

## **Consumer Reactions to Synced Advertising in the Netherlands**

A quantitative study on the relationship between experience with synced advertising, privacy concerns and advertising avoidance on social media

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Master's Thesis

*June 2024*

Word Count: 11686

## ABSTRACT

Technological advancements have enabled personalized messaging through synced advertising, a relatively new marketing strategy that synchronizes ads across multiple devices, thereby creating an integrated experience for consumers. This technique leverages real-time media behavior and personalization, potentially leading to feelings of intrusiveness, irritation and ad avoidance. Synced advertising can also lead to increased privacy concerns. Privacy concerns refer to the extent to which consumers are worried about the unauthorized dissemination of their personal information. Consumer privacy has become an increasing concern due to the rising frequency of data hacking and leakage incidents and have been found to lead to more advertisement avoidance. As privacy concern intensify, consumers are likely to have negative experiences and avoid advertisements. Advertising avoidance can be seen as a significant challenge for advertisers, as not all consumers respond positively to online advertising, prompting many to block advertisements.

Research indicates that the Dutch population has limited familiarity with synced advertising, highlighting the need for further exploration of its implications, particularly concerning privacy concerns and advertising avoidance. Using the Persuasion Knowledge Model (PKM), the study examines how consumers' understanding of synced advertising influences their perception and behavior.

A quantitative survey among 159 respondents was conducted, using non-probability sampling, distributed across various social media platforms. The results indicate that knowledge of synced advertising does not significantly predict experience with it, though higher education levels correlate with lower reported experience. Contrary to the expectations, neither knowledge nor experience with synced advertising impacts privacy concerns directly. However, increased privacy concerns were significantly associated with increased cognitive, attitudinal and behavioral advertisement avoidance.

These findings underscore that while synced advertising does not directly exacerbate privacy concerns, these concerns critically influence ad avoidance behaviors. Advertisers can use these insights to develop less intrusive and more transparent advertising strategies. Thus, addressing privacy concerns is essential for improving consumer responses to advertising and further research is necessary.

**KEYWORDS:** *Synced advertising, privacy concerns, advertising avoidance, social media*

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## 1. Introduction

Imagine watching a commercial on your smart TV for a new smartphone, and moments later, a related ad appears on your mobile device, offering a discount coupon or additional product information. This seamless integration across multiple platforms is the essence of synced advertising – a technique that synchronizes ads on different devices to create a unified, immersive advertising experience (Segijn, 2019, p. 58). Synced advertising leverages personalization based on media messages consumed simultaneously and based on an individual's real-time media behavior. It synchronizes ads or media messages across different platforms, creating a seamless consumer experience (Segijn et al., 2021, p. 326). Research by Boerman and Segijn (2022) showed that 45% of the Dutch population was not familiar with synced advertising and merely 29% had ever experienced synced advertising (Boerman & Segijn, 2022, p. 189). This indicates a significant lack of familiarity and limited awareness of synced advertising among the Dutch population. Therefore, more research into this new marketing strategy is relevant and necessary. Synced advertising is becoming increasingly prevalent as companies shift away from traditional media, opting for digital pathways like social media. Social media marketing enhances word-of-mouth advertising campaigns, boosts brand awareness and increases sales revenue by precisely targeting consumers (Lee & Hong, 2016, p. 360). The constant availability of both social media as well as traditional media has resulted in an increase of media multitasking; consumer behavior involving the simultaneous use of multiple media devices (Van Der Schuur et al., 2015, p. 205; (Kim et al., 2022, p. 2). People engage in media multitasking for various reasons, such as enjoyment and emotional gratification. This behavior is important for advertisers as it impacts both how consumers cognitively respond to messages and their attitudinal outcomes (Kim et al., 2022, p. 2).

As media multitasking becomes more prevalent, this can lead to relatively new strategies such as synced advertising. However, concerns have been raised about consumers' lack of knowledge and experience regarding marketing strategies, which affect their ability to make informed decisions and raises privacy concerns related to these advertising practices (Strycharz et al., 2021, p. 3). Previous research suggests that increased awareness of synced advertising may reduce critical attitudes toward these ads, thereby decreasing resistance to them. Understanding the persuasive intent and goals behind a message can significantly alter how individuals interpret and respond to it (Segijn et al., 2021, p. 326). As consumers progress through life, they develop a deeper understanding of advertising. Knowledge about how personalization works is important for consumer empowerment. Consumer's

understanding of how ads are synchronized and personalized across platforms can significantly impact their perceptions of privacy and behavioral responses (Segijn & van Ooijen, 2020, p. 208). A lack of research on the impact of this knowledge on synced advertising, highlights the need for high quality further study on this topic.

The rise of personalization in advertising has increased privacy concerns among individuals. Research shows that this type of advertising can result in privacy concerns, particularly on social media platforms where users are encouraged to share personal information and details (Kelly et al., 2017, p. 1466). As a result of this, social networking sites have high amounts of user's data, thereby making the importance of safeguarding this information crucial for its users (Kelly et al., 2022, p. 1468). On the other hand, these significant amounts of user data leading to the advent of data-driven marketing, have revolutionized advertising by enabling tailored messages based on individual preferences (Boerman & Smit, 2022, p. 60). For consumer, this personalized approach raises significant challenges, particularly regarding consumer privacy. It creates uncertainty about the utilization of personal data for advertising purposes. Individuals frequently experience a lack clarity on when their personal data is being tracked, how it is stored, who has access, and its ultimate usage (Frick et al., 2021, p.1). This lack of transparency in data collection and practices can lead to significant create privacy concerns. As a result, consumers question how their personal information is being used and what potential consequences may arise from it. One notable consequence of these privacy concerns is advertising avoidance. When consumers feel uncomfortable or uncertain about their data being used for advertising purposes, they actively take steps to reduce their exposure to ads. This includes employing various tactics to minimize their interaction with advertising. Consequently, consumers might respond negatively to invasions of their online space, feeling overwhelmed by the volume of advertisements they encounter (Dodoo & Wen, 2020, p. 75; Niu et al., 2021, p. 2). Advertising avoidance on social media takes form in three ways of avoidance: behavioral, cognitive and attitudinal avoidance (Chinchanachokcai & de Gregorio, 2020, p. 474). These forms of avoidance underscore the importance of advertisers respecting consumer privacy concerns and crafting advertising strategies that enhance rather than disrupt the online user experience.

This study aims to investigate how synced advertising influences privacy concerns and whether it potentially leads to advertising avoidance. More specifically, this research seeks to understand whether knowledge of synced advertising and personal experience contributes to increased privacy concerns and advertising avoidance. This leads to the

following research question: *To what extent do knowledge of and experience with synced advertising on social media affect Dutch consumers' privacy concerns, cognitive, attitudinal and behavioral avoidance?*

The Persuasion Knowledge Model (PKM) will be integral to this research by providing a framework to understand how consumers' knowledge and experiences with synced advertising affect their privacy concerns and advertising avoidance behaviors. The PKM posits that consumers develop knowledge about persuasion tactics and use this knowledge to interpret, evaluate and respond to advertising (Brinson & Eastin, 2016, p. 6; Friestad & Wright, 1994, p. 2). In the context of synced advertising, consumers' awareness of synchronization tactics used across devices can influence their perceptions and behaviors. By incorporating the PKM, the research can investigate whether higher knowledge of synced advertising increases privacy concerns among consumers and whether greater experience with synced advertising correlates with increased avoidance behaviors.

This research holds relevance from different directions. Despite synced advertising being a new approach, its effects on consumer behavior, particularly in terms of advertising avoidance and privacy concerns have not been thoroughly explored. This research focuses on the effects of knowledge and experience of synced advertising on privacy concerns, an area that has not been previously investigated, thereby emphasizing the relevance for further exploration. This research can therefore contribute valuable insights to the field of advertising and consumer behavior.

The findings of this research, specifically focused on the Netherlands, offer advertising a deeper understanding of how consumers perceive synced advertising, particular in terms of privacy concerns and advertising avoidance. Advertisers can use these insights to develop more transparent and less intrusive advertising strategies, thereby improving consumer trust and engagement with advertising content tailored to Dutch preferences. For governmental regulators, the study highlights the importance of safeguarding consumer privacy and the need for clear guidelines on data usage in advertising. This can help in formulating policies that protect consumers while allowing for innovative advertising practices. Consumers can learn about the implications of their media consumption habits and the potential privacy risks associated with synced advertising. By understanding how data is used for advertising purposes, consumers can make more well-informed decisions about their media usage and privacy settings.

The research question will be addressed through a comprehensive theoretical framework, which will review the relevant literature on key concepts such as synced

advertising, the persuasion knowledge model, privacy concerns and advertising avoidance. This theoretical exploration will provide a foundational understanding of the concepts and their interrelations. Following the theoretical framework, the methodological section will outline the research design and criteria for sample selection. In addition, this section will also provide an overview of the measurements used in this research, detailing how each concept will be assessed. The results section will begin with a presentation of the correlations between the various variables. This will be followed by a logistic regression and multiple regression analysis. Furthermore, the research will conclude with a discussion of the theoretical implications of the findings, highlighting how the results contribute to existing knowledge and theory. The limitations and strengths of the research will be discussed, as well as the suggestions for future research and final conclusion.

## **2. Theoretical Framework**

In the theoretical framework, relevant and existing literature will be reviewed to conceptualize the research question. Key concepts will be discussed, namely the persuasion knowledge model, synced advertising, advertising avoidance and privacy concerns. Lastly, a conceptual model is presented based on all the hypotheses.

### **2.1. Persuasion Knowledge Model**

The Persuasion Knowledge Model (PKM) developed by Friestad and Wright (1994) is a valuable framework that sheds light on how consumers respond to persuasion attempts by marketers. Persuasion knowledge refers to “consumers’ loose set of beliefs about persuasion motives and tactics” (Yoo, 2014, p. 11). Additionally, this framework focuses on the importance of consumers’ personal understanding of the tactics employed by marketers, enabling them to recognize when and why marketers are attempting to influence them. This framework acknowledges that consumers develop knowledge over time regarding persuasion agents’ goals and tactics and this knowledge enables consumers to identify and interpret marketers’ influence attempts. Essentially, as consumers encounter various marketing tactics and strategies over time, they develop persuasion knowledge, enabling them to recognize and understand these techniques (Yoo, 2014, p. 12). Moreover, the framework poses that consumers use their understanding of persuasion as a filtering mechanism to respond effectively to persuasion attempts and achieve their own objectives. This process of persuasion is influenced by various factors (Brinson & Eastin, 2016, p. 6). The Persuasion Knowledge Model considers factors from both the agent (i.e., the company running an advertising campaign) and the target (i.e., consumers). For example, the way the agent strategically behaves influences how the target perceives persuasion attempts. Consumers’ understanding of marketing tactics and their ability to recognize persuasive strategies play a crucial role in shaping their responses to advertising efforts (Brinson & Eastin, 2016, p. 6; Friestad & Wright, 1994, p. 2).

In terms of synced advertising, consumers can employ their knowledge about persuasion in order to effectively navigate through these message and effectively identifying and analyzing the content that is presented to them. Furthermore, a higher level of knowledge on persuasion by consumers helps them to choose responses that match with their goals and objectives more critically (Segijn et al., 2024, p. 158). For example, when consumers know that their TV viewing behavior is being used to deliver personalized mobile ads, this can increase their perception of surveillance. They may be more aware of the



influence attempts and respond more critically to the advertisements. Moreover, the Persuasion Knowledge Model states that knowledge enables consumers to deal more effectively with influence attempts. By educating consumers about synchronized advertising, they can make more informed decisions about their interaction with these ads.

## **2.2. Consumers' knowledge of and experience with synced advertising**

In recent times, consumers media usage is not limited to one screen anymore. People increasingly use more than one medium concurrently, and this media multitasking behavior creates opportunities. Media multitasking has enabled the delivery of personalized advertising tailored to user's concurrent media behavior (Segijn & Van Ooijen, 2022, p. 210). Synced advertising, a modern digital marketing strategy, entails coordinating advertisements on mobile devices with concurrent media content. It is defined as "the practice of monitoring people's current media behavior and using the collected information to show people individually targeted ads based on people's current media behavior across media" (Segijn & Voorveld, 2020, p. 125). For instance, while users watch television and use their smartphones simultaneously, they receive targeted advertisements on their smartphones that correspond to the television content (Segijn et al., 2023, p. 157).

Synced advertising is part of the broader trend towards message personalization. By downloading and accepting user terms and conditions, individuals authorize applications to gather data from other media in their mobile device's environment (Segijn & Voorveld, 2020, p. 126). Strategically repeating messages across different media simultaneously can benefit the sender by increasing the likelihood of message exposure (Segijn & Voorveld, 2020, p. 126). Research by Segijn (2019) investigated that the increase of mobile devices create the ideal environment for synced advertising. Individuals carry their mobile devices everywhere, keeping them frequently active. Mobile devices have become extensions of our personalities and selves, which is a significant advantage for advertisers. Mobile devices can effortlessly monitor their users, collect data and share information with interested parties without interrupting the media experience. As a result, mobile devices are not only tools for data collection but also facilitate delivering advertising content (Segijn, 2019, p. 60; Shklovski, 2014, p. 2348).

There is an increase in people engaging with their mobile devices while simultaneously interacting with other forms of media. This consumption or media multitasking indicates that devices such as smartphones or laptops are often used alongside with other media platforms such as television. This convergence of different media types creates a hybrid media environment. This environment is particularly innovative for

advertising strategies like synced advertising, which leverage the simultaneous use of multiple media outlets to deliver more effective advertising (Segijn, 2019, p. 60). Synced advertising should be distinguished from online behavioral advertising in terms of focus on time. Unlike online behavioral advertising, which creates personalized ads on a customer's past online behavior, synced advertising operates in the present moment. Consumers generally perceive online behavioral advertising with greater familiarity compared to synced advertising because of its longer existence. Consequently, it is anticipated that consumers have lower awareness of synced advertising behavior as it is a relatively new form of advertising (Segijn, 2019, p. 70; Segijn & Van Ooijen, 2020, p. 210).

Another study by Segijn et al. (2021) found that higher awareness of synced advertising may create more critical attitudes toward synced advertising (Segijn et al. 2021, p. 62). This suggests that when consumers are more aware of the strategy behind synced advertising, they may scrutinize these ads more closely and develop critical perspectives. Based on these findings, it is reasonable to conclude that awareness of synced advertising can impact consumers' personal experiences. Therefore, awareness and understanding of synced advertising play important roles in shaping how individuals interact with and perceive synced advertising messages. When consumers are more knowledgeable about synced advertising, they are more likely to recognize when it is being used and how it is intended to influence their behavior. Knowledge of synced advertising have already been measured by Segijn and van Ooijen (2020), who also considered online behavioral advertising. They used eight true/false statements per strategy randomly to assess knowledge (Segijn & van Ooijen, 2020, p. 212). Therefore, the following hypothesis is proposed:

*H1: Knowledge of synced advertising increases one's chances of having experienced synced advertising.*

### **2.3. Consumers' privacy concerns**

The use of personalized advertising can also create feelings of a threatened sense of freedom, leading to negative responses such as irritation and avoidance. Privacy concerns refer to the worries about the unauthorized dissemination of personal information, which has become increasingly critical due to frequent data leaks (Li et al., 2023, p. 3). Research has indicated that these privacy concerns may result in greater anxiety and insecurity when exposed to online ads, reducing their willingness to receive and interact with such content. (Li et al., 2023, p. 4). Privacy is defined as "the ability to control and limit physical, interactional, psychological and informational access to the self or one's group" (Jung, 2017,

p. 305). When individuals perceive an intrusion into their privacy or a loss of control over personal information, it triggers privacy concerns.

Technological advancements improve the ability to deliver personalized content to consumers. Yet this also increases the risk of privacy concerns (Li & Huang, 2016, p. 949). Specifically, in the context of social media, increased privacy concerns are likely due to platforms collecting and tracking consumers' online behavior, including purchase history, to tailor customized advertising messages (Jung, 2017, p. 305). This can lead to consumers becoming more resistant to such advertisements. The research of Zarouali et al. (2018) explains that when individuals feel a lack of control over own choices or perceive threats to their behavioral freedom it can triggers reactance (Zarouali et al., 2018, p. 159; Zhang et al., 2023, p. 395).

Many consumers participate in online communities without fully understanding that their personal information is regularly gathered and utilized for marketing purposes. This lack of awareness may lead to unintended data sharing and potential privacy concerns. However, when individuals become aware of data collection practices, they often experience feelings of privacy intrusion (van Doorn & Hoekstra, 2013, p. 340). The extent to which an individual is concerned about an individual's concerns about markets' data gathering practices significantly influences their adoption of privacy-protecting behaviors. Examples of privacy-protecting behavior include avoiding websites that request personal information. Moreover, searching for interpersonal advice helps consumers to navigate privacy concerns effectively. Lastly, consumers intentionally provide incomplete or inaccurate information when they need to share personal data to protect their privacy (Zarouali, 2018, p. 159; Taddicken, 2013, p. 251).

Privacy concerns have been found to result in more advertisement avoidance (Segijn et al., 2021, p. 322). With the intensification of privacy concerns, consumers are likely to have negative experiences and avoid advertisements, which diminishes advertising effectiveness and increases concerns such as feelings of intrusiveness (Boerman & Smit, 2023, p. 63). It is therefore expected that when consumers are aware of synced advertising this will lead to an increase of general privacy concerns. Moreover, consumers' direct experiences of synced advertising are also expected to increase feelings of privacy intrusion. Thus, the following hypotheses is proposed:

*H2a: Knowledge of synced advertising will lead to increased privacy concerns.*

*H2b: Having experience with synced advertising (yes vs. no) will lead to increased privacy concerns.*

## 2.4. Advertising avoidance

Advertising avoidance can be seen as a significant challenge for advertisers. Not all consumers respond positive to online advertising, whereby many consumers block advertisements. Understanding why consumers avoid online advertisements is therefore important to enhance users' advertising experiences (Wang et al., 2022, p. 3).

Kelly et al. (2019) explain advertising avoidance as the combined actions users take to reduce their exposure to advertising content. Studies on Internet advertising avoidance suggests that it operates at cognitive, mechanical and behavioral dimensions (Wei et al, 2022, p. 2). Additionally, the research of Cho and Cheon (2004) proposes a model that categorizes advertising avoidance into three types: cognitive, affective and behavioral. Cognitive avoidance entails purposefully ignoring the advertisement. Cognitive avoidance stems from consumers' perceptions of advertisements, leading to them deliberately ignore the ad. In contrast, affective avoidance involves reacting with negative emotions and expressing emotional responses toward an ad. Lastly, behavioral avoidance pertains to physical and mechanical actions individuals take to avoid ads, such as scrolling past or using an ad blocker (Cho & Cheon, 2004, p. 91; Li & Huang, 2016, p. 948-949).

Advertising avoidance often arises due to various psychological mechanisms related to persuasion. According to psychological reactance theory, when individuals feel their freedom is threatened, they resist and adjust attitudes and behaviors to regain a sense of autonomy. If advertisements are seen as invading their psychological and behavioral freedom, individuals may react by avoiding them as a defensive mechanism (Chung & Kim, 2021, p. 3-4 ).

Previous literature has explored the factors contributing to advertising avoidance on the Internet and social media platforms. Niu et al. (2021) identified three factors influencing advertising avoidance: task interruption, perceived clutter on Internet sites and negative past experiences (Niu et al., 2021, p. 2). The research of Cho and Cheon (2004) suggests that ad avoidance can be influenced by perceived goal impediment resulting from advertising. When individuals use the Internet, they often have specific goals in mind. Internet ads, perceived as more intrusive than other forms of media advertising, can disrupt these goals. When an advertisement hinders consumers' goals or autonomy, it may lead to negative outcomes such as frustration, unfavorable attitudes and, ultimately, ad avoidance (Cho & Cheon, 2004, p. 90). According to Li and Huang (2016), perceiving advertising interruptions directly induces both cognitive and behavioral avoidance directly (Li & Huang, 2016, p. 949). When individuals perceive that ads disrupt their experience or impede their goals, they

may actively avoid those advertisements (Cho & Cheon, 2004, p. 90; van Doorn & Hoekstra, 2013, p. 340) Secondly, perceived ad clutter is known as a consumer's belief about the amount of advertising in a particular medium (Jung & Heo, 2020, p. 593). It is not an objective measurement yet rather an evaluation based on the perception of consumers of ad volume. Examples of ad clutter include numerous banner ads, pop-up ads and text links on Web pages. This irritation caused by an overwhelming number of ads contributes to negative attitudes and consequently, ad avoidance (Cho & Cheon, 2004, p. 90; Jung & Heo, 2020, p. 593). Lastly, prior negative experiences may impact ad avoidance behavior. Consumers often rely on personal experiences to inform their behavior. When users feel dissatisfied with Internet ads and perceive little utility or incentive to click on them, it often results in negative associations. These prior negative experiences may result in consumers to actively avoiding ads from the same source, reinforcing their tendency to avoid such content (Cho & Cheon, 2004, p. 91).

Research of Chinchachokchai & de Gregorio (2020) examined the relationship between advertising attitudes and avoidance behavior. Participants who held more positive beliefs about advertising demonstrated reduced advertising avoidance. These favorable attitudes may stem from perceptions of ads as informative, entertaining or relevant. Conversely, stronger negative beliefs – such as finding ads annoying or a waste of time were associated with increased avoidance. When consumers perceive relevant ads as intrusive or irrelevant, they are more likely to avoid them (Chinchachokchai & de Gregorio, 2020, p. 475).

In terms of synced advertising, individuals may find it difficult to manage advertisements across multiple media channels. Synced advertisements appearing on various platforms could evoke feelings of surveillance or intrusion into privacy. These negative experiences can result in advertising avoidance. Therefore, the following hypotheses are created:

*H3a: Consumers' privacy concerns and cognitive avoidance are positively related.*

*H3b: Consumers' privacy concerns and attitudinal avoidance are positively related.*

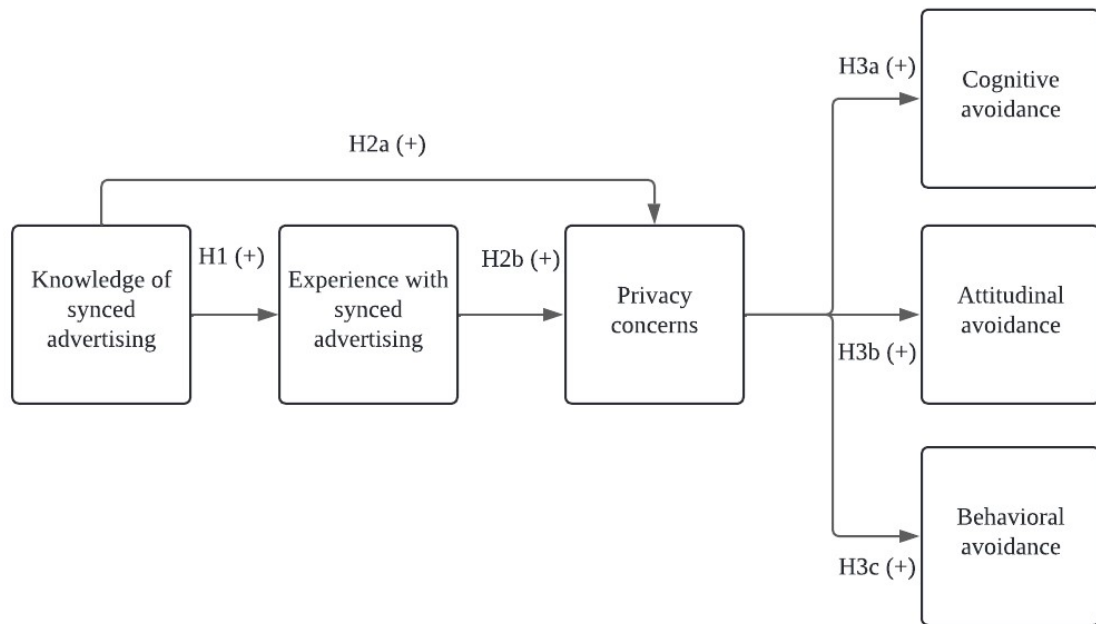
*H3c: Consumers' privacy concerns and behavioral avoidance are positively related.*

## 2.5. Conceptual framework

Previous research and the formulated hypotheses resulted in the following conceptual framework:

**Figure 2.1**

*Conceptual Framework*



All the proposed hypotheses pertain to direct effects. However, if a chain of multiple direct effects is observed – for instance an indirect effect of knowledge of synced advertising on privacy concerns via consumers’ own experiences – PROCESS modeling will be employed to test the significance of said indirect effect(s).

### **3. Methods**

This section provides a detailed description of the methodology of this research. After the general design is introduced, the process of sampling process and validity of the sample are described. Lastly, an overview of the measurements including factor analysis and reliability analysis is presented.

#### **3.1. Research design**

This research employed a quantitative research approach to test multiple hypotheses concerning synced advertising, its impact on privacy concerns and advertising avoidance. A quantitative approach was suitable for this research because it allowed for the systematic investigation of relationships between variables and it made observations more explicit (Babbie, 2016, p. 25). This is particularly effective in understanding how knowledge and experience of synced advertising influences privacy concerns and subsequent advertising avoidance. A survey was selected as the primary method of data collection to gather data and information. Surveys are effective for both descriptive and explanatory purposes, providing an original means of collecting data to describe a population. In addition, surveys are effective for capturing self-reported data on individuals' perceptions, attitudes and behaviors, which were central in this research (Babbie, 2016, p. 256). The survey aimed to assess participants' understanding of synced advertising and their exposure to such marketing strategies.

To enhance the survey's validity and reliability of the survey, pilot testing was conducted among three participants to identify any potential issues in the survey in general and subsequent formulation of the questions. Feedback from the pilot test was used to revise and improve the survey instrument before its full distribution. The feedback was minimal and mainly involved rephrasing sentences for clarity.

The survey adhered to ethical guidelines, providing participants with clear and comprehensive information about the study, procedure and its objective. Informed consent was obtained prior to participation. To address privacy concerns, all collected data was securely stored, and participants' anonymity was maintained. Participants were fully informed about the study and the true purpose of the research and were not deceived about the topic. Additionally, individuals outside the scope of age, namely below 18 years or above 45 years old, were not allowed to participate and were directed to the end of the survey.

The questionnaire started with a consent form, where participants granted permission to collect their data. Most participants completed the survey within the estimated completion time of 5 to 10 minutes as stated in the survey. The survey started with two introductory questions regarding the respondent's age and nationality. The research focused on Dutch participants aged between 18 and 45 years to ensure alignment with the desired target group. Following this, the questionnaire delved into two questions about participants' social media usage, aiming to understand participants' social media usage and how much time per day they approximately spend on social media. Those who did not meet the requirements of age, nationality, or social media usage were directed to the end of the questionnaire. In total, three respondents were excluded due to age, two respondents due to nationality and 19 respondents did not fully complete the survey.

After completing these initial questions, participants that met the specified criteria could proceed with the questionnaire. The survey continued with two demographic questions regarding gender and highest completed educational level. Following this, the questionnaire started with eight questions about the use of multiple devices at the same moment. Participants were asked if statements were true or false and there were no wrong questions. This was done to indicate their knowledge about the topic of synced advertising.

Furthermore, participants were presented with a hypothetical situation involving an example of synced advertising. Participants were asked if they were familiar with this possibility of synced advertising and if they had ever experienced such advertising tactics. Subsequent sections explored participants' attitudes toward advertisements based on their television watching behavior. The survey then delved into five general questions about privacy concerns in which participants needed to answer whether the statements were applicable to them. After the questions about privacy concerns, participants were asked eight questions about advertising avoidance in general and the actions they employed to avoid advertisements. The survey ended with a text box where participants could ask questions or comment on about the research. However, no significant remarks were made regarding the research.

### **3.2. Sample description**

The method of sampling used to collect data was non-probability sampling. The survey was distributed from April 19 until May 14, 2024 across multiple platforms including LinkedIn, WhatsApp, Instagram and Facebook. This research focused specifically on advertising on social media platforms and it was therefore important that respondents had



experience with a wide array of social media advertising practices. Previous research has indicated that active social media users typically fall within the age range of 18 to 45 years old (CBS, 2020). Using this group as focus of the study, this ensured that participants were more likely to be aware of certain advertising practices, particularly synced advertising. Participants who did not use social media were directed to the end of the questionnaire, thereby excluding their responses. Furthermore, this study focused exclusively on the Netherlands and therefore participants needed to be Dutch. Non-Dutch participants were therefore not included in the dataset. Lastly, demographic information such as age, gender and educational background was collected. Including these variables offered a nuanced understanding of how they may influence participants' perceptions and behaviors concerning synced advertising on social media.

**Table 3.1**

*Sample Characteristics*

Characteristics of sample	Items	Frequency	Percentage
Age	18-24	98	61.6
	25-31	33	20.8
	32-38	17	10.7
	39-45	11	6.9
Gender	Male	58	36.5
	Female	101	63.5
Level of education	High School	7	4.4
	MBO	14	8.8
	Bachelor	94	59.1
	Master	42	26.4
	PHD or higher	2	1.3
Social media use	1 hour or less	12	7.5
	1 to 2 hours	51	32.1
	2 to 3 hours	50	31.4
	3 to 4 hours	28	17.6
	4 to 5 hours	10	6.3
	5 hours or more	8	5.0
Was aware of synced advertising before	Yes	100	62.9
	No	59	37.1
Has experienced synced advertising before	Yes	99	62.3
	No	11	6.9
	Unsure	49	30.8

A total of 183 responses was gathered. After data cleaning, 159 responses were included for further analyses. Most of the respondents were aged between 18 to 24 years old (61.6%). In addition, 20.8% of the respondents were aged between 25 and 31 years old, 10.7% were aged between 32 to 38 years old and 6.9% 39 to 45 years old. Age had a mean score of 25.79 and a standard deviation of 6.1. The variable age was recoded by adding 17 to the original score (i.e., 1 = 18, 2 = 19). A percentage of 63.5% of the respondents identified as female and 36.5% identified as male – none chose the option ‘binary’, ‘other’ and ‘prefer not to say’. In terms of level of education, most of the participants completed a bachelor’s degree (59.1%). Moreover, 26.4% completed a master’s degree. Of the remaining participants, 4.4% completed high school, 8.8% completed MBO (i.e., vocational training) and 1.3% completed PHD or higher. About two-thirds of participants use social media between 1 to 3 hours per day (i.e., 63.5%). The characteristics of the sample can be observed in Table 3.1.

### 3.3. Operationalization

The survey incorporated existing scales to measure the main variables. First of all, participants needed to be active users of social media. To measure the frequency of *social media use*, the scale developed by Van der Goot et al. (2016) was used. The first questions asked participants about the frequency of their social media use, allowing them to select the number of days per week they use social media, with options ranging from 0 to 7 days. The next item included daily time spent on social media, with response options ranging from (1) “1 hour or less”, (2) “1 to 2 hours”, (3) “2 to 3 hours”, (4) “3 to 4 hours”, (5) “4 to 5 hours”, (6) “5 hours or more”. Social media use was treated as an index by multiplying the number of days using social media by the hours spent on it per day. This results in a new variable, with scores ranging from 6.00 to 48.00 with a mean of 23.67 and a standard deviation of 9.99.

Secondly, to explore the impact of the independent variable *knowledge of synced advertising*, participants must be familiar with the concept. Based on the scale of Segijn & Van Ooijen (2022), synced advertising is measured with 8 items. Example items included “Is it possible for companies to collect information about the show that people watch on television, and simultaneously advertise relevant products/brands on those people’s mobile devices”, “A company can show me an ad on my mobile device from a brand at the same time that I am watching a television commercial from that brand.” and “It is impossible that words that I say out loud can trigger my ad on my mobile device related to that word.”.

Respondents were asked if the statement were 1 (true) or 2 (false). To determine the number of correct answers, the answer options needed to be recoded into 0 and 1. If respondents selected the correct answer they got a 1 and if they answered incorrectly, they got a 0. In addition, the last three items were reversed coded so that a higher score would reflect more favorable outcomes for knowledge of synced advertising. The scale was calculated by averaging respondents' scores on the eight items. The scale scores ranged from 0.00 to 8.00, with a mean score of 5.65 and a standard deviation of 2.00. Based on this average, it seemed that knowledge of synced advertising was moderately high, with respondents generally answering more questions right than wrong.

Furthermore, the *experience of synced advertising* was assessed using the scale of Boerman & Segijn (2022) with a hypothetical situation and included two items, "Were you familiar with the possibility of synced advertising?" and "Have you ever received synced advertising?". Participants could answer the first question with "Yes or No" and the second question with "Yes", "No" or "Unsure". In this research, only responses to the second item were analyzed and used as the variable measuring "experience". This decision was made to simplify the analysis and prove a clearer distinction between those with and without experience with synced advertising. The responses that were answered with "Unsure" were recoded as "No" because a significant number of respondents (i.e., 30.8%) selected "Unsure", making it necessary to include these answers in the data analysis. Moreover, the variable was recoded in such a way that a score of 1 represented for those people who were certain about having previous experience (i.e., 62.3%, see Table 3.1), and a score of 0 those who were unsure or did not have such an experience.

Moreover, the variable *privacy concerns* was measured by the scale of Smit et al. (2014) including five items. A high score indicated a higher level of privacy concerns. Two example items included "I believe that my personal data have been misused too often" and "I feel uncomfortable when data are shared without permission". The items with the corresponding Cronbach alpha and factor loadings can be observed in table 3.2. Participants were asked to indicate on a scale from 1 (Completely disagree) to 5 (Completely agree) whether the statement in the items applied to them. There was no need to recode variables and a high score indicated a higher level of privacy concern. The five items were entered into a confirmatory factor analysis using Principal Components extraction with oblique rotation (Direct Oblimin) based on Eigenvalues ( $>1.00$ ),  $KMO = .71$ ,  $\chi^2 = (N = 159, 10) = 239.25$ ,  $p = <.001$ . The model explained 52.2% of the variance in privacy concerns. The five items were loaded onto one single factor with an acceptable Cronbach alpha ( $\alpha = .75$ ). The

scale score was calculated by averaging respondents' scores on the five items. The scale score ranged from 1.00 to 5.00, with a mean score of 3.56 and a standard deviation of 0.63, indicating that the average level of privacy concerns among participants was moderately high.

Additionally, the dependent variable of *advertising avoidance* was measured based on the scale of Cho (2004) including nine items. These nine items are adjusted to the context of the study of social media and can be divided into three categories: cognitive avoidance, attitudinal avoidance and behavioral avoidance. The items with the Cronbach alpha and factor loadings can be observed in table 3.2. Participants were asked to indicate on a scale from 1 (Completely disagree) to 5 (Completely agree) whether the statements in the items applied to them and there was no need to recode variables. Items of cognitive avoidance include "I intentionally don't put my eyes on sponsored ads on social media", "I intentionally don't click on any sponsored ads on social media" and "I intentionally ignore any ads on my social media page". A high score indicated a higher level of cognitive avoidance. The three items were entered into a confirmatory factor analysis using Principal Components extraction with oblique rotation (Direct Oblimin) based on Eigenvalues ( $>1.00$ ),  $KMO = .69$ ,  $\chi^2 = (N = 159, 3) = 310.28$ ,  $p = <.001$ . The model explained 82.0% of the variance in cognitive avoidance, and all items were loaded onto a single factor with a desirable Cronbach alpha ( $\alpha = .89$ ). The scale score was calculated by averaging respondents' scores on the three items. The scale score ranged from 1.00 to 5.00, with a mean score of 3.03 and a standard deviation of 0.98, indicating that on average participants exhibit a moderate level of cognitive avoidance towards ads on social media.

Attitudinal avoidance includes three items, "I hate ads in my newsfeed," "I hate sponsored ads on social media" and "It would be better if there were no ads in my newsfeed". A high score indicated a higher level of attitudinal avoidance. The three items were entered into a confirmatory factor analysis using Principal Components extraction with oblique rotation (Direct Oblimin) based on Eigenvalues ( $>1.00$ ),  $KMO = .69$ ,  $\chi^2 = (N = 159, 3) = 156.97$ ,  $p = <.001$ . The model explained 72.0% of the variance in attitudinal avoidance. All items were loaded onto a single factor with a desirable Cronbach alpha ( $\alpha = .80$ ). The scale score was calculated by averaging respondents on the three items. The scale score ranged from 1.00 to 5.00, with a mean score of 3.55 and a standard deviation of 0.89, indicating that participants had a moderately high level of attitudinal avoidance towards ads on social media.

Behavioral avoidance includes items “I scroll down to avoid ads in my newsfeed”, “I do any action to avoid ads on my social media” and “I unfriend brands on my social media page”. A high score indicated a higher level of behavioral avoidance. The three items were entered into a confirmatory factor analysis using Principal Components extraction with oblique rotation (Direct Oblimin) based on Eigenvalues ( $>1.00$ ),  $KMO = .62$ ,  $\chi^2 = (N = 159, 3) = 40.27$ ,  $p = <.001$ . The model explained 53.7% of the variance in behavioral avoidance. Though the three items loaded onto one factor, this factor had a non-preferable Cronbach alpha ( $\alpha = .57$ ), indicating poor internal consistency. It is therefore decided to use only one item, “I scroll down to avoid ads in my newsfeed” as the measure for behavioral avoidance. This was done to ensure a more reliable and interpretable measure for behavioral avoidance. The scale score ranged from 1.00 to 5.00, with a mean score of 3.60 and a standard deviation of 1.01, indicating that there is a moderate tendency of participants to scroll down to avoid ads.

Finally, *perceived creepiness* related to synced advertising was measured based on the scale of Segijn et al. (2022), which included four items. Perceived creepiness was measured in the survey, however, counts as an additional variable and was not taken into account in the data analysis. Example items included “It is unsettling to receive ads personalized based on my TV viewing habits”, “Ads personalized based on my TV viewing habits make me feel uneasy” and “I feel threatened by ads personalized based on my TV viewing habits”. The items with the Cronbach alpha and factor loadings can be observed in table 3.2. Respondents were asked to indicate on a scale from 1 (Completely disagree) to 5 (Completely agree) whether the statement in the item applied to them. There was no need to recode variables and a high score indicated a higher level of perceived creepiness. The four items were entered into a confirmatory factor analysis using Principal Components extraction with oblique rotation (Direct Oblimin) based on Eigenvalues ( $>1.00$ ),  $KMO = .79$ ,  $\chi^2 = (N = 159, 6) = 275.11$ ,  $p = <.001$ . The model explained 68.7% of the variance in perceived creepiness. The four items clustered in one factor, with a desirable Cronbach alpha ( $\alpha = .85$ ). The scale score was calculated by averaging respondents’ scores on the four items. The scale scores ranged from 1.00 to 5.00, with a mean score of 3.42 and a standard deviation of 0.85. This suggests a moderate level of perceived creepiness related to synced advertising among participants, indicating that they generally find such ads unsettling but not overwhelming.

**Table 3.2***Measurements, Cronbach alpha's and factor loadings*

Construct	Items	Factor Loadings
Privacy concerns	( $\alpha = .75$ ) (1 = strongly disagree, 5 = strongly agree)	
	1. I am concerned about the potential misuse of personal data.	.889
	2. I fear that personal information has not been stored safely.	.815
	3. I feel uncomfortable when data are shared without permission.	.717
	4. I believe that personal data have been misused too often	.658
	5. I worry about receiving ads in which I am not interested.	.459
Cognitive avoidance	( $\alpha = .98$ ) (1 = strongly disagree, 5 = strongly agree)	
	1. I intentionally don't put my eyes on sponsored ads on social media	.994
	2. I intentionally don't click on any sponsored ads on social media	.921
	3. I intentionally ignore any ads on my social media page	.848
Attitudinal avoidance	( $\alpha = .80$ ) (1 = strongly disagree, 5 = strongly agree)	
	1. I hate ads in my newsfeed	.885
	2. I hate sponsored ads on social media	.847
	3. It would be better if there were no ads in my newsfeed	.810
Behavioral avoidance	( $\alpha = .57$ ) (1 = strongly disagree, 5 = strongly agree)	
	1. I scroll down to avoid ads in my newsfeed	.760
	2. I do any action to avoid ads on my social media	.746
	3. I unfriend brands on my social media page	.691
Perceived creepiness	( $\alpha = .85$ ) (1 = strongly disagree, 5 = strongly agree)	
	Ads personalized based on my TV viewing habits make me feel uneasy	.876
	It is unsettling to receive ads personalized based on my TV viewing habits	.867
	I feel threatened by ads personalized based on my TV viewing habits	.795
	Ads personalized based on my TV viewing habits invade my privacy	.773

## 4. Results

In this chapter results from the data analysis are presented. First of all, the bivariate correlations are described. Then the first analysis of the effect of knowledge of synced advertising on the experience of synced advertising is shown using a logistic regression analysis. Thirdly, a series of multiple regression analyses are presented to determine the relations between individuals' own experience with synced advertising and privacy concerns, between knowledge of synced advertising and privacy concerns, and between privacy concerns and cognitive, attitudinal and behavioral avoidance. In all regression analyses, the control variables of social media use, age, gender and level of education were taken into account.

### 4.1. Bivariate correlations

Table 4.1 provides information on the correlations between the measurements of social media use, knowledge of synced advertising, experience of synced advertising, privacy concerns, the different attitudes of advertising avoidance, and the demographic variables related to gender, age, and level of education. Analyzing the variables in the order in which they are presented, it can be observed that social media use has a significant negative correlation with attitudinal avoidance and age. This indicates that higher social media use is associated with lower levels of attitudinal avoidance and a younger age. In addition, social media use has a significant positive correlation with the experience of synced advertising. This suggests that higher social media use is associated with an increased likelihood of experience with synced advertising.

Experience with synced advertising has a significant negative correlation with age and education level. Younger people and those with lower levels of education tend to have more experience with synced advertising. Privacy concerns have a significant positive correlation with cognitive avoidance, attitudinal avoidance behavioral avoidance. This indicates that higher privacy concerns are associated with higher levels of cognitive, attitudinal and behavioral avoidance. Cognitive avoidance in turn has significant positive correlation with attitudinal avoidance and behavioral avoidance. It also has a significant positive correlation with gender which indicates that cognitive avoidance is higher among females. Finally, attitudinal avoidance and behavioral avoidance are positively related too.

Based on these correlations, it can be concluded that there is lacking evidence regarding H1, which posited that knowledge of synced advertising increases one's chances of having experienced it. The direct correlation between knowledge and experience was not

provided. Similarly, there is lacking evidence of H2, which posited that having experience with synced advertising will lead to increased privacy concerns, as the direct correlation between experience and privacy concerns was not provided. However, Table 4.1 provides evidence that privacy concerns and different forms of avoidance behavior were correlated, supporting H3a, H3b and H3c.

**Table 4.1**

*Correlations (n = 159)*

		1	2	3	4	5	6	7	8	9	10
<b>1. Social media use</b>	<b>Correlation</b>	1	.12	.16*	-.07	.02	-.20*	-.03	-.09	-.38**	-.06
	<b>Sig. (2-tailed)</b>		.139	.044	.412	.841	.013	.682	.238	<.001	.431
<b>2. Knowledge of synced advertising</b>	<b>Correlation</b>	.12	1	.14	.12	.04	-.01	.08	.06	.02	.08
	<b>Sig. (2-tailed)</b>	.139		.074	.131	.612	.897	.309	.439	.845	.318
<b>3. Experience with synced advertising</b>	<b>Correlation</b>	.16*	.14	1	-.13	-.00	-.06	-.06	.08	-.18*	-.18*
	<b>Sig. (2-tailed)</b>	.044	.074		.110	.907	.495	.439	.330	.031	.026
<b>4. Privacy concern</b>	<b>Correlation</b>	-.07	.12	-.13	1	.39**	.35**	.28**	-.02	.02	.02
	<b>Sig. (2-tailed)</b>	.412	.131	.110		<.001	<.001	<.001	.771	.828	.778
<b>5. Cognitive avoidance</b>	<b>Correlation</b>	.02	.04	-.01	.39**	1	.50**	.43**	.17*	-.05	-.12
	<b>Sig. (2-tailed)</b>	.841	.612	.907	<.001		<.001	<.001	.036	.559	.120
<b>6. Attitudinal avoidance</b>	<b>Correlation</b>	-.20*	-.01	-.06	.35**	.50**	1	.57**	.05	.08	.02
	<b>Sig. (2-tailed)</b>	.013	.897	.495	<.001	<.001		<.001	.560	.317	.820
<b>7. Behavioral avoidance</b>	<b>Correlation</b>	-.03	.08	-.06	.28**	.43**	.57**	1	.09	.07	-.13
	<b>Sig. (2-tailed)</b>	.682	.309	.439	<.001	<.001	<.001		.254	.409	.112
<b>8. Gender</b>	<b>Correlation</b>	-.09	.06	.08	-.02	.17*	.05	.09	1	.09	-.19*
	<b>Sig. (2-tailed)</b>	.238	.439	.330	.771	.036	.560	.254		.273	.015
<b>9. Age</b>	<b>Correlation</b>	.38**	.02	-.18*	.02	-.05	.08	.07	.09	1	.04
	<b>Sig. (2-tailed)</b>	<.001	.845	.031	.828	.559	.317	.409	.273		.602
<b>9. Level of education</b>	<b>Correlation</b>	-.06	.08	-.17*	.02	-.12	.02	-.13	-	.04	1
	<b>Sig. (2-tailed)</b>	.431	.318	.026	.778	.120	.820	.112	.19*	.015	.602

Note: \*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).



#### 4.2. Effect on experience of synced advertising (H1)

The first hypothesis posits that knowledge about synced advertising will impact a person's own experience of synced advertising. Knowledge was measured continuously (i.e., on a scale from 0 to 8) and experience was measured on a binary level (i.e., 0 = no/unsure, 1 = yes). Here, knowledge of synced advertising serves as the independent variable and own experience of synced advertising serves as the dependent variable. A logistic regression analysis was conducted to assess the effects of knowledge of synced advertising on the experience of synced advertising using social media use, gender, age and education level as controlling variables. The model containing all predictors was found to be significant,  $\chi^2(5,150) = 16.74, p = .005$ . The model explained 14.4% (Nagelkerke  $R^2$ ) of the variance in the experience of synced advertising. Knowledge of synced advertising does not significantly predict the experience with synced advertising ( $b = .16, p = .069$ ). Hence, H1 is rejected. Furthermore, social media use ( $b = .02, p = .321$ ), gender ( $b = .31, p = .419$ ) and age ( $b = -.05, p = .106$ ) were not significant predictors for the experience of synced advertising. However, the level of education has a negative significant effect on the experience of synced advertising ( $b = -.63, p = .022$ ). This indicates that individuals with higher levels of education are less likely to report having experience with synced advertising compared to those with lower levels of education.

#### 4.3. Effects on privacy concerns (H2a, H2b)

This research examines whether knowledge of synced advertising positively affects privacy concerns. Knowledge of synced advertising was measured continuously, privacy concerns were measured continuously too and therefore a regression analysis is needed. A multiple linear regression with knowledge of synced advertising as the independent variable and privacy concerns as the dependent variable was conducted. The variables of social media use, gender, age and level of education were taken as control variables in the analysis. The model was not significant,  $F(5,144) = 0.631, p = .677, R^2 = 0.021$ . The control variables social media use ( $\beta = -.11, b = -.01, p = .242$ ), gender ( $\beta = -.06, b = -.07, p = .515$ ), age ( $\beta = -.02, b = -.00, p = .823$ ) and level of education ( $\beta = -.00, b = -.00, p = .961$ ) did not affect privacy concerns. The independent variable knowledge of synced advertising did not have a significant effect either ( $\beta = .113, b = .04, p = 0.177$ ). Hypothesis 2a positing that knowledge of synced advertising leads to increased privacy concerns is rejected.

In addition, it was hypothesized that a consumer's own experience of synced advertising will have a positive influence on privacy concerns. Experience was measured on a binary level and privacy concerns was measured continuously. Therefore, a multiple

regression analysis with own experience as the independent variable and privacy concerns as the dependent variable was conducted. The variables social media use, gender, age and level of education were taken as control variables in the analysis. The model was not significant,  $F(5,144) = .76, p = .578, R^2 = .03$ . The control variables of social media use ( $\beta = -.07, b = -.01, p = .410$ ), gender ( $\beta = -.04, b = -.05, p = .653$ ), age ( $\beta = -.03, b = -.00, p = .727$ ) and level of education ( $\beta = -.02, b = -.02, p = .828$ ) had a no significant influence on privacy concerns. The independent variable of experience did not have a significant influence on privacy concerns either ( $\beta = -.14, b = -.18, p = .116$ ). The hypothesis that experience with synced advertising leads to increased privacy concerns (H2b) is therefore rejected.

#### **4.4. Effects on avoidance behavior (H3a, H3b, H3c)**

First of all, in this research, it was expected that increased privacy concerns would have a positive influence on cognitive avoidance. Both variables are measured continuously and therefore a multiple regression analysis with cognitive avoidance as a dependent variable and privacy concerns as a predictor was conducted. The control variables social media use, gender, age and level of education were taken into account in the analysis. The model was found to be significant,  $F(5, 144) = 6.22, p < .001, R^2 = .18$ . The control variables age ( $\beta = -.06, b = -.01, p = .492$ ), level of education ( $\beta = -.09, b = -.12, p = .24$ ), social media use ( $\beta = .03, b = .00, p = .765$ ) and gender ( $\beta = .15, b = .30, p = .064$ ) all had no significant influence on cognitive avoidance. Privacy concerns, however, did have a positive significant influence on cognitive avoidance ( $\beta = .39, b = .60, p < .001$ ). Increased privacy concerns were associated with higher levels of cognitive avoidance. Therefore, H3a is accepted.

Second of all, it was expected that increased privacy concerns would have a positive influence on attitudinal avoidance. Both variables are measured continuously and therefore a multiple regression analysis with attitudinal avoidance as the dependent variable and privacy concerns as a predictor was conducted. The control variables of social media use, gender, age and level of education were taken into account in the analysis. The model was found to be significant,  $F(5, 144) = 5.56, p < .001, R^2 = .16$ . The control variable social media use ( $\beta = -.16, b = -.01, p = .062$ ), gender ( $\beta = .06, b = .11, p = .448$ ), age ( $\beta = .01, b = .00, p = .884$ ), and level of education ( $\beta = .00, b = .00, p = .995$ ) all had no significant influence on attitudinal avoidance. Still, privacy concerns did have a positive significant influence on attitudinal avoidance ( $\beta = .35, b = .50, p < .001$ ). Increased privacy concerns were associated with higher levels of attitudinal avoidance. Therefore, H3b is accepted.

Lastly, it was expected that increased privacy concerns would have a positive influence on behavioral avoidance. Both variables are measured continuously and therefore

a multiple regression analysis with behavioral avoidance as the dependent variable and privacy concerns as predictor was conducted. The control variables of social media use, gender, age and level of education were taken into account in the analysis. The model was found to be significant,  $F(5, 144) = 3.37, p < .007, R^2 = .11$ . The control variables social media use ( $\beta = .01, b = .00, p = .945$ ), gender ( $\beta = .07, b = .14, p = .408$ ), age ( $\beta = .06, b = .01, p = .487$ ), and level of education ( $\beta = -.11, b = -.15, p = .175$ ) all had no significant influence on attitudinal avoidance. Privacy concerns, however, did have a positive significant influence on behavioral avoidance ( $\beta = .29, b = .47, p = <.001$ ). Increased privacy concerns were associated with higher levels of behavioral avoidance. Therefore, H3c is accepted.

#### **4.5. Summary of results**

Table 4.2. presents an overview of all the hypotheses of this research. To conclude, the hypothesis that knowledge of synced advertising increased the chance of having experienced synced advertising was rejected. Additionally, the hypothesis that knowledge of synced advertising led to increased privacy concerns was rejected and that having experience with synced advertising led to increased privacy concerns was also rejected. However, the hypotheses that privacy concerns led to increased cognitive, attitudinal and increased behavior avoidance were all accepted.

It can be observed that social media use had a significant negative correlation with attitudinal avoidance and age, indicating that higher social media use was associated with lower levels of attitudinal avoidance and younger age. In addition, social media use had a significant positive correlation with the experience of synced advertising, suggesting that high social media usage is associated with an increased likelihood of experiencing synced advertising. Furthermore, it was found that educational level significantly affected the experience of synced advertising, with individuals having higher education levels being less likely to report having experienced synced advertising.

**Table 4.2***Summary of hypothesis testing results*

	<b>Hypothesis</b>	<b>Outcome</b>
<b>H1</b>	Knowledge of synced advertising increases one's changes of having experienced synced advertising.	Rejected
<b>H2a</b>	Knowledge of synced advertising will lead to increased privacy concerns.	Rejected
<b>H2b</b>	Having experience with synced advertising (yes vs. no) will lead to increased privacy concerns.	Rejected
<b>H3a</b>	Privacy concerns will lead to increased cognitive avoidance.	Accepted
<b>H3b</b>	Privacy concerns will lead to increased attitudinal avoidance.	Accepted
<b>H3c</b>	Privacy concerns will lead to increased behavioral avoidance.	Accepted

## **5. Discussion and conclusion**

The last section summarizes all the findings and provides an answer to the research question. Furthermore, the limitations and strengths of the research are presented and discussed. Lastly, suggestions for future research and the conclusion are described.

### **5.1. Theoretical implications**

The findings from this study present several significant theoretical implications for the field of advertising. One key theoretical implication is the observed disconnection between consumers' knowledge of synced advertising and their actual experience with it. The rejection of H1, which hypothesized that knowledge of synced advertising increases one's chance of having experienced synced advertising, challenges the assumption that awareness of synced advertising leads to experience it. Previous research by Segijn and van Ooijen (2020) investigated that consumers correctly answered between 52.3% and 85.5% of statements regarding their knowledge of synced advertising. However, the study also included online behavioral advertising (OBA) and they found that participants were more aware of online behavioral advertising (Segijn & van Ooijen, 2020, p. 214). Also, in this study a relative high amount of participants were aware of synced advertising with a total of 62.9% that was aware of synced advertising and 62.3% reporting they had experienced it. Despite this, a significant number of participants remained uncertain about whether they had experienced synced advertising. This indicates a potential gap between awareness and recognition. One possible explanation for this gap could be the seamless integration of synced advertising into consumers' media experiences. While consumers may have a general understanding or have heard of synced advertising, they might not always recognize it in practice. This seamless nature can make it difficult for consumers to consciously identify when they are being targeted by synced advertising. Therefore, the integration of these ads into the media environment might be so smooth that it escapes explicit notice, thereby complicating the relationship between knowledge and experience. On the other hand, it could also be possible that participants are unsure whether an advertisement's appearance is intentional or coincidental. This uncertainty can further blur the line between recognizing synced advertising and attributing to mere chance. For example, when a consumer sees an ad for a product on their smartphone shortly after viewing a related commercial on their TV, they might not immediately recognize this as a deliberate synchronized effort by advertisers. It might attribute to coincidence or simply not make the connection at all.

Furthermore, the rejection of H2a and H2b challenges assumptions about the relationship between knowledge and experience of synced advertising and privacy concerns. It was hypothesized that knowledge and experience with synced advertising would lead to greater privacy concerns. However, the findings of this study did not support these hypotheses. Previous research by Segijn et al. (2021) suggested that increased awareness of synced advertising leads to more critical attitudes and perceived surveillance (Segijn et al. 2021, p. 62). They measured critical attitudes by asking participants about the presence of brands on their mobile phones while watching TV and assessed perceived surveillance with questions related to synced advertising and privacy concerns. This differs from this study, which measured privacy concerns more generally rather than focusing specifically on synced advertising. The variation in methodologies could explain the varying results. Moreover, Segijn et al. (2021) conducted an experiment where participants were explicitly informed about synced advertising, whereas this study did not provide this information. Another explanation could be that participants are not fully aware of sharing personal information. Many consumers actively engage in online communities without fully realizing that their personal information is frequently collected and used for marketing purposes. This lack of awareness can lead to unintended data sharing and potential privacy concerns (Zarouali, 2018, p.159). Therefore, the disconnection between knowledge, experience and privacy concerns may stem from the broader unawareness of data collection in the consumers' online and offline environment.

The third set of hypotheses proposed that privacy concerns would lead to cognitive, attitudinal and behavioral avoidance (H3a, H3b, H3c) was supported. This aligns with previous research indicating that privacy concerns can lead to different forms of avoidance behaviors. Previous research by Cho and Cheon (2004) highlighted that when an advertisement interrupts a consumer's goal or activity, it can lead to negative consequences such as frustration, unfavorable attitudes and ad avoidance (Cho & Cheon, 2004, p. 90; Chinchachokchai & de Gregorio, 2020, p. 475; Niu et al., 2021, p. 2). This study reinforces this finding by showing that increased privacy concerns similarly lead to avoidance behaviors. In addition to these findings, it is important to consider the psychological impact on personal freedom. Individuals who perceive a threat to their freedom often resist their circumstances and adjust their attitudes and behaviors to regain a sense of control (Chung & Kim, 2021, p. 3-4). This resistance might manifest as avoidance behavior, where individuals perceive the ads as not only annoying but also a threat to their freedom of choice and privacy.

Research by Chinchanchokchai and de Gregorio (2020) also investigated that how stronger negative beliefs, such as perceiving ads annoying or a waste of time are associated with increased avoidance. Consumers are more likely to avoid ads they perceive as intrusive or irrelevant (Chinchanchokchai & de Gregorio, 2020, p. 475). Additionally, consumers often rely on personal experiences to guide their behavior. Dissatisfaction with Internet ads, combined with a perceived lack of utility or incentive to engage with them, can create negative associations. These negative associations may lead consumers to actively avoid ads, reinforcing their tendency to avoid such content (Cho & Cheon, 2004, p. 91). Therefore, both privacy concerns and perceived threats to personal freedom contribute to why individuals might avoid synced advertising. Although this study did not measure negative attitudes directly, it suggests that future research should include such variables to enhance the explanatory power of the models. By incorporating measures of negative attitudes, future studies can provide a more comprehensive understanding of how privacy concerns influence avoidance behavior.

## **5.2. Managerial implications**

The findings of this research have significant implications for managers and marketers aiming to optimize their advertising strategies, particularly in the context of synced advertising and social media. First of all, this study argued in that high levels of privacy concern are associated with increased advertising avoidance behaviors. Managers should ensure complete transparency in how consumer data is collected, stored and used in synced advertising. This transparency build consumer trust and user control and reduce the likelihood of advertising avoidance and privacy concerns. Implementing clear and easily accessible privacy policies is important. For consumers, these policies provide transparency and help build consumer trust. Moreover, regularly informing consumers about their data can help to overcome fears. Second of all, this study investigated that knowledge of synced advertising does not predict consumers' increased privacy concerns. This suggest that merely being aware of synced advertising is not enough to influence privacy perceptions. Therefore, it might be important to educate consumers not only about what synced advertising is, but also to emphasize its benefits and address perceived risks.

Furthermore, the inclusion of various demographic variables such as social media use, age, gender and level of education in the analysis provides marketers with critical insights into their target audience. For example, understanding that younger individuals are more likely to experience synced advertising can help tailoring messages and platforms to this specific demographic. In addition, understanding that higher social media use correlates

with a greater likelihood of experiencing synced advertising can inform better targeting strategies on this platform.

Finally, this research has important implications for social media platforms. By understanding users reactions to advertising content, these platforms can optimize ad placements and frequency according to user behavior. This insight allows platforms to minimize factors that lead to ad avoidance, by improving the overall user experience. For example, platforms such as Instagram or TikTok could use insights from synced advertising to offer personalized ad experiences that are less intrusive. In addition, those platforms can implement algorithms that limit the frequency of ads for individuals based on their interaction history. If a user frequently avoid ads, the platforms could reduce the number of ads to avoid overwhelming the user. By doing so, social media platforms can enhance user satisfaction and engagement.

### **5.3. Limitations of the research and strengths**

While this study provides valuable insights, it is also crucial to understand the limitations. The first limitation is that the research focuses on Dutch participants aged between 18 to 45 years. The sample size consisted of 159 respondents. While this amount is sufficient for the analysis, it is a relatively small sample and specific to Dutch participants. This limits the applicability of the findings to particular age groups and different cultures within society, potentially overlooking differences in perceptions and behaviors. Second, differences in privacy laws, social media usage patterns and attitudes toward advertising can vary significantly across countries. Therefore, the results cannot be used in other countries. The third limitation is the reliance on self-reported data through the use of a survey. This can introduce various biases because participants might not accurately remember their experiences and this can affect the reliability and validity of the findings. The fourth limitation is the scale of behavioral avoidance that had low reliability ( $\alpha = .57$ ). This may indicate that the measures for some variables is not be as consistent and strong as others. A good way of solving this would have been to include only one item to ensure a more interpretable measure. The final limitation is the exclusion of additional variables. Although perceived creepiness with synced advertising was measured, it was not included in the main data analysis. Excluding this variable may have missed an important factor that could influence privacy concerns and advertising avoidance.

This research also has several strengths. Firstly, the research is highly relevant for advertisers due to the emerging nature of synced advertising as a digital marketing strategy.



Understanding its potential effects is crucial for advertisers to refine their strategies effectively. This study offers valuable insights that advertisers can utilize to enhance the efficiency of their marketing efforts in reaching and engaging target audiences. Moreover, the research addresses a relevant topic given the growing reliance on social media advertising. Another strength of the research is the use of existing validated scales to measure key variables such as social media use, knowledge and experience of synced advertising, privacy concerns and advertising avoidance. Moreover, by including demographic variables such as social media use, gender, age and level of education, the research became more detailed which also benefits marketers as it helps to understand the potential factors that strengthen the internal validity of the research. Furthermore, the sample of the research was clearly defined and described which ensures transparency and allows for better understanding and replication of the study. This clarity in sampling benefits marketers and researchers, as it provides an important foundation for interpreting the results and applying them in practical contexts.

#### **5.4. Suggestions for future research**

The theoretical implications and limitations of the research made suggestions for future research possible. One key implication is the observed disconnection between consumers' knowledge of synced advertising and their actual experience with it. Future research should delve deeper in the gap between awareness and recognition of synced advertising. This study found that while a significant percentage of participants were aware of synced advertising, many were uncertain if they had experienced it. This suggests that the seamless integration of synced advertising into media experiences might make it difficult for consumer to consciously identify when they are being targeted. Future studies could employ experimental designs where participants are exposed to synced advertising in a controlled environment and then assessed on their recognition and recall of such ads. For instance, exploring the impact of varying privacy settings (e.g., high privacy setting vs. low privacy settings) on participants' awareness of how these privacy settings influence the type and frequency of synced advertising they receive. Additionally, investigating the effect of different levels of synced advertising exposure (e.g. high frequency vs. low frequency) on variables such as perceived intrusiveness and annoyance levels would provide insights into how ad frequency affects user experience. For example, a study by Brechman et al. (2024) already conducted an experiment with the moderators ad size and timing (Brechman et al., 2024, p. 4-7).

Additionally, future research could include a more diverse sample such as various

age groups, cultural backgrounds and different countries. This would enhance the generalizability of the findings. It could be valuable to extend the focus to multiple countries or age groups to identify potential differences. For instance, examining countries with varying privacy regulations or social media usage patterns could provide insightful comparisons. Research by Czarnecka et al. (2017) conducted a cross-cultural research on advertising, revealing that the type of advertisements prevalent in a country significantly impacts consumer perceptions (Czarnecka et al., 2017, p. 12). Cross-cultural comparisons can reveal how cultural factors influence privacy concerns and advertising behavior, making this an interesting area for further investigation..

Furthermore, the rejection of H2a and H2b challenges the assumed relationship between knowledge and experience of synced advertising and privacy concerns. Future research should consider more detailed measurements of privacy concerns specifically related to synced advertising. This study measured privacy concern generally, whereas research by Segijn et al. (2021) focused on specifically synced advertising and found different results. Conducting studies that provide explicit information about synced advertising to participants could help in understanding the direct impact of awareness of privacy concerns.

Although this study supported that privacy concerns lead to cognitive, attitudinal and behavioral avoidance (H3a, H3b and H3c), it did not directly measure negative attitudes and annoyance. By incorporating measures of negative attitudes, future studies can provide a more comprehensive understanding of how privacy concerns influence avoidance behavior. For instance, researchers could explore how negative beliefs about ads, such as annoyance contribute to avoidance behaviors. This could be measured through surveys where participants are exposed to various forms of advertising and their attitudes and behaviors are recorded.

Moreover, the research could also target social media platforms such as Instagram or TikTok, each of which has distinct demographics and engagement styles. Understanding these differences can help marketers tailoring their strategies more effectively. Lastly, it could be interesting to explore the underlying reasons for avoidance. For example, examining factors such as feelings of intrusion, irritation and perceived creepiness to understand why users avoid advertisements.

In future research, it is essential to understand the relationship between synced advertising, privacy concerns and avoidance behavior. Additional research in this field is crucial as digital advertising technologies and user behaviors are still present and evolve. As

new forms of advertising and data collection exist, ongoing research can help to identify privacy concerns and their impacts on user behavior. Moreover, understanding these trends can contribute to the discussion on digital rights and ethical use of personal data, ensuring that technological advancements align with societal values and user expectations.

## **5.5. Conclusion**

To conclude, this research examined the relationship between synced advertising, privacy concerns and advertising avoidance among Dutch social media users aged between 18 to 45 years. The first hypothesis that knowledge of synced advertising would significantly predict the experience of synced advertising was not supported. Interestingly, education level was a significant predictor of experiencing synced advertising. This means that individuals having higher education levels were less likely to report experience with synced advertising. Contrary to expectations, neither knowledge of synced advertising nor experience with synced advertising significantly impacted privacy concerns. This suggests that being aware of or having encountered synced advertising does not necessarily increase privacy concerns. However, increased privacy concerns were significantly associated with higher levels of cognitive, attitudinal and behavioral avoidance of advertising. Participants with high levels of privacy concerns were more likely to engage in various forms of advertising avoidance. This implies that while the presence of synced advertising itself does not directly create privacy concerns, the underlying apprehensions about privacy significantly influence how individuals respond to advertisements. Therefore, it can be concluded that privacy concerns play a crucial role in driving advertising avoidance.

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## **Appendix**

### **Survey synced advertising on social media**

#### **Screen 1:**

Dear respondent,

For my study Media and Business at Erasmus University Rotterdam, I am conducting a study for my Master thesis. As I am researching synced advertising on social media in the Netherlands, this questionnaire is intended for Dutch social media users (e.g., those with an Instagram, Facebook, TikTok, X, LinkedIn and/or YouTube account).

The survey will take approximately **5 to 10 minutes** to complete. There are no right or wrong answers and you can stop the survey at any point. Your responses and identity will be completely anonymous, confidential and are solely used for the purpose of this research.

By completing this survey, you agree to the usage of your data. If you have any questions or wish to withdraw your data after completion of the survey, please send an e-mail to [577975je@eur.nl](mailto:577975je@eur.nl).

Thank you in advance for your participation!

#### **Do you agree to participate in this survey?**

*Yes*

*No*

#### **Screen 2: Demographics (Include a filter that all respondents met the age criteria of 18)**

##### **1. How old are you?**

<Dropdown menu with the following options>

18

19

20

...

45

45 or older

*If 45 or older is selected → end of survey, do not fit the target group*



**2. Are you Dutch?**

Yes/No

*If no is selected → end of survey, do not fit the target group*

**Screen 3: Social media usage (Van der Goot et al.)**

**(Include a filter that all respondents met the social media criteria)**

**3. Please indicate how many days per week you use social media.**

*<Dropdown menu with 0,1,2,3,4,5,6,7 >*

*When 0 is selected → end of survey, do not fit the target group*

**4. Please indicate how much time you spend on social media per day.**

*1 hour or less*

*1 to 2 hours*

*2 to 3 hours*

*3 to 4 hours*

*4 hours or more*

**Screen 4: Demographics**

**Thank you for completing the first set of questions. You are eligible to participate in this survey. Before we start, I would like to know two more things.**

**5. What is your gender?**

*Answer options: Male, Female, Non-binary/third gender, other, prefer not to say*

**6. What is the highest level of education you have completed?**

*High School, MBO, Bachelor's degree, Master's degree, PHD or higher and Prefer not to say*

**Screen 5: Knowledge Synced Advertising (Segijn & van Ooijen, 2022)**

**The following question are about the use of multiple media simultaneously. To what extent do you think the following statements are true or false?**

- 7. *Is it possible for companies to collect information about the shows that people watch on television, and simultaneously advertise relevant products/brands on those people's mobile devices. (True/False)***

8. *Companies know what people are watching/listening to because media content (TV/radio shows) sometimes contain a sound signal that can be picked up by a mobile device. (True/False)*
9. *Companies can advertise on one device based on information collected through another device at the same time. (True/False)*
10. *Technology already exists that makes it possible to receive ads on your smartphone based on your current (real-time) watching behavior on online streaming services. (True/False)*

#### **Screen 6: Knowledge Synced Advertising (Segijn & van Ooijen, 2022)**

**To what extent do you think the following statements are true or false?**

11. *A company can show me an ad on my mobile device from a brand at the same time that I am watching a television commercial from that brand. (True/False)*
12. *It is a coincidence when people receive an ad on their mobile on their mobile device that is related to what they are concurrently listening to on the radio. (True/False)*
13. *It is **impossible** for a mobile app to listen to a television show that people are watching, and use this information to provide those people with ads based on the show's content. (True/False)*
14. *It is **impossible** that words that I say out loud can trigger an ad on my mobile device related to that word. (True/False)*

#### **Screen 7: Experience synced advertising**

Imagine that you are watching a TV show on traveling. The TV program shows a report on Curaçao. At the same time, you also use your phone to read the news. In the news app you see an advertisement for a TUI flight to Curaçao. With synced advertising, a social media ad is shown to you based on your simultaneous use of other media. In this example, you receive the flight ad because of the TV show you are watching. If you had watched a different television program, or if you had not watched television, another ad would have appeared in the app.

**15. Were you familiar with the possibility of synced advertising?**

Yes/No

**16. Have you ever received synced advertising?**

Yes/No/Unsure

## Screen 8: Privacy concerns

*The second part of the survey deals with privacy concerns and avoidance behavior. Please indicate your thoughts on the following statements.*

### 17. To what extent do you agree with the following statements

*I believe that personal data have been misused too often. (1 = Strongly Disagree, 5 = Strongly Agree)*

*I worry about receiving ads in which I am not interested. (1 = Strongly Disagree, 5 = Strongly Agree)*

*I am concerned about the potential misuse of personal data. (1 = Strongly Disagree, 5 = Strongly Agree)*

*I fear that information has not been stored safely. (1 = Strongly Disagree, 5 = Strongly Agree)*

*I feel uncomfortable when data are shared without permission. (1 = Strongly Disagree, 5 = Strongly Agree)*

## Screen 9: Advertising avoidance

### 18. To what extent do you agree with the following statements about avoidance behavior?

*I hate sponsored ads on social media (1 = Strongly Disagree, 5 = Strongly Agree)*

*I hate ads in my newsfeed (1 = Strongly Disagree, 5 = Strongly Agree)*

*It would be better if there were no ads in my newsfeed (1 = Strongly Disagree, 5 = Strongly Agree)*

*I scroll down to avoid ads in my newsfeed (1 = Strongly Disagree, 5 = Strongly Agree)*

*I do any action to avoid ads on my social media (1 = Strongly Disagree, 5 = Strongly Agree)*

## Screen 10: Advertising avoidance

### 19. To what extent do you agree with the following statements about avoidance behavior?

*I unfriend brands on my social media page (1 = Strongly Disagree, 7 = Strongly Agree)*

*I intentionally ignore any ads on my social media page (1 = Strongly Disagree, 7 = Strongly Agree)*

*I intentionally don't put my eyes on sponsored ads on social media (1 = Strongly Disagree, 7 = Strongly Agree)*

*I intentionally don't click on any sponsored ads on social media (1 = Strongly Disagree, 7 = Strongly Agree)*

**Screen 11:**

You have now reached the end of the questionnaire. Thank you for participating in this survey. Your answers will be treated confidentially. If you have any questions regarding this survey or research, please comment them below.

[Add Text box ]