Missing	0	0	0
Mean		2,86	2,96	3,07
Std. Deviation		,980	1,123	1,136

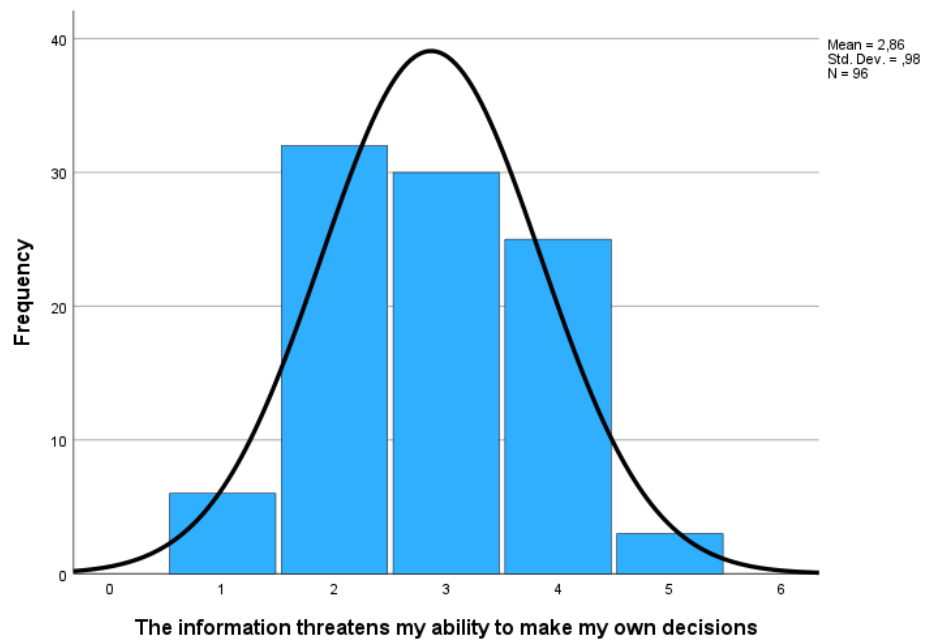
**Table 11. Frequencies autonomy threat**

*Frequencies*

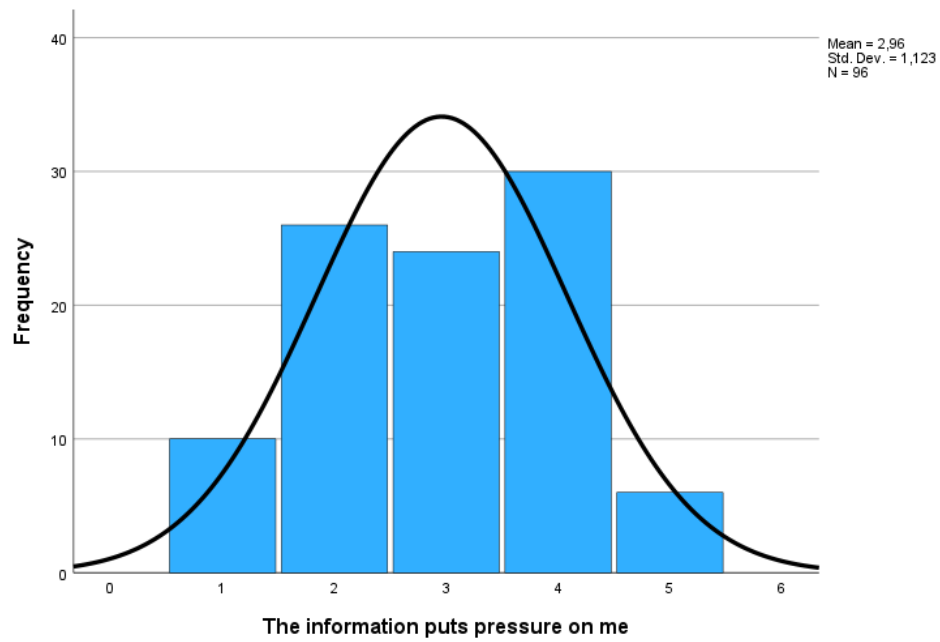
	The information threatens my ability to make my own decisions	The information puts pressure on me	I don't feel I have the right to exercise control and autonomy over decisions about how my information is collected, used, and shared
Strongly disagree	6,3%	10,4%	9,4%
Disagree	33,3%	27,1%	24,0%
Neutral	31,3%	25,0%	25,0%
Agree	26,0%	31,3%	33,3%
Strongly agree	3,1%	6,3%	8,3%

Nevertheless, it is observed that respondents tend to agree more with the third statement about autonomy in terms of control of the personal data, 33,3% of respondents “agree” and 8,3% “strongly agree”. Also, the mean of the particular item is the highest ( $M=3,07$ ), as it is observed in Table 10. This means that the majority of the participants do not perceive reminder messages as a threat to their autonomy, in terms of actions or decisions, but they seem to agree with the fact that reminder messages do not give them the right to control how data is gathered or used. Also, the variable and its items do not deviate from the normal distribution as it is observed in the histograms.

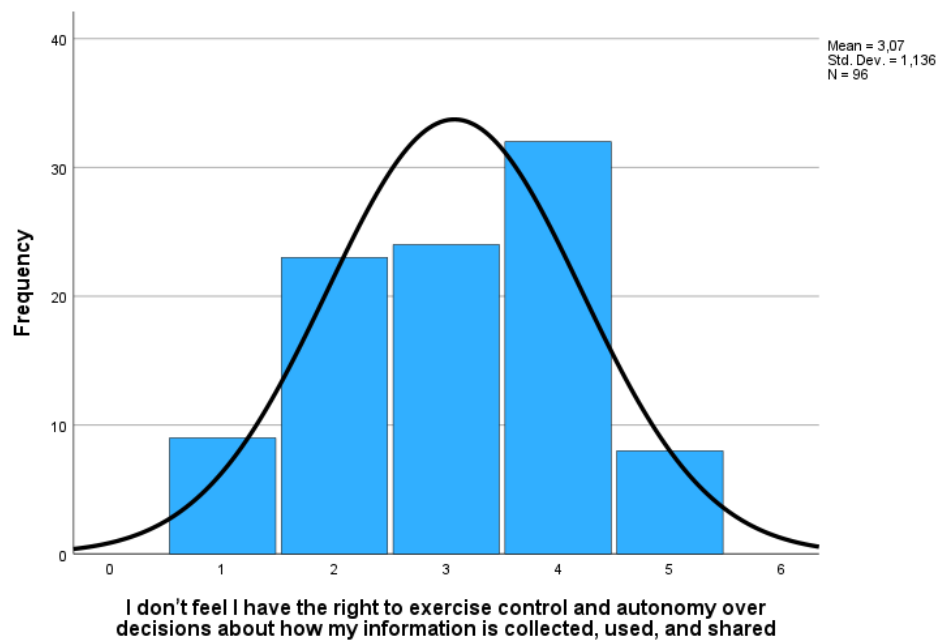
**Figure 9. AT item 1**



**Figure 10. AT item 2**



**Figure 11. AT item 3**



#### 4.2.4 Inferences of manipulation

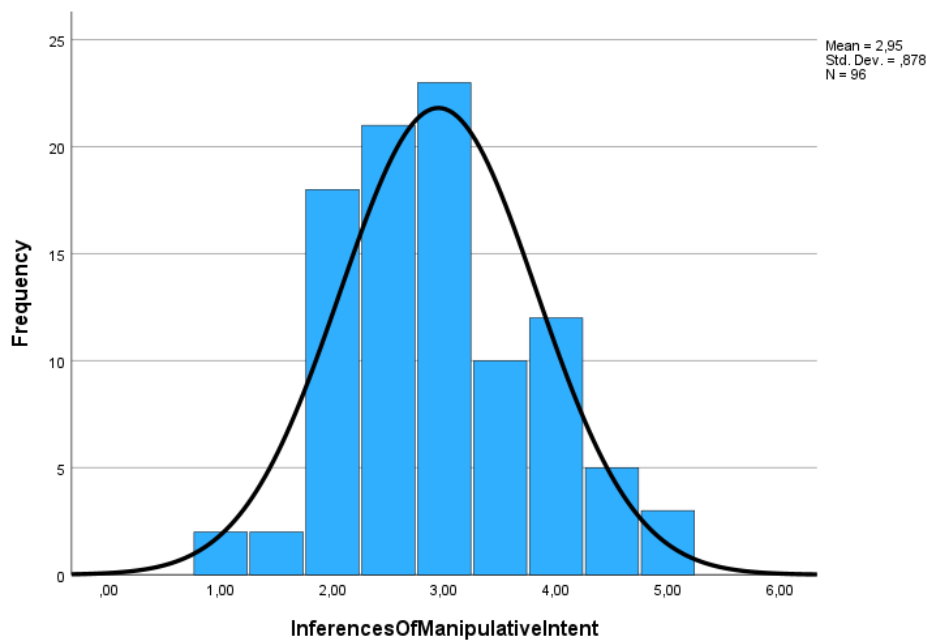
**Table 12. Descriptive Statistics on Inferences of Manipulative Intent**

*Descriptive Statistics on Inferences of Manipulative Intent*

	N	Minimum	Maximum	Mean	Std. Deviation
InferencesOfManipulativeIntent	96	1,00	5,00	2,9479	,87803
Valid N (listwise)	96				



**Figure 12. Inferences of Manipulative Intent**



The majority of the participants reported neutrality towards the two statements, which were reverse-coded, as seen in the mean of 2,94 in Table 12.

**Table 13. Statistics inferences of manipulative intent**

*Statistics*

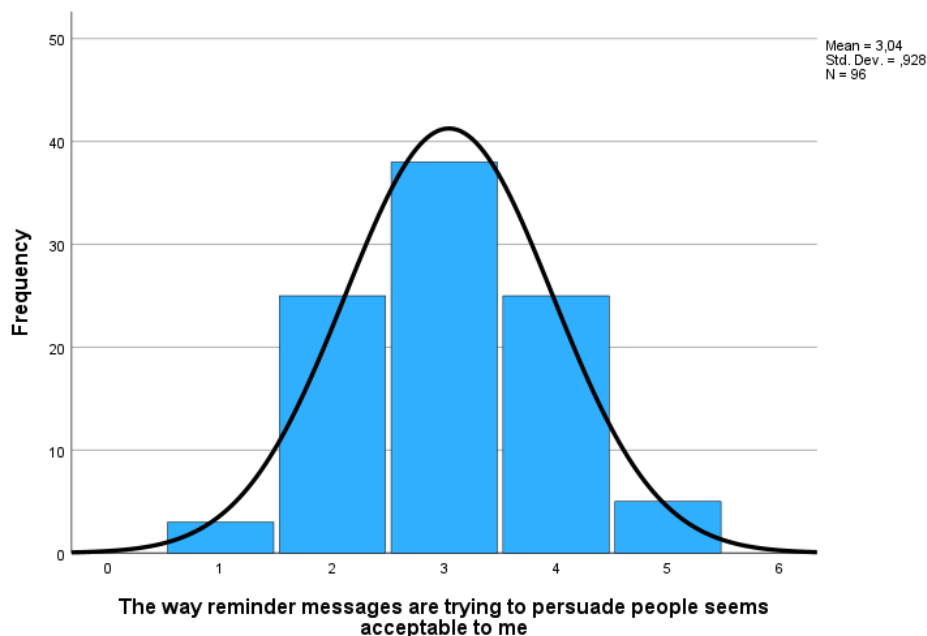
		The way reminder messages are trying to persuade people seems acceptable to me	I don't mind reminder messages; companies try to be persuasive without being excessively manipulative
N	Valid	96	96
	Missing	0	0
Mean		3,04	2,85
Std. Deviation		,928	1,076

**Table 14. Frequency inferences of manipulative intent**

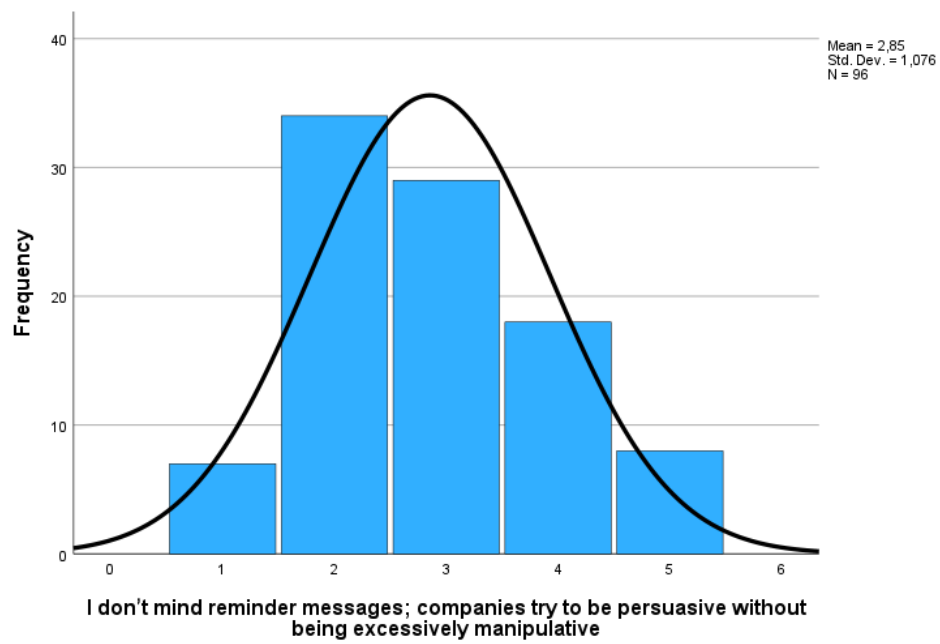
<i>Frequency</i>		
	The way reminder messages are trying to persuade people seems acceptable to me	I don't mind reminder messages; companies try to be persuasive without being excessively manipulative
Strongly disagree	3,1%	7,3%
Disagree	26,0%	35,4%
Neutral	39,6%	30,2%
Agree	26,0%	18,8%
Strongly agree	5,2%	8,3%

However, it is worth to mention that in the first statement many respondents expressed disagreement (26,0%), but an equal number (26,0%) indicated that they agree. Thus, in average, the respondents were neutral regarding this question. Also, the aforementioned variable and its items do not significantly deviate from the normal distribution as we can see in the histograms.

**Figure 13. IMI item 1**



**Figure 14. IMI item 2**



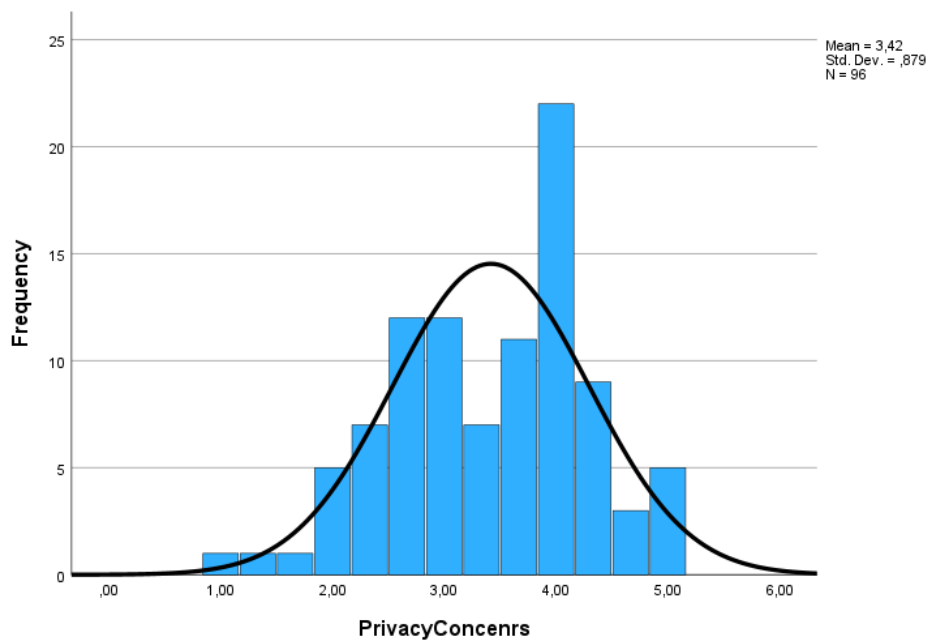
#### **4.2.5 Privacy concerns**

**Table 15. Descriptive Statistics on Privacy Concerns**

*Descriptive Statistics on Privacy Concerns*

	N	Minimum	Maximum	Mean	Std. Deviation
PrivacyConcerns	96	1,00	5,00	3,4167	,87860
Valid N (listwise)	96				

**Figure 15. Privacy Concerns**



The descriptive statistics for privacy concerns reveal an overall mean score of 3,41. Hence, participants are agreeing with the statements and believe that the collection and use of their personal information is important.

**Table 16. Statistics privacy concerns**

*Statistics*

		I feel uncomfortable that information may have been shared without permission	I am concerned about misuse of personal information	I feel fear that information may not be safe while stored
N	Valid	96	96	96
	Missing	0	0	0
Mean		3,40	3,53	3,32
Std. Deviation		1,051	1,025	1,021

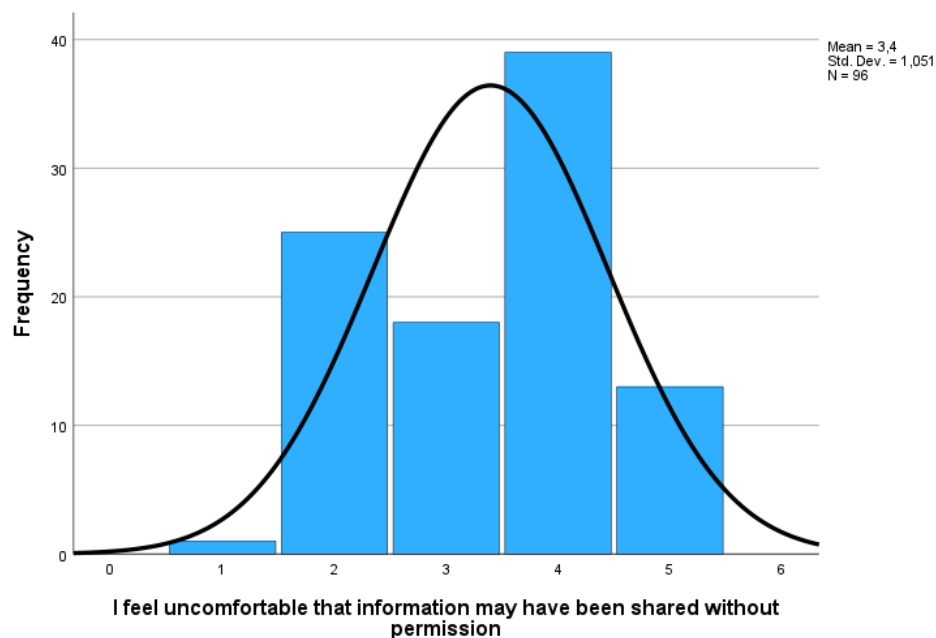
**Table 17. Frequencies privacy concerns**

*Frequencies*

	I feel uncomfortable that information may have been shared without permission	I am concerned about misuse of personal information	I feel fear that information may not be safe while stored
Strongly disagree	1,0%	3,1%	2,1%
Disagree	26,0%	14,6%	21,9%
Neutral	18,8%	24,0%	30,2%
Agree	40,6%	42,7%	33,3%
Strongly agree	13,5%	15,6%	12,5%

More specifically, Table 17 is showing that the majority of the respondents (42,7% “agree” and 15,6% “strongly agree”) indicated agreement with the idea that the misuse of personal information is a big concern when receiving reminder messages. Also, an equal big number (40,6% indicated agreement and 13,5% strongly agreement) is seen in the first statement which is about the concern of sharing information without permission. In conclusion, the people involved in the survey are still concerned about their privacy and security when receiving this kind of messages.

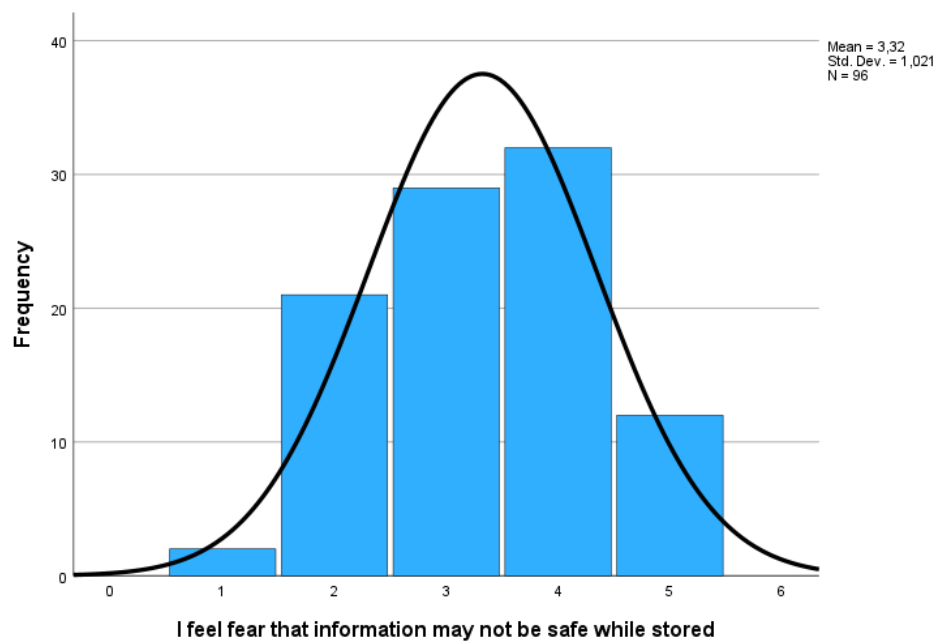
**Figure 16. PC item 1**



**Figure 17. PC item 2**



**Figure 18. PC item 3**



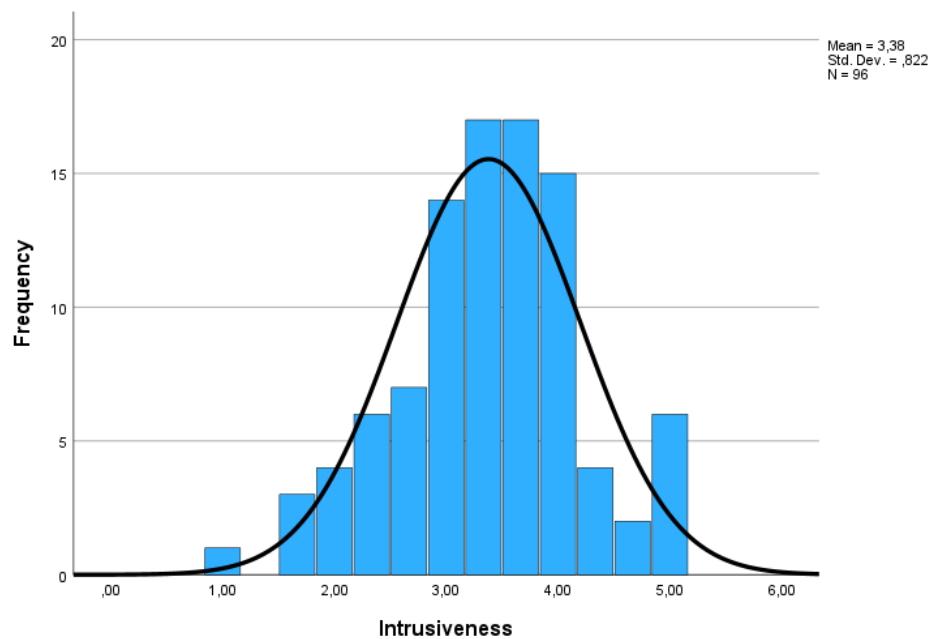
#### 4.2.6 Intrusiveness

**Table 18. Descriptive Statistics on Intrusiveness**

*Descriptive Statistics on Intrusiveness*

	N	Minimum	Maximum	Mean	Std. Deviation
Intrusiveness	96	1,00	5,00	3,3785	,82167
Valid N (listwise)	96				

**Figure 19. Intrusiveness**



Another tested variable is “intrusiveness”. The descriptive statistics of intrusiveness reveal that respondents reported neutrality towards the items ( $M=3,37$ ).

**Table 19. Statistics intrusiveness**

*Statistics*

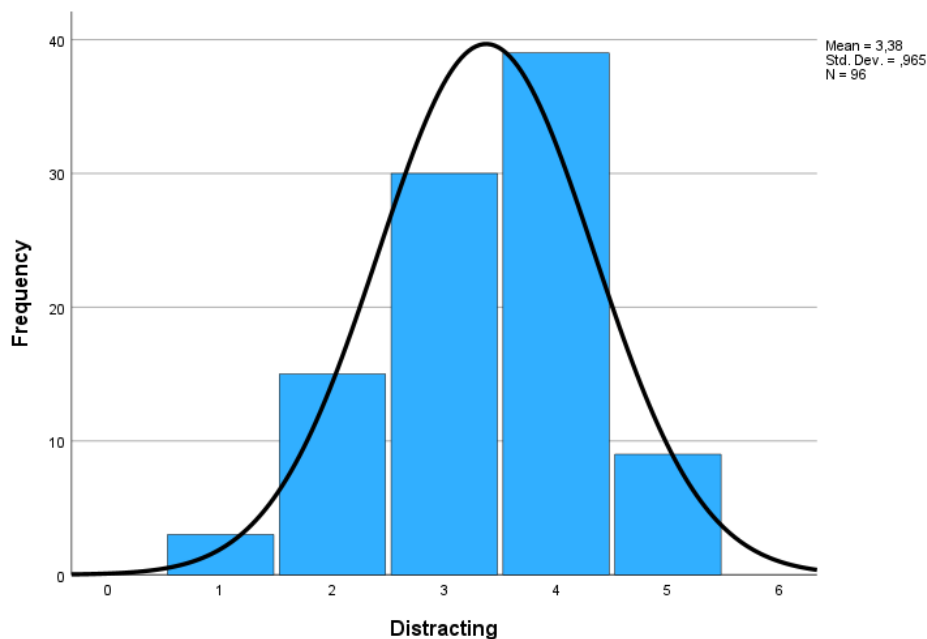
		Distracting	Disturbing	Invasive
N	Valid	96	96	96
	Missing	0	0	0
Mean		3,38	3,47	3,29
Std. Deviation		,965	1,015	,939

**Table 20. Frequency intrusiveness**

<i>Frequency</i>	Distracting	Disturbing	Invasive
Strongly disagree	3,1%	2,1%	1,0%
Disagree	15,6%	16,7%	19,8%
Neutral	31,3%	29,2%	38,5%
Agree	40,6%	36,5%	30,2%
Strongly agree	9,4%	15,6%	10,4%

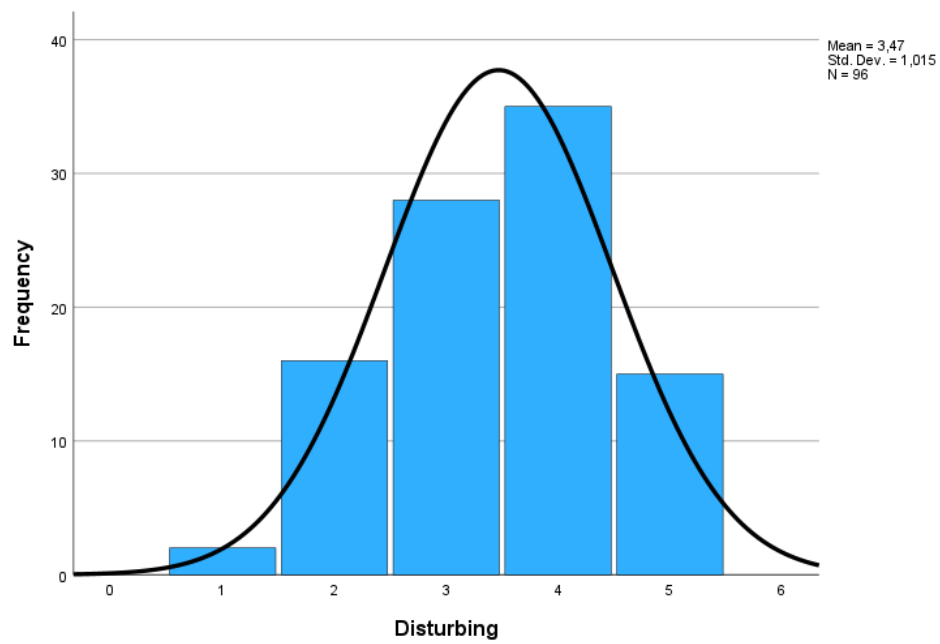
Nevertheless, Table 20 shows that the first and second items were scored with 4 and 5, “agree” and “strongly agree” respectively, from more than a 50% of the total sample. More specifically, “disturbing” had the highest agreement score with a 36,5% of respondents to “agree” and a 15,6% of respondents to “strongly agree”, followed by “distracting” with a 40,6% of participants to “agree” and a 9,4% to “strongly agree”. This can also be depicted in Table 19 with the mean scores of 3,47 and 3,38 respectively. Still, “neutral” was also scored by many participants.

**Figure 20. IN item 1**

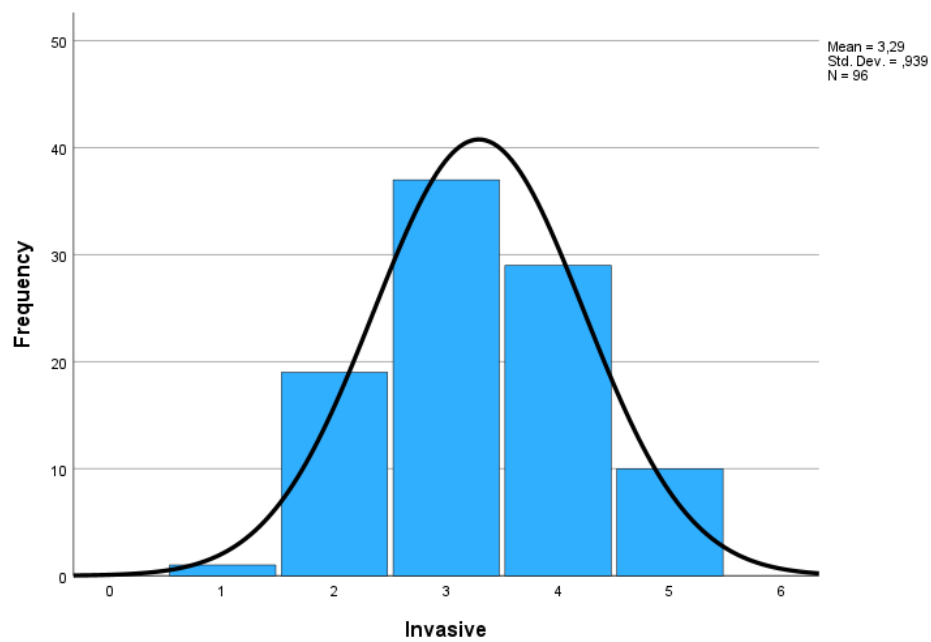




**Figure 21. IN item 2**



**Figure 22. IN item 3**



#### 4.2.7 Creepiness

**Table 21. Descriptive Statistics on Creepiness**

*Descriptive Statistics on Creepiness*

	N	Minimum	Maximum	Mean	Std. Deviation
Creepiness	96	1,00	5,00	3,3875	,90789
Valid N (listwise)	96				

**Figure 23. Creepiness**

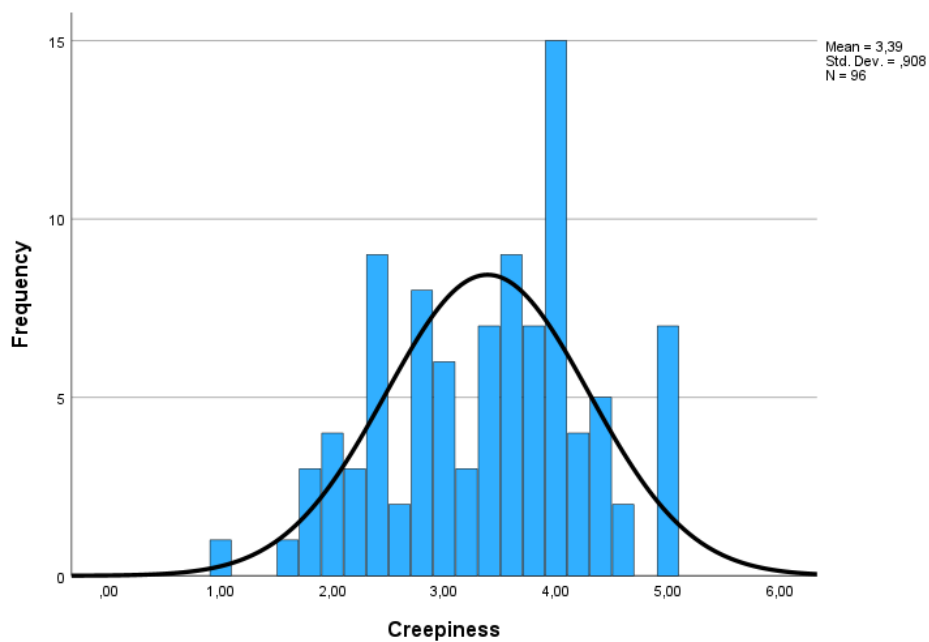


Table 21 reveals a mean of 3,38, indicating neutral attitude towards the five items that were used to measure the creepiness variable.

**Table 22. Statistics creepiness**

*Statistics*

		Watched	Observed	Followed	Tracked	Spied on
N	Valid	96	96	96	96	96
	Missing	0	0	0	0	0
Mean		3,49	3,42	3,30	3,52	3,21
Std. Deviation		1,036	,981	1,027	1,095	1,160

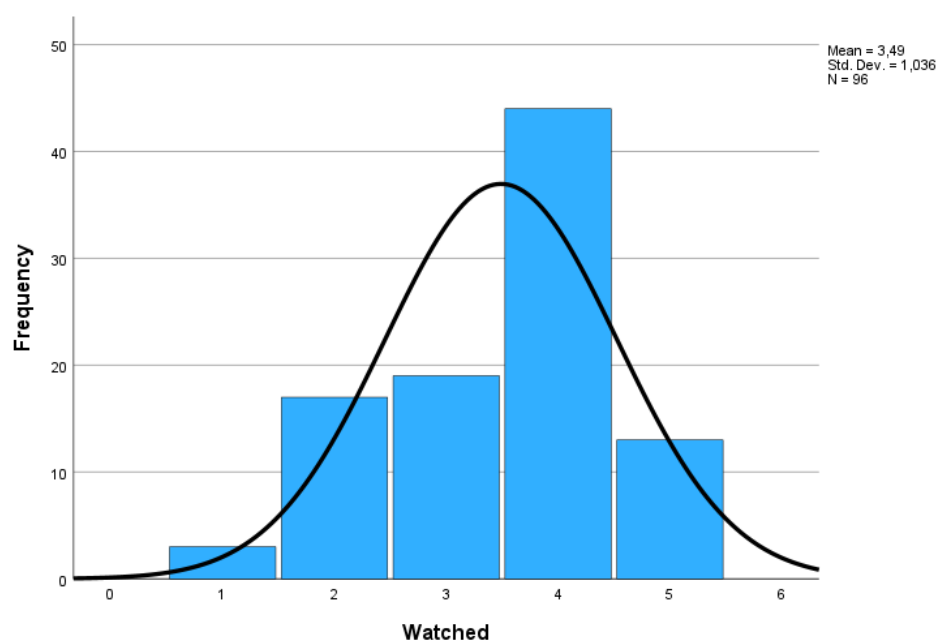
**Table 23. Frequency creepiness**

*Frequency*

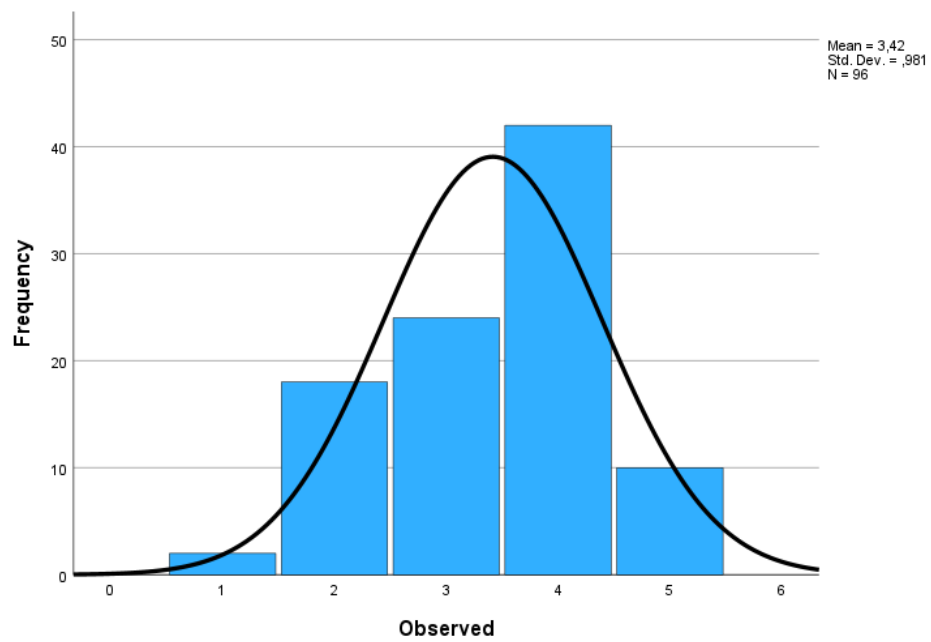
	Watched	Observed	Followed	Tracked	Spied on
Strongly disagree	3,1%	2,1%	3,1%	3,1%	6,3%
Disagree	17,7%	18,8%	22,9%	19,8%	26,0%
Neutral	19,8%	25,0%	24,0%	16,7%	21,9%
Agree	45,8%	43,8%	40,6%	42,7%	32,3%
Strongly agree	13,5%	10,4%	9,4%	17,7%	13,5%

However, the majority of the participants (more than 50%), as seen on table 23, are expressing agreement and strong agreement to the following items: tracked, watched, observed and followed. For instance, a proportion of 42,7% and a proportion of 17,7% answered “agree” and “strongly agree”, respectively, to “tracked”. Also, the particular item has the highest mean score of 3,52. In conclusion, most of the participants are agreeing with the five items, but there is also a significant percentage that disagrees. Also, in the histograms that are depicted in Figures 23-27 we can observe that the five items do not significantly deviate from the normal distribution.

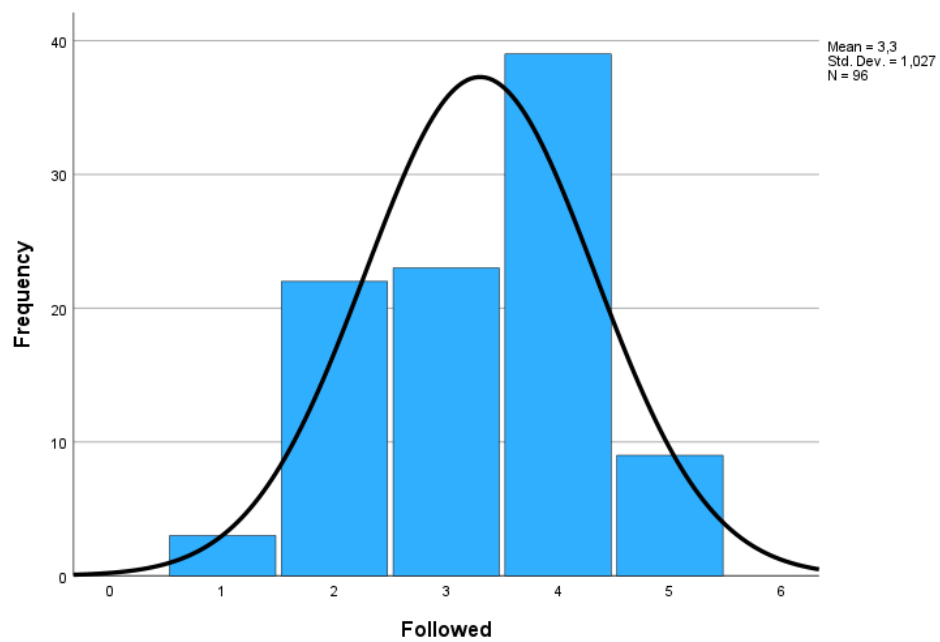
**Figure 24. CR item 1**



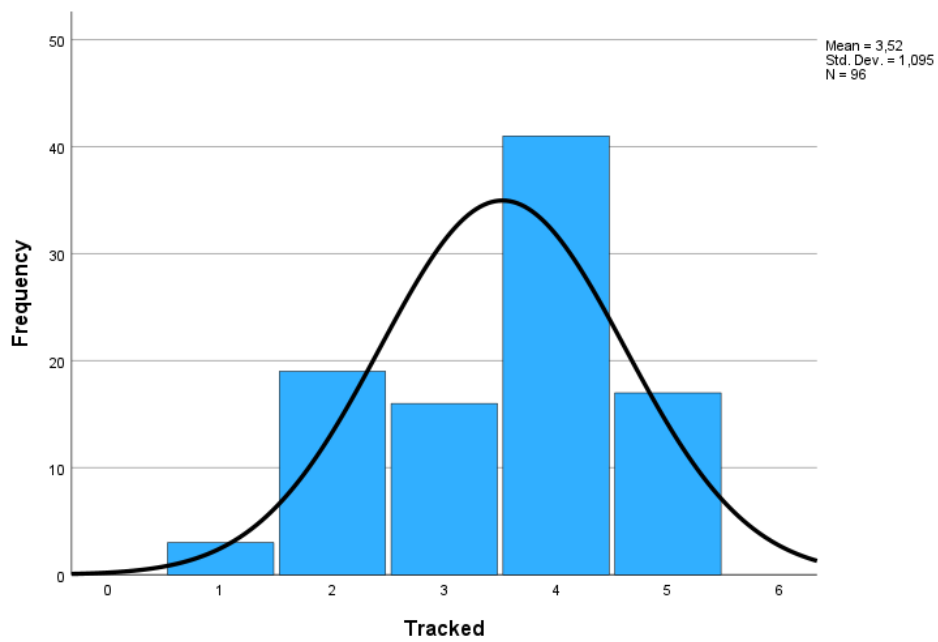
**Figure 25. CR item 2**



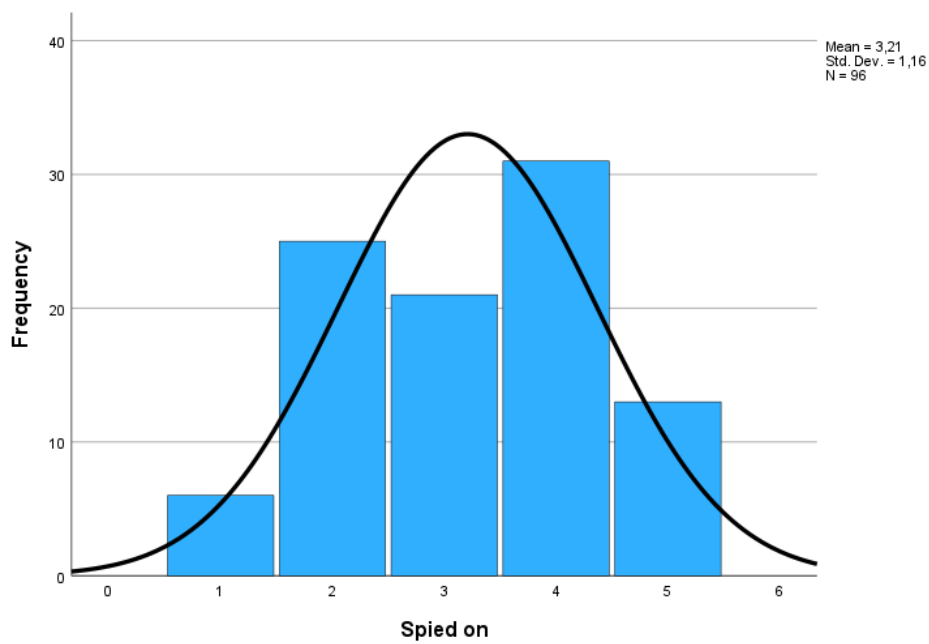
**Figure 26. CR item 3**



**Figure 27. CR item 4**



**Figure 28. CR item 5**



#### **4.2.8 Reactance Feelings**

In an effort to measure reactance, two parts of question sets were made. The first was about four negative feelings (i.e., as anger, annoyance, irritation and aggravation) as proposed by Shen & Dillard, (2005).

**Table 24. Descriptive Statistics on Reactance Feelings**

*Descriptive Statistics on Reactance Feelings*

	N	Minimum	Maximum	Mean	Std. Deviation
ReactanceFeelings	96	1,00	5,00	3,2057	,90902
Valid N (listwise)	96				

**Figure 29. Reactance Feelings**

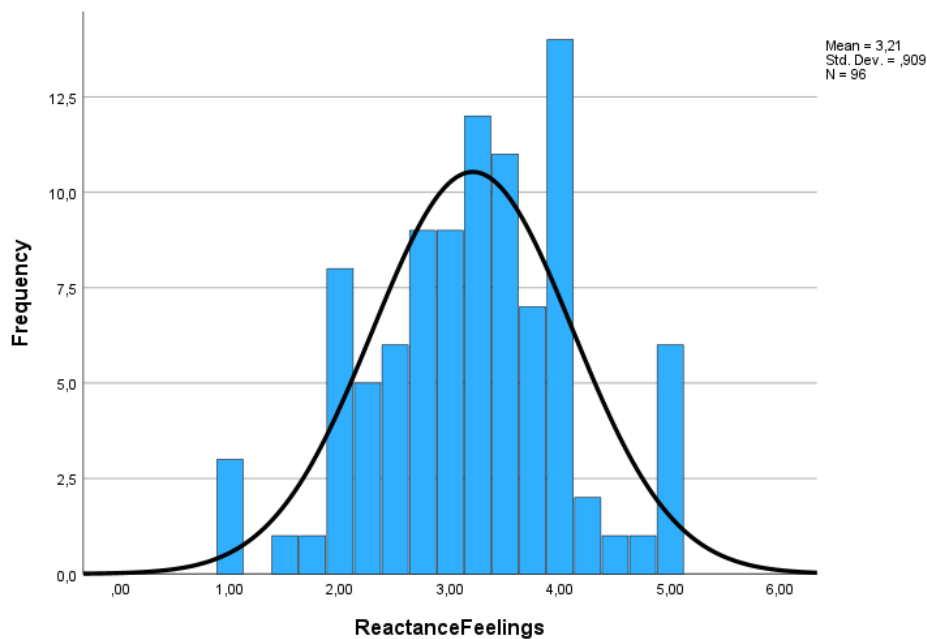


Table 24 shows a mean score of 3,20, revealing neutrality towards the four items. Also, Figure 28 reveals that the tested variable does not significantly deviate from the normal distribution.

**Table 25. Statistics reactance feelings**

*Statistics*

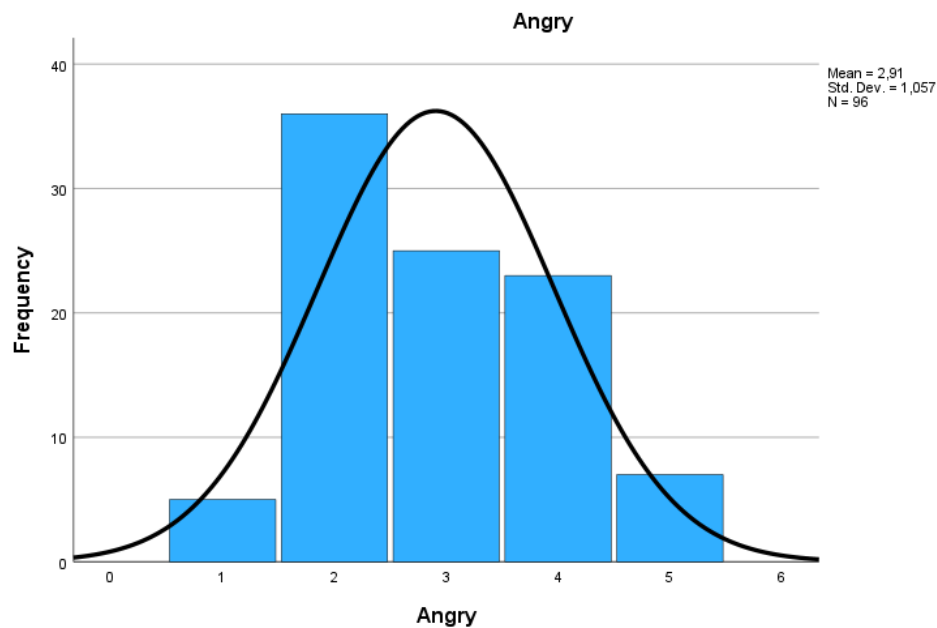
		Angry	Annoyed	Irritated	Aggravated
N	Valid	96	96	96	96
	Missing	0	0	0	0
Mean		2,91	3,65	3,23	3,04
Std. Deviation		1,057	1,056	1,061	1,004

**Table 26. Frequency reactance feelings**

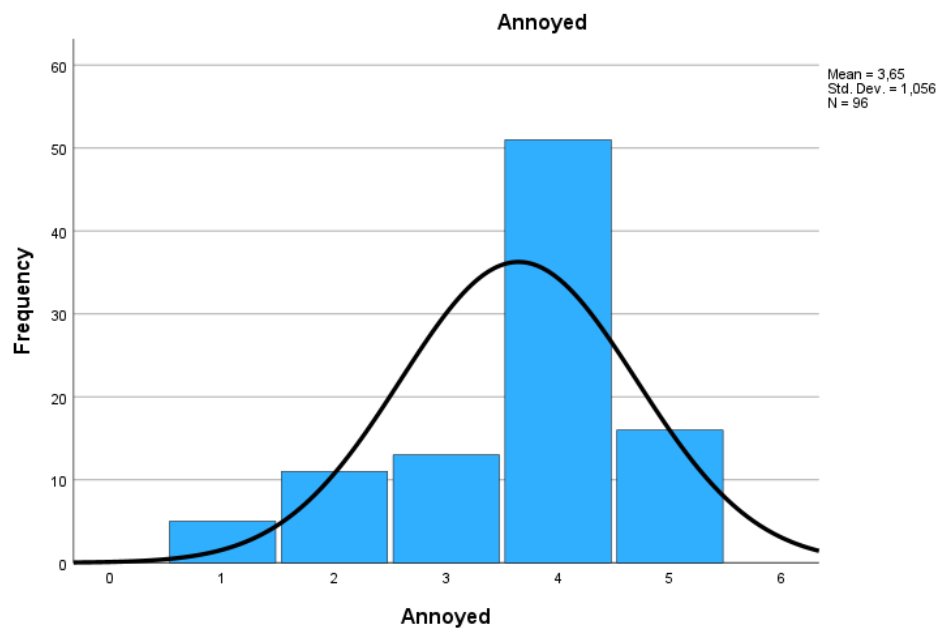
<i>Frequency</i>	Angry	Annoyed	Irritated	Aggravated
Strongly disagree	5,2%	5,2%	6,3%	6,3%
Disagree	37,5%	11,5%	19,8%	21,9%
Neutral	26,0%	13,5%	27,1%	40,6%
Agree	24,0%	53,1%	38,5%	24,0%
Strongly agree	7,3%	16,7%	8,3%	7,3%

“Angry” is scored as the highest item in terms of disagreement with 37,5% of people disagreeing with the term. Hence, most participants are not in general angry when receiving reminder messages. However, “irritated” received an equal big number of agreement (38,5%) and “annoyed” an even bigger share of agreement (53,1%). Last but not least, as we can see from the histograms in Figures 29- 32, the items do not significantly deviate from the normal distribution.

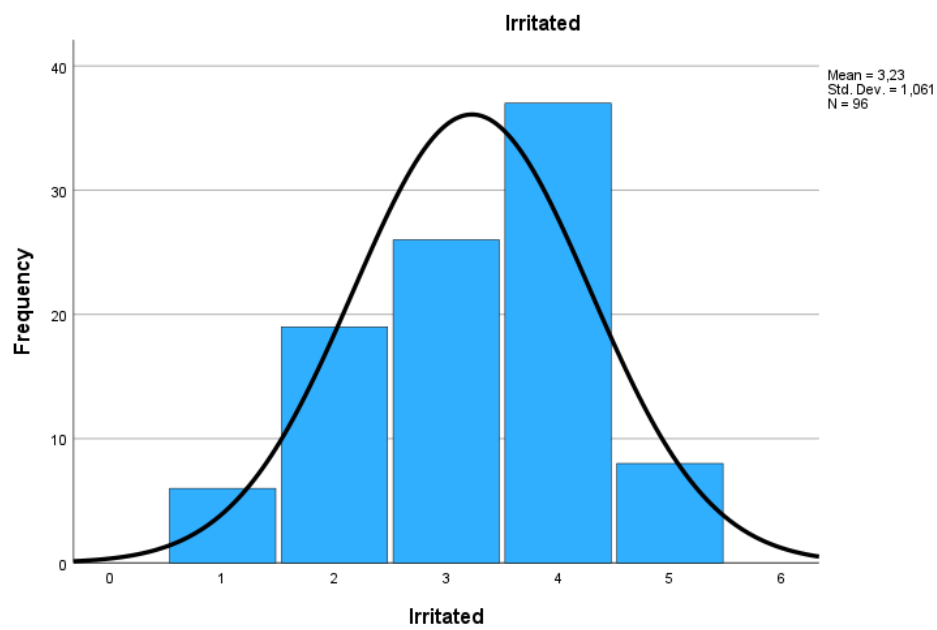
**Figure 30. RF item 1**



**Figure 31. RF item 2**

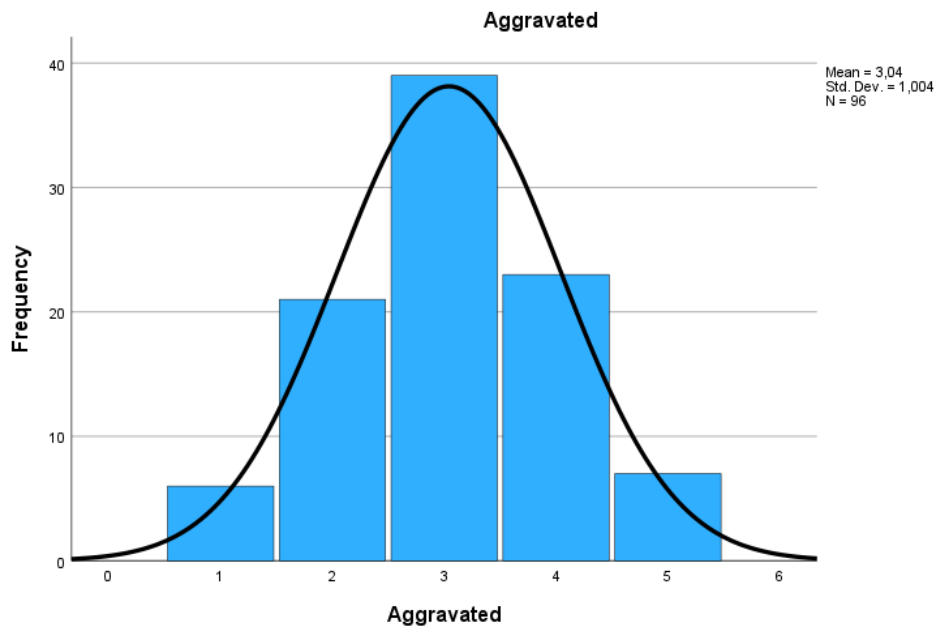


**Figure 32. RF item 3**





**Figure 33. RF item 4**



#### **4.2.9 Reactance Cognitions**

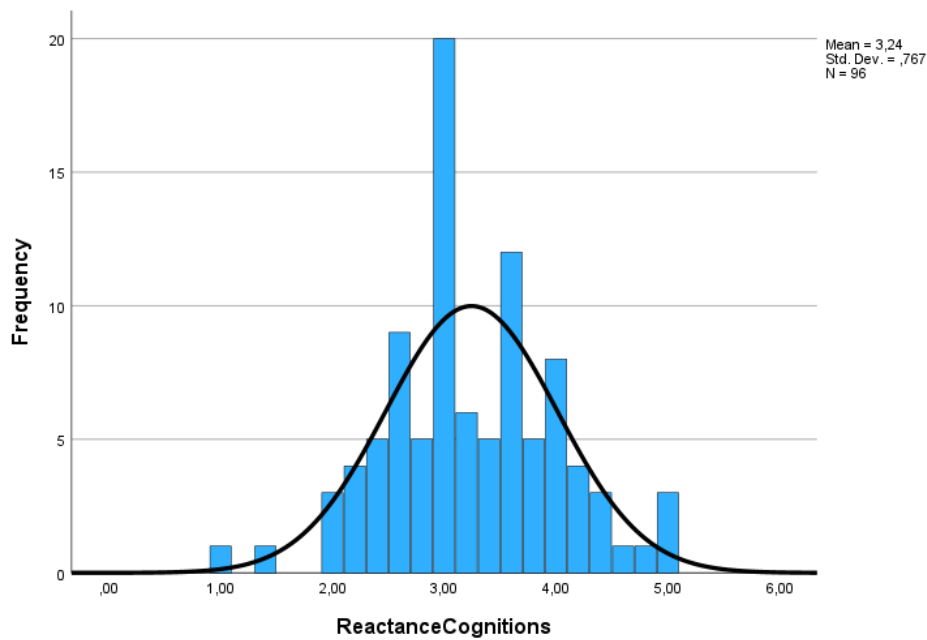
The second part of reactance was the negative cognitions. Nevertheless, to avoid biases, two positive cognitions were also added, and they will be presented as well. Furthermore, the two positive cognitions were reverse-coded. Therefore, while participants stated agreement or disagreement with the statements, it will be depicted in Table 29 as disagreement and agreement.

**Table 27. Descriptive Statistics on Reactance Cognitions**

*Descriptive Statistics on Reactance Cognitions*

	N	Minimum	Maximum	Mean	Std. Deviation
ReactanceCognitio ns	96	1,00	5,00	3,2438	,76679
Valid N (listwise)	96				

**Figure 34. Reactance Cognitions**



As it is seen in Table 27, the mean score of 3,20 reveals neutral attitude towards the five items.

**Table 28. Statistics reactance cognitions**

*Statistics*

		Unfavorable	Negative	Bad	Pleasant	Appealing
N	Valid	96	96	96	96	96
	Missing	0	0	0	0	0
Mean		3,29	3,15	3,04	3,34	3,40
Std. Deviation		1,015	1,076	1,075	,927	,978

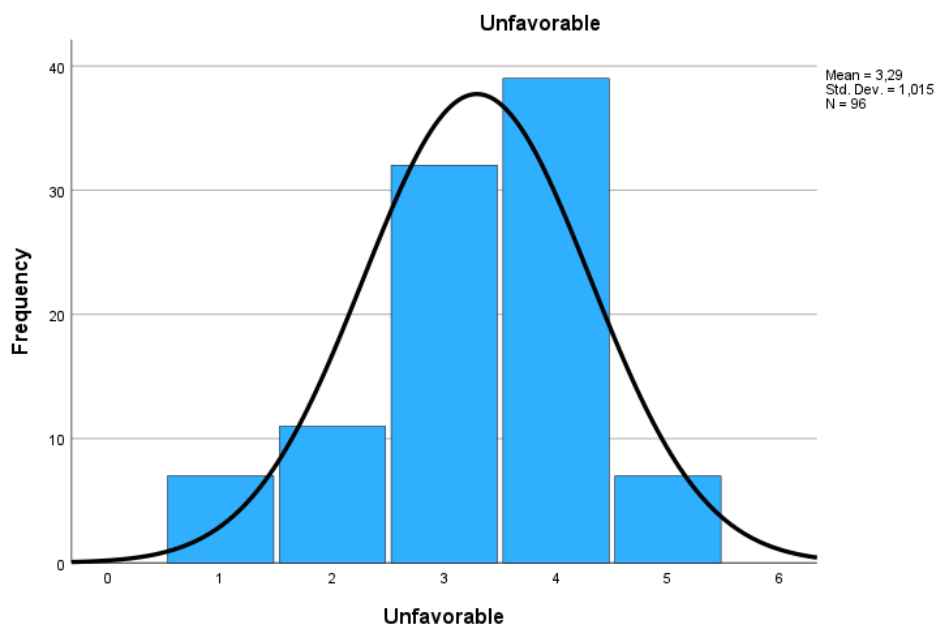
**Table 29. Frequency reactance cognitions**

*Frequency*

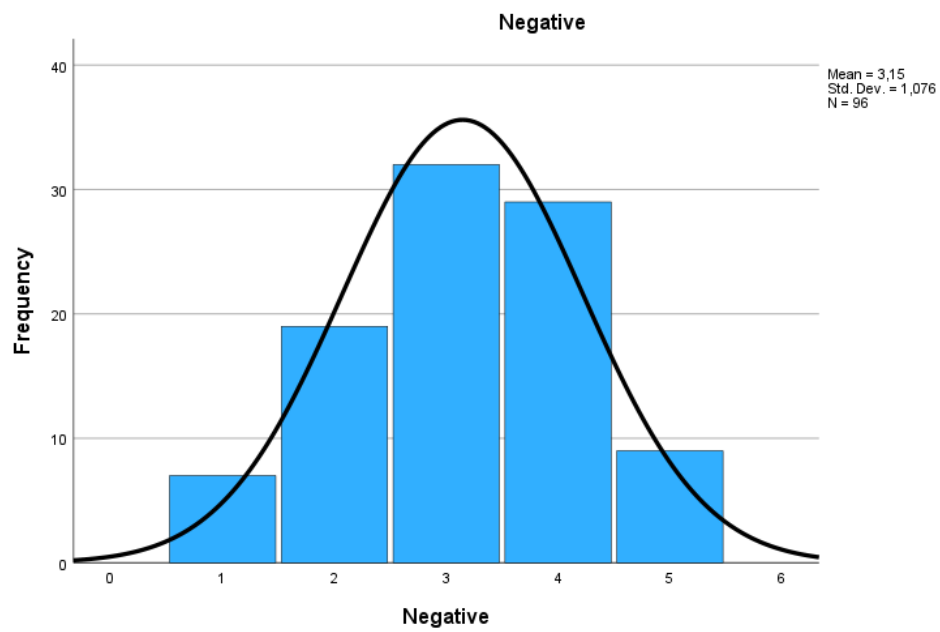
	Unfavorable	Negative	Bad	Pleasant	Appealing
Strongly disagree	7,3%	7,3%	7,3%	3,1%	2,1%
Disagree	11,5%	19,8%	25,0%	14,6%	14,6%
Neutral	33,3%	33,3%	32,3%	34,4%	39,6%
Agree	40,6%	30,2%	27,1%	40,6%	29,2%
Strongly agree	7,3%	9,4%	8,3%	7,3%	14,6%

However, from Table 29 we can observe that the percentages of the agreement in the negative cognitions are higher than that of disagreement. For example, the “unfavorable” item has a 40,6% of agreement and a 7,3% of strong agreement, while there is a 11,5% of people who disagree and a 7,3% who strongly disagree with the particular item. Moreover, the two positive cognitions; “pleasant” and “appealing”, have a bigger percentage of disagreement than agreement. Nevertheless, all five items have received a significant score of “neutral”. Thus, we can assume that people involved in the survey have in general neutral to negative thoughts towards reminder messages. Moreover, Figures 34-38 present the histograms of the five items that do not deviate significantly from the normal distribution.

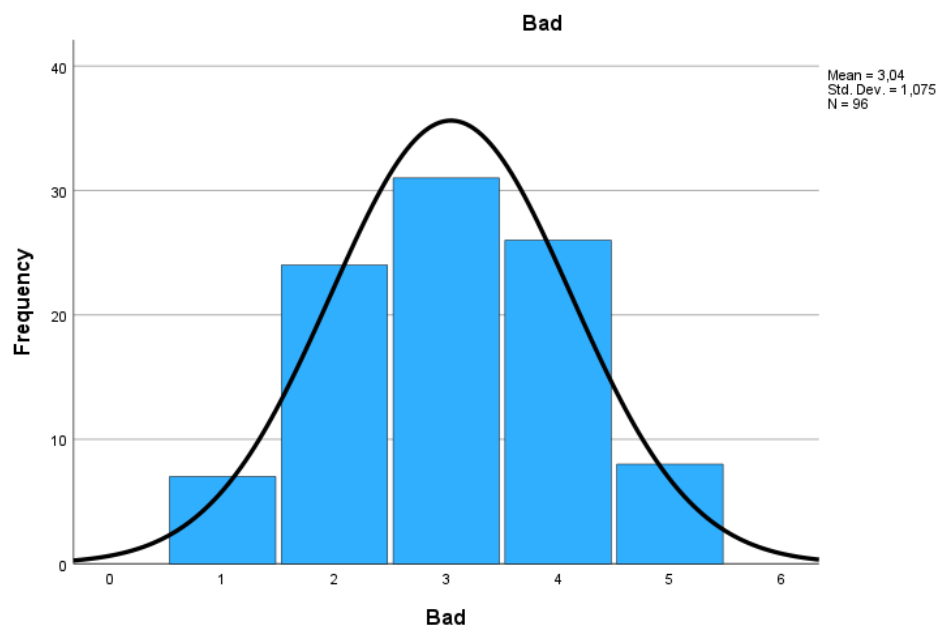
**Figure 35. RC item 1**



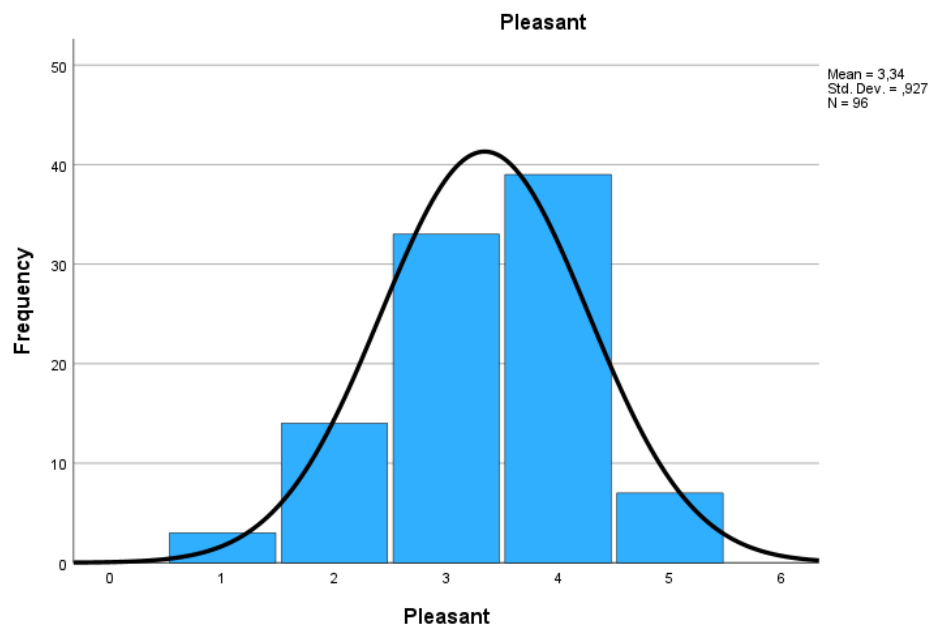
**Figure 36. RC item 2**



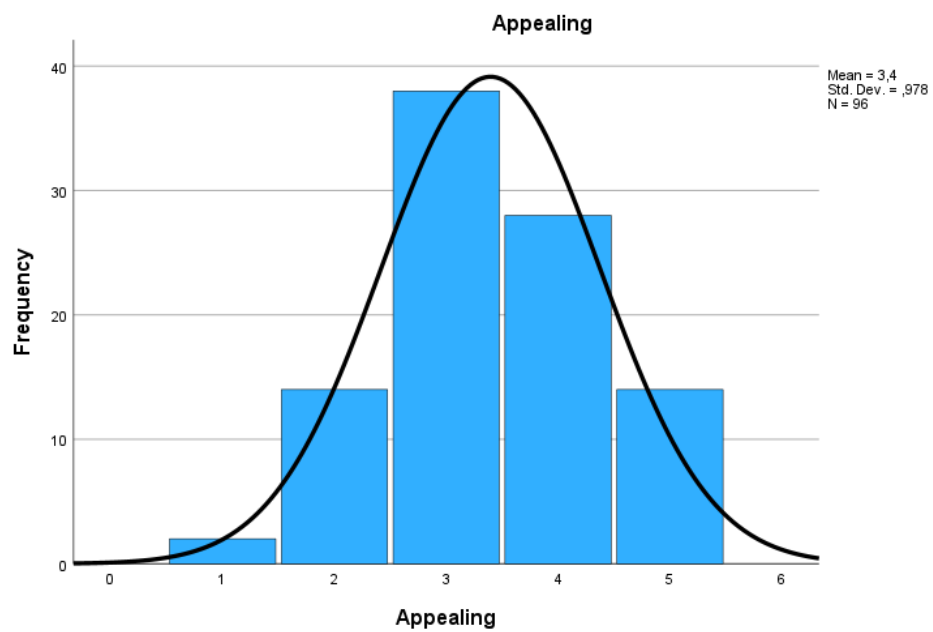
**Figure 37. RC item 3**



**Figure 38. RC item 4**



**Figure 39. RC item 5**



#### 4.2.10 Usefulness and frequency

The last part of the questionnaire includes two questions about how useful participants find reminder messages, and how often do they come across them.

**Table 30. Usefulness**

*How useful do you find reminder messages when making purchase decisions?*

	N	%
Not useful at all	14	14,6%
Rarely useful	40	41,7%
Moderately useful	28	29,2%
Useful	10	10,4%
Very useful	4	4,2%

As depicted in Table 21, a proportion of 41,7% which is the majority of the participants finds reminder messages “rarely useful”. An equal big number of 29,2% stated “moderately useful” to the question. Also, 14 participants find reminder messages not “useful at all”. However, a small proportion of the sample, 10,4% and 4,2% find the particular messages as “useful” and “very useful”, respectively.

**Table 31. Frequency**

*How often do you come across reminder messages?*

	N	%
Once a day	26	27,1%
A few times a week	30	31,3%
Once a week	11	11,5%
A few times a month	13	13,5%
Once a month	9	9,4%
Less than once a month	7	7,3%

In general, the majority of the participants come across reminder messages “a few times a week” and “once a day” (Table 22). More specifically, from a total of 96 answers, 30 respondents (31,3%) come across reminder messages “a few times a week”, 27,1% of the sample “once a day”, 13 participants, forming a 13,5%, come across reminder messages “a few times a month” and lastly, 9,4% and 7,3% receive reminder messages “once a month” and “less than once a month”, respectively.

#### **4.2.11 Conclusion**

From the descriptive statistics of the tested variables, we can conclude that “persuasion knowledge” and “privacy concerns” had the highest mean scores of 3,78 and 3,41, meaning that participants are well aware of bargaining tactics used by marketers, and they are also concerned about how personal information is collected, used or shared. Moreover, “reactance feelings” had the highest standard deviation ( $SD=0,90902$ ) and it was noticed on the histogram that very low and very high values had significant frequencies. This shows that the sample included different groups of respondents with substantially varying stances. In general, the majority of the participants stated “agreement” with the tested items and statements. However, there is an equal percentage of neutrality. Also, regardless of the answers to the questions, the majority of the respondents seems to be feeling “tracked” ( $M=3,52$ ) and “annoyed” ( $M=3,65$ ) by reminder messages. Furthermore, as the histograms of all variables show, we found that all the tested variables and their items do not significantly deviate from the normal distribution.

### 4.3 Hypotheses

The linear regression of the tested variables reveals if there is any statistically significant effect of the six independent variables (persuasion knowledge, autonomy threat, inferences of manipulative intent, privacy concerns, intrusiveness, creepiness) on the dependent variable (reactance). The results are depicted in Table 32.

**Table 32. Coefficients**

*Coefficients<sup>a</sup>*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,434	,384		1,131	,261
	PersuasionKnowledge	-,030	,099	-,024	-,305	,761
	AutonomyThreat	-,047	,072	-,054	-,649	,518
	InferencesOfManipulativeIntent	,152	,062	,177	2,462	,016
	PrivacyConcerns	,162	,079	,188	2,038	,045
	Intrusiveness	,404	,091	,440	4,445	<,001
	Creepiness	,201	,082	,242	2,460	,016

a. Dependent Variable: Reactance

#### **Autonomy Threat**

H0: Autonomy threat does not have any significant effect on reactance towards reminder messages.

H1: Autonomy threat has a positive effect on reactance towards reminder messages.

Autonomy threat was not found to be an important factor of reactance towards reminder messages since the p-value is  $0,518 > 0,05$ . Hence, we fail to reject the null Hypothesis (H0) and we do not have evidence to support a statistically significant relation. As a result, hypothesis H1a is excluded from our model.

#### **Inferences of Manipulative Intent**

H0: The inferences of manipulative intent do not have any significant effect on reactance towards reminder messages.



H1: Inferences of manipulative intent have a positive effect on reactance towards reminder messages.

The p-value of the variable shows a significant effect ( $p=0,016 < 0,05$ ) of inferences of manipulative intent on reactance. Thus, the results support H1, rejecting the null hypothesis. Also, the beta coefficient reveals that there is a positive relationship between the two variables.

### **Persuasion Knowledge**

H0: Persuasion knowledge does not have any significant effect on reactance towards reminder messages.

H1: Persuasion knowledge has a positive effect on consumer reactance towards reminder messages.

The p-value of the persuasion knowledge variable is  $0,761 > 0,05$  and therefore we fail to reject the null Hypothesis and hypothesis H2 is excluded from our model.

### **Privacy Concerns**

H0: Privacy concerns do not have any significant effect on reactance towards reminder messages.

H1: Privacy concerns will have a positive effect on consumer reactance towards reminder messages.

The p-value of privacy concerns is  $0,045 < 0,05$  so we fail to reject the null Hypothesis and we can conclude that there is a statistically significant effect of privacy concerns on reactance. Moreover, the beta coefficient of 0,188 indicates that this effect is positive.

### **Intrusiveness**

H0: Intrusive feeling do not have any significant effect on reactance towards reminder messages.

H1: Intrusive feelings will have a positive effect on consumer reactance towards reminder messages.

Since the p-value is 0,001 we reject the null hypothesis. Also, this result has the greatest level of significance and the highest beta coefficient (0,440), and it offers an even stronger argument against the null hypothesis.

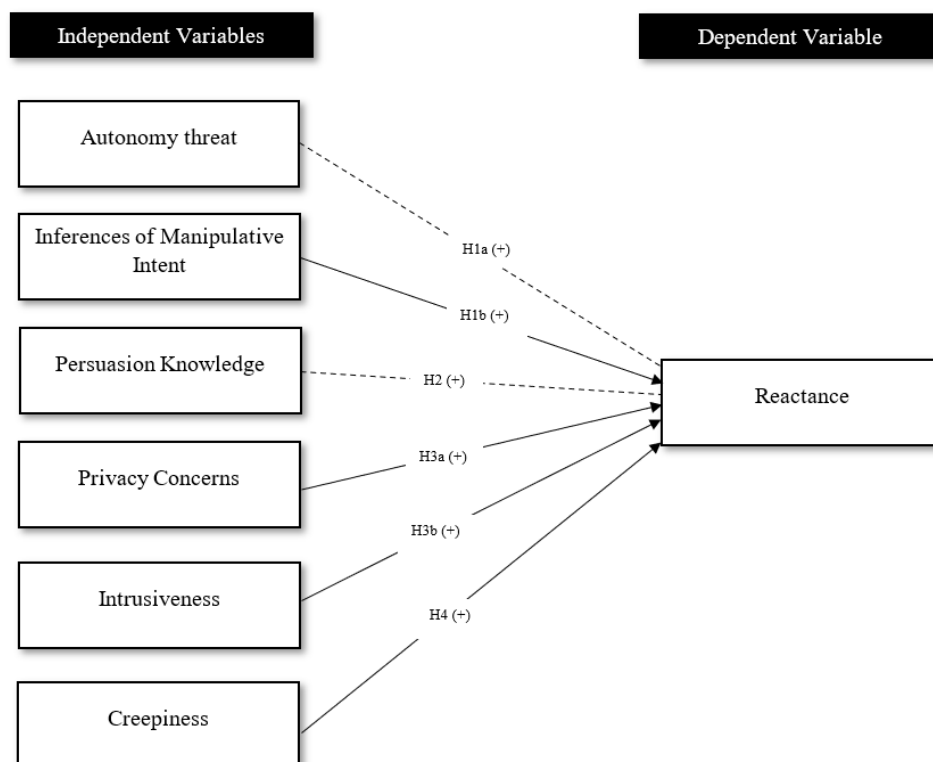
### Creepiness

H0: Creepiness does not have any significant effect on reactance towards reminder messages.

H1: Creepiness will have a positive effect on consumer reactance towards reminder messages.

The p-value of 0,016 show that there is a statistically significant effect of creepiness on reactance. Therefore, we reject the null hypothesis. Furthermore, from the beta coefficient of 0,242 we conclude that there is a positive relationship between creepiness and reactance.

**Figure 40. Final Conceptual Model**



## 5. Discussion and solutions

### 5.1 Discussion

This study aimed to identify the factors contributing to the boomerang effect or else reactance created by reminder messages. Thus, hypotheses were formulated and tested to investigate the relation between the dependent variable (reactance) and the independent variables (autonomy threat, inferences of manipulative intent, persuasion knowledge, privacy concerns, intrusiveness, creepiness). The findings revealed that four of the independent variables (inferences of manipulative intent, privacy concerns, intrusiveness, and creepiness) show significant effects on reactance. On the other hand, autonomy threat and persuasion knowledge did not show a significant effect on the dependent variable.

To begin with, inferences of manipulative intent was one of the factors influencing reactance towards reminder messages. This result is in line with similar studies since when consumers infer manipulative intents by marketers, they adopt negative attitudes or resistance towards these marketing practices (Banikema & Roux, 2014; Campbell, 1995; Cotte et al., 2005; Lunardo & Mbengue, 2013; Roux, 2007). Thus, marketers need to create messages that deliver reliable information in a non-manipulative and transparent manner (e.g., customers should be aware of who is sending the message and under what circumstances) (Gatignon & le Nagard, 2015).

This study reveals that privacy concerns impact significantly reactance towards reminder messages. This did not come as a surprise since the use of data in Internet by businesses is perceived as a threat to privacy and many people have stated their worries towards online marketing practices and the use of personal information. Also, the particular variable revealed a high mean score ( $M=3,41$ ) as it was depicted in the descriptive statistics. According to studies, privacy concerns is one of the most common factors affecting consumers' perceptions towards similar marketing practices, leading to avoidance towards them (Alreck & Settle, 2007; Baek & Morimoto, 2012; Brinson et al., 2018; Ham, 2017; Milne et al., 2004). Nevertheless, businesses need to be transparent and state how they collect user's data in order to reduce consumers' privacy

concerns. Moreover, online companies should offer to visitors the option to opt out of data collection.

Intrusiveness was the most significant factor influencing reactance towards reminder messages. Thus, participants find reminder messages as intrusive either because they perceive them as invasive or disturbing. Additionally, many studies support that the effect of intrusiveness of emails or ads will lead to reactance (Edwards et al., 2002; Morimoto & Chang, 2006; Morimoto & Macias, 2009). Hence, marketers to avoid send intrusive messages, it is important to reduce information overload and send the right message at the right time, since time is an important factor affecting a message's receptiveness (Li et al., 2020).

Creepiness was found to significantly affect reactance towards reminder messages. As stated previously marketers can now use previously gathered customer data in order to deliver more personalized messages to consumers. Many studies agree that personalization is positively affecting consumers' perceptions towards marketing practices (Baek & Morimoto, 2012; Goldsmith & Freiden, 2004). However, consumer responses to these messages might not be what marketers had in mind. They might be viewed, for example, as being overly personal, going beyond boundaries and leading to avoidance, as our study also revealed (Barnard et al., 2014; Moore et al., 2015). Thus, one solution for marketers to minimize the negative effects of online tracking would be to always inform the consumers of whether their actions are tracked or not and also, ask for their consent. Moreover, businesses should avoid using phrases that imply that customers are being tracked (e.g., I see you left items in the shopping cart). They could use instead a reminder message that will add value to the customer's day or remind them about cart abandonment without making them feel tracked.

Findings did not support H2, meaning that persuasion knowledge was not one of the variables influencing reactance towards reminder messages. Nonetheless, the descriptive statistics revealed that "persuasion knowledge" was the variable with the highest mean ( $M=3,78$ ), but this was not translated into its effect towards reactance. Recent research (Youn & Kim, 2019) found that persuasion knowledge is positively influencing ad avoidance. Another study (Beckert et al., 2021) inferred that persuasion knowledge of persuasive and deceptive tactics in ads increases levels of anger which is

a component of reactance. Nevertheless, that was not the case in our study. This could be partly because persuasion knowledge is something general and subjective.

According to Duhachek & Oakley (2007), when users experience a threat, they may elicit avoidance. However, our study is not in line with this result since autonomy threat did not show any significant effect on reactance. Nonetheless, threats to autonomy may not be perceived immediately. Consumers may not perceive that their acts of avoidance or reactance might come as a result of threats to their autonomy. For instance, consumers may buy a product they would normally choose to avoid just so they can have a sense of autonomy and act of free will (Mik, 2016). However, this reaction could sometimes not be conscious.

## **5.2 Solutions to cart abandonment**

E-mails, push notifications or website pop-ups are widely used by online companies as an effort to encourage consumers to complete their purchase and thus, reduce cart abandonment. However, these practices are a double-edged sword since they can lead to reactance. For this reason, apart from providing solutions to better implement these strategies, solutions to avoid cart abandonment are presented as well.

First of all, it is important for businesses to remember that emails are a tool aimed to make purchasing decisions simpler. Consequently, the success of email marketing depends on how email newsletters are designed and implemented. For instance, the length of the subject line, the size of the email, the buy links and the banner are features that should be properly considered since they can affect consumers' attitudes. For instance, buy links are needed in a reminder message. Additionally, marketers can use their creativity to design the email newsletter banners, which have been shown to positively affect email click-through rates and conversion rates (Kumar, 2021).

Another important tool to reduce cart abandonment is push notifications. In terms of text in push notifications both text and visuals need to convey the necessary vividness in the message (Gavilan et al., 2020). The most important moderator is vividness congruency, which is the degree to which a message's vivid components are congruent with its overall theme. According to studies, vividness is an effective way to enhance persuasiveness. Vivid messages boost motivation to comprehend information.

Additionally, a vivid message may generate images in the audience's minds that are simple to recall and connect with the message's aim (Smith & Shaffer, 2000). Vivid information encourages visualization, making it simple for the mind to generate images. To catch consumer's attention, short, eye-catching messages that can be read quick and easy are needed (Gavilan et al., 2020).

Apart from the design elements, the chosen time to send a message is important as well. According to Li et al, (2020) too quickly retargeting could irritate users and elicit reactance. Although, new technologies offer the opportunity to send a message within minutes after cart abandonment, marketers should resist the urge to use them. However, managers may be able to encourage higher purchase responses by using early retargeting, offering discount coupons. Nevertheless, these coupons are not always the solution since shoppers may get used to them and then purposely abandon items in their cart to receive price reductions before making a purchase. Moreover, the authors suggest that marketers should use different times of retargeting according to the type of the abandoned cart (i.e., carts with a lot of items compared to those with just one, or carts with expensive items compared to those with cheap ones). For instance, in the case of a cart with many added products, a late reminder message would be more suitable (Li et al., 2020).

Since shoppers may use their online shopping carts as a hedonic or organizational tool, rather just for purchasing items, businesses should provide to consumers persistent shopping carts (i.e., carts that continue to hold added products even after the visitor exits the website). E-tailers need to provide a simple method for clients to access their previously filled carts. Companies should also make sure that the prices and product availability, as well as any related transaction fees, including shipping charges, are always up to date in the virtual carts (Close et al., 2012). Moreover, managers need to understand the importance of making a simple and easy process for customers to add products they wish to buy to their carts since the speed and ease of the checkout procedure also has a significant impact on purchases (Bell et al., 2020). More specifically, the provision of a greater convenience during the checkout process is needed. To increase the likelihood of a client making a successful purchase, the checkout and payment processes should be easy and straightforward (e.g., the provision of one-click purchasing for returning customers) (Close et al., 2012). However, while some websites do not require a registration to complete a purchase, many eCommerce

websites require and prefer that new visitors register and build profiles. In this case, where there are costs to the user in terms of time or effort, online businesses can offer rewards or incentives such as free shipping or a discount coupon (Bell et al., 2020). Nevertheless, Rajamma et al (2009), suggest that online businesses should be more considerate of their customers' wishes by requesting only the information necessary for completing an order, giving customers the option to keep often requested information on secure servers. This will allow users to pick up where they left off even in the event of technical difficulties. Moreover, visitors should have the option to enter information in formats that they are used to. Another important issue is detailed information. The page where a buyer begins their activities to complete their purchase should have clear, comprehensive information about security and privacy policies. Marketers should also keep in mind the perceived waiting time. When purchasing online, the perception of long waiting times is primarily caused by page uploading delays brought on by visuals, excessive amounts of texts, or the quantity of information requested during the checkout process. Thus, it is suggested to use the fewest visuals and text possible while developing a website, especially in the checkout pages.

As mentioned before, one drive of cart abandonment is procrastination. In this case, e-tailers can employ clickstream data analysis to find online procrastinators (Negra & Mzoughi, 2012). The word "clickstream" is used to refer to a visitor's path through one or more websites. Raw page requests and the information they are associated with (e.g., date, URL status, IP address, etc.) which are stored in Web server log files can be used to create clickstream data (Lee et al., 2001). These statistics can include pages viewed, user's demographics, bounce rate, purchased products etc. Thus, clickstream analysis reveals how users explore and use a website. These types of data give the opportunity to online companies to see how customers order online or in general how they react to any marketing effort (Wilson, 2010). More specifically, with this type of knowledge, online businesses can benefit and gain a competitive advantage and even discover the causes of cart abandonment. In the case of cart abandonment, companies can focus on how effective the design, the content or the efficiency of the website is (Phippen et al., 2004). For instance, if many users exit the website from the same page, it could signal that the particular page faces troubles such as broken links (Wilson, 2010). Moreover, these electronic records make it possible to understand whether the visitor is a buyer or an e-procrastinator. The next step is to provide in-depth and understandable information

about products or services. To target online procrastinators, online businesses should build, launch, and modify targeted web campaigns. For instance, sending out email campaigns about offers is likely to encourage e-procrastinators to make immediate purchases (Negra & Mzoughi, 2012). Marketers, with the help of clickstream analysis, can personalize a visitor's experience on a website by adding or removing web-page stimuli designed to stimulate progression through the purchase process according to the type of the visitor. For instance, price information serves as a trigger to browse-oriented visitors to browse other product pages rather than putting products to their shopping carts. However, price information enables shopping-oriented visitors to take deliberate choices and add products to their shopping carts (Chatterjee & Li, 2005).

To reduce consumers' security fears and threats, since it can be a cause of the cart abandonment phenomenon (Rajamma et al., 2009), new credit systems need to be implemented, especially for expensive things. A buyer's anxiety may be minimized by not having to provide credit card information directly to a merchant. Another factor that is important to consumers and can reduce privacy or security fears is brand trust. Online companies can increase a brand's awareness through marketing exposure, such as advertising or word-of-mouth initiatives. Furthermore, customer support should be kept in mind by e-businesses since it is a component to maintain customer satisfaction. For instance, by offering a quick order confirmation and an overall strong communication throughout the whole delivery process can increase customer satisfaction. Moreover, since search costs are a significant determinant of repurchase intention, it would be beneficial for companies to make product and information searching simple and effective. Furthermore, having an online community and feedback system can help with the reduction of the likeliness of cart abandonment as both are crucial for creating brand loyalty (Bell et al., 2020).

Kim et al (2018), suggest that the type of the regulatory focus of each consumer (i.e., prevention focused, or promotion focused) can have an impact on how consumers use the online shopping cart. Promotion focused people have a strong desire for success, growth and accomplishment and are more likely to take risks. On the other hand, prevention focused people are risk averse and try to weigh as many possibilities as possible in order to assure safety. Thus, according to the authors, tailored messages according to whether the customers are prevention focused or promotion focused need to be send. By tracking customers' past purchases or conducting surveys to determine



their regulatory focus, online businesses can offer different types of messages. For instance, a way to encourage the purchasing decision to prevention focused consumers is to provide consumer reviews or suggest alternative items within the online shopping cart. Also, a solution would be delivering to prevention focused consumers framing messages such as how their purchase is tied to their security, responsibility etc., while to promotion focused consumers it is suggested to deliver framing messages about achievement, passion etc.

Last but not least, since the rate of cart abandonment is higher in mobiles, a recent study gives some solutions to mobile cart abandonment. First, the authors suggest that the shopping cart should only contain relevant elements due to the small screen size of mobile devices. Moreover, the authors suggest showing the most preferable products first, based on consumers' unique preferences, current location or buying patterns, as switching pages on small screens can be irritating when comparing items (Huang et al., 2018).

## **6. Limitations and future work**

This study has some limitations. To begin with, the study sample was small due to time limitations. A bigger sample would reveal a wider and more accurate range of opinions. Moreover, the current study used a quantitative methodology that limited participants to only responding to questions using a Likert-scale. Thus, participants were unable to properly express themselves. A qualitative methodology that used open-ended questions would give a clearer picture of people's perceptions towards reminder messages. Also, this research focused on reminder messages as a whole concept rather than a specific type or medium. Nevertheless, there might be differences between the different kinds of reminder messages (e.g., push notifications vs emails, or cart abandonment vs product recommendation). This could be also a suggestion for future research. More specifically, further research could be done to different kinds of reminder messages separately or even comparing mediums or types. Moreover, certain demographic groups (e.g., ethnicity, gender) or personal factors such as a consumer's demographics or psychographics could affect an individual's perceptions towards reminder messages or towards marketing tactics. Thus, another suggestion would be to investigate the differences between different demographic groups or/and the factors responsible for the formation of these beliefs. For instance, which factors contribute to believing certain theories (e.g., manipulation or deceptive intents).

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