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FEELING TARGETED IN A DIGITAL ERA

A STUDY ABOUT THE INFLUENCE OF ONLINE BEHAVIORAL TARGETING ON CONSUMER ATTITUDES

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Abstract

Creating customized online advertising content (also known as Online Behavioral Targeting – OBT) is one of the important tenets of online marketing and customer persuasion today. Data on (possible) consumers is needed by advertisers to personalize and target advertisements tailored to personality components and personal behavior. However, it is unclear how consumers' attitudes are adapted when being exposed to various levels of personalization and data source creepiness within OBT practices. As such, this research aims to address the effects that personalization and data source creepiness have on consumer attitudes towards the advertisement and towards the advertised brand. This study perceives privacy concerns as a possible moderator and intrusiveness and perceived vulnerability as possible mediators.

This research implements a 2 (low personalization vs. high personalization) x 2 (low data source creepiness vs. high data source creepiness) factorial design tested between subjects (n = 276). The results for this study were gathered by means of an online experimental survey, which implemented manipulation materials with various levels of personalization and data source creepiness. The outcomes of the data analysis showed that personalization had a positive effect on both the attitude towards advertisement and attitude towards the advertised brand, which contradicted findings from previous studies stating that high levels of personalization generally generate negative consumer attitudes. Furthermore, the study did not find an effect of data source creepiness on the consumer attitudes. The interaction effect between personalization and data source creepiness, did have a significant effect on the attitude towards the advertised brand. The study also found that perceived intrusiveness had a mediating effect within the research model, while perceived vulnerability did not. Lastly, no moderating effects were found for privacy concern within the research model. Further extensive research into the field of OBT related to consumer attitudes is advised, in order to understand important influences like personal characteristics and how the privacy paradox might have an impact on consumer attitudes through OBT advertising.

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1. Introduction

In today's day and age, advertisers can create more and more customized content in order to persuade consumers. Nearly every individual who spends a part of their life online has encountered this content; when you look or search for a product online once, you get bombarded with advertisements of that product afterwards. For advertisers to engage in this process, data from the (possible) customers is needed. This also means that a lot of online data on potential consumers is being collected in the online realm every second. The collection of consumer data has become more accessible and precise for companies across the globe. This is due to the massive increase of data creation in the past two years. As in 2018 and 2019 alone, no less than 90% of the worlds available data has been created (Bulao, 2020). The pace at which great amounts of data are created will not slow down. In 2020, on average, 2.5 quintillion bytes of data is being generated every day, and this number is aimed to increase to 463 exabytes by 2025 (Bulao, 2020).

When the created consumer data is being collected on a grand scale, this online data can be widely used by advertisers to personalize and target advertisements based on personality components and personal behavior. This creates the recognizable situation like stated before. This process is called Online Behavioral Targeting (OBT) (Boerman, Kruikemeier & Borgesius, 2017). A vast amount of individuals encounters OBT advertisements every day, whether it be through websites, email or social media channels. The quantity of these encounters will only continue to grow, as research has shown that online advertising revenues keep growing annually, with OBT being part of this growth trend. This is due to the claim that OBT creates efficient, precise and relevant ads that further boost advertising effects on an individual level (Chen & Stallaert, 2014). Some scholars even go as far as stating that conversion rates of properly segmented OBT advertisements are more than twice as high compared to non-targeted advertisements (Beales, 2010).

However, the need of collecting, using and sharing personal data for these practices, creates and raises privacy concerns amongst consumers (Boerman, Kruikemeier & Borgesius, 2017). These concerns can cause a lack of trust for companies that implement OBT advertisements. This is the case, as the usage of personal data for advertising could create negative attitudes within potential customers (Bleier & Eisenbeiss, 2015). The potential lack of trust within customers towards (over)personalized advertisements mainly comes from a concept called 'data source creepiness' (Boerman, Kruikemeier & Borgesius, 2017). Creepiness within marketing arises when a consumer feels like their personal space is breached and privacy is invaded and when marketing shows signs of stalking behavior or when it violates social norms (Moore et al. 2015). Consequently, levels of data source creepiness often relate to how and from which medium the personal data is collected. A provocative example of privacy invasion through data source creepiness, is the Facebook and Cambridge Analytica scandal. In this scandal, the data from vast amounts of Facebook users was collected without consent, and used by Cambridge Analytica for political advertising, creating the belief that Facebook exposed their users and their data to severe harm (Confessore, 2018). Showing that data collection implemented without consent, creates feelings of privacy violation within consumers.

In research, there is a strong focus on data collected from internet browsing, online shopping behavior and demographic characteristics (Boerman, Kruikemeier & Borgesius, 2017). These types of data collection are often perceived as 'less creepy'. However, current research does show the need for research in the realms of the more 'creepy' data sources, like data from messaging apps and microphones that pick up conversations. Aguirre et al. (2015) already focused on messaging apps within their research. As these apps are gaining more popularity over the years, and thus, also gaining more use as opposed to more open social media platforms (Connelly & Osborne, 2017). A company that already collects data from their Messenger app is Facebook. Facebook has shown to use that data for personalized advertisements (Mehta, 2019).

Academic literature has not given a clear indication how these 'creepy' types of data collections affect consumer reactions and opinions towards advertisements based on such 'creepy' data. Generally, these advertisements are seen as creepier themselves, because of the derived data from sources like the popular instant messaging apps. This is due to sourcing data from a private form of communication being seen as an intrusion of privacy and personal space (Moore, Moore, Shanahan, Horky, & Mack, 2015). However, it is unclear how this works together with the level as to which an OBT advertisement is being personalized. As high personalization is the factor that initiates the efficiency and relevancy of targeted advertisements, which then leads to higher advertising effectiveness. Research thus far gives no clear indication as to how different data sources of OBT interact with differing levels of personalization in OBT advertisements, and specifically how these constructs influence consumer attitudes both on their own and together.

Because of the lack of empirical findings in academic literature on how consumers react to personalized advertisements using more or less data gathered from 'creepy' sources, the novelty of this study lies in generating empirical findings on how 'data source creepiness' and personalized OBT advertisements influence consumer attitudes. Which consequently, will start to fill the gap within scientific knowledge in relation towards the OBT topic.

Following the research proposition, the main research question which is relevant for the study is as follows:

'To what extent does data source creepiness and personalization in online behavioral targeting influence consumer attitudes?'

Consequently, the following sub-questions can be subtracted:

'To what extent does personalization in online behavioral targeting influence consumer attitudes?'
'To what extent does data source creepiness in online behavioral targeting influence consumer attitudes?'
'To what extent does the interaction between data source creepiness and personalization in online behavioral targeting influence consumer attitudes?'

The answers to these research questions are aimed to be found within this study, by means of creating suitable methodology, implement a fitting measurement instrument, analyzing the results and discussing these adequately.

2.Theoretical Framework

The aim of this theoretical framework is to understand the constructs that are crucial to this research, while also understanding the relations between these constructs. From this understanding, hypotheses will be created which will then form a conceptual research model.

In this theoretical section, OBT is aimed to be defined while the constructs of consumer attitudes, personalization, data source creepiness and privacy concerns will be discussed using pre-existing academic literature.

2.1. Defining Online Behavioral Targeting

Within academic literature, online behavioral targeting has been known through many terms, such as: micro-marketing, micro-segmentation, one-to-one marketing, behavioral advertising and online profiling. In line with the many terms describing the OBT construct, many definitions are adopted within academic literature as well. Leon et al., (2012) describe OBT as "the practice of tracking an individual's online activities in order to deliver advertising tailored to the individual's interests" (p. 589), while Smit, Van Noort and Voorveld (2014) define it as "adjusting advertisements to previous online surfing behavior" (p. 15). Other examples of definitions are: "the practice of collecting data about an individual's online activities for use in selecting which advertisement to display" (McDonald & Cranor, 2010, p.2) and "a technology-driven advertising personalization method that enables advertisers to deliver highly relevant ad messages to individuals" (Ham and Nelson 2016, p. 690). These definitions all feature the importance of the monitoring of online behavior within OBT, while also taking into account the application of this tracked online behavior through relevantly targeted advertisements. Due to this finding of these important features within OBT definitions, the way that Boerman, Kruikemeier and Borgesius (2017) have defined online behavioral targeting as "the practice of monitoring people's online behavior and using the collected information to show people individually targeted advertisements" (p.364), seems most comprehensive.

As institutions and companies track individuals' online behavior, they are able to gather the data of (potential) consumers. This online behavior often relates to browsing behavior, app usage, product purchases, clicks, search actions, use of media and other online communication (Boerman et al., 2017). In order to be able to do this, firms often use tracking cookies within these online communication mediums, as cookies enable companies to collect personal information on great amounts of individuals (Hoofnagle & Good, 2012). However, in recent news, there also have been reports of personalized advertisements being fueled by data from direct messaging apps and microphones that pick up on conversations (Aguirre et al., 2015). Within the practice of OBT, this collected data is used to create online advertisements with high personal relevance. This means that individuals' online behavior and involved characteristics are present in targeted advertisements (Bleier & Eisenbeiss 2015). These targeted advertisements can appear in various places online, for example: they can appear as display advertisements. These are often visual advertisements placed in designated areas of social media platforms, apps or even third-party websites. In other cases, brands might bring OBT into their own marketing platforms, for example through email marketing (Chadwick, 2008).

Whatever their form, targeted advertisements have been shown to be more effective, more value enhancing, more satisfying and more profitable than generic online advertisements, which are not personalized (Beales, 2010; Tucker, 2013). Research even indicates that conversion rates for OBT advertisements are more than doubled when comparing them to generic advertisements (Beales, 2010). However, the use of OBT does not only create positive effects. Academic literature indicates large amounts of negative consumer sentiment encircling the practice of OBT (Bleier & Eisenbeiss, 2015; Turow, King, Hoofnagle, Bleakley & Hennessy, 2009). This negative sentiment can create psychological reactance in the individuals that are aware that they are being personally targeted within

advertisements (Aguirre et al.,: Bleier & Eisenbeiss, 2015). Because of this, consumers can feel the need to regain freedom and autonomy, often by acting in a way that is opposite to the behavioral desires of the advertiser (Brehm, 1981). Meaning that click through rates and purchases are less likely to be generated through individuals that encounter that negative psychological reactance towards OBT advertisements purchases (Bleier & Eisenbeiss, 2015). Some consumers even state that they stop buying from brands that perform OBT inadequately (Bleier & Eisenbeiss, 2015).

This shows that overall, a paradox appears when discussing and trying to implement OBT practices, as research shows that it can either be an effective marketing strategy, or consumers can act counteractively when exposed to the practice. This relates back to the fact that OBT can create both positive and negative experiences for the consumers encountering these personalized advertisements based on consumer data.

2.2. Consumer Attitudes

Behavioral intentions, like intending to purchase a product, have been shown to be strongly determined by the attitudes that consumers have towards certain constructs (Azjen & Fishbein, 1975). Attitudes have been defined by scholars for a great deal of time, with Allport (1935) defining them as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p. 810). While years later, Eagly and Chaiken (1993) defined attitudes as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (1993, p. 1). Crano and Prislin (2006) created a simpler definition: "attitudes are the evaluative judgments that integrate and summarize cognitive/affective reactions" (p. 347). Overall, many definitions in literature state the importance of both positive and negative attitudes, while taking evaluation and judgement into account.

Consumer attitudes have shown to be curial when doing research surrounding the advertising of products or services. This also means that in many studies surrounding OBT, consumer attitudes are taken into account in various ways, either being dependent variables, mediators or moderators. Like mentioned previously, OBT advertising can provoke both positive and negative encounters with consumers. Which in and of itself, creates both positive and negative attitudes within these individuals (Ur et al., 2012). Research shows a great focus on the skepticism that is often felt by consumers towards OBA, individuals often appear to feel that OBT can be invasive and creepy. OBT can also make consumers feel more vulnerable (Smit, Van Noort & Voorveld, 2014).

Two crucial aspects of consumer attitudes within advertising studies has been shown to be consumer attitudes towards an advertisement itself, and the attitude that consumers form towards the advertising brand after seeing an ad. This is due to the fact that 'attitude towards the advertisement' and 'attitude towards the brand' are two main indicators for advertising efficiency and effectiveness (Ting & Run, 2015). This is the case as a consumer's stance towards an ad and the corresponding brand influences their behavioral intentions and actual behavior (Ling, Piew & Chai, 2010). Hence why this can be explained through the theory of planned behavior (Azjen, 1985), which shows a consumer's intended behavior is determined by that consumer's attitude towards a particular matter, as these attitudes have strong predicative factors for behavior. When discussing OBT advertising, this means that when an individual's attitude towards an advertisement as a whole is positive, the individual is more likely to have behavioral intentions which are desirable to the advertiser, such purchase intentions (Azjen, 1991; Boerman et al., 2017). Overall, attitude towards the advertisement and attitude towards the brand are seen as crucial when trying to indicate an advertisements effectiveness and efficiency. When a consumer has a negative attitude towards an advertisement and the corresponding brand, the advertisement will most likely lose its effectiveness and efficiency. Which will mean that the advertisement is less likely to reach its goal (Ting & Run, 2015). However,

when an advertisement as a whole succeeds in being pleasant, amiable, compelling, credible and good to a certain degree, it can be assumed that a consumer's attitude towards that advertisement will be positive (Nan, 2006). Which consequently, will lead to a more effective and efficient advertising effort.

2.3. Personalization

All OBT efforts are done to reach a specific goal; to create personalized advertisements that fit the characteristics and behavior of consumers. Overall, personalization within OBT is used by companies to give the most suitable advertisement at the most suitable time to their consumers (Tam & Ho, 2006). Bol et al. (2018) define personalization as "the strategic creation, modification, and adaptation of content and distribution to optimize the fit with personal characteristics, interests, preferences, communication styles, and behaviors" (p. 373). A great asset for employing personalization within advertising is that the advertisements appear more relevant to the consumer, while also being adapted to them specifically. This creates an effect that consumers will pay more attention to personalized ads, which will consequently boost the performance of the advertisement (Bang & Wojdynski, 2016).

Overall, research shows that there are different personalization levels within OBT advertisements, which is mostly due to advertisers not wanting to use all collected data for just one ad. Furthermore, the level of personalization is determined by the kind of data and the quantity of data used in order to create an advertisement (Boerman et al., 2017). Meaning that a very personalized advertisement uses more amounts of personal data, all while this data is often also more consumer-specific. This way of personalizing advertisements can be divided into two dimensions, namely depth and breadth (Bleier & Eisenbeiss, 2015). Depth can be explained as the magnitude to which an ad shows the interest of its consumer, while breadth is the extent to which an ad mirrors those interests (Bleier & Eisenbeiss, 2015).

Next to interests, there are other types of information used to create personalized advertisements, like search history (Van Doorn & Hoekstra, 2013), online shopping behavior (Bleier & Eisenbeiss, 2015) and more character related information like education level (Tucker, 2014), age, gender and location (Aguirre et al., 2015). Researchers have created differing levels of personalization using the combination of different types of information-based data. These researchers also state that the level of how personalized an ad is, has an effect on consumer attitudes, such as negative attitudes related to feelings of intrusiveness and feelings of vulnerability (Aguirre et al., 2015). This thus shows the possibility of personalization creating negative consumer responses. These can be explained through the theory of psychological ownership. This theory states that individuals can get the understanding that they feel a sense of ownership over external objects (Pierce, Kostova, & Dirks, 2001). Personalized advertisements can create the idea for consumers that they personally have lost ownership and control over an important external object, namely their information carrying data (Edwards, Li, & Lee, 2002). This could lead to negative attitudes coming from consumers, which will consequently influence the effectiveness of OBT advertising (Van Noort et al., 2013).

Within research, personalization within OBT practices, appears to have mixed influences. On one hand, it is able to create relevancy for the consumer and boost advertisement performance, while on the other hand it is able to create negative attitudes, related to perceived vulnerability and perceived intrusiveness when levels of personalization are high (Aguirre et al., 2015). Research shows that these feelings of vulnerability and intrusiveness mediate the effects of online behavioral targeting on both OBT effectiveness and crucial consumer attitudes (Aguirre et al., 2015). Meaning that in the framework of this study; a less personalized OBT advertisement may lead to more positive consumer attitudes than a highly personalized OBT advertisement would, which is due to feelings of intrusiveness and vulnerability.

This understanding leads to the following hypotheses:

H1a: Consumers' attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is less personalized than when they are confronted with a highly personalized online behavioral advertisement.

H1b: The effect of level of personalization on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.

2.4. Data Source Creepiness

'Data source creepiness' is not a term that is widely used within academic literature, however, it describes an element within the practice of 'creepy marketing'. According to Moore et al. (2015), marketing can become creepy when a consumer's personal space is invaded by means of not complying with privacy boundaries. This could create signs of violation of social norms and stalking behavior, which cause discomfort and anxiety for the consumer. Understanding this is important within academia, as when consumers have negative feelings, in terms of creepiness, towards a marketing effort, the effect of the effort will become a negative one (Moore et al., 2015).

This understanding can be applied within the field of OBT as well. In order to create OBT advertisements, consumer data is ought to be collected through certain sources (Van Doorn & Hoekstra, 2013). Examples of these sources could be internet browsers, web shops, third party websites and messaging apps. As mentioned previously, the levels of how creepy a data source is perceived as, often differs from medium to medium, and are not equally represented within research. For example, most studies within the field of OBT show a strong focus on the 'less creepy' data sources, like internet browsing, online shopping and demographic characteristics (Boerman, Kruikemeier & Borgesius, 2017). However, creepier data sources like messaging apps, emails and microphones that pick up on conversations are less represented.

The main reason as to why people perceive different data sources as more or less creepy can be explained through the social presence theory. People generate negative attitudes and privacy concerns when they feel like other people are present when they are communicating (Phelan, Lampe & Resnick, 2016). In practice this would mean that when a creepy data source is being used to generate an OBT advertisement, consumers could feel like someone is watching or stalking them. Research shows that this social presence is more prominent in sources like messaging apps, as it is considered more private than web browsing (Van Doorn & Hoekstra, 2013).

As these sources of communication and data are considered more private, research presents questions regarding ethics. Data collection from 'creepy' data sources are often seen as privacy invading, hence why there is a feeling of social presence. This could induce fear and discomfort amongst consumers of OBT advertisements. The serious invasion of privacy is mostly due to the obtaining of the conversational data in creepy data collection, as consumers do not openly share that information, but see it as more confidential. Furthermore, they also do not opt-in for companies being able to use their data (Moore et al., 2015). As these consumers do not openly share data or give consent for the use of that data, they could feel threatened and anxious with being exposed to OBT (Moore et al., 2015).

When consumers are exposed to advertisements based on these creepy data sources, they are more likely to experience high levels of perceived vulnerability and intrusiveness, especially when compared to advertisements that are based on less creepy data sources. Thus meaning that a less creepy data source based advertisement will generate more positive consumer attitudes. Furthermore, when combining the effects of data source creepiness and personalization within OBT advertisements,

personalization within advertisements using data from 'creepy sources', could be seen as too specific to an individual as well, which could lead to negative effects of advertising. However, when a brand is able to create very personally applicable and accurate advertising using a less creepy data source, the feelings of vulnerability and intrusiveness could subside and the benefits from the advertisement could be more present within the attitudes of the consumer.
These insights lead to the following hypotheses:

H2a: Consumers' attitudes towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is based on a less creepy data source than when they are confronted with an online behavioral advertisement that is based on a highly creepy data source.

H2b: The effect of data source creepiness on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.

H3a: Consumers' attitudes towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is highly personalized in combination with a less creepy data source.

H3b: The interaction effect of level of personalization and data source creepiness on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.

2.5. Privacy concerns as a moderator variable

Over time, consumers have become wearier towards OBT advertising practices, especially due to the privacy concerns that these consumers have formed (McDonald & Cranor, 2010). Research even shows findings of individuals adapting their online behaviors when they are aware of the fact that their personal data is being accumulated, thus showing the consumers' awareness of their compromised privacy (McDonald and Cranor 2010). Showing how pressing privacy concerns are within the field of OBT.

Privacy risk in OBT-settings is often calculated by consumers by weighing the benefits to the risks of the practice, this phenomenon has been called 'privacy calculus' by scholars (Schumann, von Wangenheim, & Groene, 2014). Privacy calculus has been shown to be rooted in the acquisition-transaction utility theory and the social exchange theory, as these theories are able to explain the phenomenon within research (Baek & Morimoto, 2012; Schumann, von Wangenheim & Groene, 2014). The acquisition-transaction utility theory suggests that the likeliness of consumers buying a product from advertisements depends strongly on how the consumers perceive the benefits of doing so as opposed to the perceived losses. As this theory is mainly used to further capture ethical issues within marketing practices, it also suggests that consumers should only accept OBT advertising if the benefits of it outweigh its risks (Baek & Morimoto, 2012). The Social exchange theory also explains that consumers evaluate social exchanges based on how they perceive their rewards and costs. People should alter personal behavior according to these attitudes, as they again, should only accept OBT only if the benefits outweigh the costs (Baek & Morimoto, 2012).

The information boundary theory formulated by Sutanto et al., (2013) gives further insight into how individuals try to weigh the benefits and the risks of OBT advertising against each other. The information boundary suggests that consumers find the accumulative practice of gathering personal information very intrusive. This leads to consumers perceiving it as such a high risk which does not

outweigh the benefits that OBT advertising offers, specifically when these consumers also perceive the usage of the personal information as a boundary being crossed (Boerman et al., 2017).
This theory thus further shows that when data source creepiness and personalization within OBT are implemented in an insufficient way, consumers could perceive OBT advertising as an invasion of personal space and privacy which outweigh the benefits that the advertising practice could also hold (Moore et al., 2015). Thus, it is crucial to understand that consumers can already hold privacy concerns before being exposed to an advertisement, as this might influence how personalization and data source creepiness within OBT practices are perceived by consumers. As an example: a consumer who already has serious privacy concerns will most likely feel more negatively about a privacy breaching advertising practice, as the benefit that the advertisement might bring does not outweigh the perceived privacy risks for them. This shows that consumers' personal privacy concerns should be taken into account as a moderator within this study, which leads to the following hypotheses:

H4a: The effect of level of personalization on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be stronger if respondents have higher privacy concerns.

H4b: The effect of data source creepiness on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be stronger if respondents have higher privacy concerns.

2.6. Conceptual model: Online Behavioral Targeting Attitude Model
The hypotheses established in chapters 1.1 through 1.5 result in the conceptual research model as visualized in Figure 1 below.

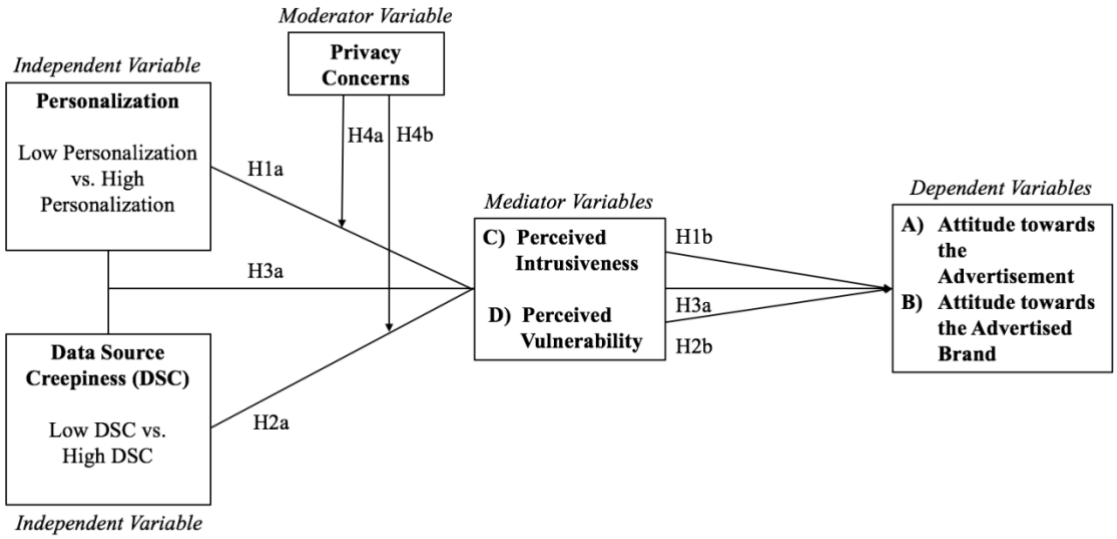

Figure 1. Online Behavioral Targeting Attitude Model

Table 1

Overview of the tested hypotheses

No	Hypothesis
H1a	Consumers' attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is less personalized than when they are confronted with a highly personalized online behavioral advertisement.
H1b	The effect of level of personalization on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.
H2a	Consumers' attitudes towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is based on a less creepy data source than when they are confronted with an online behavioral advertisement that is based on a highly creepy data source.
H2b	The effect of data source creepiness on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.
H3a	Consumers' attitudes towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is highly personalized in combination with a less creepy data source.
H3b	The interaction effect of level of personalization and data source creepiness on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.
H4a	The effect of level of personalization on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be stronger if respondents have higher privacy concerns.
H4b	The effect of data source creepiness on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be stronger if respondents have higher privacy concerns.

3. Methodology

3.1. Research Design

To facilitate the testing of the conceptual model in figure 1 and the related hypotheses, an appropriate research design should be implemented. This will be done in an online experimental environment in which participants will be exposed to various advertising stimuli, to which their responses will be recorded. This means that in the case of this study, a two (*Level of Personalization*: High vs. Low) by two (*Data Source Creepiness*: High vs. Low) between-subjects factorial experimental design based on data collection by means of an online survey is the most suitable method for this test. It is the most suitable as it offers concrete insight into how to different levels of two independent variables can influence consumer attitudes by means of an experiment, even during the COVID-19 setting. The 2x2 design was selected as the independent variables of *Level of Personalization* and *Data Source Creepiness* and their related levels (High vs. Low) should both be implemented within the study. Furthermore, the design can be perceived as a factorial one, as each of the respondents were appointed to differing levels of the independent variables of *Level of Personalization* and *Data Source Creepiness*. This meant that the participants were appointed to a form of stimulus material which was either a highly or a less personalized advertisement, which was then also integrated with either a creepier or less creepy data source. This shows that the research design is set between-subjects, as various groups respondents were exposed to differing manipulation materials, and understanding the contrasts between these groups is crucial in trying to comprehend the impact of the stimulus materials on the participants. Table 2 shows the experimental conditions that were created when the independent variables and their levels were combined, leading to four experimental conditions within this study.

Table 2
Experimental conditions

Experimental Condition	Personalization	Data Source Creepiness
1	High	High
2	High	Low
3	Low	High
4	Low	Low

3.2. Stimulus Material

The stimulus materials in this study were based around commercialized display advertisements that appear on social media platforms (see table 3). These advertisements were created in the fashion of a fictional furniture brand called ‘Casadorna Furnitures’, which represented a mid-range furniture company in terms of pricing. The use of a fictional brand was opted for within this study, as an existing brand might cause bias in the research model due to pre-existing attitudes. Furthermore, furniture was chosen as the object of advertising as it is relatively neutral in terms of preference by genders, age and other demographics.

The ‘Casadorna Furnitures’ advertisements were combined with a scenario, which stated that the participant was looking for a new sofa to replace the old one in their home. However, before purchasing a new sofa, the scenario pointed out that the participant should do some personal research when looking for a sofa first. The participants would be randomly assigned to one of two formulations of this scenario in which the independent variable of data source creepiness was manipulated, one containing a creepier data source, and one containing a less creepy data source (Appendix A).

In the creepier data source formulation, the scenario stated that participant remembered that one of their acquaintances just purchased a nice sofa, and thus, the participant went on and asked that acquaintance about their sofa through Whatsapp. This person then told the participant that the sofa

was purchased from ‘Casadorna Furnitures’. A WhatsApp conversation was chosen as the creepier data source, as previous research has shown that data sources from a WhatsApp conversation is perceived as the most relevant creepy data source, when compared to other sources of data (Scholten, 2019).

The less creepy data source scenario, also stated that the participant was looking for a new sofa and wanted to do some personal research before purchasing one. However, in this case the participant already has knowledge of the existence of ‘Casadorna Furnitures’ and went on to look at sofas on the brand’s own webshop, but did not purchase one yet. Looking at products in a webshop was chosen as the less creepy data source, as research mentions it as one of the less creepy perceived data source, with the other one being ‘advertisements that have been clicked in the past’ (Scholten, 2019). However, ‘advertisements that have been clicked in the past’ was not chosen as the less creepy data source, as this might create some possible confusion amongst the participants when exposed to the stimulus advertisement.

After receiving one of two scenarios, the participants were exposed to ‘Casadorna Furnitures’ advertisements on a social media platform. These advertisements contain the manipulation for the independent variable of level of personalization. The first option being the low personalization advertisement, which advertises a bedroom dresser of ‘Casadorna Furnitures’. This can be perceived as a low personalization behavioral targeting advertisement, as it does not focus on the full personal need of the participant/consumer of needing a sofa from ‘Casadorna Furnitures’, but solely focusses on the adaption of the brand within the advertisement. The second possible option is the high personalization advertisement, which features a sofa from ‘Casadorna Furnitures’. This is a high personalization behavioral targeting advertisement as it fulfills the entire personal need of the participant/consumer of the need of a sofa from the fictional brand. Both advertisements (see Table 3), where visually designed in a similar manner to avoid bias based on design. The advertisements contain a picture of the relevant furniture, the ‘Casadorna Furnitures’ logo and a suitable slogan.

Table 3
Stimulus material

	Advertisement
Low Personalization	
High Personalization	

3.2.1. Pre-test

To inspect the accuracy and effectiveness of the two scenarios and the two advertisements that were created as stimulus materials, a pretest was carried out. The study implemented a between-subjects experiment containing a 2x2 design. A convenience sampling strategy was used to gather 27 Dutch respondents for the pre-test, of which of 48.1% were female (N = 13), 48.1% were male (N = 13) and 3.8% would rather not mention their gender (N = 1). The age of the respondents ranged from 18 to 66 with a mean age of 38.52 (SD = 14.72).

In the questionnaire-based experiment, respondents were exposed to one scenario which could vary in levels of data source creepiness and was generated randomly. After being exposed to a scenario, an explanation of the nature of data sources was given. Then, the respondent had to answer a question related to the data source being used in the stimulus situation. This was done in order to see if the respondents the nature of the scenario was clear and understandable. Which was the case for the for the 12 participants who were exposed to the high data source creepiness scenario based around a WhatsApp conversation, as 100% of exposed participants recognized the data source as a WhatAapp conversation (N = 12). The low data source creepiness scenario based around visiting a webshop appeared to be less clear. This is the case as for the 15 individuals being exposed to this scenario 73.3% (N = 11) identified the right data source, while 26.6% (N = 4) identified search behavior in Google as the data source. Thus, for the main study, the intended data source was specified more in this scenario.

Following this, the participants were asked to indicate the level of discomfort that they would experience towards the used data source in the scenario, while comparing to other data sources as well. This was done in order to make sure that the levels of data source creepiness in the scenarios were correctly manipulated by implementing the most suitable data sources. For this, the 12 item scale developed by Scholten (2019), was applied using a 7-point Likert scale. Table 4 shows the mean scores of levels of perceived creepiness for the data sources. From this it can be understood that the data source with the highest level of data source creepiness was related to WhatsApp conversations (M = 6.59, SD = .75), while the lowest level of data source creepiness was related to Products that have been looked at in a webshop in the past (M = 2.19, SD = 1.44). This plays in well with the used data sources for the scenarios.

Then, to be able to test the differing levels of personalization for the created advertisements, the participants were exposed to one of two advertisements which could vary in levels of personalization which was generated randomly. After being exposed to the advertisements, the participants were asked to fill in the ‘perceived level of personalization’ scale by Dijkstra (2005) (Appendix B), on a 7-point Likert scale, which were analyzed using an independent t-test. This analysis was done to give insight into the strength of the advertisements as stimulus materials, as they should represent the low and high personalization well. This was the case for both the low personalization advertisement containing the dresser (M = 2.89, SD = 1.11, p < .05), and the high personalization advertisement containing the sofa (M = 6.37, SD = 1.01, p < .05). Both results were significant and lean far enough away from the center of the Likert scale. Thus the advertisements were able to be implemented directly into the main study.

Lastly, the participants were asked to fill in the adapted trust towards Facebook, Instagram and Youtube scales by Walsh et al. (2009) (Appendix B) on a 7-point Likert scale. This was done to be able to create a relatively unbiased setting for the advertisement in the main study, as Aguirre et al. (2015) state that OBT could create more negative effects on social media platforms with low trust. Result show a low trust in Facebook as a platform (M = 2.44, SD = .92), but trust in both Instagram (M = 3.55, SD = 1.29) and Youtube (M = 3.64, SD = 1.15) showed relatively neutral levels. For the main study, Instagram was used to display the manipulated advertisements.

Table 4

Mean scores and standard deviations of the creepiness of different data sources in the pre-test

	Creepiness	
Data Source	M	SD
1. WhatsApp conversations	6.59	.75
2. Microphone of a mobile phone that picks up conversations	6.56	.69
3. Facebook Messenger conversations	6.11	.89
4. E-mail conversations	5.93	1.14
5. Conversations with a voice assistant	5.56	1.32
6. Location data	4.67	1.52
7. Behavior on social media	4.19	1.36
8. Search behavior in Google	3.81	1.49
9. Demographic data	3.74	1.35
10. Purchase history in a webshop	3.22	1.48
11. Advertisements that have been clicked in the past	2.56	1.63
12. Products that have been looked at in a webshop in the past	2.19	1.44

3.3. Manipulation and setting checks

3.3.1. Level Data Source Creepiness

In the main study, the effectiveness of the manipulated stimulus material was examined for representing the correct levels of the relevant variables. Firstly, this was done for the scenarios, in terms of differing levels of data source creepiness. As a general scale for measuring data source creepiness which could be used for an independent-samples t-test has not been developed yet, the item scale by by Scholten (2019) was used again in the main study.

From this it can be understood that some values for various data sources switched positions in the ranking when comparing it to the pre-test (table 5). Interestingly enough, the ranking in the main study is the same as the ranking in Scholten's (2019) study. This change however, does not have a great effect on the relevance of the data sources used to represent the high and low levels of data source creepiness, as both 'WhatsApp conversations' and 'products that have been looked at in a webshop in the past' are still on complete opposite sides of the spectrum with differing means. This means that the use of these data sources is useful when trying to represent levels of data source creepiness in a manipulated scenario.

Table 5

Mean scores and standard deviations of the creepiness of different data sources in the main study

	Creepiness	
Data Source	M	SD
1. Microphone of a mobile phone that picks up conversations	6.05	1.32
2. WhatsApp conversations	6.01	1.27
3. E-mail conversations	5.82	1.33
4. Facebook Messenger conversations	5.72	1.26
5. Conversations with a voice assistant	5.53	1.22
6. Location data	5.36	1.43
7. Behavior on social media	4.92	1.52
8. Demographic data	4.75	1.56
9. Search behavior in Google	4.52	1.77
10. Purchase history in a webshop	4.19	1.85
11. Products that have been looked at in a webshop in the past	3.89	2.09
12. Advertisements that have been clicked in the past	3.88	1.98

3.3.2. Level of Personalization

The effectiveness of the created advertisements in terms of levels of personalization was tested. For this the 'perceived level of personalization' scale by Dijkstra (2005) was implemented into the main study on a seven-point Likert scale. Again, in this case, the participants were exposed to the advertisements which meant to have either a low or high level of personalization, after which they were asked to fill in the questions related to their perceived levels of personalization. Using this data, an independent-samples t-test was conducted. In line with the expectations, there was a significant difference in the group exposed to the low personalization advertisement (M = 3.67, SD = 1.60) and the group exposed to the highly personalized advertisement (M = 6.50, SD = 1.23), $t(274) = 10.64$, $p < .001$. This meant that the participants were successful in identifying the different levels of personalization amongst the advertisements.

3.3.3. Privacy Concern as a Moderator

In order to be able to measure privacy concern within this research, a scale developed by Sheng, Nah and Siau (2008), was implemented on a seven-point Likert scale. To be able to accurately evaluate privacy concern during later analysis, a median split was conducted. From this, two groups were developed based on privacy concerns, with one group scoring relatively low and one relatively high on privacy concerns. In order to compare the created groups, an independent t-test was conducted. Based on this t-test it was made clear that there was a significant difference between the low (M = 4.09, SD = 1) and high groups (M = 6.13, SD = .46), $t(274) = 21.58$, $p < .001$. within the privacy concern variable. What was noted overall, was that the sample of participants had high privacy concerns when relating to the 7-point Likert scale that was used when measuring privacy concerns.

3.3.4. Trust towards Instagram

Lastly, the chosen setting of the advertisement was checked to see if it was neutral enough for it to not have a great impact on the attitudes of the participants towards the advertisements. As mentioned earlier, based on trust, Instagram had proven itself the most neutral social media platform, and thus was chosen as the setting. Trust towards Instagram was measured again during the main study by using the scale by Walsh et al. (2009) on a seven-point Likert scale Again, Instagram proved itself to be neutral on the trust scale (M = 3.22, SD = 1.18).

3.4. Participants

The sample of the main study was made up of 322 Dutch individuals who feel competent in the use of social media and webshops. Of the 322 participants, 34 participants did not proceed adequately with filling in the survey, thus creating a lack of crucial information in their survey sessions. Henceforth, these 34 participants were removed from the main sample before further analysis. Furthermore, 12 participants appeared to not have spent a sufficient amount of time on reading the manipulated scenarios, thus offering unreliable answers to the questions in the survey. Hence why these 12 participants were also removed. The remaining sample of 276 participants was split across the four experimental conditions in this research (table 6).

Table 6

Distribution across experimental conditions

Experimental Condition	n	Percentage (%)
1	64	23.2
2	72	26.1
3	70	25.4
4	70	25.4
Total	276	100.0

When analyzing the research sample (table 7), it could be noticed that the majority of participants were of the female gender (67%), with the minority of participants being of the male gender (31%). Five individuals did not feel comfortable with mentioning a gender (2%).

When looking at age within the research population, the youngest participant mentioned being 18 years of age and the oldest participant being 77 years of age. The average age showed up as $M = 34.30$ ($SD = 15.26$), the most occurring age being 22. Furthermore, the level of education within the research sample was analyzed (table 7). This analysis showed that 95 participants had obtained a HBO degree (34%), this thus being the largest group when relating to level of education. This was followed by 58 individuals with a WO Bachelor degree (21%) and 49 participants with a WO Master degree (18%). Henceforth, it can be stated that the research sample shows a majority of highly educated individuals.

Table 7

Distribution of respondents' characteristics

		n	Percentage (%)
Gender	Male	85	30.8
	Female	186	67.4
	Would rather not say	5	1.8
Level of Education	VMBO	6	2.2
	HAVO	12	4.3
	VWO	12	4.3
	MBO	44	15.9
	HBO	95	34.4
	WO Bachelor	58	21.0
	WO Master	49	17.8
	Total	276	100

Lastly, the overall split and distribution of the sample across the 4 research was examined based on gender and education level as well. For the characteristic of level of education, categories were amended to be understood more easily. The groups VMBO, HAVO and VWO were categorized as 'secondary education'. When analyzing the distributions of the 276 participants across the conditions (table 8), it could be noticed that both categories of the characteristics gender and level of education, were not equally distributed. For both level of education and gender, the computed Pearson's Chi-squares showed insignificant results ($p > .05$), which indicates statistical an unequal distribution across conditions. This should be taken into consideration when trying to make sense of the results of this study.

Table 8
Distribution of characteristics across conditions

		Conditions			
		1	2	3	4
Gender	Male	22	19	19	25
	Female	42	52	49	43
	Would rather not say		1	2	2
Level of Education	Secondary education	8	7	11	4
	MBO	10	15	11	8
	HBO	23	19	22	31
	WO Bachelor	13	17	15	13
	WO Master	10	14	11	14

3.5. Research Procedure

After the four manipulative conditions were developed, the main study method was created. For the creation of the applicable online experimental questionnaire, the web-based survey tool of *Qualtrics* was used. *Qualtrics* was used through the University of Twente. The use of an online questionnaire enables minimization of interviewer bias, which could possibly influence the data collection. Furthermore, it also minimizes costs and time, which were crucial constraints to this research. To further reduce costs and time spent on data collection, a non-probability convenience sampling method was implemented to gather participants for the study. The downside to this being an unproportioned population selection, due to the unequal representation nature, which could possibly lead to an inaccurate population representation. This should be taken into account when trying to discuss the results of the study later on, as generalization options are restricted.

The respondents were mainly approached using social media. This was done by posting the link of the questionnaire on the LinkedIn, Instagram, Facebook and WhatsApp of the researcher. Here, some snowball sampling occurred as well. This is the case as acquaintances of the researcher shared the social media posts related to the research, which lead to some of their following filling in the survey as well. Furthermore, students from the Bachelor module 'Digital Marketing for Networked Business' of 2020 from the study International Business Administration at the University of Twente were recruited using *Canvas* announcements. Lastly, the University of Twente's *Sona System* was used to recruit students from the BMS faculty to fill in the questionnaire, for which they were rewarded with 0.25 *Sona Credits*. The requirements for all individuals participating in the study were being 18 years of age or older, and being competent in the use of social media and webshops.

Once the participants followed the link of the study on their personal device, they were asked to carefully read a consent form which mentioned the anonymous and voluntary nature of the research. It also mentions that the participants are free to withdraw from the research at any time without

consequence (Appendix C). After giving consent, the participants were asked to answer the first question which related to privacy related concerns. After this, the participants were exposed to one randomly selected scenario. The participants were notified that they would need to answer questions related to the scenario, to make sure that the respondents read the scenarios well. After reading a scenario, the participants were exposed to one of the two created advertisements, which again, were generated randomly. Then, the participants were asked to respond to a manipulation check question related to the advertisement's level of personalization. After this, the participants were directed to the main questions of the survey, namely questions based on perceived vulnerability, perceived intrusiveness, attitude towards the advertisement and attitude towards the brand. Following this other manipulation checks for the scenario were given, which related to data source creepiness and trust towards Instagram. Lastly, the participants were asked about their demographics, namely; gender, age and education. They were also asked to fill in their e-mail address if they wanted to participate in a lottery for a bol.com gift card worth 20 euros, which was voluntary. This was implemented to encourage people to fill in the questionnaire and to thank them for participating. The final page thanked the participants for their time and mentioned that the organization 'Casadorna Furnitures' which was used within the scenario and advertisement, does not exist in reality.

3.6. Measurements

The measurement instrument created for the online experimental survey was made up of items which measured the variables displayed in the research model. The items were derived from pre-existing and pre-tested measurement scales from previous studies (Appendix D). The measurement instrument aimed to test the dependent variables of attitude towards the advertisement and attitude towards the advertised brand, the mediator variables of perceived intrusiveness and perceived vulnerability and the moderator variable of privacy concern. Most of the scales related to the variables were measured on a seven-point Likert scale. Which, in this research mentioned a statement to which the participant could respond to ranging from strongly disagree (1) to strongly agree (7). Another form was used for the dependent variables, using pairs of opposing adjectives on a 7-point scale. All items from the used scales where translated from their original language, English, into Dutch in order to suit the sample of participants for this study.

3.6.1. Dependent Variables

In order to measure the variable *attitude towards the advertisement,* the scale created by Koring (2015), was adopted. This scale aims to measure individuals' feelings towards the manipulated advertisement which was used as a stimulus in this study. The scale was based around 5 pairs of opposing adjectives. For these items, respondents were asked to rate the advertisement by marking one of seven points along each pair of adjectives. An example of these adjectives being 'unpleasant/pleasant'. Furthermore, to be able to measure *attitude towards the advertised brand*, the items from the scale of Spears and Singh (2004) were implemented. This scale looks into the feelings that individuals have towards the brand that initiates the advertising of the manipulated advertisement in this study. Again, the scale was based around 5 pairs of opposing adjectives. An example of this being 'unappealing/appealing'.

3.6.2. Mediator Variables

Then, questions regarding the mediator variables were asked to the participant. Firstly, the scale by Bleier and Eisenbeiss (2015) with regards to feelings of *perceived intrusiveness* were implemented. For this scale, 9 statements were given on a 7-point Likert scale like mentioned before. An example of a used statement being: 'This offer gives me an uneasy feeling.' For feelings of *perceived vulnerability*

5 statements were given on a 7-point Liker scale, which were based on the research conducted by Aguirre et al., (2015). One of these statements being: 'The advertisement makes me feel susceptible'.

3.6.3. Moderator Variable

Lastly, the scale of the moderator variable of *privacy concerns* was derived from a scale created by Sheng, Nah, and Siau (2008). Again, this scale was based around statements which were given on a 7-point Likert scale. An example of one of the 4 items used within this scale being:
'I am afraid that my information can be used in ways that I cannot foresee.'

3.6.4. Quality of instruments

To be able to comprehend the quality of the scales that were used as instruments the validity and reliability of the items that make up the variables had to be tested. In order to do this testing, 5 individual factor analysis were conducted, all with regards to the constructs from the research model as stated before (table 8). The conclusions drawn from the factor analyses implied that 70% or more variance within the constructs of *attitude towards the advertised brand, perceived vulnerability* and *privacy concerns,* could be explained when all items were taken into account (table 8). This shows great validity due to the percentages of variance being quite a lot higher than the minimum of 50%. This was less so the case for *perceived intrusiveness* and *attitude towards the advertisement,* as for these both these constructs, only 67% of variance could be explained when all items were taken into account. Thus, in order to increase the percentage of variance explained the eighth item within *perceived intrusiveness* 'I think this offer is alarming', was removed. This meant that 8 items were left, with 70% of variance explained. This was also done for *attitude towards the advertisement* where the second item 'unpleasant/pleasant' was removed, leaving 4 items and increasing the variance explained to 73%. This meant that for all instruments used, the amount of variance explained was 70% or more, showing a good amount of validity for all constructs. Lastly, the reliability of the instruments, was measured using Cronbach's Alpha Values. All instruments came up as satisfactory, with each construct scoring higher than the implemented minimum of .70 (table 9).

Table 9
Individual factor analysis per construct

Construct	Number of items	Percentage of variance explained (%)	α
Attitude towards the Advertisement	4	72.7	.87
Attitude towards the Advertised Brand	5	76.5	.92
Perceived Intrusiveness	8	70.1	.93
Perceived Vulnerability	5	75.9	.92
Privacy Concerns	4	81.7	.93

4. Results

4.1. Descriptive Statistics of Dependent Variables

The means and standard deviations of the dependent variables, the mediators and the moderator across the four research conditions were calculated, in order to give an outline of the descriptive statistics of this study (table 10)

When examining the dependent variables, attitude towards the advertisement and attitude towards the advertised brand, it can be seen that the conditions containing a high level of personalization generated the highest means when compared to the conditions consisting of a lower level personalization. While comparing the conditions using the high level of data source creepiness and the lower level of data source creepiness, it was noticed that the lower level condition produced the highest means. This also means that across the board, the condition containing a lower level of data source creepiness and a high level of personalization, had the highest overall means. The condition that yielded the lowest means used a high level of data source creepiness and a lower level of personalization. Overall, attitude towards the advertised brand generated the highest means across conditions, while attitude towards the advertisement was mostly slightly lower.

Perceived intrusiveness and perceived vulnerability as mediators, scored the highest means in the conditions with higher level of data source creepiness with either a higher or lower level of personalization. For these mediators the condition with the lowest means consisted of a lower level of data source creepiness and a lower level of personalization.

Lastly, the moderator of privacy concerns produced the highest mean in the condition using a lower level of data source creepiness and a higher level of personalization. The opposite was true for the condition implementing a high level of data source creepiness and a high level of personalization, which generated the lowest mean for the moderator.

Table 10

Descriptive statistics of dependent variables across conditions

		High DSC		Low DSC		Total	
		M	SD	M	SD	M	SD
High Personalization	Attitude towards the Advertisement	4.29	1.79	4.93	2.35	4.63	2.12
	Attitude towards the Advertised Brand	4.16	1.69	5.19	2.28	4.71	2.08
	Perceived Intrusiveness	4.76	1.43	4.12	1.47	4.42	1.48
	Perceived Vulnerability	4.72	1.49	3.97	1.15	4.32	1.56
	Privacy Concerns	4.68	1.37	5.24	1.29	4.97	1.35
Low Personalization	Attitude towards the Advertisement	3.76	1.82	4.17	1.61	3.97	1.72
	Attitude towards the Advertised Brand	3.88	1.76	4.27	1.21	4.08	1.52
	Perceived Intrusiveness	4.81	1.16	3.37	1.35	4.09	1.45
	Perceived Vulnerability	4.45	1.28	3.15	1.42	3.81	1.49
	Privacy Concerns	5.03	1.25	5.08	1.19	5.19	1.22
Total	Attitude towards the Advertisement	4.01	1.82	4.56	2.04		
	Attitude towards the Advertised Brand	4.01	1.73	4.73	1.89		
	Perceived Intrusiveness	4.79	1.29	3.75	1.54		
	Perceived Vulnerability	4.58	1.38	3.57	1.46		
	Privacy Concerns	5.01	1.34	5.16	1.24		

Note: Measured on seven-point Likert scales (1=completely disagree / 7= completely agree)

4.2. Main effects

The following section will consist of the display of main effects found within this study when conducting a MANCOVA analysis (table 11), while being supported using a Wilks' Lambda of the found effects (table 12).

Table 11

MANCOVA analysis of level of personalization and level of DSC, with perceived intrusiveness and perceived vulnerability as mediators and privacy concern as a moderator, on the dependent variables

Source	Dependent Variable	F	p	η2
Perceived Intrusiveness (as a mediator)	Attitude towards the Advertisement	31.07	.001	.11
	Attitude towards the Advertised Brand	15.14	.001	.05
Perceived Vulnerability (as a mediator)	Attitude towards the Advertisement	3.29	.07	.01
	Attitude towards the Advertised Brand	.2	.65	.01
Level of Personalization	Attitude towards the Advertisement	11.27	.001	.04
	Attitude towards the Advertised Brand	16.09	.001	.06
Level of DSC	Attitude towards the Advertisement	.02	.89	.01
	Attitude towards the Advertised Brand	.09	.77	.01
Level of Personalization* Level of DSC	Attitude towards the Advertisement	2.5	.12	.01
	Attitude towards the Advertised Brand	5.14	.02	.02
Privacy Concern* Level of Personalization	Attitude towards the Advertisement	.77	.38	.01
	Attitude towards the Advertised Brand	.1	.75	.01
Privacy Concern* Level of DSC	Attitude towards the Advertisement	3.4	.07	.01
	Attitude towards the Advertised Brand	.6	.44	.01

Table 12

Wilks' Lambda of level of personalization and level of DSC, with perceived intrusiveness and perceived vulnerability as mediators and privacy concern as a moderator

	Wilks' Lambda					
Source	Value	F	Hypothesis df	Error df	p	η2
Perceived Intrusiveness (as a mediator)	.89	15.72	2	265	.001	.11
Perceived Vulnerability (as a mediator)	.96	5.99	2	265	.003	.43
Level of Personalization	.94	8.09	2	265	.001	.06
Level of DSC	.99	.21	2	265	.82	.01
Level of Personalization* Level of DSC	.98	2.6	2	265	.08	.02
Privacy Concern* Level of Personalization	.99	1.65	2	265	.19	.01
Privacy Concern* Level of DSC	.98	2.24	2	265	.11	.02

4.2.1. Perceived Intrusiveness as a Mediator

A two-way between subjects MANCOVA analysis was conducted. For this analysis, perceived intrusiveness was taken into account as a mediator variable.

Perceived intrusiveness had a significant effect as a mediator on the combined dependent variables, $F(2,265) = 5.99$, $p = .003$, Wilks' $\Lambda = .96$, partial $\eta 2 = .11$. Furthermore, perceived intrusiveness had a significant effect as a mediator on the effect of the independent variables level of personalization and level of data source creepiness on the on the dependent variables attitude towards the advertisement, $F(1,266) = 31.07$, $p < .001$, and attitude towards the advertised brand, $F(1,266) = 15.14$, $p < .001$. This data suggests that perceived intrusiveness as a mediator has a negative effect on the dependent variables. Based on these results hypotheses H1bC, H2bC and H3bC can be supported.

4.2.2. Perceived Vulnerability as a Mediator

A two-way between subjects MANCOVA analysis was conducted. For this analysis, perceived vulnerability was taken into account as a mediator variable.

Perceived vulnerability had a significant effect as a mediator on the combined dependent variables, $F(2,265) = 15.72$, $p < .001$, Wilks' $\Lambda = .89$, partial $\eta 2 = .43$. However, perceived vulnerability had no significant effect as a mediator on the effect of the independent variables level of personalization and level of data source creepiness on the on the dependent variables attitude towards the advertisement and attitude towards the advertised brand. Based on these results hypotheses H1bD, H2bD and H3bD cannot be supported.

4.2.3. Level of Personalization on Dependent Variables

A two-way between subjects MANCOVA analysis was conducted with attitude towards the advertisement and attitude towards the advertised brand as the dependent variables. Level of personalization was the independent variable, and perceived intrusiveness was taken into account as a mediator.

There was a significant difference of effects between the groups with different levels of personalization on the combined dependent variables. Furthermore, level of personalization had a significant effect on the dependent variables attitude towards the advertisement, $F(1,266) = 11.27$, $p < .001$, and attitude towards the advertised brand, $F(1,266) = 16.09$, $p < .001$. This data suggests that a high level of personalization has a positive impact on attitude towards the advertisement and attitude towards the advertised brand when compared to a lower level of personalization. Based on these results the opposite of hypothesis H1a can be supported.

4.2.4. Level of Data Source Creepiness on Dependent Variables

A two-way between subjects MANCOVA analysis was conducted with attitude towards the advertisement and attitude towards the advertised brand as the dependent variables. Level of data source creepiness was the independent variable, and perceived intrusiveness was taken into account as a mediator.

There was no significant difference of effects between the groups with different levels of data source creepiness on the combined dependent variables. Furthermore, level of data source creepiness did not have a significant effect on the dependent variables, attitude towards the advertisement and attitude towards the advertised brand. Based on these results hypotheses H2aA and H2aB cannot be supported.

4.2.5. Interaction Effect on Dependent Variables

A two-way between subjects MANCOVA analysis was conducted with attitude towards the advertisement and attitude towards the advertised brand as the dependent variables. Level of personalization and level of data source creepiness were the independent variables, and perceived intrusiveness was taken into account as a mediator.

There was no significant difference between of effects between the groups with different levels of personalization and the groups with different levels of data source creepiness on the combined dependent variables. Furthermore, the interaction between level of personalization and level of data source creepiness did not have a significant effect on the dependent variable of attitude towards the advertisement. However, the interaction between level of personalization and level of data source creepiness did have a significant effect on the dependent variable attitude towards the advertised brand, $F(1,266) = 5.14$, $p = .02$. This data suggests that there is an interaction effect between level of personalization and data source creepiness on attitude towards the advertised brand, meaning that a higher level of personalization combined with a lower level of data source creepiness has a positive effect on attitude towards the advertised brand (figure 2). Based on these results hypothesis H3aB can be supported, and H3aA cannot be supported.

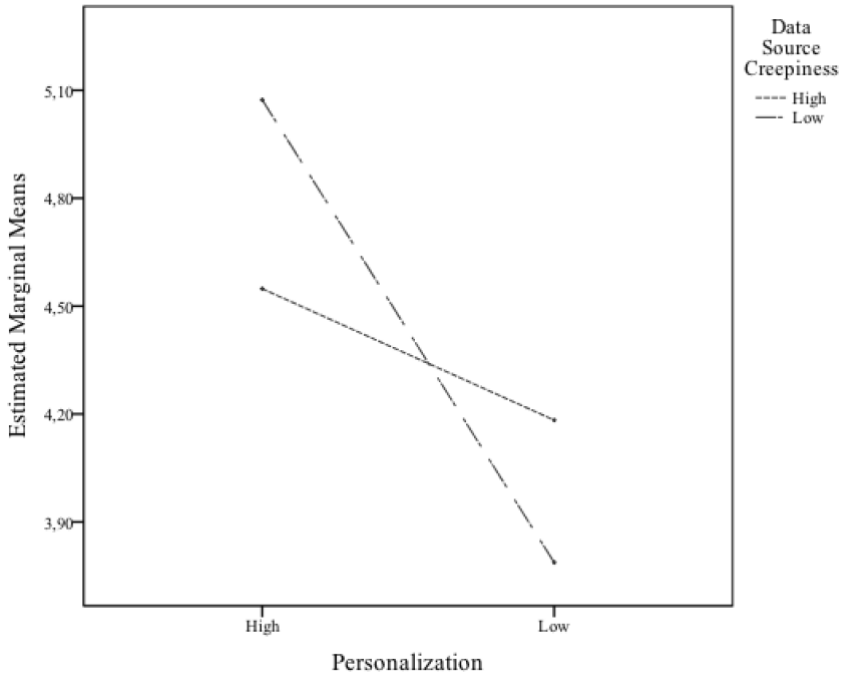

Figure 2. Interaction effect of level of personalization and data source creepiness on attitude towards the advertised brand

4.2.6. Privacy Concern as a Moderator for Level of Personalization

Next, a moderator analysis was carried out within the two-way between subjects MANCOVA, with privacy concern acting as the moderator variable. Attitude towards the advertisement and attitude towards the advertised brand were the dependent variables, while level of personalization was the independent variable.

Privacy concern had no significant moderation effect on the effect of level of personalization on the combined dependent variables. Furthermore, privacy concern did not have a significant moderation effect on the effect of level of personalization on the dependent variables of attitude towards the advertisement and attitude towards the advertised brand. Based on these results hypotheses H4aA and h4aB cannot be supported.

4.2.7. Privacy Concern as a Moderator for Level of Data Source Creepiness

Next, a moderator analysis was carried out within the two-way between subjects MANCOVA, with privacy concern acting as the moderator variable. Attitude towards the advertisement and attitude towards the advertised brand were the dependent variables, while level of data source creepiness was the independent variable.

Privacy concern had no significant moderation effect on the effect of level of data source creepiness on the combined dependent variables. Furthermore, privacy concern did not have a significant moderation effect on the effect of level of data source creepiness on the dependent variables of attitude towards the advertisement and attitude towards the advertised brand. Based on these results hypotheses H4bA and h4bB cannot be supported.

4.3. Overview of the Results of the Tested Hypotheses

Following the results from the main effects, an outline of the tested hypotheses and their results could be given (table 13).

Table 13

Overview of the results of the tested hypotheses

No	Hypothesis	Result
H1a	Consumers' attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is less personalized than when they are confronted with a highly personalized online behavioral advertisement.	Opposite supported
H1b	The effect of level of personalization on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.	H1bC supported, H1bD not supported
H2a	Consumers' attitudes towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is based on a less creepy data source than when they are confronted with an online behavioral advertisement that is based on a highly creepy data source.	Not supported
H2b	The effect of data source creepiness on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.	H2bC supported, H2bD not supported
H3a	Consumers' attitudes towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be more positive if they are confronted with an online behavioral advertisement that is highly personalized in combination with a less creepy data source.	H3aB supported, H3aA not supported
H3b	The interaction effect of level of personalization and data source creepiness on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, are negatively mediated by (C) perceived intrusiveness and (D) perceived vulnerability.	H3bC supported, H3bD not supported
H4a	The effect of level of personalization on attitude towards an (A) online behavioral advertisement and towards (B) the advertised brand, will be stronger if respondents have higher privacy concerns.	Not supported
H4b	The effect of data source creepiness on attitude towards an (A) online behavioral advertisement and	Not supported

towards (B) the advertised brand, will be stronger if respondents have higher privacy concerns.

4.4. Adjusted Research Model: Online Behavioral Targeting Attitude Model

Along with the results of the tested hypotheses, adjustments were made to the conceptual research model. The adjusted Online Behavioral Targeting Attitude Model (figure 3), displays the lines that represent hypotheses that were supported in an opposite manner, were partly supported or were not supported at all within this study.

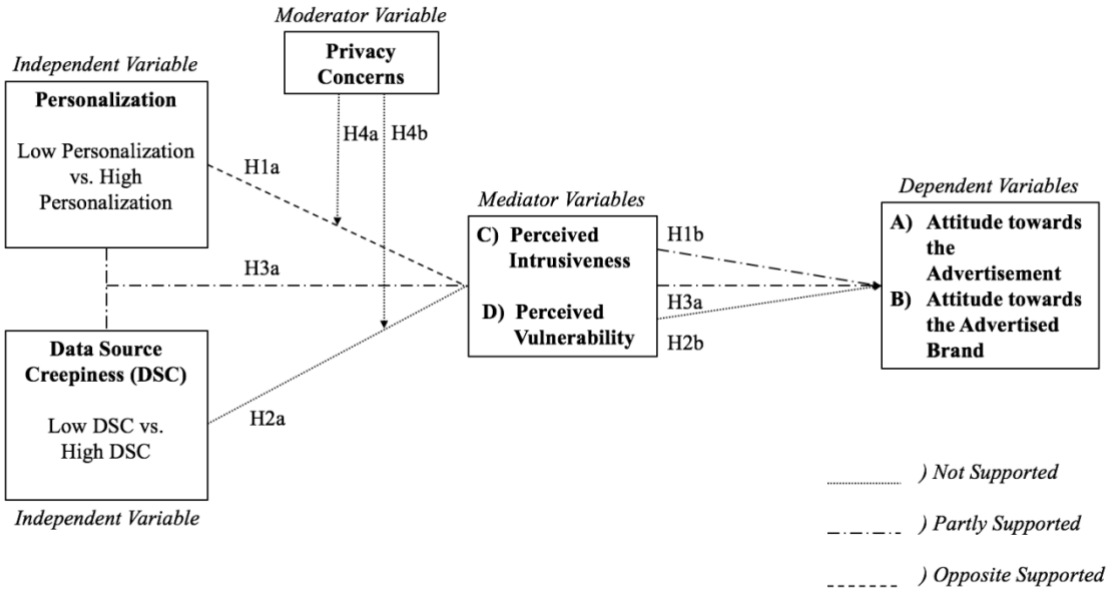

Figure 3. Adjusted Online Behavioral Targeting Attitude Model

5. Discussion

The aim of this study was to look into the effects of personalization and data source creepiness in online behavioral advertisements towards consumer attitudes. More specifically, the researched aimed to investigate how high and low levels of personalization combined with high and low levels of data source creepiness influence attitude towards the advertisement and attitude towards the advertised brand. This was done while taking the variables of perceived intrusiveness and perceived vulnerability into account as mediator variables, and by implementing privacy concerns as a moderator variable.

In this discussion section, the effects belonging to personalization and data source creepiness and the interaction between the two will be deliberated. Furthermore, the mediators and moderator will be discussed and finally, the research limitations will be examined and recommendations will be explained.

5.1. Discussion of Results

5.1.1. The Effects of Personalization

When starting the overall analysis of this study, the effects of personalization towards the dependent variables related to consumer attitudes were explored. Due to recent and relevant literary work, a hypothesis related to these effects was created. This hypothesis stated the belief that a consumer's attitude towards the advertisement and attitude towards the advertised brand would be more positive when that consumer is being exposed to a lower level of personalization within an online behavioral advertisement, as opposed to being exposed to an advertisement containing a higher level of personalization. This assumption was mostly based on the theory of psychological ownership, which exhibits that highly personalized advertisements can create the feeling of loss of control over personal information in consumers (Edwards, Li, & Lee, 2002). Because of this loss of ownership, consumers can develop negative attitudes towards the personalized advertisement. This study however, found out that a high level of personalization created more positive attitudes towards the advertisement and the advertised brand than a lower level of personalization did within an online behavioral targeted advertisement. This meant that the results opposed this study's expected effects.

A reason as to why highly personalized online behavioral targeting advertisements create positive attitudes towards the advertisement and the advertised brand could be because of consumers enjoying how personalized an add is. This is most likely due to the fact that highly personalized advertisements generally appear more relevant to the consumer (Bang & Wojdynski, 2016). Furthermore, the specific adaption of the advertisement towards the consumer's needs leads to consumers spending more time examining the advertisement. Because of this, the consumer takes more time realizing the usefulness of the personalized advertisement, which then leads to a more positive attitude towards that examined advertisement and the brand advertising (Bleier &Eisenbeiss, 2015).

The opposing results from various studies related to personalization, create the belief that the effects of personalization within online behavioral targeting rely greatly on the context in which the advertising occurs. Various researchers already mention this possibility. Aguirre et al. (2015) mention that high levels of personalization can only have a positive effect on consumer attitudes when the corresponding advertisement was being displayed on a website which was trusted by the exposed consumer. Furthermore, Bleier and Eisenbeiss (2015) give the notion that highly personalized online behavioral advertisement generate higher and more positive consumer attitudes in relation to lower personalized advertisements, when the brand doing the advertising is trusted by the consumer.

5.1.2. The Effects of Data Source Creepiness

Secondly, the possible effects of different levels of data source creepiness on consumers' attitude towards the advertisement and attitude towards the advertised brand were investigated. This was done to see if the hypothesis related to this specific analysis could be supported or not. This hypothesis established the idea that consumer's attitude towards the advertisement and attitude towards the advertised brand would be more positive when that consumer is being exposed to a lower level of data source creepiness within an online behavioral advertisement, as opposed to being exposed to an advertisement containing a higher level of data source creepiness.

This expectation was mainly based on a concept called the social presence theory. This theory explains that individuals generate privacy concerns and negative attitudes when they feel like they are being 'watched' when they are communicating with others (Phelan, Lampe & Resnick, 2016). In the case of data source creepiness, this means that when a used data source is considered as 'creepy', consumers could have the feeling that someone is stalking them. This is especially the case for the 'creepier' data sources like messaging apps, as research shows that consumers feel more social presence in those settings (Van Doorn & Hoekstra, 2013). This is mainly because of consumers considering messaging apps as more private than other data sources, like for example; web browsing. When collection of conversational data occurs, individuals often see the data collection as an invasion of their privacy (Moore et al., 2015). However, the results of this study, did not align with the expectations based on the social presence theory, as data source creepiness did not have a significant effect on the dependent variables of attitude towards the advertisement and attitude towards the advertised brand.

The lack of significant effects on the dependent variables coming from data source creepiness, can be explained by a well-known phenomenon across academic literature; the privacy paradox.

The privacy paradox can be defined as the dichotomy of information privacy concerns and actual online behavior (Barth & de Jong, 2017). This means that consumers generally view privacy as a central concern in the digital age, while contrarily, these same consumers often expose personal information and data to companies and institutions for limited benefits (Barth & de Jong, 2017). An example of these limited benefits is the ability to draw the attention of associates on social media platforms.

The privacy paradox phenomenon also shows possible occurrence when discussing data source creepiness within online behavioral advertisements. Based on previously mentioned manipulation analyses, the scenarios containing the data sources, did show that participants thought of the data sources as 'creepy', especially for the creepy data source of WhatsApp conversations. From this it can be concluded that the participants felt worried about their privacy when being exposed to the creepy data sources within OBT. However, even though the participants felt these concerns, this did not translate to actual change in attitudes. Thus, there were no significant results of the effects of the data source creepiness on the consumer attitudes. Which shows the discrepancy between concern and behavior/attitude that lies at the core of the privacy paradox.

5.1.3. The Effects of the Interaction between Personalization and Data Source Creepiness

Moreover, the possible interaction effect of personalization and data source creepiness was examined. For this examination, a hypothesis was created that stated the assumption that when combining a highly personalized advertisement with a less creepy data source, consumers' attitudes towards the advertisement and the advertised brand will be relatively higher when compared to other combinations of personalization and data source creepiness. This idea was based on both the theory of psychological ownership (Edwards, Li, & Lee, 2002), and the theory of social presence (Phelan, Lampe & Resnick, 2016). Which both have been mentioned before in this discussion. When looking into the analysis, the interaction effect between the two independent variables only had a significant effect on attitude

towards the advertised brand. Meaning that the interaction had no significant effect on attitude towards the advertisement. From this it can also be concluded that the combination of the independent variables on attitude towards the advertised brand had the least effect when a low level of personalization was combined with a high level of data source creepiness. This was then followed by a high level of personalization and a high level of data source creepiness. The biggest effect of the interaction on attitude towards the advertised brand was found when a high level of personalization was combined with a low level of data source creepiness.

A possible explanation for finding a significant effect for attitude towards the advertised brand and not for attitude towards the advertisement could lie in a study of Lee, Lee and Yang (2017), in which they found that consumers, at times, fail to form strong attitudes towards advertisements due to intangibility. This basically means that consumers do not always generate attitudes related to advertisements, as the products or services displayed in an advertisements are not tangible or 'real', and this attitude creation happens more easily if the consumer can actually interact with the item being displayed in the advertisement (Lee, Lee & Yang, 2017). On the other hand, it is relatively easy for a consumer to generate attitudes towards a brand through advertising, as a brand is not something that is tangible in any case anyway (Lee, Lee & Yang, 2017). This can be translated to the interaction effect on the dependent variables, where the interaction between personalization and data source creepiness might not be strong enough to bridge the difficulties that consumers have when generating an attitude towards an advertisement. However, the interaction could be strong enough to influence consumers' attitude towards the advertised brand, as this is less difficult for the consumers to generate. Thus, leading to insignificant results for the interaction effect on attitude towards the advertisement, but significant effects for the interaction on attitude towards the advertised brand.

5.1.4. The Effects of Perceived Intrusiveness and Perceived Vulnerability

In order to be able to test the possible mediating effects of perceived intrusiveness and perceived vulnerability, hypotheses were created. These hypotheses stated that the effects of personalization, data source creepiness and its interaction on attitude towards the advertisement and attitude towards the advertised brand were negatively mediated by both feelings of perceived intrusiveness and perceived vulnerability. This expectation came from studies by Pierce, Kostova and Dirks (2001) and by Sutanto et al., (2013), which mention the theory of psychological ownership and the information boundary theory.

The information boundary theory states that consumers get the feeling that the practice of gathering personal information by companies and organizations is intrusive and makes them feel vulnerable. This is then explained by the theory of psychological ownership as it exhibits that consumers feel a loss of ownership over the gathered data. This then, makes consumers feel like the benefits of online behavioral targeting do not outweigh the risks that it also brings. Meaning in this case, that it was expected that perceived intrusiveness and perceived vulnerability mediate the effects of the independent variables on the dependent variables of this study. However, the results from this specific research, do not completely align with the expectations based on the theory of psychological ownership and the information boundary theory, as perceived intrusiveness did have a significant mediating effect, but perceived vulnerability did not.

A first explanation could again lie in the privacy paradox phenomenon. Which, as stated previously, shows a discrepancy between privacy concerns and personal behavior (Barth & de Jong, 2017). Thus in the case of the mediators of this research, the privacy paradox could create an effect where consumers feel like companies or organizations intrude upon their personal privacy. Specifically, when these companies and organizations are employing OBT as a marketing practice. Which thus, creates a perception of intrusiveness. However, this privacy breach then does not translate to their own personal feelings, and how the OBT influences them individually. Which then does not

lead to feelings of vulnerability. In short, consumers could feel like the OBT advertiser is intruding and doing something wrong, but that does not transpose to perceived vulnerability in the consumers themselves due to the privacy paradox.

Furthermore, another explanation for the outcomes with regards to the mediators could lie in a possible limitation of this study. Due to the experimental nature of the research, the participants were aware that the advertisement and the advertising data collection did not appear in a real-life situation. Because of this, the participants could have possibly not felt vulnerable, as they did not feel threatened as the research happened outside of a real-life setting. However, it is likely that they were able to perceive the OBT efforts within the experiment as intrusive due to being able to relate with the situation. As such, this research limitation could have affected the results of the mediator variables in terms of perceived intrusiveness having significant effects as a mediator, but perceived vulnerability having insignificant effects. Further research is suggested to explore these mediators in a more real-life setting to avoid bias.

5.1.5. The Effects of Privacy Concern

Lastly, the results relating to the possible moderator of privacy concern in this study were examined. The hypotheses belonging to this moderator variable mentioned the expectation that the effects of data source creepiness and personalization on attitude towards the advertisement and attitude towards the advertised brand would be influenced when respondents had relatively high pre-existing levels of privacy concerns. This idea was based on two theories, the acquisition-transaction and the social exchange theory (Baek & Morimoto, 2012). The acquisition-transaction utility theory mentions that likelihood of consumers purchasing advertised products strongly depends on the privacy concerns that those consumers hold due to them weighing the benefits and the costs of being exposed to that advertisement. Furthermore, the social exchange theory explains that consumers evaluate social exchanges based on how they perceive their rewards and costs (Baek & Morimoto, 2012). When applying this to OBT advertising, this means that when the rewards of OBT do not outweigh the costs, privacy concerns arise which then makes consumers less likely to engage in the action stimulated by an OBT advertisement. However, the results from the study, do not align with the expectations based on the acquisition-transaction and social exchange theory, as no significant effects of privacy concern as moderator was found on both the effects of personalization and data source creepiness on the dependent variables.

Again, the explanation lies within the privacy paradox. The discrepancy between privacy concerns and actual personal behavior and attitudes show clearly in this situation (Barth & de Jong, 2017). This is the case as the pre-existing privacy concerns that the participants of this study had did not actually have an influence on the effects of personalization on attitude towards the advertisement and attitude towards the advertised brand and it did not have an influence on the effects of data source creepiness on attitude towards the advertisement and attitude towards the advertised brand. This shows the inconsistencies that arise when consumers are exposed to the effects of the privacy paradox.

5.2. Research Limitations

This study, despite providing academic and practical knowledge, has various limitation that should be discussed.

One limitation is based on the experimental nature of this research. Participants were asked to thoroughly read the scenario and to thoroughly examine the advertisement that they were being exposed to in this study. This analytic behavior in consumers does not regularly appear in everyday life when they are being exposed to OBT advertisements. Thus, in a real-life setting, consumers might not even be able to observe the creepy feelings that a certain data source brings or even fully notice that an advertised is personalized to them. This means that consumers in everyday life are mostly

unaware of the presence of data source creepiness and personalization, which this study then does not accurately represent. This might have led to bias in this study, which should be taken into account when looking at its results.

Furthermore, another limitation is established in the distribution of the characteristics of respondents. This is because these characteristics were unequally distributed across the experimental conditions of this study when based on gender and level of education. As an example, in one experimental condition, there were a lot more participants who had completed a HBO education than in other experimental conditions. This type of unequal distribution could have had an effect on the distinctions of effects across research condition rather than the manipulation themselves having an effect. In addition, the analysis of characteristics also found that the population of this study was relatively young, was generally highly educated and was mostly female. All of which could have had an effect on the outcomes of this study.

These problems were mostly due to the convenience sampling method that was chosen for within this study, along with the snowballing effect that occurred with the convenience sampling. This form of non-probability sampling could have possibly caused unequal distributions and quantities of respondent characteristics. This could have led to a research sample that is less representative for the general population, which might have resulted in limitations of generalizability for this study. To be able to eliminate both the unequal distribution of characteristics across conditions and the possible unrepresentative population, a systematic sampling method can be opted for in future research instead of convenience sampling.

Next, the fact that a general scale measuring level of data source creepiness had not been developed before the start of the study, and thus was not implemented, created a limitation for this research. When trying to check the quality of the manipulations, this meant that no direct scale could be used to inspect the quality of the scenarios implementing levels of data source creepiness. Instead of this, a scale by Scholten (2019), was used to the mean scores of levels of perceived creepiness for differing data sources. From which was concluded that the data sources chosen to depict low and high data source creepiness, were apart far enough in terms of means, to represent the differing levels relatively accurately. However, without the use of a general scale to measure level of data source creepiness with regards to the manipulation material, it is unclear if the scenarios completely accurately represented the high and low level of data source creepiness.

The last limitation can be found within the analysis of the quality of the scales used to measure the different variables. Because the usage of separate factor analyses was opted for, it not clear if the scales of this research were discriminatory among each other. If these constructs were not discriminatory in this study, it would be more difficult to draw correct conclusions with regards to these variables being measured with these scales. This is the case as these scales then might not measure the variable that they intended to measure. In the future, this issue could be solved by performing a pre-test containing the scales relevant to the research, and performing a single factor analysis among the variable scales to see if they are in fact discriminatory.

5.3. Future Research

When looking at the results and limitations coming from this research, multiple recommendations for future studies and research can be given.

Firstly, a research limitation based in the experimental nature of this study gives the incentive for future research to be based on more real-life experiments. For this, it could be proposed that personalized advertisements are to be created by companies based on data from different types of sources, and actually displaying that in a more ‘everyday’ OBT setting, after which consumer attitudes should be measured. This could give a more accurate representation of OBT advertising on consumer attitudes in real-life. Because like mentioned before, it might even be the case that in everyday life

most consumers unaware of the presence of data source creepiness and personalization in OBT advertising. Which a more real-life experiment might represent more accurately.

Moreover, in this research, a fictional organization was created for the setting of the study. This was done to prevent bias that might occur based on pre-existing attitudes towards real organizations. However, these attitudes toward an organization, could have significant impact on how OBT advertising is perceived by consumers. Possibly, it might be the case that when consumers have positive attitudes towards the organization, OBT efforts like personalization might have a more positive effect, while the negative effects of data source creepiness could be reduced when consumers hold positive attitudes towards the organization (Bleier & Eisenbeiss, 2015). This means that it could also be true that unfavorable organizational attitudes might reduce the positive effects of personalization and might strengthen negative effects that data source creepiness could possibly have. Thus, it could be interesting to see how pre-existing attitudes towards organizations could influence consumer attitudes within OBT advertising.

Furthermore, previous research has already stated that multiple consumer characteristics can have an effect on consumers' attitudes towards online behavioral advertising practices. The most promising effects being based on gender, age and culture (Boerman et al., 2017). As an example, a study by Lee and Choi (2005), found that effects of OBT advertising can vary according to the culture of the targeted consumers. One of the reasons of this being the differences between risk taking and risk avoiding cultures. Which can have an impact on what tradeoffs consumers are willing to make based on the benefits and the risks of OBT advertising. Thus, it is interesting to look into how different consumer characteristics influence the OBT effects of personalization and data source creepiness on consumer attitudes.

As mentioned previously, a general scale measuring level of data source creepiness has not been developed yet in an academic setting. It would be useful for future research to have access to such a scale, in the case that it would be reliable. Thus, a study in the future could work on creating a measurement instrument based on a 7-point Likert scale that accurately measures level of data source creepiness within OBT practices. Such a scale would be more suitable for the research in this field than the currently available scales.

Lastly, it would be interesting for future research to look into the specific effects of the privacy paradox in OBT advertising setting. It is still unclear how the privacy paradox influences consumers when they are exposed to OBT advertising. Yet, in this research, quite a few results could be explained by the privacy paradox phenomenon when applied to the OBT setting. Thus, it would provide compelling insight to see how the privacy paradox specifically influences the effects of personalization, data source creepiness, perceived vulnerability, perceived intrusiveness and privacy concerns amongst targeted consumers in online advertising. This future research should then be looked at from an ethics perspective. It should be looked into if it is ethical for companies and organizations to perform intrusive OBT practices, such as creepy data collection, if the privacy paradox strongly arises within potential consumers.

5.4. Practical Implications

Next to the recommendations for future research, practical implications based on this study can be given as well. The first practical implication is based on the results of this study which are related to personalization. This study found that personalization has a positive effect on both the consumer's attitude towards an advertisement and their attitude towards the brand. It is therefore advised that brands looking to implement OBT practices, ensure that their marketing campaigns are sufficiently personalized to the consumer. However, based on previous literature, it should be noted that highly personalized advertisements have only shown to have a positive impact on consumer attitudes when the brand doing the advertising is trusted by the consumer (Aguirre et al., 2015). Thus, brands that are

less trusted by the public should be cautious when implementing highly personalized OBT practices. However, when a trusted brand employs high levels of personalization within OBT, both the brand and the advertisement will be experienced positively by the consumer, rather than creating negative associations of mistrust or creepiness.

Secondly, brands are recommended to take the source of their data for OBT practices into account when looking to improve consumer's attitudes towards their brand. Data source creepiness has a significant interaction effect with the level of personalization on the attitude towards the brand, which implies that brands looking to apply personalized OBT practices, should do so without obtaining data about consumer's in creepy ways. This can mainly be achieved by using consumer data obtained from the brand's own website or sources where the brand is directly involved with the consumer only. Within this research, these specific types of data sources were found to be perceived as not being creepy to consumers. The use of these data sources thus then, would lead to more positive consumer attitudes towards OBT implementing brands. While on the other hand, when using creepier data from outside sources, such as a consumer's WhatsApp conversations, OBT is likely to be less effective in enforcing positive attitudes towards the brand and as such should be avoided.

Finally, the privacy paradox offers food for thought for businesses and organizations when implementing OBT advertising. When discussing a few of the surprising results of this study, the privacy paradox often came back as an explanation for these results, for example; consumers did show to have significant privacy concerns, but these did not have an effect on the results of OBT on consumer attitudes. This meant that there is no direct influence of privacy concerns on how consumers feel about brands employing OBT advertising, even though these concerns are certainty present within these consumers. Thus, brands should deliberate implementing OBT advertising in possible privacy breaching manners or not, even though it might not have direct impact on consumer attitudes towards the brands and their advertisements. This is the case as it does create negative feelings within the consumers themselves, which could create the perception that the OBT practice implemented could be unethical. Thus, organizations and businesses should consider if they want to implement these possibly privacy breaching practices as a brand, based on if this matches their brand's strategy, mission and vision.

6. Conclusion

At the beginning of this research, one main research question was formulated: ‘To what extent does data source creepiness and personalization in online behavioral targeting influence consumer attitudes?’. In order to be able to answer this main research question, the sub-questions that were developed must be answered first. This first sub-question was defined as: ‘To what extent does personalization in online behavioral targeting influence consumer attitudes?’. In this research personalization showed itself to be a crucial part of OBT advertising, as it has a significant influence both consumers’ attitude towards the advertisement and attitude towards the advertised brand. This indicates that highly personalized advertisements generate positive attitudes within consumers.

Next, the second sub-question was formulated as: ‘To what extent does data source creepiness in online behavioral targeting influence consumer attitudes?’. This question can be answered by stating that data source creepiness had no effect on consumer attitudes in terms of attitude towards the advertisement and attitude towards the advertised brand. The last sub-question was asked in the following manner: ‘To what extent does the interaction between data source creepiness and personalization in online behavioral targeting influence consumer attitudes?’.

From this study’s results, it can be concluded that there was an interaction effect between personalization and data source creepiness on attitude towards the advertisement and attitude towards the advertised brand. Meaning that the combination of a highly personalized advertisement based on data from a less creepy data source leads to the most positive attitudes towards the advertised brand within consumers. The least positive attitudes towards the advertised brand occurred when a low personalized advertisement was based on data from a creepier data source. However, there was no effect of the combination of personalization and data source creepiness on attitude towards the advertisement.

Furthermore, from the results it can also be concluded that perceived intrusiveness had a mediating effect on the effect of personalization and data source creepiness on the consumer attitudes. This means that when consumers feel high levels of perceived intrusiveness, OBT efforts will be more negative. The other tested mediator; perceived vulnerability did not have an effect as a mediator within this study. Furthermore, pre-existing privacy concerns also appeared to not have a moderating effect within this study. Meaning that no effects of privacy concern were found on the effects of personalization and data source creepiness on attitude towards the advertisement and attitude towards the advertised brand.

Based on the information gathered from these results and the answered sub-questions, the main research question can be answered: ‘To what extent does data source creepiness and personalization in online behavioral targeting influence consumer attitudes?’. The main findings in this research showed that personalization has a positive influence within OBT advertising when relating it to consumer attitude. While on the other hand, data source creepiness does not. When combining both personalization and data source creepiness, an interesting effect appeared when personalization was high and data source creepiness was low, namely, attitude towards the advertised brand became more positive. All of these effects have then shown to be moderated in a negative manner by the feelings of perceived intrusiveness that consumers can feel when being exposed to OBT efforts.

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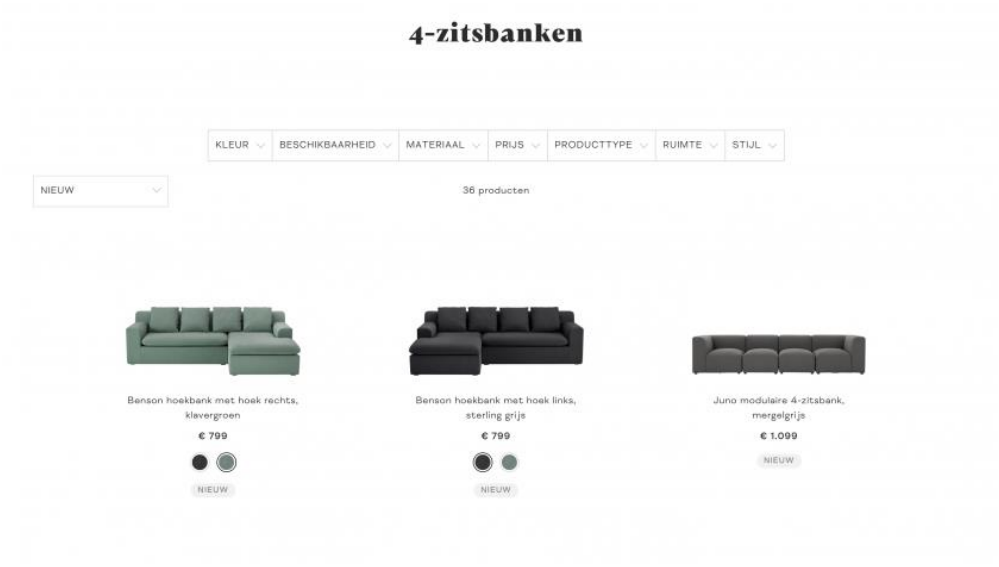
Appendices

Appendix A: Scenarios for data source creepiness during main study

Level DSC	Manipulation
Low Data Source Creepiness	Stelt u zich voor dat u net bent verhuisd naar een nieuw appartement in de buurt. Omdat u een nieuw huis heeft, wilt u ook wat van uw oude meubilair vervangen door wat nieuw meubilair. Als eerste gaat u kijken naar een nieuwe bank die mooi zal passen in uw appartement. Voordat u een keuze maakt, wilt u eerst wat persoonlijk onderzoek doen om zeker te weten dat u de bank die u in de toekomst gaat kopen mooi en goed gaat vinden. U herinnert zich dat een kennis van u net een mooie bank heeft gekocht bij 'Casadorna Furnitures'; een online meubelwinkel. U besluit dat u even naar de Casadorna Furnitures webshop gaat om te zien of ze ook banken hebben die u mooi vindt voor uw appartement.  Nadat u een tijdje door de 4-zitsbanken pagina heeft gescrold, besluit u dat u nog verder gaat kijken bij andere merken voordat u een beslissing neemt over welke bank u wilt aanschaffen. Later diezelfde dag, krijgt u een advertentie te zien op een social media platform dat u gebruikt
High Data Source Creepiness	Stelt u zich voor dat u net bent verhuisd naar een nieuw appartement in de buurt. Omdat u een nieuw huis heeft, wilt u ook wat van uw oude meubilair vervangen door wat nieuw meubilair. Als eerste gaat u kijken naar een nieuwe bank die mooi zal passen in uw appartement. Voordat u een keuze maakt, wilt u eerst wat persoonlijk onderzoek doen om zeker te weten dat u de bank die u in de toekomst gaat kopen mooi en goed gaat vinden. U herinnert zich dat een kennis van u net een mooie bank heeft gekocht, dus stuurt u een berichtje op WhatsApp aan die kennis. Dit leidt tot het volgende WhatsApp gesprek:

Later diezelfde dag, krijgt u een advertentie te zien op Instagram. U heeft nog niet verder gekeken naar ‘Casadorna Furnitures’, omdat u van plan was dat later deze week te doen.

Appendix B: Scales used to measure constructs in pre-test

Construct	Items	Source
Perceived Level of Personalization	The advertisement was directed to me personally. I recognized my personal situation in the advertisement. The advertisement took into account the problem I faced. The advertisement took into account my personal situation	Dijkstra (2005)
Trust towards Instagram	I trust Instagram. I have great confidence in Instagram. Instagram has high integrity. I can depend on Instagram to do the right thing. Instagram can be relied upon.	Walsh et al. (2009)
Trust towards Facebook	I trust Facebook. I have great confidence in Facebook. Facebook has high integrity. I can depend on Facebook to do the right thing. Facebook can be relied upon.	Walsh et al. (2009)
Trust towards YouTube	I trust YouTube. I have great confidence in YouTube. YouTube has high integrity. I can depend on YouTube to do the right thing. YouTube can be relied upon.	Walsh et al. (2009)

Appendix C: Consent form main study

Beste deelnemer,

Hartelijk dank voor uw deelname aan dit onderzoek. Het onderzoek gaat over advertenties gebaseerd op persoonlijke data. De vragenlijst duurt ongeveer 15 minuten. Er zijn geen goede of foute antwoorden. Er zal vertrouwelijk met uw gegevens worden omgegaan en resultaten worden anoniem verwerkt. Ook mag u zich altijd terugtrekken uit het onderzoek, zonder dat dit gevolgen heeft.

Door op '-->' te klikken, stemt u in met uw vrijwillige deelname aan dit onderzoek, de bovengenoemde voorwaarden en geeft u toestemming voor het gebruik van uw antwoorden.

U kunt bij deelname aan dit onderzoek ook vrijwillig deelnemen aan een loting van een bol.com cadeaukaart t.w.v. 20 euro. Aan het eind van het onderzoek leest u hier meer over.

Mocht u voor, tijdens of na het invullen van de vragenlijst nog vragen hebben, twijfel dan niet om contact op te nemen met de onderzoeker.
(r.lammers-1@student.utwente.nl)

→

Appendix D: Scales used to measure constructs in main study

Construct	Items	Source
Attitude towards the Advertisement	Please describe your overall feelings about the ad that you just saw: Pleasant/Unpleasant, Interesting/Boring Likeable/Unlikeable Good/Bad. Credible/Non-Credible	Koring (2015)
Attitude towards the Advertised Brand	Please describe your overall feelings about the brand described in the ad you just saw: Unappealing/Appealing Bad/Good Unpleasant/Pleasant Unlikable/Likeable	Spears and Singh (2004)
Perceived Intrusiveness	I think this offer is disturbing. I think this offer is alarming. I think this offer is obtrusive. I think this offer is irritating. I think this offer is annoying. I think this offer is uncomfortable. I think it is uncomfortable that personal information is used in this offer. The supplier knows a lot about me. This offer gives me an uneasy feeling.	Bleier and Eisenbeiss (2015)
Perceived Vulnerability	The advertisement makes me feel... ...exposed. ...unprotected. ...susceptible. ...unsafe. ...vulnerable.	Aguirre et al., (2015)
Privacy Concerns	It bothers me that companies are able to keep track of information about me. I am afraid that companies have too much information about me. It bothers me that companies have access to information about me. I am afraid that my information can be used in ways that I cannot foresee.	Sheng, Nah, and Siau (2008)