Advertising strategy and media type effectiveness in the marketing of smart speakers

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Abstract

Although the popularity of smart speakers has skyrocketed in recent years, these IoT devices are often associated with privacy and security concerns, that are hindering their full adoption. Previous literature has established that marketing communications are effective in addressing consumer anxiety and minimizing adoption fears, which has created an interesting research topic on their respective role in the promotion of smart speakers.

 This study investigates the effectiveness of functional and emotional advertising strategy and dynamic and static media used in the advertising of smart speakers, on influencing consumer privacy concerns and purchase intention. The purpose of the study is to provide valuable insight on how companies can mitigate concerns and drive purchases through marketing communications, as well as, contribute to overall advertising research for high-tech and highly innovative products.

The methodological approach of this study involved a 2x2 online experiment with four treatment groups each shown an advertisement of a smart speaker corresponding to one of the levels of the independent factors, advertising strategy and media type.

The findings of the study did not show a correlation between marketing communications and privacy concerns, however, this could implicate that such a complex issue could potentially be better addressed from a manufacturing perspective. On the other hand, consumer purchase intentions were also investigated, however, their relationship with the advertisements shown in the study was insignificant, the implications of which are discussed in the final chapter of the thesis.

Future research could examine whether marketing communication for smart speaker addressing various proven adoption determinants (e.g., perceived usefulness, perceived enjoyment, perceived coolness, etc.) will have a stronger impact on the purchase decisions of consumers.

Keywords: functional and emotional advertising strategy, dynamic and static media type, smart speaker, privacy concerns, purchase intention

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1. Introduction

1.1 Problem and research question

The appearance of the first in-home voice assistant onto the market in 2014 awakened a growing consumer and scholarly interest which continues to be sustained until the present day. Perhaps the most recognizable form factor of an in-home voice assistant is the smart speaker. Smart speakers are voice-controlled Internet of Things devices that can transmit data via a wireless network connection. Currently, some of the most familiar brands include Amazon Echo, Google Home, and Apple HomePod. The leading advantage of smart speakers compared to regular speakers is the artificial intelligence that interacts in the form of a virtual personal assistant (eg. Alexa, Google Assistant, Siri) (Smith, 2018).

Smart speaker ownership rates have had a significant increase in countries such as the UK and Germany over the past two years, suggesting a growing consumer interest in such products (Statista, 2021). The widespread popularity of smart speakers has prompted more and more brands to introduce new models to the market, therefore, making it more competitive. Marketing campaigns and advertising strategies can play a crucial role in the purchase intentions of consumers in a progressively competitive market. The advertising message strategies used to promote popular smart speaker brands have been shown to address a variety of adoption determinants. For instance, a content analysis of online video ads, reveals that Google Home and Amazon Echo ads often emphasize product quality and usefulness (Sarafolean & Carter, 2020), and another study by Kowalczuk found perceived usefulness to be a key factor in consumer adoption of smart speakers (2018).

However, the study by Sarafolean & Carter (2020) also points to important implications for advertising strategies and their potential to address privacy concerns. Companies like Google and Amazon have been scrutinized for not disclosing to customers that recordings from smart speakers are often analyzed by their employees (Day, Turner & Drozdiak, 2019; Van Hee et al., 2019). Such information along with the notion that smart speakers are always "listening" has raised concerns about data privacy and security in relation to smart speaker usage (Lynskey, 2019).

Addressing such concerns through advertising strategies can potentially alleviate consumer anxiety and positively affect the adoption intent of consumers. However, ads that focus too much on product information, especially for high-tech products, run the risk of

presenting the product in a manner that makes consumers perceive it as too difficult to adopt (Lee & O'Connor, 2003). In addition, functional advertising may appeal to tech-savvy audiences, but perhaps will not be as effective for consumers who want to use smart speakers for entertainment purposes (Ling et al., 2021), or because they recognize them as cool gadgets (Ashfaq et al., 2020) and are not too concerned with details about product attributes. Such consumers could more appropriately be targeted through emotional advertising strategies that also use emotional appeals e.g. joy and humor to elicit a positive feeling in the viewer from using the specific product.

Considering the short supply of advertising research on smart speakers, conducting a study on the effectiveness of advertising strategies, can reveal valuable consumer insight indicating which appeals would be more appropriate for marketing campaigns for this product category. The functional and emotional appeal are significantly distinct from each other, thus it is interesting to investigate their respective effect on consumers separately. Additionally, the type of media used in advertising, for instance, dynamic and static ads, can strongly influence its outcome (Deshpande et al., 2015). Dynamic ads (e.g. video format) can have a stronger potential for an advertising approach using emotional appeals, whereas static ads could be more appropriate when the goal is to thoroughly inform the customer about the attributes and functions of the product and creativity is not of utmost importance. The two independent factors (advertising strategy and media type) are worth examining as they can greatly affect the outcomes of a marketing campaign, potentially increase competitive advantage and improve consumer adoption.

Finally, the effectiveness of different advertising strategies can vary among product categories. Functional and emotional ads and their effectiveness have already been studied in relation to the adoption of smart technology (eg. smartwatches) (Krey et al., 2019). Despite belonging to the same category of IoT and smart devices, smart speakers have been presented with their own unique challenges for adoption. As mentioned earlier, these devices are associated with heightened data privacy and security concerns due to widely-held notion that they might be recording information as a result of using voice activation (Hoy, 2018; Lau et al., 2018; Lutz & Newlands, 202; Lynskey, 2019). Therefore, this study aims to examine not only the effect of advertising strategy on purchase intention which has been investigated in previous studies in relation to diverse product or brand categories (Hartmann et al., 2005; Nabilla, 2019; Sarkar et al., 2019), but also privacy concerns which present as a problematic obstacle to adoption.

As a result, the study can deliver potential insights on how marketing communication for smart speakers can be improved and the use of which advertising strategy can better benefit marketeers in a competitive market by increasing purchase intent. Furthermore, it can potentially reveal whether consumer fears or concerns can be improved through a specific advertising approach. The main research question of the study is constructed as the following: To what extent do functional and emotional advertising strategies, dynamic and static media types, and their interactions, used in the advertising of smart speakers, influence purchase intention and privacy concerns of consumers?

1.2 Societal relevance

Relative adoption resistance to smart speakers remains prominent due to perceived lack of utility (Lau et al., 2018), or perceived lack of advantage (Ling et al., 2021). The lack of comprehensive product knowledge can complicate adoption and may fuel hesitancy among current users.

Furthermore, data privacy is an important social matter in the era of Big Data and IoT, and any product that could be even remotely associated with data breaches and privacy risks can discourage people from purchasing it. In fact, privacy concerns have been shown to affect consumers' perceptions of (potential) intrusiveness of smart products resulting in resistance to their adoption (Mani & Chouk, 2016; Raff & Wentzel, 2018).

Marketing communication has a proven ability of addressing customer fears (Chen et al., 2007), therefore, the current study aims to bring light to how two core advertising strategies impact such concerns and to aid marketeers in utilizing a suitable advertising approach in their campaigns to ultimately improve adoption of smart speakers.

Strong adoption determinants for smart speakers are perceived usefulness, perceived enjoyment (Kowalczuk, 2018), emotional values/entertainment (Ling et al., 2021), perceived "coolness" (Ashfaq et al., 2020), convenience and "early adopter¨ identity (Lau et al., 2018). The polarizing nature of adoption (resistance) determinants, can create uncertainty within the decision makers responsible for advertising the product. Brands introducing new models on the market can also find difficulty in selecting the right marketing and advertising strategy for their target audience.

The relevance of this study for practitioners lies in bringing clarity to the effectiveness of the functional and emotional appeal. The findings can be used to improve marketing messages as well as brand advertisements. In addition, the respective media type results can

be utilized by marketing teams to maximize engagement and enhance ad message content by selecting the more appropriate media format.

1.3 Academic relevance

Scholarly literature has extensively focused on privacy issues, attitudes, and concerns with in-home voice assistants (Lutz & Newlands, 2021; Malkin et al., 2019; Meng et al., 2021), determinants of consumer adoption (Ashfaq et al., 2020; Lau et al., 2018; Ling et al., 2021; Kowalczuk, 2018) and even platform characteristics (Park et al., 2018), however, these high-tech products have started to attract academic interest also from an advertising perspective.

For instance, Guan et al. (2021) studies consumers' purchase decisions and showcases the implications for marketing such devices, whereas Sarafolean and Carter (2020) directly examines the use of marketing communication for smart speakers from the perspective of the Taylor's Message Strategy Model. Further research investigates the effectiveness of advertising strategy on smartwatch adoption (Krey et al.,2019), or examines this effect through ad message type on high-tech products (Chen et al., 2007).

Marketing high-tech products can be associated with significant risks (Meldrum & Millman, 1991), however, a substantial problem can be consumer perceived risk which can aggravate consumer anxiety and lead to postponement of purchase decisions (Shikhar et al., 2003). As high-tech products, the marketing and advertising of smart devices meet similar challenges. As a result, there is a crucial need for more extensive marketing and advertising research on smart products. The following study contributes to previous research on consumer attitudes to smart technology by examining the widely discussed privacy concerns from an advertising perspective.

The development of a marketing strategy for high-tech products depends on multiple factors including product type, market type, competition intensity, etc. (Beard & Easingwood, 1992), in addition to further market environmental characteristics specific to high-tech such as high market growth-rate and a higher level of consumer involvement in purchase decisions (Gardner et al., 2000). The study also contributes to the academic discussion of marketing challenges facing such products by investigating the effect of advertising strategy on purchase intention (Sarin et al., 2003).

2. Theoretical framework

This section of the document will provide an overview of the primary concepts and ideas of the study on the basis of previous scholarly literature. The concept of privacy risks will be introduced within the wider context of IoT devices and privacy concerns related to smart speakers and various privacy modalities will be discussed. Purchase intention will be defined from the perspective of various academic studies and one of the key theories on behavioral intention. Subsequently, the study elaborates on the role of advertisements, advertising strategy, and media type in respect to the perception of different dynamic versus static elements. Finally, the section will present five hypotheses based on the effect of advertising strategy embedded in advertisements containing either dynamic or static elements on device privacy concerns and purchase intention in relation to smart speaker products.

2.1 Privacy concerns, IoT and smart speakers

To grasp the reasoning behind certain data privacy and security concerns tied with Internet of Things (IoT) devices, it is critical to gain awareness of the fundamental principles of such objects. Bertino describes the IoT paradigm as a "network of physical objects or "things" embedded with electronics, software, sensors, and connectivity to enable objects to exchange data with servers, centralized systems, and/or other connected devices based on a variety of communication infrastructures" (2016). Essentially, such devices can access, collect, store and exchange personal data, the fact of which may cause unease and apprehension within individuals reluctant to use them and therefore impede the products' full adoption.

Privacy concerns can originate from a variety of aspects, which creates difficulty during an attempt to evaluate the concrete factors capable of influencing or minimizing them. The majority of the time they are based on real threats such as the potential of IoT devices for tracking, or even their capacity to create increasingly comprehensive user profiles based on the collected data which may be shared with or used by third parties. Nevertheless, privacy concerns may also exist on the basis of mistrust and suspicion resulting from inadequate consumer communication or product understanding. For instance, smart speakers are equipped with privacy features such as speech recognition that is executed locally by the device when the keyword is detected, further forwarding the voice command to the servers,

and a physical button that can be used to mute the microphone, however, people might not be aware of or use these features (Lau et al., 2018).

Similarly to other IoT devices, the smart speaker has acquired the reputation of causing greater privacy concerns among consumers since it is inherently designed to use voice activation that subsequently forces many to believe the device could be recording personal conversations and collecting sensitive data. Nonetheless, the acceptance of personal data collection from IoT devices can vary between individuals depending on factors such as personal experiences and inclinations, and social norms (Naeini et al., 2017). Therefore, various individual factors could also influence the extent of privacy concerns with smart speaker usage. To aid determining these factors, privacy concerns can be approached from a number of perspectives.

Lutz and Newlands distinguish between different privacy modalities (e.g. device, household member, stranger, company, contractor, third-party company, government) (2021). This study will solely investigate the effect of advertisements on privacy concerns associated with the smart speaker itself (the device) as a social agent. In this case, the smart speaker is viewed as a social agent since the AI-based voice assistant can interact with the user through "natural-language" voice commands and thus mimic human communication (Guzman, 2017; Lutz & Newlands, 2021).

Advertising and marketing strategy has more power over influencing consumer perception of the device and its related privacy concerns compared to those connected to third parties, household members, strangers, etc. For instance, the goal of the ad could be to emphasize on the technical attributes and functionality (e.g. design, sound, voice recognition quality) of the smart speaker, or it could aim to highlight the social interaction aspect between the voice assistant and the user and portray the device in a more personalized, emotional manner (e.g. purchasing your own personal assistant and companion). Both approaches can result in heightened or lowered privacy concerns depending on, for instance, whether the consumer perceives the device as more intrusive in one of the cases (Mani & Chouk, 2016; Raff & Wentzel, 2018).

2.2 Purchase intention

Purchase intention has been described as the tendency of consumers to buy products or services (Arifani & Haryanto, 2018). The concept can be based on related theories on

behavioral intention such as the Theory of Reason Action (TRA) adopted by Fishbein and Ajzen (1975) (Meskaran et al., 2013).

TRA is considered to be one of the most influential theories about human behavior and has found applications within a broad scope of areas, including consumer behavior and marketing (Belleau et al., 2007; Ha, 1998; Fitzmaurice, 2005). The purpose of TRA is to explain volitional behavior, which is most strongly predicted by one's behavioral intention, while excluding behavior that can be considered as impulsive, spontaneous, instinctive, habitual, mindless, etc. (Hale et al., 2002).

According to Fishbein and Ajzen, behavioral intention refers to "a person´s subjective probability that he will perform some behavior" and is determined by two factors: *attitude* towards the behavior and the *subjective norm* concerning the behavior (1975). Attitude is defined as an individual's general assessment of a behavior as favorable or unfavorable, whereas the subjective norm refers to an individual's perception of the opinion of most people important to him on whether they should or should not execute the behavior (Fishbein and Ajzen, 1975).

Having said this, intentions can be considered a pivotal predictor of actual behavior, therefore evaluating purchase intentions can reveal valuable consumer insight that is beneficial for marketing research (Peña-García et al., 2020). On the other hand, purchase intentions are positively interconnected with value perceptions (of a product), however, the key difference is that the former is developed under the assumption of a pending transaction, making it a more reliable indicator of an actual purchase (Chang & Wildt, 1994).

Furthermore, in the current Internet era, purchases often take place within the online realm and through online transactions. As a result, purchase intention could also be translated into an online nature. Online purchase intention can be defined as the extent to which a consumer is willing to purchase a product via the Internet (Meskaran et al., 2013; Pavlou, 2003; Peña-García et al., 2020).

The current study recognizes the concept of purchase intention as the extent of willingness to buy a product as mentioned in previous studies (Dodds et al., 1991; Moon et al., 2008; Sweeney et al., 1999), regardless of its (online) nature, and simultaneously as a strong predictor for an actual purchase, consistent with the already discussed Theory of Reasoned Action (TRA). The following paragraph discusses the essence and value of advertisements and their key role for brands and marketing initiatives.

2.3 Advertisements

Advertisements are widely associated with the promotion of a certain product or a service. In fact, an advertisement is considered the most vital instrument to market a company's product (Malik et al., 2014). However, ads have a variety of functions outside of attempting to persuade consumers to purchase a given good. As Cook argues, the main function of ads might be to sell, though it is often supported by a multitude of other functions such as to "amuse, inform, misinform, worry or warn" (2001). Furthermore, advertisements have been a wide-ranging topic of scholarly discourse due to the complexity of their nature.

Especially since the onset of digitalization, ads have gained the ability to be more diverse, creative, and innovative. The mixture of components (e.g. verbal, visual, dynamic, static) allows for great freedom in the communication of the message or story. The different components of ads have been studies from distinct perspectives (e.g. cognitive and business) and for their effectiveness on a variety of consumer behaviors (DeRosia, 2008; Lohtia et al., 2003; Shareef et al., 2018) In addition, ads can contain little product information and rely largely on visual or emotional elements or vice versa. These elements and considerations provide ads with a valuable role in influencing consumer choices and attitudes.

Advertising value has been recognized separately from product value. Ducoffe defines advertising value as the "subjective evaluation of the relative worth or utility of advertising to consumers" (1995). According to them, such value is relatively consistent with the primary meanings of product value, as one of the meanings namely "what I want in a product" can be directly translated to advertising, whereas the other meanings of advertising value are, in contrast, often non-monetary, such as time and effort involved in the processing of an ad message (Ducoffe, 1995). Essentially, both the product and the advertisement of it could offer consumer value.

Therefore, it is of critical importance for companies to not undermine the power of advertisements and their effect on consumer behavior and even brand attitude (Mitchell, 1986). The effectiveness of advertisements can depend on its elements, but also on their appropriate use by a brand or a company. For instance, business-to-business services more often use advertisements containing rational appeals in contrast with consumer services that might rely more on emotional appeals (Turley & Kelley, 1997).

In closing, individual advertisements have a key position within a company's overall marketing strategy and are inherent influencers of consumer perception. The quality of an advertisement and its significance depend not only on its separate elements but on the overall appeal and strategy embedded into the ad.

2.3.1 Advertising strategy

The advertising strategies discussed in this study are based on two prominent and widely discussed in scholarly literature perspectives: functional and emotional (Krey et al., 2019; Lee & O'Connor, 2003). Similar dimensions have also been addressed in previous literature as informational and transformational (Aaker & Norris, 1982; Aaker & Stayman, 1992; Puto & Wells, 1984), and as utilitarian (functional) appeal and value-expressive (image) appeal (Johar & Sirgy, 1991). The aforementioned concepts have multiple touching points and offer a more elaborate view and justification for the definitive approach to advertising strategy in this study.

Puto and Wells describe the key differences between what they define as informative and transformative advertising (1984). Portion of the characteristics that an advertisement must possess to be considered informational, is if it contains factual and relevant information about the brand and presents data which can be accepted by the consumer as verifiable. In contrast, transformational advertising should have components that make the experience of using the product "richer, warmer, more exciting and/or more enjoyable, than that obtained solely from an objective description of the advertised brand" (Puto & Wells, 1984). According to these descriptions, not every ad will fall perfectly within one of the categories, however, certain informative or transformative elements can prevail and influence the overall feeling of the ad.

On the other hand, a rather psychology-focused perspective on advertising appeals explains how such ad types could influence consumer persuasion. What Johar and Sirgy describe as two common advertising approaches: value-expressive (image) appeal and utilitarian (functional) appeal, can arguably impact two different psychological processes: self-congruity and functional congruity (1991). Value-expressive appeal or also called image strategy is part of transformational advertising, in its goal to create a "personality" for a product or create an image of a generalized user of the product, which essentially influences persuasion based on the congruence between the product user image and the ideal (social) self-image of the consumer (Johar & Sirgy, 1991). The higher the congruence and the more these images match, the more positive attitude the consumer will have towards the product.

The utilitarian (functional) appeal is respectively part of the informational advertising strategy and is used to highlight the functional attributes and characteristics of a product, it relies on informing consumers of the key benefits of the product which are perceived as

highly functional or important to them and thus follows the functional congruity path of persuasion which is the match between the assumptions or beliefs of a product's functional features and the consumers' referent or ideal product features (Johar & Sirgy, 1991).

Another scientific view on persuasive communication and its principles is the elaboration likelihood model (ELM), according to which persuasion might take a peripheral and/or central route (Petty & Cacioppo, 1986). In the case when the receiver of communication is both motivated and capable of understanding and careful consideration of the content of the message, that is the central route taking place, whereas when they do not concentrate on the key elements of the message content, but instead on background cues (e.g. attractiveness of the source and source characteristics), that is the peripheral route of persuasion occurring (Andrews & Shimp, 1990).

Building on the elaboration likelihood model (ELM), Lee and O'Connor identify two types of advertising strategies based on the content of the messages in ads: functional (central route) and emotional (peripheral route) (2003). Functional ads are those that use rational appeals to demonstrate a product's attributes and features objectively. According to Lee and O'Connor, an ad would fall into the functional category if it possess characteristics such as placing emphasis on technological superiority, providing detailed information about product attributes and using functional appeals for persuasion (2003). In essence, functional advertising has similar characteristics to informational advertising. Likewise, informational marketing messages can be interpreted as those providing valuable information about the essence of a product in a logical manner (Chen et al., 2007).

On the other hand, emotional advertising expresses subjective and symbolic benefits of the product. Such ads can evoke positive feelings of using the product within the customer, or persuade them using emotional appeals (e.g. joy, humor, love) (Lee & O'Connor, 2013). Emotional advertising uses the peripheral route to persuade consumers and is similar to transformational advertising which as previously mentioned, connects the experience of the ad with the experience of using the brand or product (Puto & Wells, 1984). Transformational marketing messages would then convey rather sentimental or experiential information about using the product (Chen et al., 2007). Finally, emotional advertising would use value-expressive (image) appeals, whereas functional advertising exploits rather utilitarian (functional) appeals.

2.5 Media type

Prior to the onset of digitalization, advertising had been primarily classified into print ads containing images and/or text which were inevitably static, and broadcast advertisements such as radio and TV commercials which contained dynamic elements such as audio and audiovisuals. Nowadays, marketers have a wide range of online advertising possibilities which are increasingly becoming much more prominent for their abilities to target a variety of audiences much more efficiently. The current study compares two versions of dynamic and static advertisements, respectively in the format of a digital video ad and a text/picture ad.

Dynamic ad elements have shown to significantly differ in their effectiveness and impact from static ones. For instance, animated ads have shown to influence consumer engagement for longer periods of time among both targeted and retargeted consumers and have a higher overall carry-over effect (Brice et al., 2017). Previous research also demonstrates that dynamic ads are generally more complex and require respondents to take a longer time to assimilate the message, and thus lead to higher recall than static ads (Deshpande et al., 2015). Another study suggests that dynamic images tend to cause greater stimulated viewer involvement and recognition, compared to static ad, along with heightened recall and better attention levels (Winkler et al., 2019).

Dynamic ads can also be seen as more favorable due to a preconception that intensity of the message augments persuasion (Appiah, 2006). Studying the impact of different media types in advertising can greatly benefit marketing campaigns and aid companies in selecting the right medium for advertising their products or services. Nonetheless, dynamic ads can also be a so-called rich media, which according to Appiah, can be defined as visual effects containing "complex animations or instantly playing audio and video" (2006). Rich media is considered highly interactive and engaging, which also makes it incredibly relevant in today's digital world.

At present, the most relevant format of contemporary dynamic advertisements is the digital video. Digital video advertising is defined by ads mediated by online video technology and has the most close resemblance to TV commercials, therefore making models applied to TV commercials the most appropriate for such advertising (Stewart et al., 2019). Additionally, video advertising has the ability to create a more stimulating environment by meeting consumers' content expectations, and allow brands to inform and entertain visually (Stern, 2021). Due to its apparent similarity to TV commercials, digital video advertising is also inherently sensory rich (Liu & Stout, 1987; Stewart et al., 2019). Dynamic

advertisements such as the digital video ads, make for an interesting media type to examine for its unique abilities to engage, stimulate, entertain and capture attention.

On the other hand, in the context of the current digital and online advertising and marketing promotion, static ads often take the form of a digital image or picture and the message content is displayed in text. Since, static advertisements are often seen as inferior due to their inherent limitations for optimized stimulation, engagement, recall and interactivity, it is intriguing to investigate how they compare to dynamic rich media ads when combined with different advertising strategies and appeals.

2.6 Hypotheses

2.6.1 *Functional versus emotional advertising*

As mentioned previously, functional advertising attempts to persuade consumers through functional appeals, such as quality, value, economy etc. (Lee & O'Connor, 2003) Furthermore, functional advertising strategy can be utilized in order to address pre-existing consumer concerns about a specific product (e.g. privacy and security concerns) by emphasizing product attributes and providing valuable information in an objective and detailed manner. On the contrary, ads using emotional appeals (e.g. joy, amusement, pride, love), steer away from delivering product information in a more technical or logical manner, as such ads align with the peripheral route of persuasion in which consumers are largely focusing on background cues.

Considering the nature of the product involved in the advertisement is critical for the evaluation of the potential effectiveness of an advertising strategy on the intention to purchase of consumers. In the case of high-tech or smart products, functional ads using rational appeals have been proven to be more effective when the consumer perceives product superiority, however, emotional ads focusing on symbolic benefits have been shown to be more effective when the consumers perceives a product as difficult to adopt (Lee & O'Connor, 2003). The reasoning behind this indicates that functional ads which pay close attention to product attributes, can more efficiently highlight the superiority of the product through their fundamental nature, leading to their respected effectiveness. On the other hand, an ad containing extensive technical product information can repel consumer who already perceive the product as too difficult or complex to adopt.

Smart speakers are widely adopted for entertainment purposes and emotional values (Ling et al., 2021), and not necessarily because of the product's perceived superiority (for

instance, to regular speakers). Furthermore, the popularity of smart speakers has risen significantly and the most common uses for these devices have shown to be social interaction, informational learning, play and relaxation, virtual interaction for escaping from reality, among others (Lee & Cho, 2020). As a result, if the determinant for purchasing a smart speaker is largely based on emotional values, enjoyment, perceived coolness, etc., as previous studies reveal (Ashfaq et al., 2020; Ling et al., 2021; Kowalczuk, 2018), emotional ads are more likely to lead to higher purchase intention in consumers as they have the potential to highlight such aspects better than functional advertising. Therefore, it is hypothesized that:

      H1: Emotional ads lead to higher purchase intention than functional ads.

On the other hand, privacy concerns associated with smart speaker are a more consumer sensitive topic and can be more difficult to influence through advertising. Emotional ads are often used to evoke positive feelings within the consumer about the product (Lee & O'Connor, 2003; Puto & Wells, 1984), and even though this can potentially increase purchase intention, the lack of extensive product information can affect the sense of credibility of the ad and its content and potentially fail to address or impact consumer concerns. However, the informative and highly product-focused nature of functional ads can be perceived as more trustworthy, reliable and/or professional, and when addressing privacy concerns it can potentially alleviate those consumer fears better than an ad that uses emotional appeals. Furthermore, a functional ad focusing on product attributes likely addresses smart speaker features that can be used to minimize privacy risks (e.g. a mute microphone button). Therefore, the following hypothesis was formulated:

      H2: Functional ads lead to lower perceived privacy concerns than emotional ads.

2.6.2 *Dynamic versus static ads*

The effectiveness of advertisements is not only determined by the strategic approach a brand decides to employ. Brands are constantly trying to persuade and attract consumers through different advertising executions. The choice of media type has a critical function in this attempt. Previous research on dynamic and static ads determine that due to differences in cognitive processing and the complexity of the dynamic content it produces more favorable outcomes than static content (Deshpande, 2015; Robideaux, 2013; Yoo et al., 2004). Dynamic ads have been shown to generate higher message recall and liking, and to have

better attention-grabbing capabilities compared to static ads (Deshpande, 2015; Yoo et al., 2004).

Furthermore, rich media in the form of audiovisual advertisements containing dynamic elements, has also proven advantages over static ads in today's digital world. The type of dynamic ads explored in this study, digital video ads, possess some of the same benefits as other dynamic ads, including increased interactivity, stimulation and intensity which can lead to a more persuasive ad message (Appiah, 2006).

Due to their proven advantage over static ads, and in consideration with a quality execution, dynamic ads can potentially allow for more efficient processing message content by the viewer. Therefore, dynamic ads will potentially achieve more successfully persuasion and positively influence purchase intentions of consumers. Likewise, a smart speaker ad addressing privacy concerns, in a dynamic form will result in better message recall than in static form and have a stronger impact on the consumer's perceived privacy concerns about the product. Therefore, it is hypothesized as:

H3: Dynamic ads lead to lower perceived privacy concerns and higher purchase intention than static ads.

2.6.3 Interactions between advertising strategy and media type

Dynamic video ads closely resemble TV commercials and are inherently transformational (Puto & Wells, 1984) and sensory rich, making them ideal for emotional advertising compared to static ads that evoke rather rational and analytical processes (Liu & Stout, 1987; Stewart et al., 2019).

Therefore, functional dynamic ads might not have the same ability to attract the attention of a potential consumer and direct their interest to the product. As a result, emotional dynamic ads will potentially better influence the decision and intentions of a consumer to purchase. In contrast, static ads containing a more symbolic message content might fail to create and communicate a strong emotional appeal, therefore they can be potentially less effective than emotional dynamic ads. The functional static ads has a risk of failing to attract the attention of the consumer due to both lack of emotional appeal and dynamic stimulus.

On the other hand, privacy concerns can be better addressed via a functional message content that communicates logically valuable information about the product and could be

perceived as more reliable and/or truthful than an emotional message type, which on its own is likely to have no effect on privacy concerns or could have a potential negative effect in the presence of perceived intrusiveness (Zhao et al., 2017).

Finally, functional message content in ads might lead to lower perceived privacy concerns when the content is dynamic due to the higher message recall and viewer engagement compared to static ads. Dynamic imagery has been shown to be better remembered during longer presentation durations, ranging from a few seconds to several minutes (Matthews et al., 2007) as well as during extremely brief presentation durations, ranging from 200 to 400 ms (Candan et al., 2015) than static imagery. Furthermore, dynamic images also improve viewer perception by drawing their attention to onset motion and activating conceptual memory that aids in both encoding and retrieving visual information (Winkler et al., 2021).

Based on the aforementioned, it is hypothesized that:

H4: The difference in purchase intentions between functional and emotional ads will be bigger when the ad content is dynamic than when the ad content is static.

H5: The difference in perceived privacy concerns between functional and emotional ads will be bigger when the ad content is dynamic than when the ad content is static.
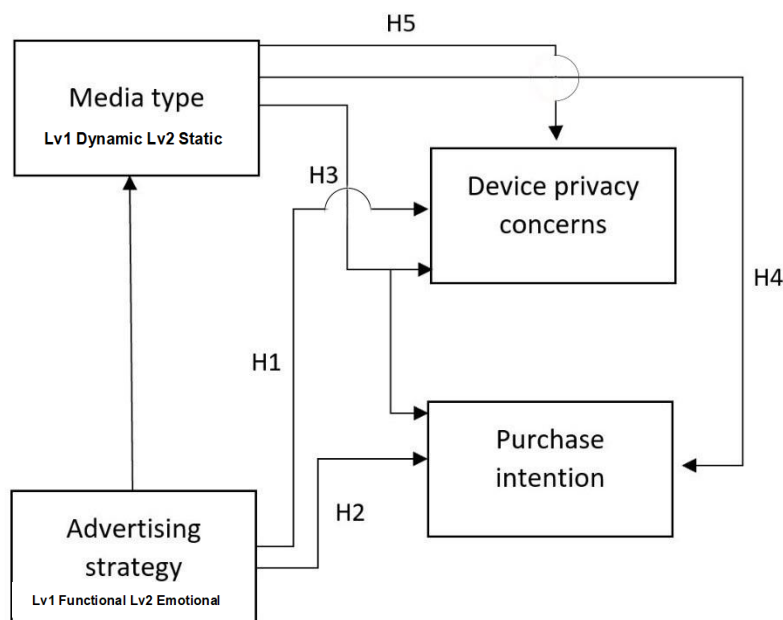

Figure 1. Conceptual framework

3. Methodology

3.1 Research design

The proposed study aims to investigate how advertising strategy (functional versus emotional) and media type (dynamic versus static) used in the marketing of smart speakers affect privacy concerns and purchase intentions of consumers. In order to test whether a causal relationship is present between the independent and dependent variables, the study will make use of an experimental research method. As a social research technique that provides the strongest tests of causal relations, an experiment is the most suitable research method for this study (Neuman, 2014). Furthermore, using a quantitative research method allows us to examine the potential effect over a larger population sample. Advertisements are usually created with the purpose of reaching a wider audience, therefore it is more logical to examine their effect on a wider sample.

The research project will use a 2x2 factorial design in order to test the simultaneous effect of the two proposed independent variables (e.g. advertising strategy and media type) and their levels combined (Neuman, 2014). The variable advertising strategy has two categories: functional and emotional. The second independent variable media type has also two categories: dynamic and static. The 2x2 factorial design allows us to examine the main effects of the two independent variables, but also the interaction effects of the various category combinations on each dependent variable. Advertising strategy and media type are both an essential part of advertisements and the two variables are intrinsically bounded. However, different combinations of each of their levels might produce significantly different effects on the privacy concerns and purchase intentions of potential consumers. Therefore, a design that allows us to examine those interaction effects will be the most beneficial for the purposes of this study.

3.1.1 Stimulus material, pre-test and pilot study

The stimulus material included four advertisements. Dynamic ads contained dynamic audiovisual elements in the format of a video commercial with audio/sound. The dynamic ads used were advertisements for the smart speaker Google Home and were presented to participants via incorporating a YouTube video in the online survey. The static ads contained static elements in the format of an image and text. The static ads were created from the two

dynamic ads by translating the message content from the dynamic ad into a static version and using an image from the dynamic video ad of the product.

Furthermore, the four ads were either functional or dynamic. The functional ads presented solely technical product information about the device, whereas the emotional used emotional appeals, such as joy and humor, and advertised the smart speaker as "your own personal assistant".

The pre-test included 20 participants in total distributed equally (5 subject per treatment group). The participants were shown one of the ads that were later included in the final survey and were asked to indicate the media type of the ad (image versus video) and the type of advertisement (functional versus emotional). For the second question, subjects were provided with a short definition for both functional and emotional advertisements. Out of the 20 participants, 19 correctly indicated both the media type and the ad type.

3.2 Measurements

Furthermore, several aspects were included in the research as control variables. The first control variable is product involvement which has been defined as a complex mental and enduring intervening construct consisting of three dimensions (sign value, importance, and pleasure) that stands between the consumer and their behavior (Bauer et al., 2006). Product involvement can have a significant effect on both purchase intentions and privacy concerns. High product involvement can result in the consumer being more willing to buy the product and also have less concern for personal data privacy. To measure product involvement the study uses a 5-point Likert scale taken fro Bauer et al. (2006) including 1 subscale and 4 items that measure involvement with the product in question, in this case a smart speaker.

The second control variable is personal innovativeness as an individualistic trait shown in Krey et al. (2019) to have a moderating role in the relationship between functional and emotional advertisements, and value assessment and consumer adoption of smartwatches. Personal innovativeness can be a strong characteristic of tech-savvy consumers which can make such individuals more prone to adopting innovative products. To measure personal innovativeness a 5-item Innovativeness Index 5-point Likert scale taken from Yang (2005) was used. Furthermore, demographic variables (eg. age, gender, nationality, education level, income level, employment status) were measured as controls.

The dependent variable privacy concerns was measured using the Device Privacy Concerns 5-point Likert scale taken from Lutz & Newlands (2021) including 5 items measuring the level of concern associated with different smart speaker-related privacy risks. The scale was taken out of the seven privacy concerns with smart speakers scales (e.g. household member privacy concerns, company privacy concerns, stranger privacy concerns, etc.) (Lutz & Newlands, 2021). The second dependent variable purchase intention was measured using an adapted (for smart speaker) 7-point Likert Purchase Intention scale obtained from Moon et al. (2008) containing 4 items measuring the intention of participant to buy a certain product.

The two advertising strategy dimensions - functional and emotional, were based on the descriptions items   by Lee & O'Connor (2013). These items served as guidelines for selecting and creating the stimuli of the experiment. The media type has two categories - dynamic and static, the dynamic ad will be in the format of a digital video, whereas the static ad will be in the format of an image with text. The aforementioned constructs and the respective measurement items can be found in Appendix A.

3.3 Participants

The sampling criteria includes English-speaking participants over the age of 18. Since the advertisements and the survey questions were presented in English, it is essential for participants to have a good understanding of the English language. The sampling method used was a non-probability one (eg. snowball sampling and convenience sampling). A major disadvantage of non-probability sampling methods is the difficulty achieving accurate representation of the target population and consequently affecting the generalizability of the findings, which can be presented as a limitation to the study. Nevertheless, non-probability sampling methods can achieve higher response rates, and are significantly more time-efficient, thus suitable for research projects with tight deadlines. The study aimed for a sample size of 120 participants with approximately 30 people per group to avoid the risk of having statistically insignificant results due to insufficient sample size.

3.4 Procedure

A between-subjects experiment was conducted via an online survey using Qualtrics. Participants were randomly assigned to one of the four groups in total using the program's

randomizer. Stimulus items were evenly presented. Each group was shown an advertisement of the same smart speaker. The first group was shown a functional dynamic ad which contained dynamic audiovisual elements, the second group was shown an emotional dynamic ad which again contained dynamic audiovisual elements, the third group was shown a functional static ad in an image format containing the same message from the functional dynamic ad but in text, lastly the fourth group was shown an emotional static ad, once again an image containing the message from the emotional dynamic ad but in text format.

Participants were first asked a question regarding their personal innovativeness and were later shown the respective ad and asked questions about their device privacy concerns of the smart speaker shown in the ad, followed by questions about their purchase intention. Following, participants were asked questions regarding their product involvement. Afterwards, participants were asked two questions part of the manipulation check. They had to indicate what format was the ad they were shown in the beginning of the survey (video or image), and what type of ad was it (functional or emotional). Brief explanations were provided regarding the different type of ads based on the definitions from the theory used in the study. Lastly, participants were asked to provide demographic information about themselves, including age, gender, educational level, nationality and employment status.

Participants were recruited via social media platforms such as Facebook and Reddit, through Whatsapp groups, and through word-of-mouth. Data was collected at once in the timeframe of three weeks. An online link with the survey was shared with participants, which was the main method of distribution. Participants were informed their participation is strictly voluntary and their data will remain confidential prior to the start of the survey. They were made aware they can withdraw from the study at any given time by closing the webpage. After completing the survey participants were thanked for their contribution. No incentives were used to recruit participants.

Participants who did not complete the survey until the end were excluded from the analysis. Participants who failed the manipulation check were also not included in the final analysis.

3.4.1 Research ethics

Some of the primary ethical foundations of scientific research are objectivity and logic (Burstrom, 1975). The degree of objectivity refers to the extent to which collecting and handling of data is governed exclusively by the conditions concerning the research project, whereas logic can be interpreted as to the quality of the conclusions of the research and

whether they are strictly drawn according to the laws of logic (Burstrom, 1975). Experimental research leaves the interpretation of numerical data and the handling of materials and instruments into the hands of the researcher which can create a margin for subconscious manipulation (Burstrom, 1975). In order to avoid violations of ethics, the researcher has to ensure that the proper methods are being followed and that the collection and treatment of data is appropriate. Change in measurements must be reported and conclusions must be based on logic. In the current study, there were no changes made to the measurements. Furthermore, possible biases, limitations and defects in the data that could influence the reliability of the research must be presented in a candid manner. The data collection process aimed to be inclusive and gather responses from diverse participants.

On the other hand, experimental research design requires manipulation and control of certain aspects of the social setting to test their potential effect on participants, therefore posing certain ethical questions. To ensure that the rights and interests of participants are protected, participants were informed about their right to anonymity and ability to withdraw from the study at any point. Furthermore, confidentiality was maintained at all times during the research process.

3.5 Data analysis

The present study uses statistical analysis to analyze the collected data. Reliability analysis and factor analysis were conducted for the several scales that were used in the study. Furthermore, correlations, mean and standard deviation were calculated and reported for the main variables. Finally, MANOVA was used to test the hypotheses.

4. Results

4.1 Sample characteristics

The sample consisted of a total of 136 responses. After data cleaning, $n = 112$ were included further analyses. The distributions per treatment group can be found in Table 1. Participants were relatively evenly distributed by gender, with the percentage of males being 48,2% and of females, 46,4%. Respondents identifying as non-binary or third gender take up 3,6% of the sample, whereas 1,8% preferred not to indicate their gender. The largest age group was between 21 and 25 years old, with an overall 33,9% of the sample. The second

largest age group was between 26 and 30 years old with 29,5%, followed by the age group between 31-35 with 12,5% of the sample. The sample obtained a total of 28 nationalities of which the most pronounced were American (19,6%), Bulgarian (18,8%), and Dutch (11,7%). The most prominent obtained educational level named by respondents was Bachelor's degree (40,2%), followed by Master's degree (34,8%) and Associate's degree (7,1%). Furthemore, concerning status of employment almost half of the participants indicated full-time employment (48,2%), whereas 33% selected student and 7,1% marked part-time employment. The table containing the frequency and percentage of different nationalities from the sample can be found in Appendix B.

Table 1. Distribution per treatment group.

Treatment group	*n*
Functional – Dynamic	25
Emotional – Dynamic	24
Functional – Static	33
Emotional – Static	30

Table 2. Sample characteristics

Characteristic	Frequency in sample	Percentage in sample
Age group		
18 – 20	4	3,6
21 – 25	38	33.9
26 – 30	33	29,5
31 – 35	14	12,5
36 – 40	9	8,0
41 – 45	2	1,8
46 – 50	3	2,7
51 – 55	4	3,6
56 – 60	3	2,7
> 60	2	1,8
Gender		
Male	54	48,2
Female	52	46,4
Non-binary/Third gender	4	3,6

Prefer not to say	2	1,8
Level of education		
Less than high school diploma	1	0,9
High school diploma	7	6,3
Some college, but no degree	6	5,4
Associates degree	8	7,1
Bachelor's degree	45	40,2
Master's degree	39	34,8
Professional degree	2	1,8
Doctorate	4	3,6
Employment status		
Full-time employment	54	48,2
Part time employment	8	7,1
Unemployed / Looking for work	4	3,6
Unemployed / Not looking for work	1	0,9
Student	37	33,0
Retired	3	2,7
Other	5	4,5

4.2 Factor analysis and reliability of measures

Multi-item measures were entered into an exploratory factor analysis using Principal Components extraction based on Eigenvalues of 1.0 and factor loadings of 0.40 as cut-off points to asses dimensionality and underlying structure of the items. Reliability analysis was conducted on the scales, each presenting with a Chronbach's alpha value that exceeds the 0.70 threshold. Appendix C includes all the measures, the factor loadings of the items and the Cronbach's alpha of the scales.

4.3 Descriptive statistics and correlations

The Mean and Standard deviation were calculated for each of the main variables, including the dependent variables *device privacy concerns* and *purchase intention*, and the control variables *personal innovativeness* and *product involvement* as shown in Table 3. Furthermore, correlations of the main variables and the two conditions, advertising strategy and media type, are also included in Table 3, showcasing a positive correlation between *personal innovativeness* and *purchase intention* and between *product involvement* and *device privacy concerns*. Negative correlations were found between *purchase intention* and *device privacy concerns*, and between *product involvement* and *purchase intention*.

Table 3. Descriptive statistics and correlations. ($n = 112$)

	1	2	3	4	5	*Mean*	*SD*
1. Personal innovativeness	-					3.87	0.68
2. Device privacy concerns	-.07	-				3.33	0.99
3. Purchase intention	.20*	-.39**	-			3.14	1.36
4. Product involvement	-.15	.35**	-.50**			3.49	0.91
5. Advertising strategy	-.03	.07	-.01	-.10		0.48	0.50
6. Media type	.08	.05	.02	-.07	-.01	0.56	0.50

*$p \leq 0.05$ (2-tailed)
**$p \leq 0.01$ (2-tailed)

4.4 MANOVA results

For the core of this study and the testing of the hypotheses, a multivariate analysis of variance (MANOVA) was conducted. The Box's M value of 14.21 was associated with a *p* value of .133 which was interpreted as nonsignificant based on $p < .005$. A two-way MANOVA was performed to analyze the effect of advertising strategy and media type on device privacy concerns and purchase intention. The analysis revealed there was not a statistically significant interaction effect between advertising strategy and media type on device privacy concerns ($F(1, 112) = 0.73$, $p =.395$) and on purchase intention ($F(1, 112) = 1.32$, $p = 254$). Therefore, H4 and H5 were rejected.

Analysis of the main effect showed no statistical significance of the effect of advertising strategy on privacy concerns ($F(1, 112) = 1.05$, $p =.308$) and on purchase intention ($F(1, 112) = 0.25$, $p =.616$). Thus, H1 and H2 were also rejected. In parallel, the independent variable media type had no significant effect on privacy concerns ($F(1, 112) = 0.88$, $p =.351$) and on purchase intention ($F(1, 112) = 0.17$, $p =.679$). As a result, H3 was likewise rejected.

5. Discussion and conclusion

This study aimed to assess the impact of advertising strategy and media type utilized in the marketing of smart speakers on consumers' purchase intentions and perceived privacy

concerns associated with the product. A 2x2 online experiment was conducted to investigate the effect of functional versus emotional advertisements and dynamic (DVA) versus static (image-text) media format on the dependent variables. The results of the analysis showed no significant correlation and effect of these factors on purchase intention and perceived privacy concerns. The implications of the study are discussed in the succeeding paragraphs.

5.1 Theoretical implications

One of the most crucial aspects to reassess in this study is the root cause of consumer perceived privacy concerns. Privacy concerns directed at smart technology and IoT devices may stem from additional autonomous and prominent factors such as subjective experiences, social norms, and inclinations (Naeini et al., 2017). The short time span advertisements are allowed to potentially persuade and affect consumer perspective can be inadequate to influence concerns that are deeply rooted in external circumstances.

The inability to find a significant correlation between the independent variables and privacy concerns could imply that the studied aspects are not strong influencing factors for this particular issues. Since privacy and security concerns often exist together in the adoption of IoT applications (Arias et al., 2015; Tawalbeh et al., 2020; Thierer, 2015), unfavorable past experiences involving safety risks (e.g., breaches, tracking, surveillance, identity or data theft) can automatically raise both security and privacy concerns and be detrimental to the adoption of these products. Even if such experiences are non-direct but only based on hearsay, an individual may nonetheless be inclined to express privacy concerns and have prejudices about smart devices. In such instances, advertising appeals utilized in advertisements or marketing campaigns will have little to no impact as their persuasiveness will be limited by the individual's preconceptions.

Furthermore, previous research reveals that consumers are not always aware of the privacy risks associated with smart devices or are merely unbothered by such risks (Huang et al., 2020; Lau et al., 2018. Malkin et al., 2019). Therefore, privacy might not be playing an important role in consumers' adoption decisions and responses to advertisements for smart speakers. As a result, ads cannot influence privacy concerns that might be non-existent in the first place. On the other hand, security concerns have been shown to overshadow privacy concerns (Haug et al., 2020), indicating that individuals might be more concerned about their physical safety and security while privacy is often not pondered upon extensively.

Another implication of the study is the lack of any significant relation between the advertisements shown to participants and their purchase intention. A possible explanation for this result could stem from the level of purchase involvement which can play a critical role in the purchase intentions and decisions of consumers. According to Petty et al., high involvement indicates an individual who is looking to purchase a specific product will likely take the central route to persuasion, whereas when a person is not considering purchasing a product at the moment, representing low involvement, will rather take the peripheral route (1983). Therefore, each individual could be more or less susceptive to advertisement influence, potentially affecting their investment in the ad message and consequently their purchase intentions. On the other hand, this study included product involvement as a control variable to evaluate if an individual is generally involved in products of this category (in this case, smart speakers), which was generally positively correlated with purchase intention. This could indicate that individuals planning to purchase a smart speaker are already invested in the product itself and advertising appeals have no importance for their decisions.

Nevertheless, assessing the level of involvement as the consideration one has to buy a certain product can yield different results. To clarify, if an individual is actively seeking to purchase a product of a certain category an advertisement will potentially be more effective due to the presence of personal interest and motivation to carefully process the message content. Therefore, the various advertising appeals presented in ads might be insufficient in impacting purchase intentions, if the level of involvement or active search or consideration to purchase a specific product is low.

5.2 Practical implications

The current study showed no significant effect of advertising strategy on perceived privacy concerns. This result could imply that companies ought to approach this issue from a different perspective other than advertising.

In the previous section, it was discussed that there is an existing possibility that privacy concerns can be overlooked by consumers (Lau et al., 2018) or could be deeply seated in external circumstances such as social norms, personal prejudices, subjective experienced, etc. (Naeini et al., 2017). This can significantly impact any possible advertising influence on privacy concerns. Previous research discusses the benefits of incorporating changes in the design and regulatory process in connection to smart speakers to minimize privacy risks and improve consumer concerns (Huang et al., 2020; Liu et al., 2020).

Furthermore, a study by Jasper and Pearson suggests that manufacturers should consider developing a design that balances functionality and clarity as to the usage of consumer data (2022). This indicates that it may be more beneficial and relevant for companies to employ a more practical and straightforward approach to addressing privacy concerns, rather than relying on advertising to communicate a message regarding privacy.

Another implication for practice concerns the process through which consumers form purchase intentions. Since advertisements did not show any significant effect on purchase intentions, it may be critical to seek different determinants for purchase intentions. Previous research reveals that positive factors for adoption and followed purchase attitude and intention associated with innovative new products, are relative advantage, compatibility, and simplicity (An et al., 2021).

Although the current study does not provide any insight on how functional and emotional appeals influence purchase intentions, the lack of any correlation can point to a need for practitioners to instead focus on highlighting proven adoption determinants in their advertising and marketing strategy. Allowing these aspects to have more importance in the marketing or advertising message regardless of the advertising appeal, may be a more beneficial approach for marketeers seeking to expand adoption and positively influence purchase decisions.

5.3 Limitations and future research

There are multiple limitations to this research stemming from both a methodological and a theoretical perspective. The design of the study involved an online questionnaire in which participants were shown an advertisement followed by various questions regarding the advertisement and the product. This introduces a number of critical points with respect to the success of such a methodological approach. Firstly, the online character of the survey permitted participants to maneuver the questions at their own pace, however, the inability to monitor their actions and the time spent on inspecting the ad makes it difficult to determine whether they were attentive or observant while being shown the ad.

Secondly, the brief exposure time to the ad message could easily fail to have a continuing impact on the subjects and their respective attitude toward the product. Since participants were shown the ad only once, this exposure might be insufficient and result in restricted advertising efficacy. On the other hand, the two dynamic video ads varied in length (emotional = 0:36 seconds; functional = 1:15 minutes), previous research has shown that

longer ads (30 sec) were perceived as less intrusive and more favorable than shorted ads (Goldrich et al., 2015), yet, this effect was not studied on ads exceeding the 30 seconds' span. This introduces another limitation to the study concerning the leverage of the message length. Hence, future research ought to take into consideration factors such as ad repetition and message length.

A further limitation is the absence of a more extensive examination of the overall understanding and awareness of privacy risks and concerns of those involved in the research in connection with smart technology and IoT applications. As previously mentioned, privacy concerns might originate from personal experiences and ultimately result in biased judgments or opinions of these products. This would influence an individual's impression of the advertisement and potential involvement with the ad message (Petty et al., 1983). Since this study failed to assess the prospect of such an interrelationship or significance, future research should incorporate a prior examination of the particular route participants take in linkage to privacy and smart technology and assess whether there are any results that could be impacting their answers regardless of the ad message or its media format.

On another note, since the outcomes of the current analysis did not reveal any significant correlation of the two primary independent factors, advertising strategy, and media type, it is viable to presume there may not be a direct influence of these characteristics on consumers' privacy concerns and purchase intentions. Smart speakers belong to a group of high-tech products and despite being directly advertised to customers, they nonetheless require a substantial amount of investment which may prompt consumers to do their own research rather than trusting solely an advertisement. As a result, their judgments and final decisions regarding such products may not be influenced by advertising. Future research can therefore examine whether the current advertising appeals used by companies in the marketing campaigns for smart speakers align with relevant consumer adoption determinants.

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Appendices

Appendix A
Constructs and respective measurement items

Construct	Measurement items	Source
Advertising strategy[1]	**Functional ad** 1. Emphasized the technology superiority. 2. Provided detailed information about product attributes. 3. Emphasized the firm's technology competence. 4. Persuaded customers by functional appeals (e.g., quality, economy, value, etc.) **Emotional ad** 1. Evoked customers' positive feelings of using this product, 2. Persuaded customers by emotional appeals (e.g., joy, humor, love, pride, etc.)	*Lee & O'Connor (2013)*
Device privacy concerns	1. The smart speaker asking me personal questions. 2. The smart speaker constantly listening. 3. The smart speaker operating in unexpected ways. 4. The smart speaker extending its listening radius beyond my comfort zone. 5. The smart speaker turning itself on when it should not.	*Lutz & Newlands (2021)*
Purchase intention (adapted)	1. I will purchase the smart speaker. 2. Given a choice, my friends will choose the smart speaker. 3. There is a strong likelihood that I will buy the smart speaker. 4. I would like to recommend the smart speaker to my friends.	*Moon et al. (2008)*
Product involvement	**Factor 2: Importance** 5. It is not relevant to me.	*Bauer et al. (2006)*

	6. It does not matter to me.	
	7. It is of no concern to me.	
	8. It is important to me.	
Personal innovativeness	1. I am very curious about how things work.	*Yang (2005)*
	2. I like to experiment with new ways of doing things.	
	3. I like to take a chance	
	4. I like to be around unconventional people who dare to try new things.	
	5. I often seek out information about new products.	

1.The measurement items for functional and emotional advertising strategy by Lee & O'Connor (2003) have been used as guidelines for the stimulus material as opposed to measures.

Appendix B

Sample characteristics: Nationality

Nationality	Frequency in sample	Percentage of sample
American	22	19,6
Belgian	1	0,9
British	7	6,3
Bulgarian	21	18,8
Canadian	4	3,6
Chilean	1	0,9
Chinese	1	0,9
Czech	1	0,9
Dutch	13	11,7
Finnish	2	1,8
French	1	0,9
German	3	2,7
Greek	4	3,6
Indian	7	6,3
Iranian	1	0,9
Italian	2	1,8
Lebanese	1	0,9
Norwegian	1	0,9
Pakistani	1	0,9
Polish	2	1,8
Russian	1	0,9
Slovak	1	0,9
Slovenian	1	0,9
South Asian	1	0,9
Spanish	1	0,9
Swedish	2	1,8
Thai	1	0,9
Yemeni(s)	1	0,9
Other	4	3,6
Not specified	3	2,7

Appendix C

Measures, factor loadings, and Cronbach's alphas

Construct	Items	Factor Loadings
Device privacy concerns	(α=.87) (1=No concern at all; 5=Very high concern)	
	1. The smart speaker extending its listening radius beyond my comfort zone	0.87
	2. The smart speaker constantly listening	0.86
	3. The smart speaker turning itself on when it should not	0.84
	4. The smart speaker operating in unexpected ways	0.75
	5. The smart speaker asking me personal questions	0.71
Purchase intention	(α=.85) (1=Strongly disagree; 7=Strongly agree)	
	1. I will purchase the smart speaker	0.93
	2. There is a strong likelihood that I will buy the smart speaker	0.92
	3. I would like to recommend the smart speaker to my friends	0.87
	4. Given a choice, my friends will choose the smart speaker	0.54
Personal innovativeness	(α=.73) (1=Strongly disagree; 5=Strongly agree)	
	1. I like to experiment with new ways of doing things	0.79
	2. I am very curious about how things work	0.74
	3. I like to take a chance	0.71
	4. I like to be around unconventional people who dare to try new things	0.62
	5. I often seek out information about new products	0.61
Product involvement	(α=.84) (1=Strongly disagree; 5=Strongly agree)	
	1. The smart speaker does not matter to me	0.93
	2. The smart speaker is not relevant to me	0.88
	3. The smart speaker is important to me[1]	0.81

4. The smart speaker is of no concern to me		0.67

1. Reversed item.

Appendix D
Survey and stimulus material

Introduction
Hello,

I would like to invite you to participate in this research by completing the following survey. I am a Master's student in Media and Business at Erasmus University Rotterdam and I am conducting a study on consumer attitudes and public perception of smart products.

The following questionnaire will require approximately 5 - 10 minutes to complete. Your participation will be kept strictly anonymous and the collected data will remain confidential and used solely for academic purposes.

Your participation in this study is entirely voluntary, if you wish to withdraw at any point during the survey, you can do so by closing the webpage.

Thank you for your time, I greatly appreciate your assistance and input!

Please begin the survey by clicking on the arrow on the right.

Q13 Please answer the following question about yourself.

To what extent do you agree or disagree with the following statements?

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
I am very curious about how things work.	○	○	○	○	○
I like to experiment with new ways of doing things.	○	○	○	○	○
I like to take a chance.	○	○	○	○	○
I like to be around unconventional people who dare to try new things.	○	○	○	○	○
I often seek out information about new products.	○	○	○	○	○

Q23 Thank you for your answer.

You will next view an advertisement for a smart device and you will be asked several

questions about the device shown in the ad.

Please proceed by clicking on the arrow on the right. (randomizer)

Q4
Please watch the following ad for a smart speaker.

Q5
Please watch the following ad for a smart speaker.

Q6
Please read carefully the following ad for a smart speaker.

Q7
Please read carefully the following ad for a smart speaker.

Q8 Have you seen this ad before?

- ○ No
- ○ Not sure
- ○ Yes

Q9 Do you already own the device shown in the ad?

- ○ No
- ○ Yes

Q11 You were shown an ad for a smart speaker. Smart speakers tend to be associated with certain privacy concerns, please answer the following question about the smart speaker you saw in the ad.

What is your level of concern about the following privacy risks:

	No concern at all (1)	Low concern (2)	Moderate concern (3)	High concern (4)	Very high concern (5)
The smart speaker asking me personal questions.	○	○	○	○	○
The smart speaker constantly listening.	○	○	○	○	○
The smart speaker operating in unexpected ways.	○	○	○	○	○
The smart speaker extending its listening radius beyond my comfort zone.	○	○	○	○	○
The smart speaker turning itself on when it should not.	○	○	○	○	○

Q10 Regarding the same smart speaker you saw in the ad, please answer the following question about your intentions of purchasing or recommending the device.

To what extent do you agree or disagree with the following statements?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I will purchase the smart speaker.	○	○	○	○	○	○	○
Given a choice, my friends will choose the smart speaker.	○	○	○	○	○	○	○
There is a strong likelihood that I will buy the smart speaker.	○	○	○	○	○	○	○
I would like to recommend the smart speaker to my friends.	○	○	○	○	○	○	○

Q12 Finally, please indicate your level of involvement with the smart speaker shown in the ad.

To what extent do you agree or disagree with the following statements?

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
The smart speaker is not relevant to me.	○	○	○	○	○
The smart speaker does not matter to me.	○	○	○	○	○
The smart speaker is of no concern to me.	○	○	○	○	○
The smart speaker is important to me.	○	○	○	○	○

Q19 During the survey you were shown an ad for a smart device. What format was the ad?

- ○ Video
- ○ Image

Q20 During the survey you were shown an ad for a smart device. What type of ad was it?

- ○ Functional (only provides information about product attributes, emphasizes on technological superiority)
- ○ Emotional (also uses emotional appeals e.g. joy and humor to evoke customers' positive feelings of using the product)

Q24 The next part contains questions about yourself.

Please proceed by clicking on the arrow on the right.

Q14 What is your age group?

- 18 - 20
- 21 - 25
- 26 - 30
- 31 - 35
- 36 - 40
- 41 - 45
- 46 - 50
- 51 - 55
- 56 - 60
- > 60

Q15 What is your gender?

- Male
- Female
- Non-binary / third gender
- Prefer not to say

Q16 What is your nationality?

_____

Q17 What is the highest degree or level of school you have completed?

- Less than high school diploma
- High school diploma
- Some college, but no degree
- Associates Degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate

Q18 What is your current employment status?

- Full time employment
- Part time employment
- Unemployed / Looking for work
- Unemployed / Not looking for work
- Student
- Retired
- Other, please specify _____

Stimulus material

Functional static ad

Emotional static ad

Functional dynamic ad link: https://www.youtube.com/watch?v=r0iLfAV0pIg

Emotional dynamic ad link: https://www.youtube.com/watch?v=zYcZC-rcYrc