Mechanisms of Contextual and Personalized Advertising, Taking Interest into Account – an Experimental Study.

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Abstract

Due to limitations on the use of third-party cookies as well as privacy and ethical concerns from using personal data for online advertising, many advertisers are compelled to explore alternative strategies. Contextual advertising has emerged as a viable alternative to sustain relevance. We study the underlying mechanisms behind personalized and contextual advertising effects on consumption intentions and ad recall using an online controlled experiment, survey questions, and structural equation modelling. Our study advances existing research on contextual effects by disentangling the influence of ad-context congruence and context involvement. We showcase how consumers' involvement in contexts serves as an indicator for consumer interest in specific topics, which can be leveraged by contextual advertisements for improved consumption intentions. In contrast to previous research which we contend does not properly account for context involvement, we find no main effect of ad-context congruence on intention. Regarding ad recall, we show that engaging context reduces recall of adjacent ads and that ad-context congruence increases the likelihood that ads go entirely unnoticed. For advertisers, our findings underscore the importance of personal relevance for advertising effectiveness. Furthermore, they suggest that placing ads in deliberately selected contexts is beneficial, as positive content attitudes spill over to consumption intentions.

1. Introduction

In today's digital landscape, advertisers face the challenge of capturing the attention and engagement of consumers amidst a sea of content. Many consumers tune out ads due to excessive exposure or lack of ad relevance, a phenomenon known as banner blindness (Resnick & Albert, 2016). Despite this, the online space is indisputably the main arena for advertising. It is where consumers spend a substantial amount of time, engage with content and conduct a significant portion of their consumption. Online advertising growth outpaces offline and is by 2025 projected to constitute over 60% of all advertising spend globally, totaling $640 billion (Statista, 2024). Furthermore, the advertising landscape is changing. Growing privacy and ethical concerns regarding the use of personal data have led to stricter data legislation and increased reputational risks for companies that misuse data. Additionally, restrictions on third-party cookies are limiting the industry's ability to rely on them for precision targeting (Ahuja, Bauer, Meder, & Gediehn, 2022; De Keyzer, Dens, & De Pelsmacker, 2022; Doig, 2016; Boerman & Smit, 2023).

For advertisers, this presents a difficult proposition: how to provide relevance in advertising when the accessibility of personal data is increasingly constrained. Contextual advertising, which places ads based on the online content consumers are currently viewing—henceforth in this paper labeled *context* when we wish to emphasize its relation to an ad, and when necessary to distinguish it from ad content—has been raised as a privacy-friendly targeting alternative. Traditionally performed through keyword methods, the precision of contextual targeting has recently surged through advancements in AI which allow for nuanced understandings of themes and sentiment in online content (Häglund & Björklund, 2024). Prior

research has demonstrated that the context an ad is presented within can influence how the ad is perceived, a phenomenon known as priming effects (Jørgensen & Knudsen, 2022; Yi, 1990). However, the core motivation behind contextual advertising is that online content choices reflect consumer's interests or immediate needs, which advertisers can leverage in their ad targeting. We contend that previous studies on media context effects on advertising have not sufficiently incorporated the effects of the consumer's interest in their theoretical development or research designs. We seek to capture a more complete picture of contextual effects in advertising, taking interest into account.

The aim of this article is to study the underlying causal mechanisms of personalized[1] and contextual[2] advertising effects. We accomplish this through a controlled online experiment, wherein groups of participants are presented with different combinations of context and advertisements. Our treatise of contextual and personalized advertising centers around four main factors. The first three relate to contextual advertising: (1) *ad-context congruence:* whether the ad and article content are thematically similar, (2) *context involvement:* how interesting and engaging the consumer finds the context (the content of an article), and (3) *attention to context*: the level of attention the consumer pays to the context (the content of an article). The last variable relates to personalized advertising, and we designate it as (4) *ad-topic interest:* the consumer's interest in the subject matter of the ad.

Web articles and banner ads for streaming shows served as experimental stimuli. This selection of stimuli enabled the study of our four main factors by both allowing for manipulation of thematic ad-context congruence and the surveying of participants' interest in the subject matters of the advertised streaming series. In our assessment of advertising effects, we measured the consumer's intention to watch the advertised streaming series, referred to as *watching intention,* as well as the memorability of the ad *(ad recall)*. Our study advances existing research on contextual effects by disentangling the influence of ad-context congruence and context involvement. For practitioners, our findings inform the decision between contextual and personalized targeting strategies. In addition to underscoring the significance of personal relevance our results also suggest that deliberate context selection is advantageous, as positive context attitudes spill over to advertising responses.

2. Theoretical Framework and Hypotheses

In our theoretical framework, we examine the existing literature and propose hypotheses related to four key explanatory variables: (1) *context involvement*, (2) *ad-context congruence*, (3) *ad-topic interest,* and (4) *attention to context.* We discuss their effects on consumer responses in Sections 2.1 to 2.4, and on ad recall in Section 2.5. Notably, while advertisers strive to enhance both consumption intentions and recall, previous research has at times indicated contrasting effects on these objectives.

[1] Placement of ads based on personal data such as earlier browsing behavior or identified demographics.
[2] Placement of ads based on what is consumed online by someone for the moment, whoever the person is.

2.1. Contextual Advertising: Effects of Ad-Context Congruence, Context Involvement, and Attention to Context on Watching Intention

In their review of media context effects on advertising, Jørgensen & Knudsen (2022) noted that prior research has predominantly concentrated on examining either of two context factors: ad-context congruency or context involvement. For understanding the mechanisms of online contextual advertising, we contend that these factors need to be studied together, looking both at their main—or direct—and interaction effects on consumer responses and thus for advertising effectiveness. We also add a mediating variable: attention to the context an ad is presented alongside, (in our study, the content of an article). In this section, we first review the literature and present our hypotheses regarding the main (direct) and indirect effects of ad-context congruence, context involvement, and attention to context. Subsequently, we cover the less studied interaction effects between ad-context congruence and context involvement.

2.1.1. Main effect of ad-context congruence on watching intention

Contextual advertising aims at placing ads in contexts that are relevant to the advertised products or brands. The assumption behind contextual advertising is that the content users consume is related to their needs or interests, and prior research shows that ads relevant to the interests and needs of consumers lead to favorable consumer responses, for example, enhancing ad and brand attitudes (Yi, 1990; Yi, 1993; Song, 2014; Huang, 2014; Jeong & King, 2010; Rieger, Bartz, & Bente, 2015) as well as purchase intention (Jeong & King, 2010) while lowering ad avoidance (De Keyzer, Dens, & De Pelsmacker, 2022). Such effects have been observed across different media, including television, print and online display advertising (e.g., Van den Broeck, Poels, & Walrave, 2018; Cho, 2003; Rejón-Guardia & Martínez-López, 2014). Multiple studies have also demonstrated the proficiency of contextual advertising by improving click-through-rates across online contexts such as third-party websites (Chakrabarti, Agarwal, & Josifovski, 2008; Tagami, Ono, Yamamoto, Tsukamoto, & Tajima, 2013), news sites (Oh, Lee, & Lee, 2012) and social media (Mao & Zhang, 2015). Relevance is thus assumed to be achieved through *ad-context congruence*—a similarity in topic of the ad and article (Jørgensen & Knudsen, 2022).

An additional factor contributing to effects of ad-context congruence on consumer responses is the contextual priming effect, where the context in which information (such as an ad) is presented subconsciously influences subsequent cognitive processing and behavior (Higgins E. T., 1996). In contextual advertising, when the context's theme highlights a specific attribute, it amplifies the relative importance of that attribute when consumers evaluate adjacent advertisements (Yi, 1990). The heightened information accessibility can increase people’s excitation level regarding a theme which could positively influence their assessment of a related ad (Higgins, Bargh, & Lombardi, 1985). Thus, people may respond positively from ad-context congruence alone, whether the topic of the ad is of interest or not.

Earlier studies differ between the stimulus being deliberately designed to prime positive associations and stimuli which are simply congruent. An illustration of the former can be found in (Yi, 1990) where an article discussing airline safety produced positive associations for an advertised SUV, being perceived as big and safe. In contrast, Song (2014) represents the latter case, with a restaurant advertisement placed adjacent to an article about a family restaurant. Nonetheless, even in this latter scenario, which is the primary focus of our study, prior research has found support that ad-context congruence produces positive attitudes and

intentions, although these effects have occasionally been marginal (Rieger, Bartz, & Bente, 2015; Jeong & King, 2010; Song, 2014).

In our study, the participants are randomly exposed to a context—an article—which is either topically congruent or incongruent with an ad shown alongside. The context will thus not be chosen by the participants themselves based on their interests. The reason is that we wish to separate the effects of ad-context congruence *per se* and ad-topic interest, the former based on the assumed contextual priming effect. We gauge consumption intentions by assessing consumers' intention to watch a streaming show, which we refer to as *watching intention*. We hypothesize:

H1: Ad-context congruence has a positive main (direct) effect on watching intention.

2.1.2. Main effect of context involvement on watching intention

Previous research indicates that when consumers are engaged and have a favorable assessment of media content, this positivity extends to their evaluation of adjacent advertisements (Goldberg & Gorn, 1987; Pelsmacker, Geuens, & Anckaert, 2002; Tai & Chang, 2005; Tipps, Berger, & Weinberg, 2006). These effects have been shown both in print and TV on a multitude of advertising metrics including attitudes towards ads and brands as well as purchase intention (Tipps, Berger, & Weinberg, 2006; Pelsmacker, Geuens, & Anckaert, 2002). For the TV-medium, the positive effect of context involvement has been shown to persist also when the context is unrelated to the ad, i.e., under low ad-context congruence (Tipps, Berger, & Weinberg, 2006). In online display advertising, Tai & Chang (2005) demonstrated that internet users who engaged with website content exhibited more positive ad attitudes and higher click-through rates. These effects were moderated by web content, with entertainment and educational content showing more significant impacts compared to news content.

From studies on source credibility, it is well established that assessments of the media source spill over to the processing of accompanying ads, a phenomenon known as the media vehicle effect (Aaker & Brown, 1972; Rauwers, Remmelswaal, Fransen, Dahlén, & van Noort, 2018; Malthouse, Calder, & Tamhane, 2007). Furthermore, (Tipps, Berger, & Weinberg, 2006) provided an additional explanatory theory, suggesting that elevated levels of engagement lead to both a stronger inclination and a greater capacity to process information. We hypothesize:

H2: Context involvement has a positive main (direct) effect on watching intention.

2.1.3. Interaction effect of ad-context congruence and context involvement on watching intention

While both ad-context congruence (H1) and context involvement (H2) are expected to have positive effects on watching intention *per se*—main or direct effects—we also expect an extra combined effect—an interaction effect—when there is congruence between the context and the ad, and, at the same time, the context engages the user. We expect this interaction effect to occur even when the interest in ad-topic *per se* is typically low (i.e., independently of ad-topic interest which will be dealt with later on). For instance, a reader who does not typically delve into ancient history may still find an article discussing the lasting impact of the Roman Empire captivating. Consequently, they might be more inclined, at that moment, to watch a

streaming series about the Fall of the Roman Empire if it is advertised alongside the article. We hypothesize:

H3: The interaction of ad-context congruence and context involvement positively influences watching intention.

2.1.4. A mediating effect of attention to context

If the context is engaging, the consumer is likely to be more motivated, resulting in greater attention and a higher likelihood of continuing to engage with the content. This effect also has empirical support (e.g., Wigfield & Guthrie, 1997; Stutz, Schaffner, & Schiefele, 2016). We hypothesize:

H4: Context involvement positively influences attention paid to the context.

According to the theory of limited cognitive capacity, high context involvement reduces attention and the capacity to absorb ads (Norris & Colman, 1992). In other words, a consumer that is highly engaged in the context pays less attention to the ad (Norris & Colman, 1992; Pelsmacker, Geuens, & Anckaert, 2002; Soldow & Principe, 1981), which then, in turn, should affect intention negatively. Thus:

H5: Attention paid to the context negatively influences watching intention.

From H4 and H5 follows:

H6: There is an indirect negative effect from context involvement on watching intention, via attention to article, lessening the positive direct effect of context involvement on watching intention.

2.2. Personalized Advertising: Targeting Those Interested in Your Product

Personalized advertising more directly aims to tailor advertisements to resonate with the interests, preferences, or characteristics of the intended consumer audience (De Keyzer, Dens, & De Pelsmacker, 2022). Personalization is achieved by delivering ad messages to individuals based on their browsing behavior—known as Online Behavioral Advertising—or other personal data, such as demographics or locational data (Varnali, 2019; Boerman, Kruikemeier, & Zuiderveen Borgesius, 2017). A consistent body of prior research shows that personalization lifts advertising effectiveness by making ads more relevant to the consumer (Van den Broeck, Poels, & Walrave, 2018; De Keyzer, Dens, & De Pelsmacker, 2022; De Keyzer, Dens, & De Pelsmacker, 2015). In their research on Facebook ads, De Keyzer et al. (2022) found that among factors commonly employed in personalized targeting, such as location, gender, age, interests, and life events, a person's interests stood out as the most influential in evoking perceived personalization. In our study, we focus on interest, examining how participants' interest in the ad's subject matter—referred to as *ad-topic interest*—affects our dependent variables watching intention and ad recall. Here, "topic" refers to the theme of the advertised streaming show, such as baking or football.

Conceptually, ad-topic interest is closely related to *product involvement* which describes the level of personal relevance or importance that a consumer assigns to a product or product category. Product involvement has been found to improve attitudes, intentions, and click-through rates, and to lower ad avoidance across different media (Rejón-Guardia & Martínez-López, 2014; Cho, 2003). We contend that ad-topic interest positively influences advertising responses. Applied to the context of our experiment, this means that the greater the interest a consumer has in an ad topic, the higher the intention to watch an advertised streaming series within the topic. We hypothesize:

H7: Ad-topic interest positively influences watching intention.

2.3. Effects of Contextual and Personalized Advertising, respectively, on Watching Intention

In Figure 1, we present hypotheses H1-H5 concerning how the four primary factors in our study are hypothesized to influence our dependent variable watching intention in contextual and personalized advertising, respectively. A control variable, *streaming habits*, has been added to control for how regularly the participants watch streaming series in general. The reason is axiomatic, that the more one consumes streaming series in general, the more likely it is that one will consume any specific streaming series.

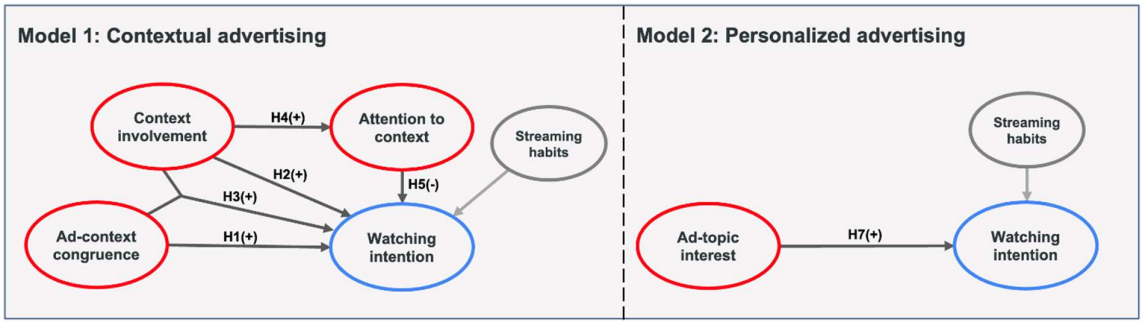

Figure 1: The hypothesized influences of (1) ad-context congruence, (2) context involvement, and (3) attention to context on watching intention in contextual advertising (Model 1) and of (4) ad-topic interest on watching intention in personalized advertising (Model 2).

2.4. A Combined Model of Effects of Contextual and Personalized advertising

We have argued that the primary rationale of online contextual advertising is to reach consumers with particular interest through the content they consume. In essence, this is an indirect approach to target consumers with high ad-topical interest. Personalized advertising aims at the same thing, but more directly by using personal data to indicate interest. We have also argued that both ad-context congruence and context involvement *per se* have effects on watching intention, enhanced when cooccurring—the interaction effect.

As our final research objective regarding consumption intentions, we want to explore whether the ad-context congruence and context involvement effects remain when combining the models, i.e., when analyzing all the assumed explanatory variables together. Specifically, we seek to determine whether ad-context congruence and context involvement influence viewing intentions beyond merely reflecting ad-topic interest. Having argued that these variables have such effects we state this additional inquiry as a specific research question (SRQ):

SRQ1: Are the main (direct), indirect, and interaction effects of H1-H7 found from testing models 1 and 2 separately different or similar to the corresponding results

when analyzing all hypotheses simultaneously in a coherent structural equation model (SEM)?

In Figure 2, a SEM is presented including all hypothesized effects (H1-H7) on watching intention. The model includes the four main explanatory factors in the study: (1) ad-context congruence, (2) context involvement, (3) ad-topic interest, and (4) attention to article as well as the control variable streaming habits.

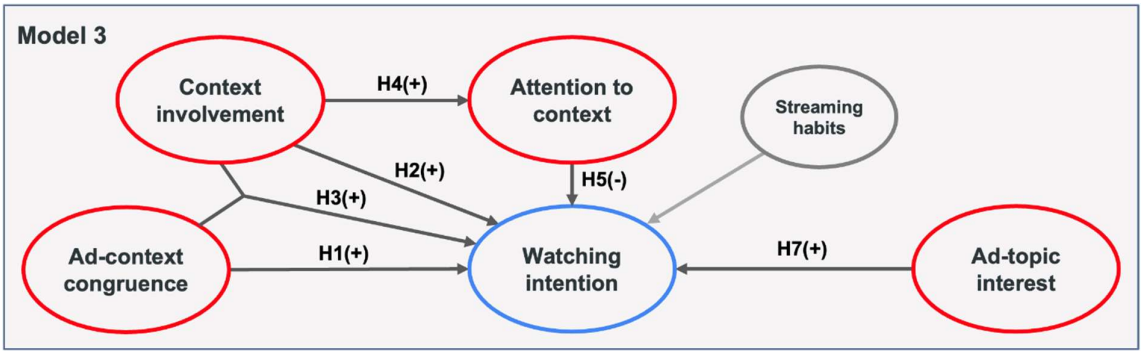

Figure 2: A structural equation model of four factors, plus a control variable, hypothesized to affect watching intention: (1) ad-context congruence, (2) context involvement, (3) ad- topic interest, and (4) attention to context. The control variable is steaming habits.

2.5. Effects Concerning Ad Recall

Recognizing an ad and processing its message are essential steps for forming intentions toward the advertised product or attitudes toward the brand (Rozendaal, Lapierre, Van Reijmersdal, & Buijzen, 2011). While intention is of interest as an immediate consumption-oriented response, ad recall measures the advertisement's effectiveness in terms of memorability and message retention, offering insights into possible long-term impact. In this section, we provide a theoretical basis for the influence of our explanatory variables (1) context involvement, (2) ad-context congruence, (3) ad-topic interest, and (4) attention to context on ad recall, as well as discussing the effect of ad recall on intention.

Ad recall can be assessed at varying levels of processing depth. At a basic level, we can assess whether consumers have seen the ad and identified it as an advertisement. This initial stage establishes awareness that there is a product or brand being promoted. Even without detailed or conscious processing of the advertised message, having noticed the ad may be enough to affect intention or form attitudes towards the brand**.** Although rarely being the focus in advertising research, such effects have been extensively discussed in psychology (e.g., Bargh & Morsella, 2008; Morsella & Poehlman, 2013). More in-depth recall can be measured by asking for specific details about the advertised product or brand. In our study we measure ad recall at four levels of detail, ranging from whether the ad was seen to the title of the advertised streaming show (see Section 3.3). Although assessed at different levels of detail, our subsequent hypotheses regarding ad recall apply generally to all measures.

2.5.1. The Effect of Ad Recall on Watching Intention

Although ad recall is of primary interest as a dependent variable indicating possible long-term effects, it may also have immediate effects on intention. There is considerably more research on factors influencing ad recall than ad recall's effects on consumer responses. Still, some research has found positive influence of ad recall on intention, for example Adis & Hyung

(2013) in advergaming, Kranzler et al. (2017) of anti-smoking campaigns, and Banik & Dhar (2021) on children's buying intentions. However, increased ad recall does not always lead to positive outcomes. For *native advertising,* ad recall has been shown to negatively influence purchase intentions (Wojdynski & Evans, 2016), possibly due to the perceived manipulative or deceptive nature of native ads that are designed to match the style, format, and function of the platform. Since we are not studying native advertising but display ads for streaming series, we hypothesize:

H8: Ad recall positively influences watching intention.

2.5.2. Influences on Ad Recall

Hypothesis H1 predicts that ad-context congruence has a positive effect on watching intention through the priming effect. Priming enhances the saliency and memorability of specific attributes in the ad (Yi, 1990), and potentially ad recall overall. Interference theory, on the other hand, argues that ad-context congruence makes it more difficult to distinguish the ad from the media content (Rieger, Bartz, & Bente, 2015). Consumers may then even fail to recognize the advertisement as an ad for a product altogether. A milder manifestation is known as the "meltdown effect" (Furnham, Bergland, & Gunter, 2002) where the context and the ad blend together in the viewer's processing.

Results regarding the effect of ad-context congruence are also mixed. A few studies on online banner advertising have found that ad-context congruity promotes ad recall (Song, 2014; Rieger, Bartz, & Bente, 2015; Huang, 2014) while Jeong & King (2010) found no such influence. In print media, multiple studies have found ad-context congruence leading to decreased memory of ads (Norris & Colman, 1992; Moorman, Neijens, & Smit, 2002). Since it is unclear, both from earlier studies and based on theories, what explanation prevails when it comes to ad recall, we ask the following specific research question:

SRQ2: What are the effects of ad-context congruence on ad recall?

Jørgensen & Knudsen (2022) raised the presence of contentious theoretical framework regarding the influence of context involvement on advertising processing. As already mentioned, the theory of limited cognitive capacity predicts that high context involvement reduces attention and the capacity to absorb ads (Norris & Colman, 1992). The theory has empirical support: the higher the engagement in the context, the less attention is paid to and the less is remembered of an ad (Norris & Colman, 1992; Pelsmacker, Geuens, & Anckaert, 2002; Soldow & Principe, 1981). On the other hand, some studies on the TV medium have shown that viewer involvement improves recall (Pelsmacker, Geuens, & Anckaert, 2002; Tavassoli, Shultz, & Fitzsimons, 1995). Norris & Colman (1992) contended that this phenomenon could be explained by the characteristics of the medium, as TV substitutes content with ads whereas print media feature ads alongside a context. Given the analogous side-by-side characteristics of print media and webpage display advertising, we hypothesize:

H9: Context involvement negatively influences ad recall.

We argue that the same reasoning regarding the influence of context involvement on ad recall also applies to the influence of attention to context on ad recall. This argument is further supported by the previously stated hypothesis H4, which proposes a positive effect of context involvement on attention to context. Thus:

H10: Attention to context negatively influences ad recall.

Given the conflicting findings in previous research, we framed the potential effect of ad-context congruence on ad recall as an open question (SQR2). Consequently, we also explore the potential influence of the interaction of ad-context congruence and context involvement on ad recall as an open question. Does this interaction influence ad recall, and if so, is the effect positive or negative?

SRQ3: What is the interaction effect of ad-context congruence and context involvement on ad recall?

Absence of personal relevance has been cited as the main reason behind ad avoidance (Kelly, Kerr, & Drennan, 2010; De Keyzer, Dens, & De Pelsmacker, 2022). Eye-tracking studies have substantiated this notion by demonstrating that personally relevant ads garner increased attention (Bang & Wojdynski, 2016). According to the Elaboration Likelihood Model, messages that hold personal relevance or interest are subject to central processing, wherein greater cognitive resources are dedicated to evaluating and scrutinizing the message arguments. This has been found to lead to heightened elaboration and attention as well as favorable and strong attitudes (Petty & Briñol, 2011). Based on previous research showing that personal relevance increases attention, we contend that ads for streaming series on topics which participants find interesting will be recalled to a greater extent:

H11: Ad-topic interest positively influences ad recall.

3. Method

In this study, we investigate the interplay and impact of four primary factors— (1) ad-context congruence, (2) context involvement, (3) ad-topic interest, and (4) attention to context—on the watching intention and recall of advertisements for streaming series using an experimental method, followed by survey questions. The study utilized online participants recruited from Prolific. Within the experiment, ad-context congruence was manipulated resulting in two distinct experimental groups: low vs. high ad-context congruence. Participants were instructed to view an article, accompanied by an advertisement for a streaming series. Half of the stimuli featured congruent ad-article pairings, while the other half presented incongruent pairings. The variables of context involvement, attention to context and ad-topic interest were not experimentally manipulated but recorded post stimuli, after questions on ad recall and watching intention.

3.1. Stimulus development

We conducted a pre-study (N=200) to test the manipulations of ad-context congruence. This preliminary study also served to validate the effectiveness of our experimental setup and ensure participants' comprehension of instructions and tasks. Stimuli in the main study encompassed articles and ads for fictitious streaming series chosen from four distinct interest categories: football, baking, ancient history, and interior design. For each interest category we designed 2 articles and 2 advertisements, resulting in a total of 64 unique combinations of articles and ads. An example of an incongruent article-ad pairing (ad-context incongruence) featured an article titled “The absence of the Roman Empire fueled western civilization, Stanford scholar says” alongside an ad promoting a baking-themed streaming series titled “Bake-off Bonanza”. Conversely, a congruent combination relating to football included an

article titled “Reality check: Is Gareth Southgate right about the lack of English players?” coupled with an ad titled “Premier League Legends”. A full description and pictures of articles and ad stimuli is found in Appendix A.

The stimuli were presented as a scrollable HTML page within the survey platform Qualtrics, simulating a webpage interface. The articles were 150-250 words long and included a relevant picture. Positioned fixedly to the right of the scrollable text was the advertisement. The deliberate selection of streaming series as the advertised product category served multiple purposes. Firstly, it enabled us to manipulate congruence between the articles and the ads. Additionally, we chose streaming series as the advertised product due to its relevance to consumers in general. Our control variable, streaming habits, revealed that a significant majority (almost 90%) of participants reported watching shows on streaming platforms at least once a week. Notably, 37% of all participants reported doing so practically every day, showcasing the relevance of our advertised product category.

3.2. Procedure

The sample for the main study consisted of 2000 participants recruited from Prolific. The study targeted individuals living in the UK, aged between 20-50 years old. This target group was chosen for its anticipated interest in the advertised product—streaming series—and the stimuli were tailored to a UK audience, for example articles around football. After some dropouts and exclusion of a few participants based on the exclusion criteria (see below), the final sample used for the analyses consisted of 1950 participants (50% females; 50% males; median age 35 years). The criteria for exclusion were viewing the stimuli for less than 5 seconds or more than 720 seconds, and a few participants who reported internet connectivity issues that hindered their ability to participate as intended in the experiment.

Participants were instructed that they would be presented with an article and asked to read it on a webpage like they would usually do when visiting an internet page. Participants were randomly allocated by 50% chance to either a congruent or incongruent ad-article pairing randomly chosen from the 64 possible combinations. When finished reading the page, a “Next”-button on the bottom of the page allowed them to proceed. Following exposure to the stimuli, we measured ad recall by asking for specific details about the ad. Subsequently, we gauged the watching intention—the participants intention to watch the advertised streaming series. Participants were then asked to rate their context involvement, reflecting their interest and engagement with the article, their ad-topic interest, indicating their level of interest in the subject matter that the advertised streaming series was tailored to reflect, as well as their attention to the context—how closely they attended the article. In addition to the main experimental variables, one possible confounder was also recorded: *streaming habits,* assessing the frequency of the participants' consumption of streaming series. Lastly, there were questions on demographic information and a debrief on the study's purpose.

3.3. Measures

A table detailing all the measurements of the variables in this study is provided in Appendix B, and all statistics from testing the SEM are provided in Appendix C. Here follows an overview of the measures used:

Watching intention measures the respondents’ intention to watch the advertised streaming series and serves as the dependent variable for H1-H8 and SRQ1. The variable is an index of

3 items using a seven-point scale, designed to capture Intention as Expectation (IE) based on the framework proposed by Söderlund & Öhman (2003).

Ad recall was assessed using four questions designed to gauge different levels of ad recall. Ad recall is the independent variable for H8 and dependent variable for H9-H11 and SRQ2 and SRQ3. Initially, participants were asked a straightforward question: "Did you see the ad?" with options for “Yes” or “No” responses. Subsequently, they were prompted to identify the type of product advertised. Upon revealing that the ad was for a streaming TV show, participants were presented with two additional questions: "What was the topic/genre of the TV show?" and "What was the title of the TV show?" For the latter three questions, respondents were given four plausible alternatives along with an "I don't remember" option. Participants who selected "I don’t remember" or provided an incorrect answer were categorized as having incorrect ad recall. While “What was the title of the streaming” provides the most detailed measure of ad recall, the supplementary questions collectively offer a broader understanding of ad recall.

Ad-context *congruence* and *Perceived ad-context congruence:* Ad-context congruence is an experimental manipulation and was conceptualized as a dichotomous variable (incongruent vs. congruent). For manipulation checks, we gauged the participants’ perception of ad-article congruity. A summative index was calculated based on three items using a seven-point scale, previously utilized by Lee, Kim, & Lim (2021), asking participants to rate the degree to which the ad was associated with, linked with, or tied to the article.

Ad-topic interest assesses the respondents’ interest in the topic of the ad (football, ancient history, baking, or interior design). Based on Rotgans (2015), a three item seven-point scale was designed, examining participants’ overall interest, frequency of consuming topic-related media, and engagement levels during the consumption of content relevant to the chosen topic.

Context involvement: An index was developed to capture the respondents’ involvement in the content of the articles used for the stimuli. The index consisted of three items using a seven-point scale asking participants to rate how interesting, engaging, and intriguing they found the article.

Attention to context: This mediating variable was measured using three questions, two asking how much of the article they had read—one qualitative and one concerning the percentage of the article—and a third concerning how carefully they had read it.

Streaming habits: This control variable was based on two questions aimed at assessing the frequency of participants' engagement with streaming TV shows in general: one subjective frequency question and one quantitative question. When assessing habit frequencies, we adhered to recommendations outlined in Andersen, H. de Vreese, & Albæk (2016).

For additional mean comparison and cross-tabulation analyses, summative indices for some of the constructs above were used, based on the same manifest variables, with one exception. In the case *of attention to context*, the question regarding the percentage of the article read was excluded and the summative index was based on the two remaining Likert-style questions.

3.4. Analysis methods

To test hypotheses H1 through H7 and answer SRQ1 concerning influences on watching intention, SmartPLS4—a variance-based program for regression or SEM testing, with latent

variable modeling, using partial least squares for paths testing—was used (Ringle, Wende, & Becker, 2022; Sarstedt & Cheah, 2019; Memon, o.a., 2021). All manifest variables—the measured indicators of the latent variables—were reflective and standardized, except for the experimental dichotomous variable. A path weighing scheme, bias-corrected, and accelerated bootstrapping with 5,000 samples for confidence intervals, and two-tailed significance test were used.

For hypotheses H8 through H11 and SRQ2, which pertain to ad recall, the main evaluation method involves comparing responses to our four ad recall questions across high and low partitions. To evaluate the interaction effects of context involvement and ad-context congruence on ad recall (SRQ3), we performed a logistic regression analysis. Logistic regression offers a more precise approach for statistically testing interaction effects compared to mean comparison, which would otherwise require multiple partitions and comparisons. Since the dependent variable—ad recall—is dichotomous (correct vs. incorrect), logistic regression is more appropriate than SEM or linear regression.

4. Results

4.1. Manipulation Checks

The experimental manipulation of ad-context congruence was successful. Participants rated the perceived ad-context congruence significantly higher for congruent pairings (M=5.08) than for incongruent pairings (M=2.15; F^3=31.98, p<0.001; t=43.05, p<0.001). This successful manipulation was consistent for stimuli across all four interest categories: football, baking, ancient history, and interior design.

4.2. Tests of Models 1 and 2 Concerning Watching Intention

Results of testing Model 1(hypotheses H1-H5) and Model 2 (H7) are presented in Figure 3. The same and some more detailed results are shown in Table 1, including those concerning H6. The Model 1 results show the impact of ad-context congruence, context involvement, and attention to context—variables associated with contextual advertising—on watching intention, not taking ad-topic interest into consideration. Model 1 also includes a control variable, streaming habits. The Model 2 results show the impact of ad-interest on watching intention, not taking the variables associated with contextual advertising listed above into consideration. The figures shown in Figure 3 are standardized path coefficients and adjusted R^2s for the mediating and dependent variables.

The findings from testing Model 1 reveal that H1 is not supported: topical similarity between the advertisement and the article—ad-context congruence—does not have a significant main (direct) effect on watching intention while context involvement has a main (direct) positive influence on watching intention (β=.220, p<.001), thereby supporting H2. This effect is enhanced when there is ad-context congruence, i.e., supporting H3 hypothesizing a positive interaction effect of the two variables (β=.303, p<.001). This effect is clearly stronger than the main (direct) effect from context involvement. Ad-context congruence thus does affect watching intention, when the context is engaging. H4 is also strongly supported, i.e., the more involved in the context, the more attention paid to the context (β=.489, p<.001). Thus, an engaging context makes people consume more of it. However, attention to context has a

[3] Levene's test of equal variances showed differing variances. Thus t-test for "equal variances not assumed".

negative effect on watching intention, supporting H5 (β=-.125, p<.001), which means, in turn, that context involvement has a negative indirect effect on watching intention, via attention to context, supporting H6 ($\beta_{Indirect}$=-.061, p<.001), somewhat reducing the total effect of context involvement on watching intention, however still remaining strong (β_{Total}=.159, p=.001). The control variable streaming habits has the expected positive effect on watching intention (β=.099, p<.001).

According to the results from testing Model 2, ad-topic interest has a strong positive effect on watching intention when contextual variables are not controlled for (β=.570, p<.001), thus supporting H7. The control variable streaming habits has the expected positive effect on watching intention also in this case (β=.056, p<.001).

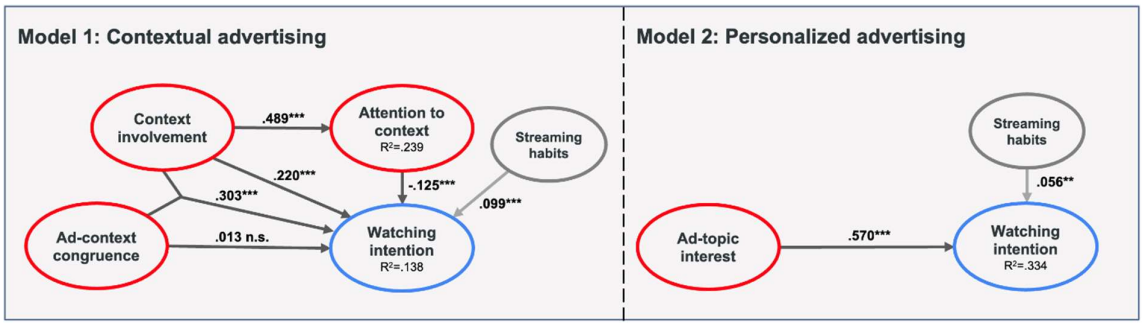

Figure 3: To the left: Results from testing Model 1 showing the influence of the contextual advertising variables ad-context congruence, context involvement, and attention to context on watching intention. To the right: Results from testing Model 2 showing the influence of the personalized advertising variable ad-topic interest. Both models control for streaming habits. The figures are path coefficients and adj. R^2s for dependent and mediating variables. n.s.=not significant. * p<.05, ** p<.01, *** p<.001.

Table 1: Results from testing models 1 and 2.

Hypotheses	Effect coefficients	p-values	Effect sizes & p-values	Conclusion
Model 1:				
H1: Ad-context congruence has a positive main (direct) effect on watching intention.	.013	.764: n.s.	<.001: -- .954	Rejected
H2: Context involvement has a positive main (direct) effect on watching intention.	.220	<.001	.026: S .001	Supported
H3: Ad-context congruence x context involvement on watching intention is positive.	.303	<.001	.026: S <.001	Supported
H4: Context involvement has a positive effect on attention to context.	.489	<.001	.314: M <.001	Supported
H5: Attention to context has a negative effect on watching intention.	-.125	<.001	.014: -- .007	Supported, but weak
H6: Context involvement has a negative indirect effect on watching intention via attention to context.	-0.061	<.001	n.c.	Supported, but weak
Control variable: Streaming habits on watching intention.	.099	<.001	.011: -- .013	
Model 2:				
H7: Ad-topic interest has a positive effect on watching intention.	.570	<.001	11.473: L <.001	Supported
Control variable: Streaming habits on watching intention.	.056	.001	1.560: S .119	

Coefficients are path or interaction coefficients. Effect size (f-square): --=no or weak, S=small, and M=medium, L=large effect size in line with (Cohen, 1988); f-square ≥0.02 is small, ≥0.15 is medium, ≥ 0.35 is large, n.s.=not significant, n.c.=not calculated.

4.3. Additional Tests of Models 1 and 2 Concerning Watching Intention: Mean comparisons

To complement the SEM analysis, we conducted t-tests comparing watching intentions within groups defined by low and high partitions of the explanatory variables. The results from these analyses offer supplementary insights and visualization. To evaluate the effect of ad-context congruence (H1) we compare watching intentions for participants showed congruent vs. incongruent ad-article pairings. Context involvement (H2), attention to context (H5), and ad-topic interest (H7) were measured on three-item seven-point scales. The low partitioned group corresponds to average ratings ≤3 and the high partition groups ≥5. Although not presented, we explored various thresholds for partitioning. The adjustments yielded consistent outcomes, affirming the robustness of our findings. The respective sample sizes for each analysis group are detailed alongside the results in Table 2.

In line with the findings from the SEM tests, watching intention is significantly higher in groups with high levels of context involvement and ad-topic interest compared to those with low levels, supporting H2 (M=3.28 vs. 2.23, t=-12.56, p<.001) and H7 (M=3.88 vs. 1.85, t=-27.78, p<.001). There was no significant difference in watching intention between the congruent and incongruent ad-context pairings, providing no support for H1, like in the SEM analysis. The only result that contradicted the results of the SEM analysis was the effect of attention to context. While the SEM-analysis showed a weak but significant negative effect on watching intention, consistent with H5, the mean comparison implied a weak positive effect (t =-3.45, p<.001). The main explanation is that the SEM analysis also considers the influence of other variables.

We also examine the interaction between ad-context congruence and context involvement (H3) by assessing the differences between congruent and incongruent pairings under both low and high context involvement conditions. As found in the analysis of H1, there is no significant difference in watching intention between congruent and incongruent stimuli in general. However, for participants with high context involvement, congruent pairings result in significantly higher watching intention compared to incongruent pairings (M=3.50 vs. 3.05, t=-3.96, p<.001). Conversely, for participants with low context involvement, the pattern reverses, with incongruent pairings showing higher watching intention than congruent pairings (M=2.49 vs. 1.93, t=5.09, p<.001). This interaction effect is illustrated in Figure 4 and is consistent with the findings from the SEM test of Model 1, thus supporting H3.

The findings suggest that context involvement can either engage or disengage consumers with a specific topic, influencing their intention to watch a topically congruent streaming series. However, an important factor not yet considered is the potential confounding effect of *ad-topic interest*, as discussed in Section 2.4 (SQR1). Rather than demonstrating the casual mechanism hypothesized in H3, the observed interaction effect may merely reflect ad-topic interest. In the next section, we test SEM Model 3 including all contextual advertising variables while controlling for ad-topic interest, allowing us to isolate the influence of the hypothesized interaction effect on watching intention.

Table 2: A comparison of mean watching intention across low and high portioned groups of the four explanatory variables: context involvement, ad-context congruence, attention to context, and ad-topic interest.

Hypotheses	Analysis groups			T-test
H1: Ad-context congruence		**Incongruent**	**Congruent**	
		2.79 (n=971, SD=1.61)	2.84 (n=979, SD=1.61)	n.s.
H2: Context involvement		**Low involvement**	**High involvement**	
		2.23 (n=602, SD=1.38)	3.28 (n=844, SD=1.69)	t=-12.56, p<.001
H3: The interaction of ad-context congruence and context involvement		**Incongruent**	**Congruent**	
	Low involvement	2.49 (n=324, SD=1.46)	1.93 (n=278, SD=1.21)	t=5.09, p<.001
	High involvement	3.05 (n=410, SD=1.69)	3.50 (n=434, SD=1.67)	t=-3.96, p<.001
H5: Attention to context		**Low attention**	**High attention**	
		2.31 (n=107, SD=1.40)	2.86 (n=1643, SD=1.63)	t=-3.45, p<.001
H7: Ad-topic interest		**Low ad-topic interest**	**High ad-topic interest**	
		1.85 (n=736, SD=1.08)	3.88 (n=681, SD=1.64)	t=-27.78, p< .001

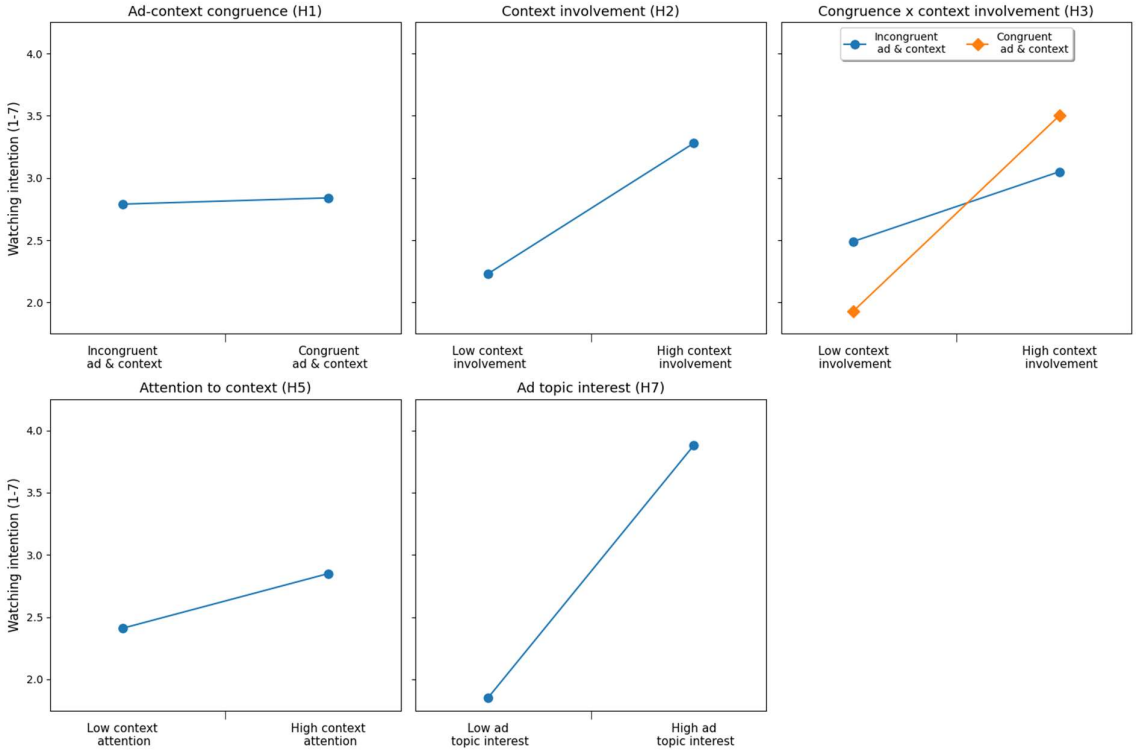

Figure 4: A comparison of mean watching intention between low and high variable partitions. The figures are aligned on a shared y-axis, representing the watching intention on a scale from 1 to 7. Mean and SD values are reported in Table 2.

4.4. Tests of Model 3 Concerning Watching Intention

Results from testing Model 3 are presented in Figure 4 and Table 3. Table 3 also shows the coefficients from testing models 1 and 2 separately. Model 3 aims at answering SRQ1: In what way are the results from testing Model 1 and Model 2 separately similar to or different from the results when testing the two models combined (i.e., simultaneously in one SEM analysis)? What this analysis explores is to what extent the effects of context involvement and ad-context congruence on watching intention are an effect of ad-topic interest or effects of their own.

The Model 3 results are in most cases similar to those from testing Models 1 and 2, respectively, but there are two noteworthy differences. First, the positive main (direct) effect of context involvement on watching intention diminishes in Model 3 but is still highly significant, still supporting H2 (β=.154, p<.001). The reader should be reminded that the context in our study was not chosen by the participants, as is the case in contextual advertising, but provided by us. This means that if the context *per se* generates involvement, regardless whether the ad-topic is of interest or whether there is congruence between ad and context, it will still have a positive effect on watching intention. Second, the interaction effect of ad-context congruence and context involvement on watching intention disappear in Model 3, thus now rejecting H3 (β=.029, p=n.s.). This indicates that the effects from contextual congruence on watching intention when the context is engaging fully stem from consumers' ad-topic interest.

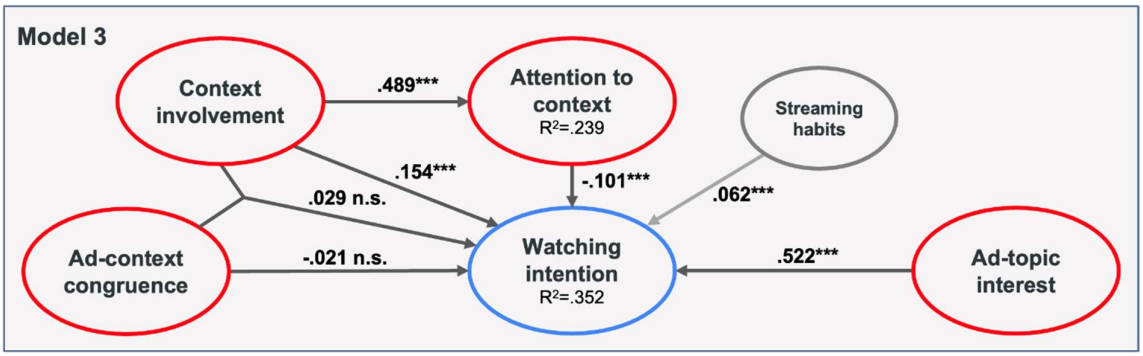

Figure 5: Results from testing Model 3, i.e., Models 1 and 2 combined. The figures are path coefficients and adj. R^2s for dependent and mediating variables: n.s.=not significant, * p<.05, ** p<.01, *** p<.001.

Table 3: Results from testing Model 3

Hypotheses	Models 1 or 2	Model 3		Conclusion
	Coefficients	Coefficients	t-values p-values	
H1: Ad-context congruence has a positive main (direct) effect on watching intention.	.013	-.021	.596 .551: n.s.	Similar results
H2: Context involvement has a positive main (direct) effect on watching intention.	.220	.154	5.657 <.001	Less impact in Model 3
H3: Ad-context congruence x context involvement on watching intention (an interaction effect) is positive.	.303	.029	.750 .454: n.s.	The effect disappears in Model 3
H4: Context involvement has a positive effect on attention to context.	.489	.489	30.180 <.001	Same results

H5: Attention to context has a negative effect on watching intention.	-.125	-.101	5.072 <.001	Similar results
H6: Context involvement has a negative indirect effect on watching intention via attention to context.	-0.061	-.049	5.027 <.001	Similar results
H7: Ad-topic interest has a positive effect on watching intention.	.570	.522	27.278	Less but still strong impact in Model 3
Control variable: Streaming habits on watching intention.	.099 / .056	.062	3.637 <.001	Similar results

Coefficients are path or interaction coefficients. n.s.=not significant.

4.5. Ad recall

4.5.1. The effects of ad recall on watching intention

Table 4 shows the mean watching intention for incorrect vs. correct ad recall, testing H8. Our results reveal a clear influence of ad recall on watching intention. Participants who accurately recalled the ad showed higher intention to view the series than those who did not recall it. This relationship is consistent across all four ad recall questions, thus supporting H8. However, the difference is more pronounced for the questions about the advertised product type ($M_{Incorrect\ recall}$=2.63, $M_{Correct\ recall}$=3.07, t=5.98, p<.001) and the title of the streaming series ($M_{Incorrect\ recall}$=2.58, $M_{Correct\ recall}$=3.07, t=6.77, p<.001) than for the questions about whether the ad was seen ($M_{Not\ seen}$=2.65, M_{Seen}=2.86, t=2.35, p<.05) and the topic of the streaming series ($M_{Incorrect\ recall}$=2.65, $M_{Correct\ recall}$=2.88, t=2.94, p<.001). The results indicate that consciously remembering what product has been advertised has a stronger effect on watching intention than just remembering having seen the ad (and thus possibly unconsciously taking in its message) or remembering its topic. The reason for the latter is likely that this concerns a more abstract level of recall, requiring one to categorize the streaming series in addition to just remembering it.

Table 4: A comparison of mean watching intention between participants who incorrectly and correctly answered the ad recall questions.

Recall question	**Analysis groups**		**T -test**
	Incorrect recall	**Correct Recall**	
H8a: Did you see the ad? (Yes/No)	2.65 (n=415, SD=1.42)	2.86 (n=1535, SD=1.66)	t=2.35, p<.05
H8b: What product was advertised?	2.63 (n=1138, SD=1.47)	3.07 (n=812, SD=1.76)	t=5.98, p<.001
H8c: What was the topic of the streaming series?	2.65 (n=598, SD=1.45)	2.88 (n=1535, SD=1.66)	t=2.94, p<.001
H8d: What was the title of the streaming series?	2.58 (n=1042, SD=1.45)	3.07 (n=908, SD=1.74)	t=6.77, p<.001

4.5.2. Influences on Ad Recall: Share Comparisons

To test the specific research question SRQ2 and the hypotheses H9 and H11 concerning the impact of ad-context congruence, context involvement, attention to context, and ad-topic interest on ad recall, we conducted χ2-tests within groups defined by low and high partitions

of the experimental variables 4.3. The sample sizes for each analysis group are listed alongside the results in Table 5 with visual presentations in Figure 6.

Concerning the effects of ad-context congruence on ad recall (SRQ2), the results are mixed. There is no significant difference in the participants' ability to recall the title of the advertised streaming series between those exposed to congruent or incongruent stimuli, but a slightly higher ability to recall the topic among those exposed to congruent than to incongruent stimuli (71% vs. 67%, χ^2=3.95, p<.001). However, participants exposed to congruent pairings were significantly less likely to identify the ad as an advertisement (74% vs. 84%, χ^2=26.65, p<.001) and to recall the advertised product (39% vs. 45%, χ^2=6.94 p<.001). The answer to SRQ2 thus depends on what aspect of ad recall that is studied.

Regarding the influence of context involvement on ad recall (H9), the results show that high context involvement is associated with lower ad recall for all measures of ad recall, from noticing the ad to correctly identifying the title of the advertised streaming series, supporting H9. As for attention to context on ad recall, we refrain from testing the hypothesis (H10) in the same way as the other recall hypotheses due to extreme skewness in the attention variable, resulting in a low attention group of 5.4% and a high attention group of 84.2% of the sample. However, a mean comparison of attention to context between correct and incorrect ad recall for the four ad recall variables supports the hypothesis when it comes to having seen the ad ($M_{Not\ seen}$=6.24, M_{Seen}=5.98, t=4.00, p<.001) indicating a negative effect of attention to context on having seen the ad, but no significant differences were found for the remaining three ad recall variables.

Lastly, regarding H11 concerning the effect of ad-topic interest on ad recall, the three first ad recall questions revealed no significant difference between low and high ad-topic interest groups. However, participants with high ad-topic interest demonstrated better recall of the title of the streaming series (43% vs. 52%, χ^2=10.81, p<.001) providing some support for H11. The lack of significant effects in three out of four measures is noteworthy considering the large positive effect of interest on watching intention.

Table 5: A comparison of ad recall across low and high portioned groups of the three experimental variables: ad-context congruence, context involvement and ad-topic interest.

Hypotheses	**Recall question**	**Analysis groups**		**χ^2 -test**
		Incongruent (n=971)	**Congruent** (n=979)	
SRQ2: Ad-context congruence	Did you see the ad? (Yes/No)	84%	74%	p<.001, χ^2=26.65
	What product was advertised?	45%	39%	p=.008, χ^2=6.94
	What was the topic of the streaming series?	67%	71%	p=.047, χ^2=3.95
	What was the title of the streaming series?	47%	48%	n.s.
H9: Context involvement		**Low involvement** (n=602)	**High involvement** (n= 844)	
	Did you see the ad? (Yes/No)	84%	72%	p<.001, χ^2=26.67
	What product was advertised?	44%	38%	p=.040, χ^2=4.21
	What was the topic of the streaming series?	74%	65%	p<.001, χ^2=13.88
	What was the title of the streaming series?	49%	43%	p=.030, χ^2=4.69
H11: Ad-topic interest		**Low ad topic interest** (n=736)	**High ad topic interest** (n=681)	
	Did you see the ad? (Yes/No)	79%	78%	n.s.
	What product was advertised?	41%	46%	n.s.
	What was the topic of the streaming series?	70%	71%	n.s.
	What was the title of the streaming series?	43%	52%	p<.001, χ^2=10.81

H10 concerning the influence of attention to context on ad recall has not been analyzed correspondingly due to extreme skewness in the attention variable, resulting in a low attention group of 5.4% and a high attention group of 84.2% of the sample. Commented in the text.

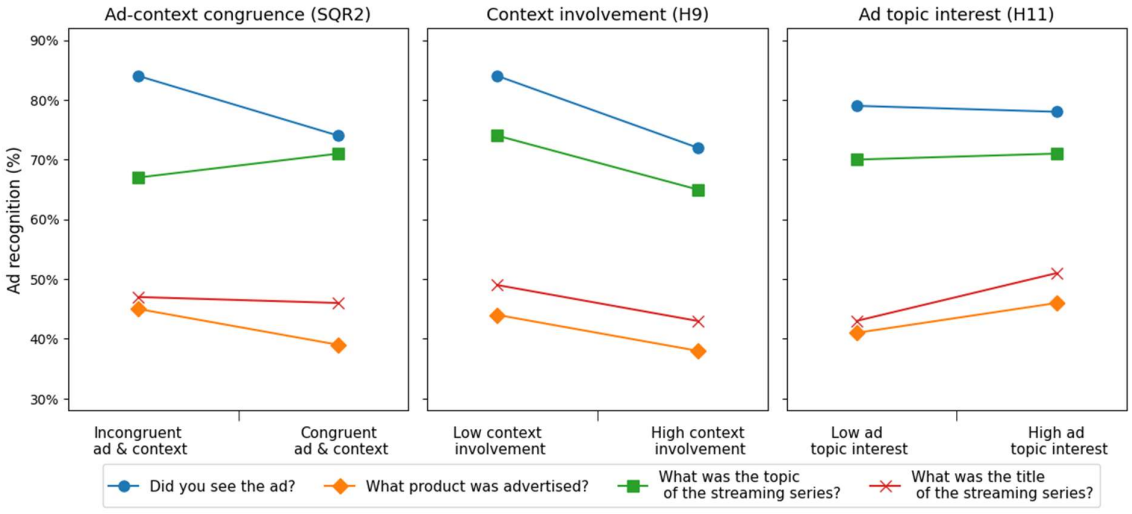

Figure 4: A comparison of ad recall across low and high portioned groups of three explanatory variables: context involvement, ad-context congruence, and ad-topic interest. The figures are aligned on a shared y-axis,

representing the percentage of respondents answering the ad recall questions correctly. Percentage values are reported in Table 5.

4.5.3. Influences on Ad Recall: Logistic Regression Analysis

To streamline our logistic regression analysis, we focused on the final ad recall question "What was the title of the streaming series", as it requires the most detailed recall. Beyond testing SRQ3 concerning the interaction effect of ad-context congruence and context involvement on ad recall, the logistic regression analysis results also complement the previous mean comparison testing of the ad recall hypotheses (H9-H11) and SRQ2.

Given that the interaction effect of ad-context congruence and context involvement correlates with ad-topic interest (as demonstrated in Section 4.3), its impact on ad recall may vary if controlling for ad-topic interest or not. We therefore perform two logistic regression analyses: one *including ad-topic interest* as a covariate and one excluding it, both presented in Table 6. The interaction effect between *ad-context congruence* and *context involvement* is not statistically significant in either analysis, whether *ad-topic interest* is included or excluded. Although not significant, the interaction effect is in line with the hypothesis (β=.093, p=.077) when *ad-topic interest* is excluded. As for the other variables, the results align with the mean comparison analysis: context involvement negatively influences ad recall (β=-.115, p<.001), while ad-topic interest positively influences ad recall (β=.123, p<.001).

Table 6: Results from logistic regression explaining recall of the title of the advertised streaming series

Variable	Hypotheses	Coefficient (β)	Conf. 2.5%	Conf. 97.5%	z-value	p-value
Logistic regression including *ad-topic interest*						
Context involvement	H9 (-)	-.115	-.187	-.044	-3.169	p<.001
Ad-context congruence	SRQ2	-.133	-.615	.349	-0.540	p=.061
Ad-topic interest	H11 (+)	.123	.068	.178	4.383	p<.001
Ad-context congruence x context involvement	SRQ3	.025	-.083	.133	0.456	p=.649
Logistic regression excluding *ad-topic interest*						
Ad-context congruence	SRQ2	-.403	-.868	.062	-1.700	p=.089
Context involvement	H9 (-)	-.101	-.171	-.030	-2.794	p<.001
Ad-context congruence x context involvement	SRQ3	.093	-.010	.196	1.771	p=.077

4.6. Summary of results

Table 7 provides a summary of results from testing the hypotheses and SRQs, indicating whether the hypotheses are supported or not and what the answers to the SRQs are, along with the analysis method used to reach these conclusions.

Table 7: Summary of Results

Hypotheses	Analysis methods	Main findings		Conclusions
Dependent variable: Watching intention				
H1: Ad-context congruence has a positive main (direct) effect on watching intention.	Separate SEM analysis of Models 1 & 2, respectively. Also mean comparisons of H1-H5 and H7. See Tables 1-3 and Figures 3-5.	Model 1: Rejected	Model 3: Rejected	No direct effect of ad-context on watching intention found.
H2: Context involvement has a positive main (direct) effect on watching intention.		Model 1: Supported	Model 3: Supported, but less effect than in Model 1	Part of context involvement is related to ad-topic interest and partly to context *per se*.
H3: The interaction of ad-context congruence and context involvement positively influences watching intention.		Model 1: Supported	Model 3: Rejected	The contribution of ad-context congruence in the interaction effect on watching intention is thus fully related to ad-topic interest.
H4: Context involvement positively influences attention paid to the context.		Model 1: Supported	Model 3: Supported	The more involved in the context, the more attention paid to the context: A strong effect.
H5: Attention paid to the context negatively influences watching intention.		Model 1: Supported	Model 3: Supported	Significant but weak effect.
H6: There is an indirect negative effect from context involvement on watching intention, via attention to article, lessening the positive direct effect of context involvement on watching intention.		Model 1: Supported	Model 3: Supported	Significant but weak effect, thus to little extent reducing the total effect of context involvement on watching intention.
H7: Ad-topic interest positively influences watching intention.		Model 2: Supported	Model 3: Supported	A very strong effect: Thus, targeting consumers' interest should be the main goal, whether using contextual or personalized advertising.
SRQ1: Are the main (direct), indirect, and interaction effects of H1-H7 found from testing models 1 and 2 separately different or similar to the corresponding results when analyzing all hypotheses simultaneously in a coherent structural equation model (SEM)?	SEM analysis. See Table 3.	Most results are similar, but: 1) The interaction effect of ad-context congruence and context involvement on watching intention (H3) dis-appears in Model 3. 2) The direct (main) effect of context involvement on watching intention (H2) remains although somewhat less in Model 3 than in Model 1.		1) See H3 above. 2) H2: Targeting engaging contexts in addition to targeting contexts of interest to consumers adds to advertising effectiveness (watching intention). Also see H2 above.
Dependent variable: Ad recall				
H8: Ad recall positively influences watching intention.	Mean compari-sons of watching intention for four dichotomous ad recall measures: t-tests. Table 4.	Supported for all ad recall measures.		Strongest effect for recalling the title of streaming series and the product advertised, and less for having seen the ad and recalling topic of streaming series.
SRQ2: What are the effects of ad-context congruence on ad recall?	Cross-tabulations with χ^2-tests and logistic regression. Four measures of ad recall. Tables 5 and 6	Mixed results: Negative effects of seeing the ad and recalling the product advertised, but a positive (but small) effect of recalling the topic of stream-ing series, and no effect of recalling the title of the streaming series.		When studying ad recall it is important to differentiate between different measures of ad recall.
H9: Context involvement negatively influences ad recall.		Supported for all ad recall measures.		This is in line with the findings concerning H5 and H6 above.
H11: Ad-topic interest positively influences ad recall.		Ad-topic interest had a positive effect only on recalling the title of the streaming series, not on any of the other measures of ad recall.		When targeting ad-topic interest, special attention should be paid to the title of the product (streaming series)
SRQ3: What is the interaction effect of ad-context congruence and context involvement on ad recall?	Logistic regression on recall of title of streaming series	No significant effect found but close to significant when not controlling for ad-topic interest.		Similar to H3 above.

5. Discussion

Online advertising, as of now, mainly targets consumers through personal data, primarily relying on behavioral patterns, alongside demographic information and other personal details. We have labeled this type of advertising *personalized advertising*. However, personalized advertising is facing increased challenges such as limitations on the use of third-party cookies, privacy and ethical concerns, and reputational risks. *Contextual advertising* is an alternative method, targeting consumers based on the online content they currently consume, without using any personal data. Online content choices are assumed to reveal users' needs or interests thus allowing contextual advertisers to reach consumers with specific needs or interests by targeting the content they consume (the context of an ad).

In contrast to previous research that has identified positive advertising effects stemming from ad-context congruence (Rieger, Bartz, & Bente, 2015; Song, 2014), our study found no such effect *per se* (H1[4]). However, we found strong support for the role of context involvement (H2 and H3) and ad-topic interest (H7) in positively influencing consumers' intentions to watch an advertised streaming series. These findings align with previous research and highlight the effects of assessment of media content on consumers' evaluation of accompanying ads and behavioral responses (Pelsmacker, Geuens, & Anckaert, 2002; Tai & Chang, 2005; Tipps, Berger, & Weinberg, 2006) and that ads relevant to consumers—in line with their needs or interests—are especially effective (De Keyzer, Dens, & De Pelsmacker, 2022). For advertisers, these findings provide clear implications to target ads based on consumer's interests or needs (H7) and in contexts that the consumer finds engaging (H2).

When not controlling for ad-topic interest, we also found an interaction effect of ad-context congruence and context involvement on watching intention (H3). However, this interaction effect strongly correlated with the participants' interests in the ad topic. When controlling for ad-topic interest, we found that the interaction effect no longer significantly influenced watching intention (SRQ2). This indicates that the effects of ad-context congruence on watching intention is fully related to consumers' ad-topic interests. We contend that our conceptualizations and analyses, which control for context involvement and ad-topic interest when studying effects of ad-context congruence, provide greater rigor and nuance to the study of congruence effects.

Our results also indicate that ad-topic interest, which represents personalized advertising, exerts a stronger effect on watching intention than the effects of context involvement and ad-context congruence, which represent contextual advertising. However, this does not universally imply that personalized advertising is more effective than contextual advertising. The effectiveness of the targeting method advertisers adopt—personalized, contextual, or a combination of these—will be heavily influenced by the granularity of available data, and contextual advertising can be highly precise. For example, on a travel-themed blog featuring content about a particular destination, ads can be tailored to promote flights, hotels, vacation packages, or travel insurance related to the specific destination. Such contextually relevant ad placement likely outshines personalized advertising that merely suggests a general interest in travelling.

[4] HX refers to the specific hypothesis tested and SRQX refers to a specific research question asked.

At the same time, few ad targeting strategies can match the effectiveness of personalized retargeting, which delivers customized ads to individuals who have already engaged with a brand's website, such as by adding items to an online shopping cart. However, retargeting relies on data that is not universally accessible and is increasingly difficult to obtain due to regulatory and technological constraints (Ahuja, Bauer, Meder, & Gediehn, 2022). When data is limited, marketers rely on their expertise and intuition to guide initial ad placements. On the other hand, as campaign data accumulates, AI can optimize ad spend, identifying personal data or ad-context combinations that predict advertising effectiveness. Before optimizing for ad metrics, AI can deliver a nuanced understanding and grouping of content by defining interest categories, rating ad-context similarity, or predicting factors such as context involvement (Häglund & Björklund, 2024). Another concern with retargeting is its lack of relevance for infrequently purchased products, such as cars, household appliances or travel destinations. Often, the consumer is no longer in the market for the product when the ad is displayed. In such cases, reaching consumers while they are researching the product—through the context consumed—may be more effective.

Concerning ad recall, we found a clear relationship between ad recall and watching intention (H8) where increased level of detail in recalling the ad improved watching intention. This means that ad recall not only has long-term advertising effects but also more direct effects such as on consumption intention. The effects on ad recall generally aligned with previous research. However, our breakdown of ad recall into four distinct ad recall tasks with varying detail revealed novel and refined insights. Context involvement reduced ad recall across all four recall questions (H9). This finding corresponds with prior research on print and online media, as well as the theory of limited cognitive capacity, which suggests that when consumers are deeply engaged with content, they devote less attention to advertisements and, consequently, recall them less effectively (Norris & Colman, 1992; Pelsmacker, Geuens, & Anckaert, 2002). This presents a dilemma for advertisers: while high context involvement enhances ad perception, as evidenced by increased watching intention, it simultaneously makes ads less noticeable and memorable. As observed with regards to H8, we showed a clear relationship between ad recall and watching intention. However, since ad recall was measured as a dichotomous variable, it was not suitable for inclusion as a mediating variable in our structural equation model, but this should be further investigated in future research.

For ad-context congruence, previous research has yielded mixed results, and similarly, we found no consistent trends across our ad recall questions (SRQ2). A notable result, however, was the difference in responses to the question "Did you see the ad?" between participants shown congruent stimuli (74%) and those who viewed incongruent stimuli (84%). This result aligns with interference theory (Rotgans, 2015) and suggests that ad-context congruence inhibits ad recall by making it more challenging to distinguish the ad from the surrounding media content. Finally, our results revealed that an interest in the ad topic not only improved intentions but also had a positive effect on ad recall, supporting H11. The interaction effect between ad-context congruence and context involvement (SRQ3) did not reach significance when controlling for ad-topic interest, but almost so when not controlling for it. Due to its high correlation with ad-topic interest, more compelling contextual advertising, such as more engaging context or more relevant ad-context matching, could possibly yield positive effects.

In addition to the possible mediating effect of ad recall on watching intention, future research could investigate how various media formats influence the contextual effects observed in this study. While our research focused on simulated banner ads—a common type of online

advertising—previous works suggest that context effects such as those impacting ad recall could differ across other formats such as online video or television (Norris & Colman, 1992). While we aimed to preserve the ecological validity of our experimental setting—such as by not explicitly instructing participants to view the ad—there are inherent limitations to a controlled environment. For instance, personalized advertising can evoke discomfort or privacy concerns when users recognize that ads are targeted using their personal data, which has been shown to negatively impact ad reception (De Keyzer, Dens, & De Pelsmacker, 2022; Boerman, Kruikemeier, & Zuiderveen Borgesius, 2017). Since we conceptualized personalization through the variable of ad-topic interest and measured it after exposure to the stimuli, this factor was not accounted for in our study. Future research should also directly compare the effectiveness of contextual and personalized advertising. Online platforms like Google and Facebook offer valuable opportunities for such comparisons. However, due to the proprietary nature of their algorithms and data, these platforms primarily provide information about advertising performance, not the underlying mechanisms driving those results.

In our experimental design we manipulated ad-context congruence and measured ad-topic interest and context involvement as observed variables following exposure to stimuli. Measuring these variables beforehand and manipulating control groups based on them could enhance the validity and reliability of findings. However, we opted against this approach because it greatly increases study complexity and presents challenges related to the random allocation of participants to experimental groups and the risk of contamination from pre-exposure variables affecting outcomes. Assessing participant interests well in advance could better mimic online personalized advertising but risks dropout and issues related to the evolving nature of individual interests over time.

6. Conclusion

Our study illuminates the underlying mechanisms of personalized and contextual advertising, revealing their distinct effects on consumption intentions and advertising recall. By employing structural equation modeling, we simultaneously examined variables that have often been studied separately, providing a more comprehensive understanding of their interconnectedness and independent contributions. For advertisers, our study provides clear insights into increasing consumer intent—in this study's case, the intent to watch an advertised streaming series. The main implications for advertisers are the importance of placing ads that align with users' interests alongside engaging media content.

A contextual advertiser targets groups with specific interest through placing contextually related or congruent ads alongside content the user engages with. We conceptualize this as an interaction effect between context involvement and ad-context congruence and show its influence on consumption intention. When controlling for the participants' interest in the ad topic, the influence of the interaction effect became insignificant, indicating that the influence of ad-context congruence is fully dependent on ad-topic interest, not having any effect of its own. This contrasts with previous studies, which have reported such effects, though without controlling for ad topic interest (Rieger et al., 2015; Song, 2014).

Furthermore, our study uncovered conflicting effects of various factors on ad recall, posing a challenge for advertisers who must balance enhancing consumer intentions with ad memorability. While interest in the ad topic improved memorability, involving context distracted participants from recalling the ad. Additionally, ad-context congruence increased

the frequency of participants overlooking the ad altogether. Future research could investigate a possible negative mediating effect of ad recall on intention and examine context effects across different media, such as video. Additional factors to explore include different creative ad solutions and possible discomfort or privacy concerns that arise when users realize ads are targeted based on their personal data.

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Appendix

Appendix A: Experimental Stimuli

In Appendix A we present descriptions and images of the stimuli used in our experiments. In Appendix A1, we exemplify congruent and incongruent ad-article pairings. In Appendix A2, showcase the ads for fictitious streaming shows used in stimuli. Finally, In Appendix A3, we list the titles of web articles used as content in stimuli.

The study's stimuli consist of articles and advertisements for fictitious streaming series, selected from four interest categories: football, baking, ancient history, and interior design. Within each interest category, we employ 2 articles and 2 advertisements, resulting in a total of 64 combinations of articles and ads.

Appendix A1: Congruent vs. incongruent ad-article pairings

Congruent ad-article combinations

Below is a picture of a congruent ad-article combination where both article and ad relate to football. The article is titled “Reality check: Is Gareth Southgate right about the lack of English players?” while the advertised streaming show is titled “Premier League Legends”.

FOOTBALL

Reality check: Is Gareth Southgate right about the lack of English players?

PUBLISHED 2023-03-10

Gareth Southgate has expressed his concern at the apparent lack of English players playing at an elite level and the negative impact it could have on England's success in the future.

What did Southgate say?

Southgate said on average 32% of players starting in the top flight were eligible for England, though he highlighted two recent weekends on which that percentage fell to 28%. "The numbers are the numbers. They're not going up,". He noted there were only “four left-footed left-backs playing in the Premier League” who were eligible for England, meaning he would have to “start looking in the Championship”.

Is this concerning?

While Southgate is correct about the overall numbers, the playing time of English

Incongruent ad-article combination

Below is an image of an incongruent article-ad pairing where the article relates to ancient history while the ad relates to baking. The title of the article is “The absence of the Roman Empire fueled Western civilization, Stanford scholar says”. Next to the article is an ad promoting a streaming series titled “Bake-off Bonanza”.

ANCIENT HISTORY AND CLASSICS

The absence of the Roman Empire fueled Western civilization, Stanford scholar says

PUBLISHED 2023-03-10

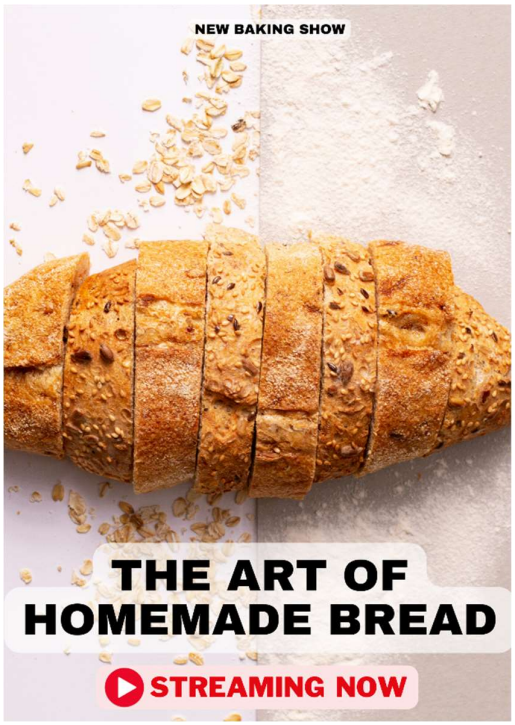
The collapse of the Roman Empire is considered by many to be one of the greatest disasters in history. But Stanford historian Walter Scheide argues that Rome’s dramatic collapse was actually the best thing that ever happened. Here, he explains why.

The disintegration of the Roman empire freed Europe from rule by a single power. Imperial monopolies provided peace and stability, but by seeking to preserve the status quo also tended to stifle experimentation and dissent. When the end of empire removed centralized control, rival political, military, economic and religious constituencies began to fight, bargain and compromise and – in the process – rebuilt society along different lines.

Those 1,500 years (all the way up to World War II) were full of conflicts as

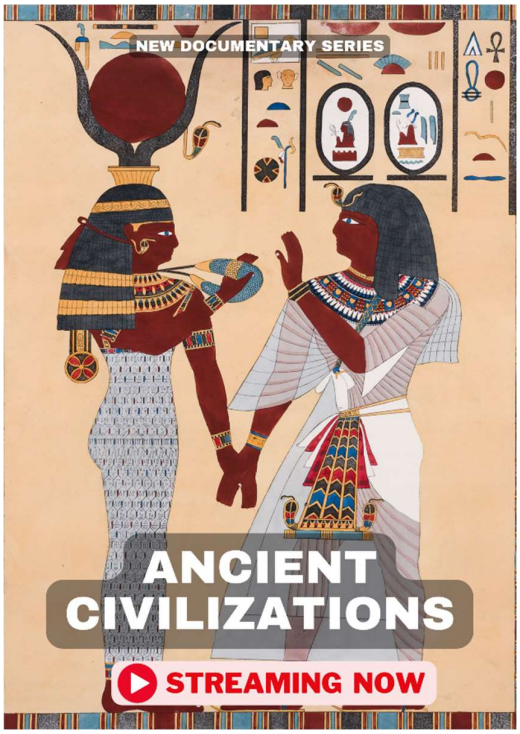
Appendix A2: Ads for streaming shows used in stimuli

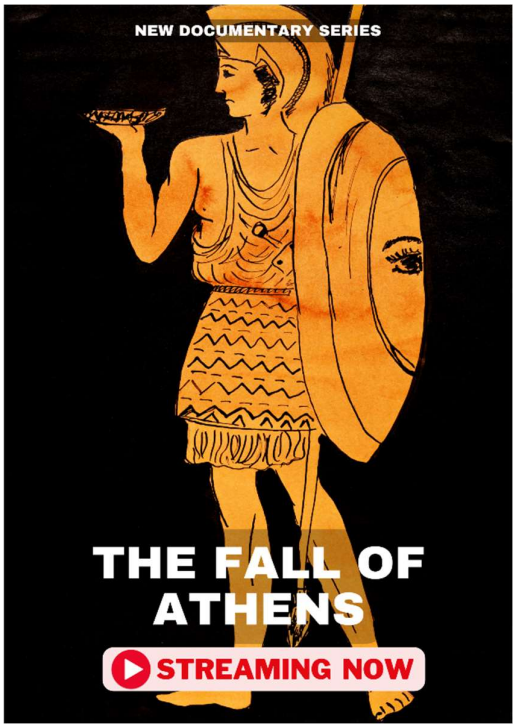
Baking: ads for streaming shows



Football: ads for streaming shows

Ancient history: ads for streaming shows





Interior design: ads for streaming shows

Appendix A3: Titles of articles used in stimuli

Baking: article titles

1. *Can baking make you happier?*
2. *Fancy or cheap? What is the best chocolate for baking?*

Football: article titles

1. *Reality Check: Is Gareth Southgate right about the lack of English players?*
2. *PSG lack discipline and heart- qualities that cannot simply be bought*

Ancient history: article titles

1. *The absence of the Roman Empire fueled Western civilization, Stanford scholar says*
2. *Analysis of Roman coins tells of Hannibal's defeat and Rome's rise*

Interior design: article titles

1. *The three bedroom rules you should stick to*
2. *A Georgian renovation that delights in colour*

Appendix B: Description of study measures

Constructs	Scale questions	Scale labels
Ad recall	SCALE 1: Did you see the ad? SCALE 2: What type of product was advertised? The ad placed alongside the article was for a streaming TV-show. SCALE 3: What was the topic/genre of the TV-show? SCALE 4. What was the title of the TV-show?	Answer options: SCALE 1: Yes/No SCALE 2: product type options + "I don't remember"-option. SCALE 3: 4 topic/genre options + "I don't remember"-option. SCALE 4: 4 title options + "I don't remember"-option.
Watching intention	For the questions below, please assume that you have access to a streaming service where the advertised streaming show is available: SCALE 1: How likely is it that you will watch the TV-show? SCALE 2: What chance is there that you will watch the TV-show? SCALE 3: How certain are you that you will watch the TV-show?	Scales (1-7) with endpoints: SCALE 1: I will for sure not watch the TV-show / I will for sure watch the TV-show. SCALE 2: I absolutely will not watch the TV-show / I absolutely will watch the TV-show. SCALE 3: I certainly will not watch the TV-show / I certainly will watch the TV-show.
Perceived ad-context congruence	To what extent do you… SCALE 1: … consider the ad to be related to the topic of the article? SCALE 2: … think the ad fits with the topic of the article? SCALE 3: … consider the ad and the topic of the article to be associated?	Scales (1-7) with endpoints: SCALE 1: Not at all related / Very related SCALE 2: Not at all fitting / Very fitting SCALE 3: Not at all associated / Very associated
Ad-topic interest	*E.g. [topic]=baking when stimuli showed an ad for a baking-show.* SCALE 1: How interested are you in [topic]? SCALE 2: Do you read a lot about [topic] or watch a lot of [topic]-related TV or video content? SCALE 3: If you read about [topic], or watch something [topic]-related, are you usually engaged and forget everything around you?	Scales (1-7) with endpoints: SCALE 1: Not at all interested / Very interested. SCALE 2: No, I absolutely do not / Yes, I absolutely do SCALE 3: No, I am not engaged at all / Yes, I am very engaged
Context involvement	SCALE 1: How interesting did you find the article? SCALE 2: How engaging did you find the article? SCALE 3: How intriguing did you find the article?	Scales (1-7) with endpoints: SCALE 1: Not at all interesting / Very interesting SCALE 2: Not at all engaging / Very engaging SCALE 3: Not at all intriguing / Very intriguing
Streaming habits	SCALE 1: How often do you watch TV-shows on streaming services such as Netflix, BBC iPlayer, Disney+, Amazon Prime Video etc.? SCALE 2: How often have you watched TV-shows on streaming services such as Netflix, BBC iPlayer, Disney+, Amazon Prime Video etc. in the past month?	Scales (1-6) with labels: SCALE 1: 1. Never, 2. Rarely, 3. Sometimes, 4. Rather often, 5. Often, 6. Very often SCALE 2: 1. Never, 2. Once or twice, 3. Approx. once per week, 4. 2-3 times per week, 5. 4-5 times per week, 6. Practically every day
Attention to context	SCALE 1: How much of the article did you read? SCALE 2: About what percentage (%) of the article did you read? SCALE 3: How carefully did you read the article (what you read of it)?	SCALE 1: (6-point scale with labels) 1. Did not read at all, 2. Just the headline, 3. Some of the article, 4. About half of the article, 5. More than half of the article, 6. Almost half of the article SCALE 2: (slider) select a value between 0 and 100. SCALE 3: (7-point scale) endpoints were: Not at all carefully/ Very carefully.

Appendix C: SEM details

Model 1 detailed results

Path coefficients	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad-context_congruence -> Watching_intention	0,013	0,300	0,764	-0,069	0,097
Attention_to context -> Watching_intention	-0,125	5,582	0,000	-0,170	-0,082
Context_involvement -> Attention_to context	0,489	30,020	0,000	0,457	0,520
Context_involvement -> Watching_intention	0,220	6,821	0,000	0,156	0,282
Streaming_habits -> Watching_intention	0,099	5,146	0,000	0,061	0,136
Context_involvement x Ad-context_congruence -> Watching_intention	0,303	7,254	0,000	0,221	0,383

Total indirect effects (main/direct + total indirect effects)	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Context_involvement -> Watching_intention	-0,061	5,562	0,000	-0,083	-0,040

Total effects	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad-context_congruence -> Watching_intention	0,013	0,300	0,764	-0,069	0,097
Attention_to context -> Watching_intention	-0,125	5,582	0,000	-0,170	-0,082
Context_involvement -> Attention_to context	0,489	30,020	0,000	0,457	0,520
Context_involvement -> Watching_intention	0,159	5,182	0,000	0,098	0,218
Streaming_habits -> Watching_intention	0,099	5,146	0,000	0,061	0,136
Context_involvement x Ad-context_congruence -> Watching_intention	0,303	7,254	0,000	0,221	0,383

Outer loadings for manifest variables of latent variables	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
ArtHowMuchReadQual <- Attention_to context	0,936	198,288	0,000	0,926	0,945
ArticleReadPercent <- Attention_to context	0,941	201,259	0,000	0,931	0,949
Articlereadcarefully <- Attention_to context	0,871	110,191	0,000	0,855	0,886
Articleengaging <- Context_involvement	0,957	416,363	0,000	0,952	0,961
Articleinteresting <- Context_involvement	0,961	438,733	0,000	0,956	0,965
Articleintriguing <- Content_involvement	0,950	327,179	0,000	0,944	0,955
StreamConsQuaL <- Streaming_habits	0,980	182,732	0,000	0,971	+0,992
StreamConsQuaNT <- Streaming_habits	0,933	67,748	0,000	0,898	0,950
Watchingintention1 <- Watching_intention	0,973	506,994	0,000	0,969	0,977
Watchingintention2 <- Watching_intention	0,976	541,963	0,000	0,972	0,979

Watchingintention3 <- Watching_intention	0,968	434,218	0,000	0,963	0,972
Congruent <- Ad-context_congruence	1,000	n/a	n/a	1,000	1,000

R-square adjusted	Original sample (O)	T statistic	P values	Confidence intervals	
				2.5%	97.5%
Attention_to context	0,239	14,990	0,000	0,209	0,270
Watching_intention	0,136	9,702	0,000	0,107	0,162

Average variance extracted (AVE)	Original sample (O)	T statistic	P values	Confidence intervals	
				2.5%	97.5%
Ad-context_congruence	1,000	n/a	n/a	1,000	1,000
Attention_to context	0,841	97,884	0,000	0,823	0,857
Context_involvement	0,913	245,209	0,000	0,906	0,920
Streaming_habits	0,915	108,096	0,000	0,896	0,926
Watching_intention	0,945	301,590	0,000	0,939	0,951

Composite reliability (rho_c)	Original sample (O)	T statistic	P values	Confidence intervals	
				2.5%	97.5%
Ad-context_congruence	1,000	n/a	n/a	1,000	1,000
Attention_to context	0,940	261,340	0,000	0,933	0,947
Context_involvement	0,969	692,816	0,000	0,966	0,972
Streaming_habits	0,956	202,969	0,000	0,945	0,962
Watching_intention	0,981	871,387	0,000	0,979	0,983

Cronbach's alpha	Original sample (O)	T statistic	P values	Confidence intervals	
				2.5%	97.5%
Ad-context_congruence	1,000	n/a	n/a	1,000	1,000
Attention_to context	0,906	152,518	0,000	0,894	0,917
Context_involvement	0,953	426,631	0,000	0,948	0,957
Streaming_habits	0,914	183,970	0,000	0,904	0,923
Watching_intention	0,971	554,179	0,000	0,967	0,974

Model 2 detailed results

Path coefficients	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad topic_interest -> Watching_intention	0,570	33,993	0,000	0,536	0,601
Streaming_habits -> Watching_intention	0,056	3,300	0,001	0,024	0,091

Outer loadings for manifest variables of latent variables	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Adtopicconsumption <- Ad topic_interest	0,949	404,461	0,000	0,944	0,953
Adtopicengagement <- Ad topic_interest	0,930	246,154	0,000	0,922	0,937
Adtopicinterest <- Ad topic_interest	0,944	281,551	0,000	0,937	0,951
StreamConsQuaL <- Streaming_habits	0,980	181,048	0,000	0,971	0,992
StreamConsQuaNT <- Streaming_habits	0,933	65,746	0,000	0,900	0,949
Watchingintention1 <- Watching_intention	0,974	540,213	0,000	0,970	0,977
Watchingintention2 <- Watching_intention	0,977	593,680	0,000	0,973	0,980
Watchingintention3 <- Watching_intention	0,966	390,825	0,000	0,960	0,970

R-square adjusted	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Watching_intention	0,334	17,574	0,000	0,297	0,370

Average variance extracted (AVE)	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad topic_interest	0,885	194,936	0,000	0,876	0,894
Streaming_habits	0,915	100,209	0,000	0,898	0,927
Watching_intention	0,945	299,542	0,000	0,938	0,951

Composite reliability (rho_c)	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad topic_interest	0,959	539,598	0,000	0,955	0,962
Streaming_habits	0,956	178,825	0,000	0,947	0,962
Watching_intention	0,981	865,232	0,000	0,979	0,983

Cronbach's alpha	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad topic_interest	0,959	539,598	0,000	0,955	0,962
Streaming_habits	0,956	178,825	0,000	0,947	0,962
Watching_intention	0,981	865,232	0,000	0,979	0,983

Model 3 detailed results

Path coefficients	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad-context_congruence -> Watching_intention	-0,021	0,596	0,551	-0,093	0,050
Ad-topic_interest -> Watching_intention	0,522	27,278	0,000	0,483	0,557
Attention_to context -> Watching_intention	-0,101	5,072	0,000	-0,140	-0,061
Context_involvement -> Attention_to context	0,489	30,180	0,000	0,456	0,520
Context_involvement -> Watching_intention	0,154	5,657	0,000	0,100	0,206
Streaming_habits -> Watching_intention	0,062	3,637	0,000	0,030	0,096
Context_involvement x Ad-context_congruence -> Watching_intention	0,029	0,750	0,454	-0,048	0,104

Total indirect effects (main/direct + total indirect effects)	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Context_involvement -> Watching_intention	-0,049	5,027	0,000	-0,069	-0,030

Total effects	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad-context_congruence -> Watching_intention	-0,021	0,596	0,551	-0,093	0,050
Ad-topic_interest -> Watching_intention	0,522	27,278	0,000	0,483	0,557
Attention_to context -> Watching_intention	-0,101	5,072	0,000	-0,140	-0,061
Context_involvement -> Attention_to context	0,489	30,180	0,000	0,456	0,520
Context_involvement -> Watching_intention	0,105	4,033	0,000	0,054	0,155
Streaming_habits -> Watching_intention	0,062	3,637	0,000	0,030	0,096
Context_involvement x Ad-context_congruence -> Watching_intention	0,029	0,750	0,454	-0,048	0,104

Outer loadings for manifest variables of latent variables	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Adtopicconsumption <- Ad-topic_interest	0,949	404,461	0,000	0,944	0,953
Adtopicengagement <- Ad-topic_interest	0,930	246,167	0,000	0,922	0,937
Adtopicinterest <- Ad-topic_interest	0,944	281,541	0,000	0,937	0,951
ArtHowMuchReadQual <- Attention_to context	0,936	199,872	0,000	0,926	0,945
ArticleReadPercent <- Attention_to context	0,941	202,975	0,000	0,931	0,949
Articlereadcarefully <- Attention_to context	0,871	110,285	0,000	0,854	0,886
Articleengaging <- Context_involvement	0,957	420,418	0,000	0,952	0,961
Articleinteresting <- Context_involvement	0,961	439,062	0,000	0,956	0,965
Articleintriguing <- Content_involvement	0,950	318,759	0,000	0,943	0,955

StreamConsQuaL <- Streaming_habits	0,980	181,031	0,000	0,971	0,992
StreamConsQuaNT <- Streaming_habits	0,933	65,701	0,000	0,900	0,949
Watchingintention1 <- Watching_intention	0,974	536,597	0,000	0,970	0,977
Watchingintention2 <- Watching_intention	0,977	586,856	0,000	0,973	0,980
Watchingintention3 <- Watching_intention	0,966	398,075	0,000	0,961	0,970
Congruent <- Ad-context_congruence	1,000	n/a	n/a	1,000	1,000

R-square adjusted	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Attention_to context	0,239	15,057	0,000	0,208	0,270
Watching_intention	0,352	18,502	0,000	0,313	0,387

Average variance extracted (AVE)	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad-context_congruence	1,000	n/a	n/a	1,000	1,000
Ad-topic_interest	0,885	194,936	0,000	0,876	0,894
Attention_to context	0,841	98,152	0,000	0,823	0,856
Context_involvement	0,913	243,345	0,000	0,906	0,921
Streaming_habits	0,915	100,135	0,000	0,898	0,927
Watching_intention	0,945	299,586	0,000	0,938	0,951

Composite reliability (rho_c)	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad-context_congruence	1,000	n/a	n/a	1,000	1,000
Ad-topic_interest	0,959	539,598	0,000	0,955	0,962
Attention_to context	0,940	262,080	0,000	0,933	0,947
Context_involvement	0,969	687,620	0,000	0,966	0,972
Streaming_habits	0,956	178,695	0,000	0,947	0,962
Watching_intention	0,981	865,370	0,000	0,979	0,983

Cronbach's alpha	Original sample (O)	T statistic	P values	Confidence intervals 2.5%	97.5%
Ad-context_congruence	1,000	n/a	n/a	1,000	1,000
Ad-topic_interest	0,935	323,031	0,000	0,929	0,941
Attention_to context	0,906	152,857	0,000	0,893	0,916
Context_involvement	0,953	423,444	0,000	0,948	0,957
Streaming_habits	0,914	188,109	0,000	0,904	0,923
Watching_intention	0,971	548,898	0,000	0,967	0,974