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Gaining and Holding Consumers' Attention: A Series of Four Articles on Attention in Advertising

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A General Introduction

I The Relevance of Attention for Advertising and Marketing

Attention is of crucial importance for advertising and marketing research and practice. Getting consumers' attention is essential to the effectiveness of persuasive advertising and marketing communications. As the modern media landscape is characterized by an overwhelming flood of content that consumers are exposed to, attention has become the central bottleneck for advertising success. Rossiter, Percy, and Bergkvist (2018, p. 220) even consider capturing consumers' attention by breaking through the media clutter to be the 'single biggest barrier facing advertising right now'.

A major reason for the cluttered environment is the significant change in the media and device landscape (Voorveld 2019). Digital media and devices are ubiquitous. By 2025, consumers will spend nearly 8 hours a day with media by 2025 (eMarketer 2023). A whole range of devices, including smartphones, tablets or smartwatches, facilitate this constant consumption. The result is a permanent multitasking and multiscreening environment. Thus, consumers' attention is divided among these many sources of attraction (Beuckels et al. 2021a; Segijn et al. 2017).

At the top of all devices is the smartphone. Nearly 4.9 billion people worldwide already own one (Ericsson 2023). Its central role in consumers' daily lives is obvious. Thus, consumers face constant distractions regardless of their current activity, impairing their attention. Ever shorter attention spans are the result. The average consumer attention span is said to have dropped from 12 seconds in 2000 to 8.25 seconds in 2015 (McSpadden 2015). With the rise of ephemeral content on social media platforms such as TikTok and Instagram, attention spans are likely to decrease even further. These conditions of modern media consumption severely limit the visual attention devoted to advertising (Beuckels et al. 2021b). This makes it more difficult than ever to gain and hold consumers' attention.

II Theoretical Background of Attention in Advertising and Marketing

Attention is the gatekeeper to all other mental processes (Rossiter and Percy 2017). By enabling ad message conveyance (MacInnis and Jaworski 1989; Van Raaij 1989), it supports brand and message learning (Segijn and Eisend 2019). Thereby, it is the basic prerequisite for consumers to engage with content and recall certain ads or brands. The more attention an ad attracts, the more consumers are able to learn and remember about the brand itself, as well as its products or services (Ward, Zheng, and Broniarczyk 2023). This in turn leads to higher sales (Berger, Moe, and Schweidel 2023). In addition, attention increases the return on advertising spend as well as the conversion rate (Zunke 2024).

Although attention is a central construct in advertising and marketing research, most researchers are reluctant to define it. They adhere to William James' famous statement: 'Everyone knows what attention is' (1890, p. 404). However, a review of the existing literature suggests that 'no one knows what attention is' (Hommel et al. 2019, p. 2288). In advertising and marketing research, attention is typically characterized as the ability to captivate the viewer and prompt engagement with an advertisement. Capturing consumer attention involves two steps: first, gaining initial attention (getting noticed as the necessary condition), and second, holding that attention (enabling and intensifying engagement) to deliver the persuasive message (Langner and Klinke 2022; Pieters and Wedel 2004).

The advertising environment often presents an overwhelming amount of information that exceeds the receiver's capacity for effective processing (e.g., memorizing a brand). In this competitive landscape, attention becomes crucial in determining what consumers notice and choose to actively process (Myers et al. 2020). Visual attention, as the central and most important part of overall attention, is the allocation of the limited cognitive processing resources to a stimulus (Anderson 2005). This thesis focuses on visual attention as the primary channel

for perceiving and receiving information from the environment (Pieters and Wedel 2004). Accordingly, the concept of attention is defined as consumers' gaze that is directed toward a certain stimulus, e.g., an ad.

Attracting attention is the most critical hurdle advertising efforts are facing (Rossiter, Percy, and Bergkvist 2018). It is particularly challenging since consumers spread their attention across an almost infinite variety of sources. These include both the real world (e.g., family, friends or pets) as well as the media world (e.g., WhatsApp messages, Instagram feeds or Amazon streaming services). In these cluttered analog and digital environments, advertisements are constantly competing for attention (Duff and Segijn 2019). To create effective advertising measures, it is essential to gain insight into how modern consumers consume media and allocate their attention. In this way, these circumstances can be counteracted and consumer attention can be regained.

The first step is to cut through this cluttered media environment and reach consumers. To achieve this, advertisers can employ different design elements that are intended to capture consumers' attention. These are the so-called 'attention tactics'. Some of these tactics heighten the possibility to initially gain consumers' attention. This is the first obstacle an ad must overcome. Once this is achieved, the next step is to hold this attention (Ford and Campbell 2022; Langner and Klinke 2022). There are different tactics that are specialized for each of these steps. Moreover, some tactics are even able to support or fulfill both of them at the same time. However, there is currently no comprehensive collection of attention tactics. Furthermore, most tactics used in practice rely on 'rules of thumb', anecdotal evidence, or have been tested in laboratory settings under artificial conditions (De Pelsmacker 2021). Up to now, there is no real-world data on the effectiveness of these tactics.

A special attention tactic that is of significant practical importance are celebrity endorsements. They are widely used in advertising campaigns. Celebrities are featured in up to 25% of

advertisements worldwide (Knoll and Matthes 2017), with more than 50% being part of campaigns for major events such as the Super Bowl (Taylor 2024). One of the main goals of using a celebrity is to capture consumers' attention. In addition, their image is used to transfer positive associations to brands, products, or services. Ultimately, this should influence consumers' purchasing behavior (Bergkvist and Zhou 2016). In 2023, 2 out of 10 consumers worldwide bought products endorsed by influencers and celebrities. This influence was particularly pronounced among Gen Z shoppers: every second young person stated that their purchase decision was based on an endorsement (Capgemini 2024). Yet, there are conflicting results regarding the effectiveness of celebrities. One notable risk associated with using celebrities is the so-called 'vampire effect' (Bruns, Langner, and Bergkvist 2018; Erfgen, Zenker, and Sattler 2015). This indicates that a design element in an ad (e.g., the celebrity) is so effective at capturing and holding attention that it detracts consumers' gaze from the brand or product itself. Thus, the vampire effect underscores a possible downside of improperly employed attention tactics.

Another threat to the attention for advertising is the social media detox phenomenon consumers are increasingly applying (Schmitt, Breuer, and Wulf 2021). Digital detoxing describes consumers' actions to reduce the time they spend with digital devices and media. By detoxing from social media, consumers are trying to reclaim their private time. As this topic is rising in its meaning for consumers' everyday life, consumer magazines and newspapers frequently address it. A recent CivicScience (2022) study shows that 58% of U.S. consumers already apply social media detoxes at least once a week, whereas 32% take breaks for at least 2 hours every day. This leads to attention resources for advertising becoming even scarcer. Understanding the impact of this phenomenon helps advertisers to adapt their ad design and improve ad effectiveness.

III Research Gaps in Capturing Attention in Advertising and Marketing

By analyzing the literature on attention allocation in the advertising and marketing discipline, the following research gaps were identified. These gaps pave the way for the research presented in this thesis:

(1) *Methodological limitations in existing studies on attention allocation.* In advertising and marketing research, the majority of studies have examined attention allocation in media consumption and its effects by using methods like interviews, diaries or experiments (De Pelsmacker 2021). These forms of investigation are limited when it comes to attentional processes. This is the case because participants' perceptions are subjective and distorted by a hindsight bias (Roese and Vohs 2012). Moreover, experiments in laboratories are highly artificial since the environment differs from the exposing situations in real-life settings. For assessing consumers' media consumption and attention allocation behavior, unobtrusive study designs like observations are the best fit. They are the most naturalistic alternative to capture consumers' behavior in their natural environments (Belk 2017). Out of the different observation techniques, video-observation is the most valid method to capture real behavior (Segijn, Xiong, and Duff 2019). It is able to follow consumers' actions while minimizing the amount of disturbing elements. However, the present advertising and marketing research using observation in general is scarce. It also suffers from several limitations due to the constraints of its particular research, such as static cameras that must be manually turned on by participants. To date, there is no research in advertising and marketing that has used eye-tracking videography to accurately track consumer actions from a first-person perspective.

(2) *Lack of a comprehensive overview of effective attention tactics for gaining and holding attention.* The existent literature confirms the high significance of attention tactics (e.g., Bellman et al. 2019; Campbell et al. 2017; Cummins, Gong, and Reichert 2021; Langner and Klinke 2022). However, only some of them are mentioned and investigated in scientific journal articles. They are also an important topic in marketing textbooks (e.g., Andrews and Shimp 2018; Ang 2021; Dahlén, Lange, and Smith 2009; De Pelsmacker, Geuens, and Van den Bergh 2021; Rossiter, Percy, and Bergkvist 2018). Though, the tactics mentioned vary widely across the different sources. So far, there is no comprehensive work that provides an overview of all attention tactics that are known in research or practice. Besides, the tactics work differently in terms of their ability to gain consumers' initial attention or hold it. Nevertheless, most of the existing literature only hints at this differentiation. A clear distinction based on the underlying biological and psychological mechanisms at the level of individual tactics is lacking. Langner and Klinke (2022, p. 154) are the first to systematically apply the three mechanisms identified by Kroeber-Riel and Meyer-Hentschel (1982) to distinguish between attention tactics for 'gaining initial contact' and 'holding and intensifying contact.' They assert that initial attention is captured by physical intensity, whereas sustained attention arises from emotional or cognitively surprising stimuli. However, their set of attention tactics is not comprehensive, and their article remains conceptual. Until now, there is no existing research that tests the effectiveness of attention tactics in real-life ad encounters.

(3) *Lack of research on the occurrence of the vampire effect and its attentional effects.* The nuanced attention-related effects of celebrities as a special attention tactic are a relevant topic that has not been fully investigated yet. Especially the vampire

effect, as a potential threat to attention for advertising, is still in parts a blind spot in advertising and marketing research. So far, there are only a few studies available that examined the vampire effect. A systematic literature review has identified just six relevant articles on this topic (e.g., Erfgen, Zenker, and Sattler 2015). The external validity of some of these studies is questionable. In addition, some of the study designs lack a non-celebrity condition. Thus, the results do not allow any concrete conclusions to be drawn about celebrity vs. non-celebrity effects. This is especially true for video ads on social media platforms since dynamic celebrity content has not been investigated yet. Hence, it is still unclear whether celebrities actually trigger the vampire effect or how it affects consumers' attention allocation. Moreover, except ad recall, no further downstream variables of the advertising funnel have been studied with regard to the vampire effect.

(4) *Early stage of social media detox research and its attentional effects in advertising contexts.* Scientific research into digital and social media detox is still in its infancy. It is mainly psychological research that is investigating the effects of detoxing from digital media and devices. The existing studies thus focus only on psychological effects. This includes for example mental well-being (Brown and Kuss 2020), life satisfaction (Fioravanti, Prostamo, and Casale 2020), social pressure (Stieger and Lewetz 2018) or stress (Vanman, Bauer, and Tobin 2018). Hence, studies on the impact of social media detox on consumer behavior are still lacking. Furthermore, understanding the impact of social media detox phases on advertising effectiveness is critical but underexplored. Specifically, the motivations that drive or inhibit these detox periods are of particular importance. In addition, a clear conceptualization of the types of social media detox that consumers

engage in is needed. In this context, it remains unclear how these detox types influence attention toward advertising.

Addressing the identified research gaps is of primary importance for advancing advertising and marketing research and practice. Attention and its allocation has an enormous impact on a broad variety of advertising and marketing domains. Therefore, it is of central importance to understand how it shapes consumer behavior, with special regard to attention allocation and advertising reception.

IV Purpose of the Thesis and Research Framework

Purpose. The overarching purpose of this thesis is to close the identified research gaps in advertising and marketing research. Therefore, it is based on the following leading research question: How to gain and hold consumers' attention?

Answers to the identified research gaps are highly relevant to advertising and marketing research and practice. It is crucial to understand how media consumption and attention allocation are shaped today, especially with respect to attention to advertising. This thesis demonstrates how environmental factors and contexts such as the time, device or spatial context influence consumers' attention allocation. To be successful, advertising and marketing studies as well as campaigns must take these environmental conditions into account. Furthermore, many communication campaigns ignore the fact that there can be no advertising effectiveness without consumers' attention. Thus, the thesis informs advertising and marketing managers which design elements (i.e., attention tactics) are effective in capturing consumers' attention, and collects them in a comprehensive list. It also deepens the understanding of the effects celebrity endorsements can unfold on attention to advertising and its effectiveness. On top of that, it shows first evidence on how phenomena like social media detoxes can impair consumers' attention allocation on advertising. In this sense, it suggests measures for advertisers and marketers to deal with these challenges.

Moreover, consumers can benefit from such insights. They enable them to better understand and adapt their media usage behavior and attention distribution. When understanding how their everyday lives are shaped by media and devices, they can use this knowledge to be more reflective and mindful in their media consumption. This applies in particular to their smartphone and social media use. Many people are not aware of the immense time they spend on their digital devices. A more conscious consumption could be beneficial for personal well-being as well as social relationships. In this sense, social media detox can be one possible way to get more control about individual consumption behavior. In addition, the insights help consumers to recognize and understand the persuasion attempts by ads that employ attention tactics, especially in the case of celebrities. Among other things, this could support consumers in their efforts to make more conscious and informed purchasing decisions.

Research framework. For a differentiated empirical investigation of media consumption and the allocation of attention by consumers, this thesis chooses a cumulative approach. Accordingly, it consists of four independent articles that represent self-contained papers which can be read separately. These four articles contribute to closing the identified research gaps. The first article investigates how consumers' media consumption and related attention allocation is shaped. The second article collects all existing attention tactics, differentiates between tactics for gaining and tactics for holding attention and tests their effectiveness in real-life media encounters. The third article focuses on celebrity endorsements as a special attention tactic and its effects on attention allocation and downstream ad processing. The fourth and final article deals with the effects that social media detox exerts on consumers' attention allocation and attention to advertising.

<u>Article 1</u>: Taking Advertising Research to the Wild: An Observational Eye-Tracking Study on Attention Allocation in Real-Life Media Consumption at Consumers' Homes

The first article examines how media consumption and attention allocation is shaped today in 30 consumer homes. It uses mobile eye-tracking to investigate consumer behavior in the real world. In this course, the article first reviews previous research in this area, with a special focus on existing observational studies. Based on the research agenda of Jayasinghe and Ritson (2013), the qualitative study identifies five different contexts of consumers' media and advertising response at consumers' private homes. It reviews the existing findings concerning these perspectives and mirrors them with todays' reality. Thereby, it reveals the fundamentally changed environmental conditions. Accordingly, the article answers the following research questions:

1) How is consumers' everyday media consumption and attention allocation shaped during their leisure time in the evening at home?
2) What are the consequences for consumers' attention allocation to and the reception of advertising?

This article provides contributions to advertising and marketing research and practice in resembling current media and device usage behavior as well as attention distribution and the consequences for advertising. Thereby, it allows for a better understanding of consumers' media and ad reception at home. Moreover, it gives recommendations for advertising design based on the five contexts of media consumption and attention allocation: The time, the device, the spatial, the social and the ad reception context.

<u>Article 2</u>: How to Gain and Hold Attention: A Mobile Eye-Tracking Study of Attention to the Ad and Ad Recall in Real-Life Media Encounters

The ability of different attention tactics to gain and hold consumers' attention is investigated in the second article. Specifically, the paper conducts systematic literature reviews of 22 marketing communications textbooks, 413 journal publications and 123 trade publications of marketing trade magazines. These are combined with 52 qualitative interviews to create a comprehensive list of 114 attention tactics. The identified tactics are then examined on their effectiveness in real-life media encounters by employing mobile eye-tracking and qualitative interviews. Thereby, the paper answers the following research questions:

3) What attention tactics exist that are able to capture consumers' attention?
4) Which tactics are best for gaining, and which tactics should be employed for holding consumers' attention?
5) How do these different attention tactics determine attention to the ad and its connection with ad recall in real-life media encounters?

This article has significant contributions for advertising and marketing research and practice. For the research domain, this paper offers a deeper understanding of how attention tactics work by explaining the underlying mechanisms. Moreover, it provides field data on their actual effectiveness for getting in contact with consumers and maintaining it. For the practice domain, the findings yield important implications on how to design ads. A successful ad must be able to catch consumers' gaze in the first place, at least to ensure a minimum amount of contact. Thus, tactics to gain attention have to be included. Successful ads need to keep consumers engaged with the brand in order to convey its messages and image. Hence, tactics to hold consumers' attention have to be incorporated, too.

<u>Article 3</u>: Decoding the Vampire Effect: Investigating the Impact of Celebrities Overshadowing a Brand on Attention Allocation and Downstream Ad Processing

The third article explores the effects of celebrity endorsements on consumers' attention and attitude toward ads as well as brand recall and purchase intentions. Specifically, the paper shows how celebrities influence consumers' course of their gaze and the length of time spent on different areas of an ad as well as on the ad itself. First, the paper conducts a systematic literature review concerning studies that examine the vampire effect. Then, the results of a large scale eye-tracking experiment with 112 participants are presented. It is conducted under realistic exposure conditions with AI-modified celebrity video ads and shows how attention is distributed on celebrity versus non-celebrity video ads. Moreover, it investigates the effects of celebrities versus non-celebrities on ad attitude, brand recall, and purchase intention. The paper answers the following research questions:

6) Do celebrity endorsers attract more attention compared to non-celebrities?
7) Do celebrity endorsers actually trigger the vampire effect?
8) How does the vampire effect influence ad effectiveness along the advertising funnel?

This article contributes to recent research in the advertising and marketing discipline that investigates the attentional effects of celebrity endorsements. It expands the existing literature by delving deeper into the vampire effect and examining its influence on downstream ad processing. Furthermore, the findings of this article have valuable implications for advertising and marketing practice. For advertisers and marketers, it hints what advantages and disadvantages the use of celebrities in advertising measures entails and how respective advertising key performance indicators can be enhanced.

<u>Article 4</u>: (Not) the Right Time for Social Media Ads? Exploring the Impact of Social Media Detox on Attention to the Ad

The influence of social media detox on consumers' attention allocation is analyzed in the fourth article. First, the paper operationalizes it in its two prevalent forms, namely time-outs and time constraints. In an online in-depth qualitative interview with 36 consumers, the motivations and conditions for a social media detox are identified. Then, its influence on ad attention on social media is investigated in an additional qualitative in person interview study with 22 participants. Two mobile eye-tracking experiments (n = 50; n = 80), conducted under realistic viewing conditions, add empirical evidence on the observed effects. The article answers the following research questions:

9) Which motivations and external factors affect the application of a social media detox?
10) What are the typical forms of a social media detox, and how are they applied by consumers?
11) How does consumers' attention to social media ads differ under the impact of a social media detox?

This article has significant contributions for advertising and marketing research and practice. On the one hand, it describes social media detox as a new way consumers' try to manage their social media consumption. It is defined by its two prevalent forms, time-outs and time constraints. On the other hand, the paper identifies consumers' central motivations for or against detoxing, as well as external factors that promote or hinder a social media detox. For advertising and marketing practice, the findings yield important implications for the airing of ads as well as their design, in particular on social media.

V Structure of the Thesis

The thesis is divided into six chapters:

In **Chapter A (General Introduction)**, an overview of the central topic of this thesis is provided: the critical role of attention in advertising and marketing. It starts with outlining the relevance of attention as a subject of investigation in advertising and marketing research and practice. In this sense, it highlights how securing consumers' attention is a primary challenge in contemporary advertising (Section 1.1). It then defines the concept of attention in advertising and marketing and describes its impact (Section 1.2). Building on this, significant research gaps in the understanding of attention in advertising and marketing are identified, highlighting the relevance of the thesis (Section 1.3). Next, the purpose of the thesis, the research framework, and the resulting research questions of the included articles are presented (Section 1.4). The chapter ends with the presentation of the thesis' structure (Section 1.5).

In **Chapter B (Article 1)**, consumers' modern media consumption and attention allocation in their private homes during their leisure time in the evening are assessed. Opening with an introduction (Section 2.1), it provides an overview of previous research on media consumption and attention allocation. The focus of the literature review lies on prior observational studies (Section 2.2). Subsequently, the chapter examines the theoretical background concerning past work on media and device usage and concurrent attention allocation. In this course, the research questions are derived (Section 2.3). In the method section, the design and procedure are described (Section 2.4) and the central findings are presented (Section 2.5). The article then continues with a discussion of the results (Section 2.6) and ends with a summary of implications and suggestions for further research (Section 2.7).

In **Chapter C (Article 2)**, a comprehensive collection of attention tactics is presented. Their effectiveness in gaining and holding attention is then empirically investigated in real-life media encounters. After introducing the topic (Section 3.1), the theoretical background on the

psychological mechanisms of attention is reviewed. In addition to this, the previous research on attention in advertising is examined and the concept of attention tactics in advertising is explained. Drawing on the underlying psychological and biological mechanisms, hypotheses on the tactics' effectiveness for gaining and holding attention are derived (Section 3.2). Systematic literature reviews on marketing communications textbooks, scientific journal publications, and marketing trade magazines together with qualitative consumer interviews on attention toward ads build the foundation for the attention tactics list (Section 3.3–3.7). The findings are then discussed (Section 3.8), before the tactics' effectiveness is investigated (Section 3.9). The article ends with a discussion (Section 3.10) and a conclusion comprising implications and further research (Section 3.11).

In **Chapter D (Article 3)**, the effects of celebrity endorsements as a special attention tactic are examined. In particular, the impact of the vampire effect on consumers' attention and attitude toward the ad as well as brand recall and purchase intention is focused. After an introduction to the topic (Section 4.1), the theoretical background as well as the derivation of the hypotheses are presented (Section 4.2). Then, the proposed effects are empirically investigated in an eye-tracking experiment (Section 4.3). The results support the existence of a relative vampire effect for attention, but show no negative consequences for ad processing (Section 4.4). The findings are then discussed (Section 4.5). The article finishes with a conclusion including implications and ways for future research (Section 4.6).

In **Chapter E (Article 4)**, the effects of social media detox on consumers' attention to the ad are explored. First, the topic itself is introduced (Section 5.1). Then, time-outs and time constraints as the typical forms of social media detox are defined. Moreover, previous research is examined and hypotheses are derived based on the general influences of detoxes on consumer behavior (Section 5.2). The operationalization and underlying motivations as well as the proposed effects are empirically investigated in four studies (Section 5.3–5.6) that show how social

media detox influence consumers' attention to the ad. The chapter ends with a general discussion, including implications for advertising research and practice as well as limitations and avenues for further research (Section 5.7).

In **Chapter F (Final Concluding Discussion)**, the findings of the four presented articles are summarized (Section 6.1) and implications for advertising and marketing research and practice are discussed (Section 6.2). The chapter concludes with limitations and future research directions (Section 6.3). The following figure shows how the individual articles are linked to each other and contribute to answering the leading research question on how to gain and hold consumers' attention (see Figure 1):

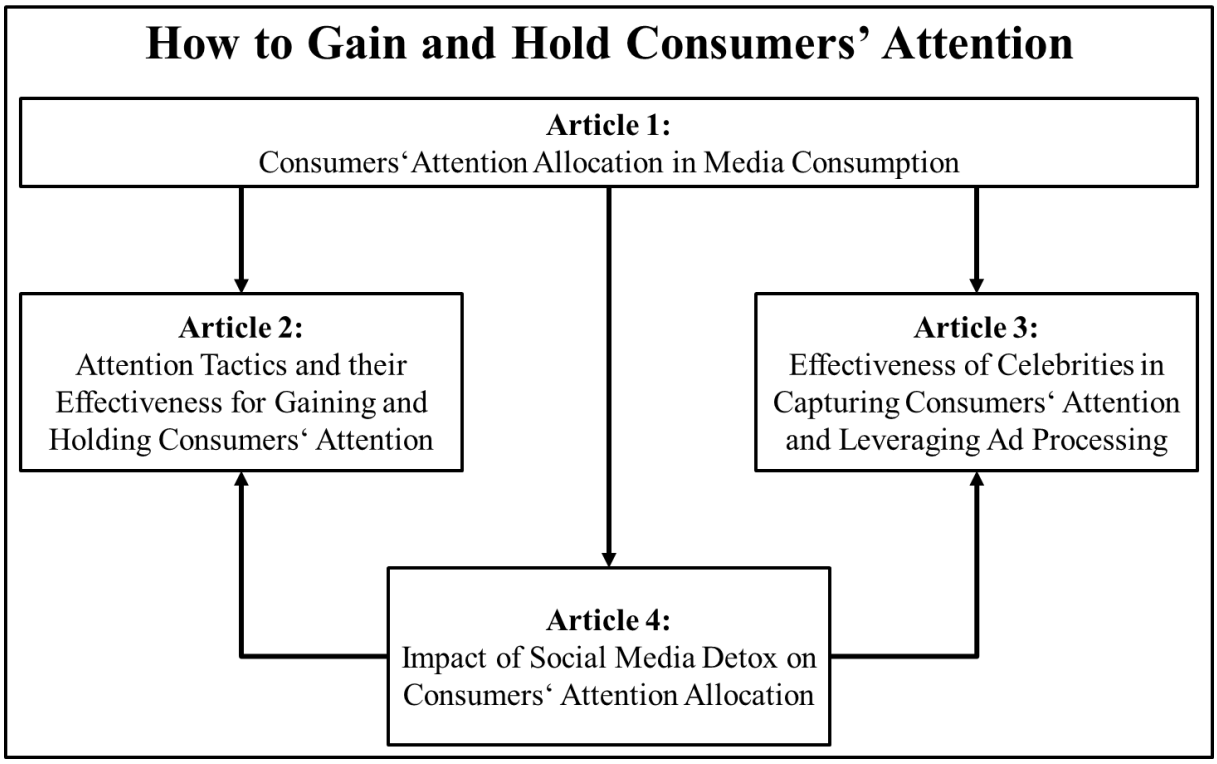

Figure 1: The link between the respective articles and their contribution in answering the thesis' leading research question

Article 1

Taking Advertising Research to the Wild: An Observational Eye-Tracking Study on Attention Allocation in Real-Life Media Consumption at Consumers' Homes

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B Taking Advertising Research to the Wild: An Observational Eye-Tracking Study on Attention Allocation in Real-Life Media Consumption at Consumers' Homes

(Authors: Lennart Borgmann, Julian Felix Kopka, and Tobias Langner)

Abstract: The media and device landscape has shifted radically within the past decade. This has led to major changes in consumers' media consumption and attention allocation. Research on media and device usage based on real-life observation with eye-tracking is critical to understand attention allocation, but still rare. Our study captures consumers' native digital media behavior and attention distribution, using mobile videography with eye-tracking in 30 consumers' homes. We identify several phenomena regarding media consumption and attention allocation in the time (e.g., an individual prime time), device (e.g., smartphone centricity), spatial (e.g., screen arrangement), social (e.g., the smartphone as conversation starter), and ad reception (e.g., ad avoidance strategies) contexts. These findings allow us to better understand consumers' media and ad reception at home and give advertisers recommendations: The planning of advertising times must be geared to the individual viewing habits of consumers. A smartphone-first approach for advertising planning is a must, while linear television becomes less important for airing ads. Advertising strategies that seamlessly integrate messages across devices should be focused. Personalization and native integration of social media ads as less intrusive ad formats are needed to capture consumers' attention.

I Introduction

The media and device landscape has undergone a significant transformation within the past decade. This is accompanied by great changes in attention for media and ads. Attention meanwhile represents ‘the single biggest barrier facing advertising right now’ (Rossiter, Percy, and Bergkvist 2018, p. 220). Ubiquitous media access has become easier than ever. Consumers are able to allocate their attention to a whole orchestra of different devices, independent of time or place. They are expected to spend 7 hours and 58 minutes per day consuming digital media in 2025. The majority of this time is spent on mobile devices, including activities such as listening to audio, using social networks, and watching videos (eMarketer 2023). The average number of connected devices per U.S. internet household reached 17 in 2023. This data underscores the growing integration of mobile connectivity and connected devices into consumers’ daily lives. This is driven by the essential role these devices play in personal communication, entertainment, work, and family life. The study also highlights that smartphone ownership has surpassed TV ownership. 90% of households own a smartphone compared to 88% owning a TV (Park Associates 2024). This emphasizes how important the smartphone already has become in consumers’ lives. Almost 3.7 billion people (72.6% of all internet users) will access the web solely via their smartphones by 2025 (Handley 2019). In 2024, the global smartphone user base has reached approximately 4.88 billion, indicating that 60.42% of the world’s population owns a smartphone. The total number of active smartphones (around 7.21 billion) even exceeds the number of users (Ericsson 2023). In addition to this, vast numbers of ads constantly compete for attention (Duff and Segijn 2019), while attention spans are decreasing. Cluttered digital environments in people’s daily lives further limit their visual attention to advertising (Berger, Wagner, and Schwand 2012; Beuckels et al. 2021a; Pfiffelmann, Dens, and Soulez 2020).

In summary, all these developments result in an ever-increasing control consumers gain over their media consumption and attention allocation. This results in major challenges for advertisers in several ways. For one, media reception is increasingly selective due to the resulting content overload. And as consumers access content across an ever-growing number of devices and platforms, their attention is becoming more and more fragmented. Moreover, consumer journeys and possible touchpoints are more individual than ever. With the power to control their media environment, consumer expectations for personalized, relevant, and engaging content have heightened. Advertisers not only have to compete with each other, but with the consumer's entire media universe among other distractors. They must find new ways to (re)gain consumers' attention and thereby improve the effectiveness of their advertising (Bang and King 2020; Segijn et al. 2017). Thus, advertisers must understand how real consumer media and advertising behavior 'takes place in the wild' to ensure the effectiveness of their advertising (De Pelsmacker 2021, p. 841). Yet, the vast majority of advertising and marketing research is done in university laboratories. Moreover, it mostly relies on very few, artificial stimuli presented in forced exposure situations (De Pelsmacker 2021). This is problematic since consumers behave different in a university laboratory than they do in their natural habitats.

Thus, our overall research goal is to investigate the everyday media consumption and attention allocation of consumers at home, during their leisure time in the evening. To explore consumer behavior in the wild, we apply a mixed-method field approach. We use direct observation and eye-tracking instead of surveys in consumers' homes instead of a laboratory to explore attention allocation for media, devices, and ads.

We contribute to marketing and advertising theory and practice in several ways: We uncover how consumers' current media and device usage behavior and their attention distribution is shaped and derive the consequences for advertising. Thereby, our study allows for a better

understanding of consumers' media and ad reception at home. Moreover, we give recommendations for advertising design based on the five contexts of media consumption and attention allocation: The time, the device, the spatial, the social and the ad reception context.

II Previous Research on Media Consumption and Attention Allocation

Most advertising research relies on self-reporting methods or experiments (De Pelsmacker 2021). Regarding the former, survey or diary studies on media consumption and attention allocation (e.g., Becker, Alzahabi, and Hopwood 2013; Dias 2016; Lau 2017; Voorveld and van der Goot 2013; Wang and Tchernev 2012) are critically limited in terms of revealing insights about device usage, interaction effects of devices, attention distribution to content, or related phenomena. Self-reported data can be highly subjective, with respondents' perceptions, memories, and interpretations influencing their answers. This subjectivity can introduce biases, such as the social desirability bias. This means that participants provide answers they believe are more socially acceptable rather than their true thoughts or behaviors (Randall and Fernandes 1991). Reliance on memory can be problematic, especially if the research requires detailed information about past behaviors or experiences. Participants may forget, consciously or unconsciously omit details, or misremember events, leading to inaccuracies. People are, for instance, quite poor at assessing the amount of time they devote to their different devices (Rigby et al. 2017). In addition, memories about consumed media contents tend to be distorted by the hindsight bias. It leads to a narrow focus on a single causal explanation, overlooking other plausible reasons, and generally results in overconfidence in judgment certainty (Jayasinghe and Ritson 2013; Roese and Vohs 2012). While self-reporting can offer great details on consumers' conscious efforts and thoughts, it is unable to represent unconscious behavior. Yet, this behavior resembles the majority of consumers' daily actions. Self-reporting often skims only the surface of an issue without delving deeply into unconscious reactions. It potentially does not capture the full spectrum of consumer responses to advertising stimuli. This is due to its

inability to adequately measure unconscious processes that significantly influence consumer decision-making. This limitation can be particularly significant in advertising research, where understanding subtle reactions to stimuli is crucial (Sánchez-Fernández, Casado-Aranda, and Bastidas-Manzano 2021).

Experiments that manipulate or induce media and device-related behavior in a laboratory (Alzahabi and Becker 2013; Beuckels et al. 2021a, b; Brasel and Gips 2017; Garaus, Wagner, and Bäck 2017; Kazakova et al. 2015, 2016; Segijn et al. 2017) can specify individual effects in detail. Yet, they often lack the contextual factors and environmental cues present in real-world settings, leading to artificial situations. The specific conditions of experiments may not capture the complexity and variability of everyday consumer experiences. It's challenging to observe and measure natural interactions consumers might have simultaneously when dealing with advertisements or products, such as discussions with family members or the influence of social media. This can result in behaviors and responses that do not accurately reflect how consumers would react in their natural environments, impacting the external validity of the findings. Thus, self-reported measures as well as experiments cannot provide a realistic picture of actual media consumption and attention allocation.

The most naturalistic alternative is to observe consumers in their natural environments. Observation methods in research span a wide array of techniques, including direct personal observation, the use of videography, or unobtrusive observation strategies (Belk 2017). Out of these, mobile video observation is the most valid method to capture actual behaviors in media consumption and attention allocation (Rohrbach, Bruns, and Langner 2024; Segijn, Xiong, and Duff 2019). However, to date, advertising research using observation in general is very rare, especially for videography (see Table 1). Moreover, it often faces limitations due to constraints in its particular research.

Table 1: Observational studies on media consumption and attention allocation

Authors	Method	N	Length	Findings
Rosen, Carrier, and Cheever (2013)	Direct observation in person at home	263	15 min	Participants average less than 6 minutes on task prior to switching.
Voorveld and Viswanathan (2015)	Direct observation in person	273	1 day	Media multitasking is most prevalent when people watch sports and less prevalent with commercials, news, and entertainment.
Brasel and Gips (2017)	Static video cameras in a laboratory	40; 42	30 min	Media switching is rapid and constant, and breaks lead to increased switching.
Brown, McGregor, and Laurier (2013)	Wearable cameras	10	4 hours	Mobile devices are just another thread in the complex tapestry of everyday interaction.
Jayasinghe and Ritson (2013)	Static video cameras at home	8	7 days	Advertising viewing behavior in the family living room is framed by broader household activity and around cultural ideas of family life.
Rooksby et al. (2015)	Static video cameras at home	4	4-5 hours	Mobile devices are routinely used to enhance leisure time and access media that are unconnected to media on television.
Rigby et al. (2017)	Static video cameras at home	4	12-14 hours	Mobile device habits are highly variable among participants watching TV, ranging from 0% to 23% of the time the TV is on.
Shokrpour and Darnell (2017)	Static video cameras at home	10	6 hours	Multitasking occurred almost 40% of the time when people were seated in front of the television.

Rosen, Carrier, and Cheever (2013) employed students to observe participants in person in their typical study environment while studying for 15 minutes. Participants were instructed that they would be observed studying while the observer was seated in the background. Knowing they are being watched can influence individuals to perform in ways they believe are expected or desirable, which may not reflect their typical behaviors (Randall and Fernandes 1991). Besides this observer effect influencing participants' behavior, the short time period is also critical for two main reasons: First, participants need an adjustment period to get used to the

study conditions and return to their normal behaviors. Second, it may only capture a fraction of the typical behavior and important behaviors might occur outside this brief time window.

Voorveld and Viswanathan (2015) used real-time observation data that was gained through a direct observation methodology. Consumers were accompanied throughout an entire day. Observers used a custom computer-assisted data entry device to input data regarding media exposure, life activity and location. Any change was logged to file every 10 seconds. This is likely to impede a detailed investigation of actual behavior, e.g., quick device switches. Moreover, since there is no video recording available, there is no further analysis possible. In addition, the physical presence of observers may alter participants' natural behaviors in both studies.

Brasel and Gips (2017) used video cameras in a laboratory setting where one camera was located beneath the television, and a second camera was placed behind the participants. While video recording allows an unobtrusive way of observing participants, the artificial environment is highly likely to influence their behavior, resulting in unnatural results.

Brown, McGregor, and Laurier (2013) used wearable cameras combined with screen recording software. Participants wore multiple wearable cameras to record their behavior. Since the cameras were placed directly on the chest in a plastic bag, they were permanently visible during the recording. In addition, seven of the ten participants made use of an iPhone that was supplied by the researchers. Accordingly, it can be assumed that they were constantly reminded of the survey situation and were therefore hardly able to behave naturally.

Jayasinghe and Ritson (2013), Rigby et al. (2017), Shokrpour and Darnell (2017), and Rooksby et al. (2015) all used video cameras that were installed unobtrusively to observe the main television viewing area in the living room. While in the studies of the first three articles the video cameras were turned on all the time, participants in the study of Rooksby et al. (2015) had to manually turn on the cameras on and off as they wished. This can result in naturalistic data being omitted because the fact that they were being recorded would have been fresh in

their minds. In general, the video cameras allow to observe participants' behavior quite unobtrusively. Yet, they are mostly focusing only the television and capturing the audience solely in the limited cameras' field of view. This method is not able to record viewing on other devices and in different places. Moreover, it is not possible to determine exactly where participants are looking at, since only the head movements and the viewing direction can be observed, but not eyes' gaze.

All these observation studies represent very important and laudable steps toward a more naturalistic study setting. In most cases, the researchers went out of the laboratory, leaving its artificial conditions behind. However, this previous research faces several limitations. It is more or less static, not as unobtrusively as it could be, neglects interactions between different devices, and does not cover observation across different rooms in consumer homes. To move beyond these limited scenarios, we track consumers' media consumption and attention allocation using mobile glasses that perform both video recording (including audio) and eye-tracking, independent from their particular location at home. Thereby, we aim to overcome constraints on realistic media consumption and attention allocation, enabling participants to engage in regular behaviors in their own homes.

III Theoretical Background and Research Questions

Among the rare observational studies introduced before, the research of Jayasinghe and Ritson (2013) is of particular importance. Unlike everyone else, they apply a broad research focus to comprehensively investigate media consumption behavior and attention allocation. Thus, we use their theoretical framework as the basis for our analysis. However, it has to be taken into account that the study has been carried out in 2008. Since then, the media landscape has changed massively. To allow a comparison of consumers' media consumption and attention allocation in 2008 and today, we employ Jayasinghe and Ritson's research agenda. They identified four different perspectives on consumers' media and advertising response at home,

namely the social, spatial, media multitasking, and temporal contexts (Jayasinghe and Ritson 2013). Adapting their framework, we review these contexts of media consumption and device usage and mirror them with todays' reality, considering the fundamentally changed environmental conditions. Furthermore, we extend the framework by the ad reception context as an additional perspective. Thereby, we obtain a holistic model of media consumption and attention allocation with a particular focus on advertising effectiveness. Our study focuses on consumers' typical everyday media use during leisure time on weekdays.

1 The Time Context of Attention Allocation toward Media

Jayasinghe and Ritson (2013) find similar patterns across the different households in 2008. Media consumption was largely dictated by the scheduling of broadcast television and radio, and media-related attention allocation respectively. As part of a communal activity, families and friends gathered to watch television together. There was a fixed prime time at 8:15 pm. The start times for favorite shows were well known and adhered to this prime time. Consumers tended to tie their daily routines to these anchors and planned their evenings around their favorite TV shows since the content available was limited to what was broadcasted. In general, consumers used media to a greater extent in the evening hours in particular. This applied, above all, to television consumption. Vandeboch, Roe, and van den Bulck (2006) report that people were virtually glued to the television. Watching television was the central activity in the evening (Van der Goot, Beentjes, and Van Selm 2012; Voorveld and Viswanathan 2015).

However, the traditional division of daily time into work, home and leisure has become less important. Nowadays, on-demand services, streaming platforms and media libraries allow consumers to plan their media-related time independently. Moreover, this shift has also been facilitated by the rise of mobile devices and tablets, allowing for media consumption to happen anytime. Therefore, we seek to uncover the time schedules of modern media consumption and the associated attention allocation. In addition, we want to investigate which and how time-

related characteristics shape consumers' subsequent media and attention allocation behavior. Thus, our first research question stands as followed:

RQ1: When and how is attention allocated toward media during leisure time?

2 The Device Context of Attention Allocation toward Media

In 2008, the television was the central media consumption device as well as the focal point for attention allocation in consumers' homes (Jayasinghe and Ritson 2013). Televisions and radios were designed for passive consumption, with content delivered according to a fixed schedule set by broadcasters. There was only limited interaction between the viewer and the medium. In addition to watching linear television, the TV also served as a screen for various gaming consoles and for playing videos from digital camcorders. Other competing devices, such as mobile phones, were still primary means of communication and not of media consumption, thus allocating only little amounts of attention. Competitors in the battle for attention were most likely newspapers or magazines.

Since, functions and roles of devices have shifted. The interplay of the numerous devices shapes the modern media consumption and attention allocation as well as the reception of digital content. The introduction of the smartphone in particular, especially the iPhone in 2007, was to have a massive impact. These devices combined the capabilities of PCs with the portability of traditional media devices like radios, transforming when, where, and how media could be consumed. Thus, multitasking is on the rise (Brasel and Gips 2017), and multiscreening becomes also prevalent as a part of consumers' daily routines (Segijn et al. 2017). Our aim is to find out how the devices are used in the course of modern media consumption and how attention is allocated. Thus, we ask:

RQ2: How do devices and their distribution of roles drive current attention allocation toward media?

3 The Spatial Context of Attention Allocation toward Media

Jayasinghe and Ritson (2013) identify the living room, with the static television, as the central location for media consumption in 2008. It was the central hub for family entertainment, often housing the only TV set in the household. The biggest part of media exposure was allocated to the television. These fixed spatial contexts were largely dictated by the immobility of media devices. They were relatively bulky and immobile, further anchoring media consumption to specific locations within the home.

The introduction of mobile devices such as smartphones and tablets represented a significant leap forward. Media consumption and media-related attention allocation becomes more and more detached from the boundaries of certain rooms inside the home altogether. Due to their mobility, the modern portable devices can be used anywhere. They have altered traditional patterns of media engagement. Consumers are no longer tied to a specific place, like the living room, for their media consumption. Yet, actual usage situations, which also feature the influence of spatial aspects in the environment, have not been examined in depth. So, we also ask:

RQ3: Where and how does attention allocation toward media take place?

4 The Social Context of Attention Allocation toward Media

Media consumption, particularly television watching, was a communal activity that fostered shared experiences and discussions. People watched television to spend more time together (Voorveld and Viswanathan 2015; Wonneberger, Schoenbach, and van Meurs 2011). As television viewing was primarily a social activity, consumers did not engage with other media simultaneously (Wang et al. 2015). Jayasinghe and Ritson (2013) emphasize that especially commercial breaks in television programs, together with the focal content, shaped consumers' social conversations in 2008. Media consumption was an event, often structured around meal times or specific evening hours, making it a central part of daily family life. The social context was primarily defined by physical co-presence and the shared experience of watching.

Social media platforms and online communities have introduced new avenues for social engagement around media content. Electronic devices and social media, as prominent factors in consumers' social lives, might be even better suited to fulfill social tasks. While individuals may consume media in a physically isolated manner, they are often simultaneously connected to broader networks of viewers and fans through online platforms. Yet, how the devices are used in social interactions, beyond serving as tools to access for example social media apps, is largely unknown. This is especially true for physically proximate, social situations at home. Thus, we ask:

RQ4: How does media consumption initialize or participate in social activities, and how does this affect media-related attention allocation?

5 The Ad Reception Context of Attention Allocation toward Media

Initially, advertising was dominated by traditional media, especially the television, print and radio. TV commercials were often considered the 'king discipline' of advertising due to their wide reach and the ability to create impactful, memorable messages. Ads were broadcast to a wide audience with little targeting. The broad reach of these platforms was the key to impact consumers. Celebrities also played a special role as particular eye-catchers in advertising. They were commonly used in TV advertising, leveraging their influence and popularity to lend credibility and appeal to products and brands. The commercial breaks themselves were of considerable length, taking up significant space in the evening program (Jayasinghe and Ritson 2013).

Since then, the battle for attention has flared drastically. From the television being sovereign in 2008 (Jayasinghe and Ritson 2013), to an ongoing fight among multiple devices, with numerous platforms. Social media platforms further refined ad targeting and introduced new forms of advertising, including influencer marketing. Initially passive recipients of advertising, consumers have become active. They engage with brands through social media, use ad blockers

to control their online experience, and express concerns over privacy and data usage. Despite the growth of digital advertising aired on numerous devices, traditional media, particular TV, continues to be a powerful tool for advertising. It still creates strong cognitive, affective, and behavioral responses from consumers (Rauwers et al. 2018). It remains highly effective for brand building and customer acquisition, often complemented by social media activities (De Vries, Gensler, and Leeflang 2017). Yet, how consumers allocate their attention to ads when they consume media in their private environment is not fully investigated. To advance advertising practice in multi-device and digital media environments, we focus on ad reception and respective attention allocation in the context of device and media usage:

RQ5: How does ad reception take place during media consumption, and which role play ads in media-related attention allocation?

IV Method

To address the aforementioned research questions, we conduct a first-person perspective videography of consumers at home. In a mixed-method field approach, we combine observation through mobile video recording (including audio) and eye-tracking with qualitative data collection, using both short and in-depth interviews.

1 Sample

The study, conducted from November 2020 to May 2021, included 30 participants (17 women), recruited through convenience sampling. The non-student sample ranges in age between 18 and 60 years (26.5 on average) with various occupations (see Appendix 1). The choice of a convenience sample was necessary due to several considerations. First, this method enabled quick and cost-effective recruitment of participants, which was crucial given the large scope and limited resources of the study. Second, participation required significant effort from the respondents, including wearing eye-tracking glasses and engaging in extensive interviews.

Therefore, it was practical to select participants who were easily accessible and willing to undertake this effort.

2 Design and Procedure

In advance of the recording, a research assistant contacted each participant and made up an appointment. Then, they visited the participants at their private homes. All recordings took part at workdays from Monday to Thursday to ensure comparability between the individual evenings. We used Tobii Pro Glasses 2 for high-definition video and audio recording as well as eye-tracking. The battery lasts for up to 90 minutes (Tobii 2024; see Appendix 2).

The research assistant set up the equipment and introduced the participants to the technical devices, the study procedure and all aspects concerning data privacy (see Appendices 3-5). Participants were shown how to calibrate the eye-tracking glasses and how to initiate the recording. They were informed that the recording would take approximately 90 minutes and that the research assistant would call them as soon as the study is finished. For the study conditions, participants were asked to keep everything in their home setting as it would be on a regular evening at home. They should stay in their typical environment with the people normally present and follow their usual evening routines. They were allowed to do everything they would regularly do during the recording. They should also behave completely ordinary with regard to their use of devices and media, i.e., neither consume more nor less. The start of the recording should begin as soon as their leisure time routine started (see Appendix 3).

The research assistant then left. Every participant could start the recording individually. The recording stopped when the battery died. Directly after the recording, the research assistant revisited the participants and conducted the first part of the post-experience protocol. These short interviews were used to assess the situation, any irregular incidents, device and media usage as well as advertising reception in general.

The second part of the interview took place on the next day, again at participants' homes. Prior to this, the research assistant reviewed the whole video material. The sequences of device usage were defined to structure the content and to focus the questions on the specific situations. The research assistant then visited the participants again and conducted the second in-depth interview which was supported by the video-material. The questions focused also on device and media usage as well as advertising reception, but in greater detail (see Appendix 6).

3 Content Analysis and Coding

To structure the qualitative data, the first and second author independently reviewed all video recordings as well as transcribed post-experience protocols. We used both deductive and inductive content analyses to classify recurring phenomena and themes in the video material as well as in participants' responses. The inductive categories were based on the five identified contexts of media consumption. All interviews were translated from German into English using a backward-translation process and verified by an expert fluent in both languages (Balasubramanian and Gistri 2022).

The coding scheme was developed after the content analysis to quantify the discovered phenomena. Thus, it combines deductive and inductive categories from the initial literature review and the content analysis. The video material was divided between five research assistants who each coded different video recordings second by second for the following five categories: smartphone within reach (yes or no), smartphone pick-up (yes or no), smartphone in hands (yes or no), device switch (yes or no), and screen arrangement (screen switching; screen blocking; screen extending). Coders received a training on the definitions and coding instructions for the five categories. Since the coding referred to purely descriptive content without opportunities for interpretation, we did not employ multiple coders.

V Findings

Assessing the impact of the observation situation on the participants' behavior

When asked about the evening of the recording, participants unanimously affirmed that it was a completely regular leisure time for them. With regard to the impact of the observation, most of them had become accustomed to wearing the eye-tracking glasses after a short familiarization phase (see Appendix 7). One participant perceived it as follows: 'Of course, I've never had a device like this on before, but you get used to it very quickly' (P [Participant], [age] 23, f [female]).

Only three participants stated that it was 'rather unusual' (P12, 28, m [male]) or that it was 'not an everyday occurrence' (P11, 29, m). Nevertheless, all participants stated that they behaved normally most of the time. The majority of participants did not notice any influence of the glasses at all after a few minutes, as exemplarily stated by Participant 25: 'I was able to forget about the glasses relatively quickly and just go on with my everyday life as normal' (P25, 21, f).

1 The Time Context of Attention Allocation toward Media

The participants were asked to start the recording as soon as their personal main media time, thus their prime time, begins. Looking at the respective starting times of the recordings, it becomes clear that these are very individual and differ greatly between every participant. Thus, we find no (timely fixed) prime time and no recurring time structures across all participants. Digital devices, streaming services and video on demand enable them to start engaging in media consumption whenever they want. This allows them each to begin their leisure time media consumption individually, resulting in an *individual prime time* for each person.

In our sample, participants started their prime times between 3:43 pm and 09:42 pm (median: 6:18 pm; mean: 6:27 pm; see Appendix 7). In concrete terms, this means that some participants

started their media routine straight after work, i.e., even before dinner. A large number of participants combined the start with dinner. Some did not start consuming media until well after 8:15 pm. The longest evening routine we could observe even lasted until 10:34 pm, and probably even longer.

The extent of media consumption as well as the types of media and devices used in the evening media routine differed greatly between the participants, too. While some interacted with media and multiple devices during the entire recording, others interrupted their media consumption more frequently with various activities. Overall, however, digital media consumption took up the majority of the recording time for all participants and thus plays a central role in the leisure time.

Only about one fourth (8/30) of the participants watches linear television (see Appendix 7). Thus, we rarely observe classical commercial breaks, making it unnecessary to plan these breaks. Participants postpone the starting times of their TV shows, pause movies or rewind them if they have not been paying attention. Thereby, they are able to structure their media consumption independently and create *individual time schedules*. Yet, it is important to note that in most cases this happens more intuitively and spontaneously and does not follow a precise schedule. This applies in particular to the time spent on the smartphone.

2 The Device Context of Attention Allocation toward Media

We observe a prevalent *smartphone centricity*. It is the lead device in modern media consumption and the new first screen for most media contacts. Moreover, the smartphone is used like some kind of control center at home: ‘The smartphone is kind of the starting point for most media. […] You could compare the smartphone to the PC and the TV to the screen […] and then what you search and surf on the Internet gets displayed on the screen, the TV’ (P5, 23, m). Participant 5 (23, m) uses his smartphone to select the YouTube content he watches on the TV screen.

The smartphone is a central fixture in the evening leisure time in every respect. It is mainly used as a first alternative, especially if no other activities are planned: ‘As I said, when I’m sitting on the sofa in the evening and have nothing more to do, my time is devoted to my cell phone’ (P23, 23, f).

Participant 1 (26, f) provides a typical picture of smartphone centricity. The television is turned on the total time of our observation. Yet, she distributes 76% of her attention toward the smartphone, whereas only 17% fall upon the television. Participant 10 (24, f) even replaced her laptop with a second smartphone, streaming Spotify or Netflix on one while chatting on the other.

The participants sometimes immerse themselves in unplanned smartphone consumption and forget about the primary task they pursued (like watching a series): ‘Sometimes when I’m no longer so focused on my series, I somehow automatically take my smartphone and start scrolling around somehow. […] And as I said, I just scrolled through Instagram without thinking about it. It’s something my hand does automatically now’ (P15, 24, f).

When they recognize this *smartphone immersion*, participants stop or resume the initial media stream. However, some engage in planned media multitasking. They use the second device as background noise while consuming the first, which is usually the smartphone: ‘I really only watch the series at the beginning, and on the side, I do something with my smartphone and then look on social media to see what’s new’ (P6, 25, m) and ‘because I wanted to continue watching the series, but still wanted to be on my smartphone at that moment’ (P15, 24, f).

In many cases, linear television only serves as a *background noise*: ‘So it’s often the case that I just leave the TV on and do lots of other things in the meantime and don’t watch the TV for an hour, so I can cook or tidy up on the side and I can just as easily be on my smartphone for an hour even though the TV is on’ (P23, 23, f). Participants 5 (23, m), for example, is in the kitchen preparing dinner while the TV is still on.

In some cases, however, the television itself has even been decoupled from this function, as in the case of Participant 21 (26, f): ‘Yeah, I don’t know, I feel like when I’m alone at home and my laptop is on, I’m not completely alone, but something is playing. It’s like when I turn on my TV and I know exactly, okay, something’s playing back there somehow and I hear something’.

Browsing media content without a specific goal on the smartphone works as a *mental escape*, such as from persistent attention on the television (and vice versa): ‘And the cell phone, I use it because I just wanted a time out’ (P9, 18, f). This is also expressed by the time the smartphone is picked up and put down again, with Participant 16 (23, f) doing it 47 times during the recording.

However, focusing on one medium leads to *media bore out*. This lack of stimulation increases media multitasking, preferably by supplementing an already used device with the smartphone: ‘The episode […] didn’t interest me that much, and that’s why I was still on my phone, to amuse myself a little bit again or just counteract the boredom’ (P7, 26, f).

Planned media multitasking, media bore out, or mental escape express themselves, among others, by switching to another device, starting a new task to provide distraction: Participant 21 (26, f) switches 100 times between devices, Participant 5 (23, m) switches 152 times, and Participant 13 (48, m) even switches 346 times, resulting in 3.54 switches per minute.

3 The Spatial Context of Attention Allocation toward Media

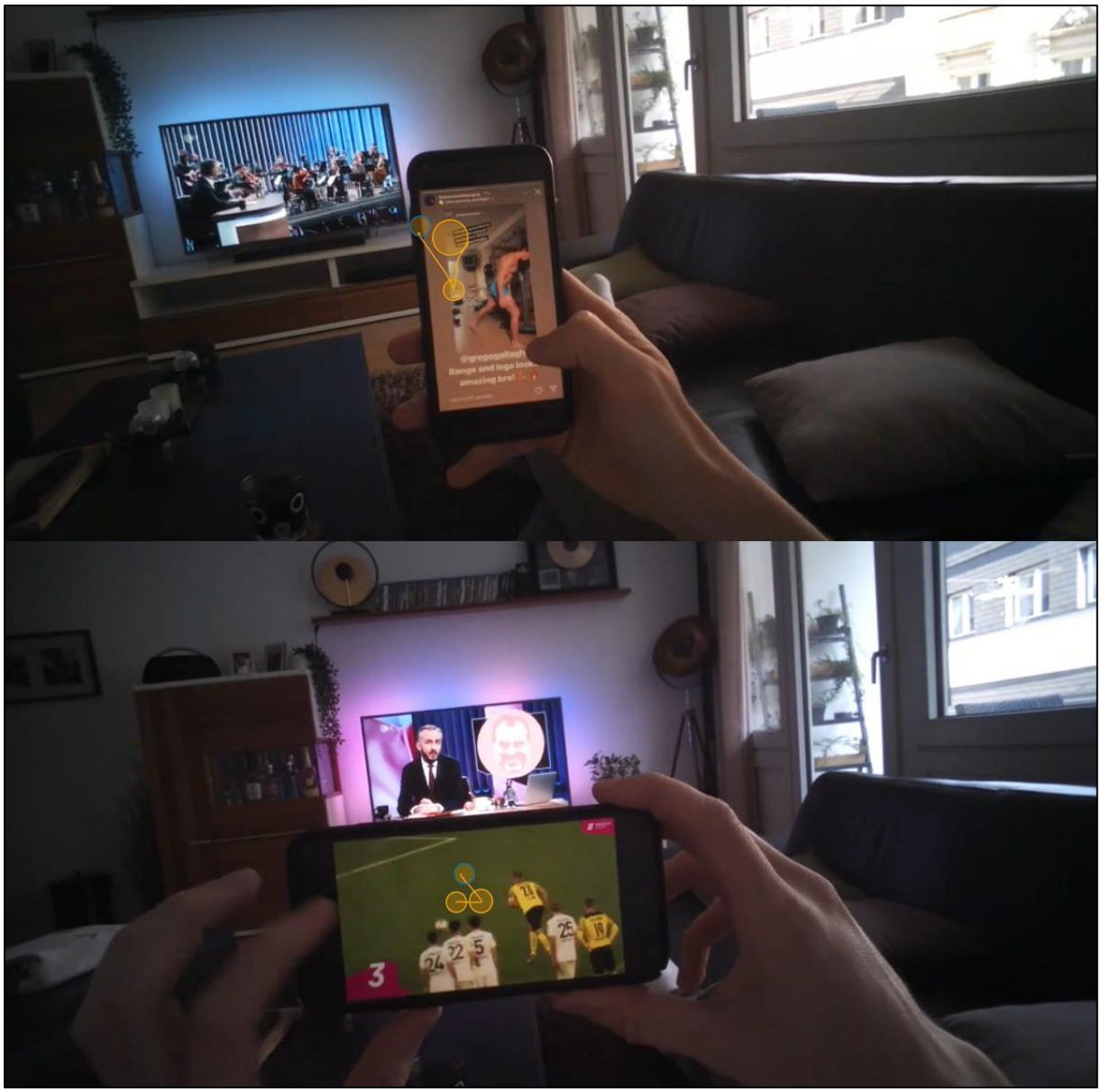
There are now many portable devices in addition to smartphones, such as smartwatches, tablets or ever smaller laptops. Yet, the smartphone also plays the central role in the spatial context of media consumption. We observe that the smartphone functions as a *constant companion*, who is always within direct reach: ‘We’re talking about ordinary, everyday situations here. Then I would say my smartphone is always with me’ (P22, 26, f) and ‘to be honest, my

smartphone is almost always with me. Even when I, yes, go to the toilet. My smartphone is with me there too' (P24, 20, m).

Taking together all participants, the smartphone is within direct reach for 92.3% of the recording time, with 9 participants (Participants 1, 6, 9, 19, 24 and 27-30) having it in direct reach for the complete time. They are even carrying and holding it or having it nearby while performing media-unrelated activities like playing the guitar, making tea, straightening their hair or cooking.

Participant 14 (30, f) reported that in some situations she was not even aware that she was still holding the smartphone in her hand, which was thereby permanently in her immediate vicinity: 'I didn't know that I was holding my smartphone in my hand anyway. […] I have no idea why I'm holding it in my hand. It's really quite strange'. While she has her smartphone in her hand 88.3% of the time, Participant 21 (26, f) holds it for 91.1% of the time, with Participant 24 (20, m) even using it for 95.1% of the whole recording time. Thus, participants have opportunities for constant brief interactions, regardless of where or in which room they are located.

We observe three diverging types of screen arrangements, where the smartphone gets arranged relative to other devices. First, participants use their phone for *screen extending*. They place the smartphone at different points of the second screen. Thereby, the second screen is within their peripheral field of vision and can be checked at the same time (see Figure 2).



Annotation: The scene shown has been recreated by one of the authors in order to protect the privacy of the participants.

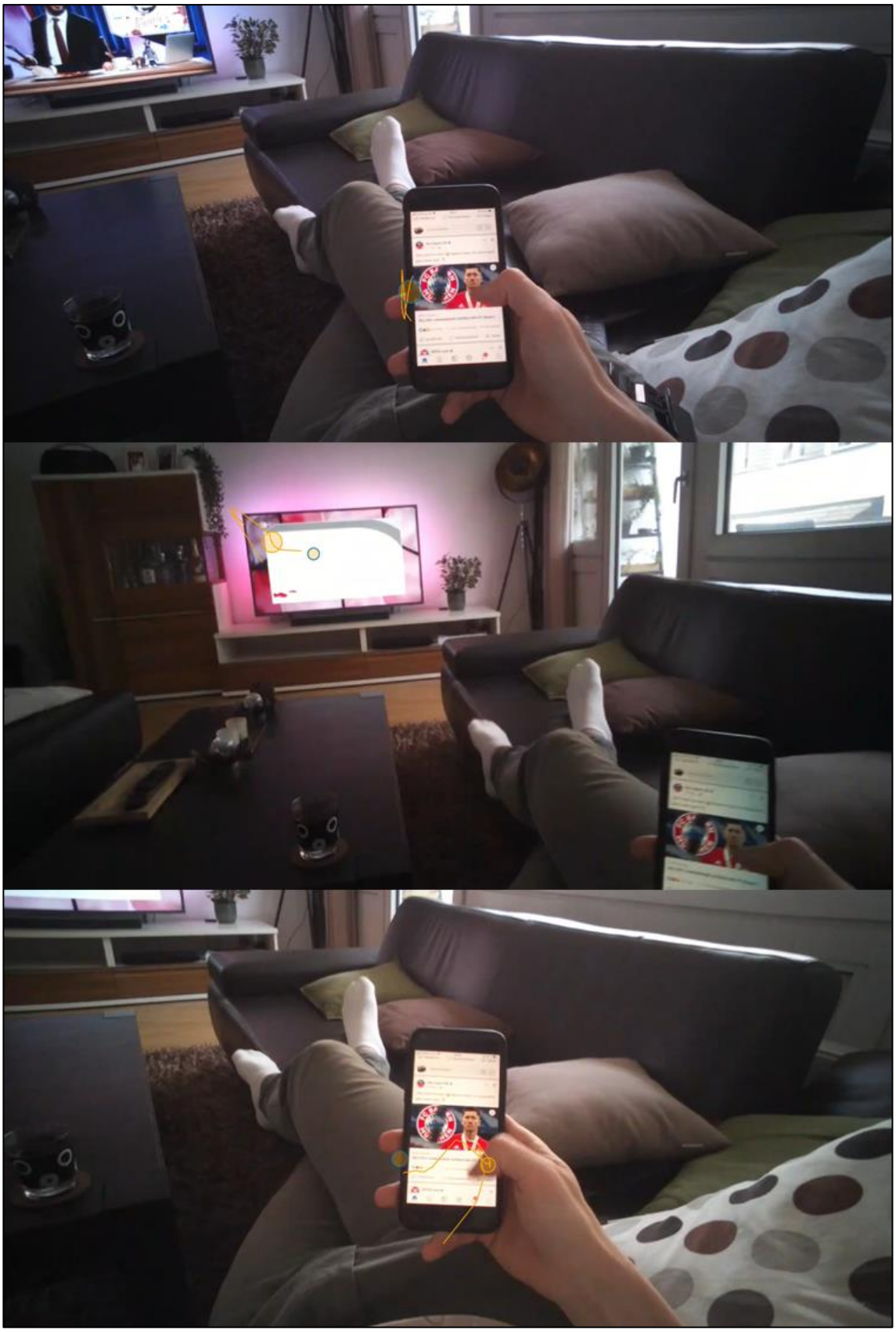
Figure 2: Screen extending

Second, *screen blocking* means they place the smartphone in front of the second screen. This helps them to focus their attention exclusively on the smartphone (see Figure 3).

Annotation: The scene shown has been recreated by one of the authors in order to protect the privacy of the participants.

Figure 3: Screen blocking

Third, with *screen switching*, participants take a posture to focus on each screen individually. They place the smartphone in a way that creates physical distance to the second screen. This forces them to adjust their head position to check the respective screen (see Figure 4).



Annotation: The scene shown has been recreated by one of the authors in order to protect the privacy of the participants.

Figure 4: Screen switching

Participant 1 (26, f), who applies all three kinds of screen arrangement in the interplay of television and smartphone, uses screen switching for the vast amount of time, namely 72%. Screen blocking is applied 17% of the time, whereas screen extending 11%. The predominance of screen switching as the primary multi screening technique keeps stable over most participants, with Participant 25 (21, f) even applying it 98.5% of the time. Yet, there are exceptions to this dominance: The highest value for screen blocking is exerted by Participant 29 (23, f) with 91.9%, while the highest value for screen extending is performed by Participant 22 (26, f) with doing so 30.2% of the time.

4 The Social Context of Attention Allocation toward Media

With regard to the social context, we again find the smartphone being the center of attention. It is not only present in (physical) social interactions, but often acting as a *conversation starter*: 'We're usually together or on the bed and just relax in the evening and watch. Like me, she's also usually on TikTok. If she finds funny videos or I do, then we show them to each other. […] we spend a lot of time on our smartphones' (P24, 20, m). Further, it remains a central part of the conversation, as when the topics revolve around content consumed via the smartphone.

When the participants converse while engaging with media, they often do not make eye contact, keeping their eyes on the smartphone. While Participant 1 (26, f) is watching television with her partner, he only receives 2% of her visual attention, whereas the smartphone accounts for 76%. Even in social activities (e.g., dinner with the partner), the smartphone is omnipresent and an important part of the routines. In other cases, it is used to avoid social interaction: 'Sometimes I send something, of course, but sometimes it's just deathly quiet and you're just on your cell phone' (P24, 20, m).

Before accessing, after finishing, or even in between all kinds of actions, participants constantly seek for a *social update*, especially in social media or news-related apps. In many

cases, it has already become a kind of habit, as Participant 22 (26, f) reports: ‘It’s more of a reflex when I look at my smartphone’. This compulsion becomes stronger the longer it has been since the last social update.

5 The Ad Reception Context of Attention Allocation toward Media

We observe that participants devote most of their attention to the smartphone when consuming media. Thus, ad reception mainly involves smartphone usage. Nowadays, the most obvious solution to avoid advertising, for example TV advertising, is to switch devices: ‘So I watch something on TV, and if […] some commercial comes on, then I go to my smartphone for a moment and see what’s going on. Then when the ad goes away […], I put my smartphone aside and continue watching’ (P24, 20, m).

Participants display active and passive *ad avoidance strategies* with their increasing use of platforms. It becomes evident that they learn where ads are placed and what their typical characteristics are: ‘When I see an advertisement, I automatically skip it without noting the content or the brand name’ (P12, 28, m). This type of advertising avoidance is adapted to the different platforms. For example, most consumers know that ads are played before the videos on YouTube start: ‘So I don’t even pay attention to the ads before YouTube videos anymore, because you want to watch the video at that moment and then you just wait until you can skip them’ (P15, 24, f).

Some participants also show signs of *advertising blindness*, whereby they almost automatically tune out advertising. One participant already instinctively avoids ads on Twitter: ‘There are definitely ads on Twitter, but I don’t notice them at all’ (P9, 18, f). She uses Twitter for 90 seconds, of which only one single second accounts for potential ad contact. In 22:30 minutes on Instagram, she sees eleven story-ads, regarding each on average for 1.64 seconds and seven timeline-ads, attended on average for 2.71 seconds. With regard to Instagram in general, a participant stated: ‘Funnily enough, these ads on Instagram are often silent and most of

the stories I follow are talking or have music playing. And then I can tell from the sound whether it's the person I actually wanted to look at or an ad' and 'yes, advertising is annoying, but the fact that I usually know that there's advertising or you're seeing sponsored content. You can see it at a glance, then you know okay, you press the screen three times. And then it's gone' (P25, 21, f).

Nevertheless, there is still advertising that is able to connect with consumers. Ads that catch participants' attention often contain elements like *personalization* or *integration* of the ad into the digital environment, making it less obvious or annoying. The important role of personalization is expressed by Participant 11 (29, m): 'I've gone through the stories on Instagram, and there's always advertising interposed, but I only consciously notice them when they interest me'.

Native advertising is also able to get participants' attention: 'I saw Zalando the other day actually on TikTok. […] It really looked like that [native content], so it was really perfectly tuned to TikTok, from what was shown, you didn't even notice 'Oh, that's an ad!'' (P5, 23, m)

Finally, participants also name *influencers* in particular as an effective advertising tool: 'However, I find advertising by influencers more interesting because it's often products that they like and that they have tested beforehand and think are good. I'm more interested in advertising like that than the ads that are placed' (P17, 25, f) and 'so in general, I don't find these advertising posts or stories from companies that serve as advertising that interesting. So it's a bit more interesting for me when an influencer suggests something like that' (P25, 21, f).

VI Discussion

We identify a drastic shift in media consumption behavior and attention allocation in every context. While Jayasinghe and Ritson (2013) reinforce the prevalent picture of a prime time, we note that the timely structured evening media routines, such as a fixed prime time,

often do not exist anymore. Whereas the television program was a mean to structure daily routines and the central activity in the evening (Voorveld and Viswanathan 2015), it is no longer at the heart of modern media consumption. Back in 2008, commercial breaks provided opportunities to incorporate these free times into daily routines (e.g., preparing meals or social interactions; Jayasinghe and Ritson 2013). This is not the case anymore. Consumers can plan their break individually and therefore do not have to follow a set program. As a result, there is no clear main media time, nor are there time slots (such as prime time in the past) in which consumers are particularly receptive to media or ad content.

The television was the central media consumption device in 2008 (Jayasinghe and Ritson 2013). Now, the smartphone is the dominating device, absorbing substantial amounts of consumers' visual attention. It is an integral part of almost every media consumption, especially when multitasking and multiscreening. While these forms of media consumption were previously only a partial part of the routines (e.g., Bang and King 2020; Duff and Segijn 2019; Segijn, Xiong, and Duff 2019), they are taking on ever more pronounced forms. Multiscreening is the new standard of media consumption, with up to four devices being used simultaneously in some cases. This underlines the strong fragmentation of consumers' attention, which is a major challenge, especially with regard to advertising reception.

In 2008, media consumption was mostly tied to the living room where the television was placed and incorporated into the room arrangement (Jayasinghe and Ritson 2013). Today, the smartphone as well as tablets or laptops allow consumers to access media independent of their location. Moreover, multiscreening is taking on completely new dimensions, with various forms of screen arrangement.

Previously, the television was the focal point and impetus for evening get-togethers and discussions in living rooms (Jayasinghe and Ritson 2013). Media and devices were only partially integrated into social life. Today, they affect large parts of social interactions. This is

especially true for the smartphone. In many cases, watching media together to have a shared experience (Voorveld and Viswanathan 2015) has been replaced by individual consumption. Whereas consumers tried to avoid media multitasking in social settings (Wang et al. 2015), the smartphone has become a starting point and the central focus of many conversations. Social media form the main component of media consumption, especially the platforms Instagram and TikTok. This extends as far as some consumers pay more attention to digital media than to people actually present on site.

In 2008, commercial breaks on the television were the primary encounter for advertisements (Jayasinghe and Ritson 2013). Typical ways to actively avoid the commercials included changing the TV channel, talking to other people in the living room or leaving it. Since then, numerous new advertising formats have been added, but most consumers have already adjusted to them. They know the special characteristics of the respective platforms in relation to advertising and apply active and passive avoidance strategies. All in all, the characteristics of modern media consumption – no temporal structures, a multitude of devices, spatial independence and the changed social component pose great challenges for advertising research and practice.

VII Implications and Further Research

Advertisers should consider flexible and dynamic ad scheduling that aligns with individual viewing habits rather than fixed time slots. Utilizing data analytics to understand peak engagement times for different demographics can enhance ad reception.

The smartphone centricity is undeniable. Advertising planning and targeting should focus on these devices for delivering visual messages. A smartphone-first approach in campaign planning is necessary, recognizing the device’s dominance in media consumption. This includes optimizing content for mobile viewing, considering aspects like screen size, orientation, and mobile-specific user behavior. Ads have to be short, compelling, and capable of capturing attention quickly, aligning with the typically shorter attention spans observed in smartphone use.

Television, especially linear television, becomes less important and functions more or less as background stimulation. Therefore, advertisers should carefully craft the verbal messages and visual signals they air on television to ensure a highly attention-grabbing ad execution. Moreover, cross-platform advertising strategies that seamlessly integrate messages across devices should be focused. Otherwise, television commercials will be mostly completely ineffective.

Our findings also indicate that personalization and native integration of social media ads are helpful for increasing consumers' willingness to allocate time and attention to the advertising. The focus should be on creating less intrusive ad formats, particularly for platforms where ad avoidance is prevalent. Techniques like native advertising and sponsored content that blend into the user experience can be more effective.

More advertising research should go into the wild. Subsequent studies of everyday media consumption and attention toward advertising are required, both in homes and outside, among consumers with more diverse backgrounds, and at different times of the day. Future research should focus on the question how advertisements can still gain and hold consumers' attention. Overall, our results show that across all contexts, consumers' attention to media consumption, and thus also to advertising perception, is very individual, divided, short and therefore difficult to achieve. Achieving this attention must be the main objective of any advertising campaign.

Article 2

How to Gain and Hold Attention: A Mobile Eye-Tracking Study of Attention to the Ad and Ad Recall in Real-Life Media Encounters

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C How to Gain and Hold Attention: A Mobile Eye-Tracking Study of Attention to the Ad and Ad Recall in Real-Life Media Encounters (Authors: Lennart Borgmann, Julian Felix Kopka, and Tobias Langner)

Abstract: Getting consumers' attention is the single greatest challenge for advertisers, necessitating effective strategies to initially gain and subsequently hold attention. We identify four mechanisms that underpin attention tactics: (1) perceptually salient cues for initiation of attention, complemented by (2) biological, (3) socially conditioned, and (4) cognitively engaging stimuli for holding attention. Our research involved a comprehensive review of 22 marketing textbooks, 413 journal articles, and 123 trade publications, alongside mobile eye-tracking interviews with 52 consumers interacting with ads on Instagram. We developed a collection of 114 attention tactics, whose efficacy we evaluated through a large scale mobile eye-tracking field study in 114 consumers' homes. We discovered that ad size, a form of physical intensity, mainly influences gaining attention, as measured by time to first fixation. For holding attention, measured by total gaze duration, tactics based on biological and socially conditioned stimuli proved effective. Especially influencer and beautiful background scenes exhibit strong effects. Moreover, our findings confirm that attention is a central prerequisite of ad recall. Our collection of attention tactics provides a foundation for continued research and for application in practice to elevate the impact of advertising campaigns.

I Introduction

Capturing consumers' attention is of paramount importance for companies and their brands. The more an advertisement attracts attention, the greater the chance that consumers will learn more about the brand, products, or services (Ward, Zheng, and Broniarczyk 2023). At the same time, this indicates that there is no advertising effectiveness without attention. Attention enables ad message conveyance and thereby supports brand and message learning. In turn, it directly affects purchases, which is the ultimate goal of most advertising efforts, besides pushing the brand awareness and image (Berger, Moe, and Schweidel 2023). To sum it up, 'attention is the new economy' and one of the most valuable resources, especially for advertising (MacGregor 2016).

However, getting consumers' attention has become the bottleneck for advertising effectiveness. Consumers' media encounters and interactions with ads have been drastically changing during the last decade (Voorveld 2019). Easier media access, through a wide range of devices like smartphones, smartwatches, and tablets, encourages consumers constantly to multitask and multiscreen. Thus, visual attention is divided among these many sources of attraction (Beuckels et al. 2021a; Segijn et al. 2017). These circumstances of modern media consumption drastically limit the attention that is devoted to advertising (Beuckels et al. 2021b; Pfiffelmann, Dens, and Soulez 2020). This makes it more challenging than ever to gain and hold consumers' attention. Rossiter, Percy, and Bergkvist (2018) even consider achieving attention as the single biggest challenge for advertisers today.

To cut through the ever-growing information clutter, advertising researchers and practitioners can use a broad variety of design elements that are able to capture consumers' attention. Some of these so-called 'attention tactics' are employed to initially gain consumers attention in the first place (Rossiter, Percy, and Bergkvist 2018, p. 220). Once this is achieved, some tactics should also be able to hold this attention (Ford and Campbell 2022). However, up to

date, there is no comprehensive work collecting the attention tactics that are known in academia or in practice. Moreover, the literature seems to largely oversee the above described differentiation in attention tactics for gaining initial attention and those for holding it. Only Langner and Klinke (2022) explicitly apply this conceptual differentiation at the level of individual tactics. However, their set of attention tactics is not comprehensive, and their article remains conceptual without testing the effectiveness of the reported tactics.

Thus, the first goal of our research is to provide a comprehensive list of advertising attention tactics and to differentiate between tactics primary influencing gaining and those affecting holding attention. Our second goal is then to test the identified tactics in the field for their real-life effectiveness.

We employ a mixed-method approach: We first perform systematic literature reviews of marketing communications textbooks (Study 1), scientific journals (Study 2), and marketing trade magazines (Study 3). Moreover, we conduct in-depth interviews about attention tactics with consumers based on real-life ad encounters on Instagram (Study 4). The compiled advertising attention tactics are then tested in a pioneering field study (Study 5). In this study, we take mobile eye-tracking out of the laboratory and into the homes of 114 consumers to observe their media consumption and real-life ad encounters during the evening leisure time.

We contribute to marketing and advertising theory in several ways. First, we emphasize that attention for ads is a two-step process, involving gaining initial attention and holding attention. Second, we theoretically apply this differentiation on the level of advertising attention tactics. Third, we compile a comprehensive list of 114 attention tactics known in the literature, practice, and among consumers. Ultimately, we provide insight about the tactics' application in practice and offer strong empirical evidence about their real-world effectiveness.

II Theoretical Background and Hypotheses

1 Attention in Advertising

Attention is the gatekeeper to all other mental processes and necessary for advertising success (Rossiter and Percy 2017). It enables ad message conveyance (MacInnis and Jaworski 1989; Van Raaij 1989) and supports brand and message learning (Segijn and Eisend 2019). Moreover, it is a central prerequisite for ad recall and ultimately purchases (Berger, Moe, and Schweidel 2023; De Keyzer, Dens, and De Pelsmacker 2023; Guitart, Hervet, and Hildebrand 2019; Rossiter and Percy 2017).

Ads must gain and hold consumers' attention to be memorized (Lee and Ahn 2012) and to raise the mental availability of a brand (Bellman et al. 2019). Attention-grabbing advertisements engage consumers, prompting them to choose the advertisement from its surroundings. Subsequently, they retain consumers' attention, ensuring they focus more on the advertisement and its elements than on other competing advertisements (Pieters and Wedel 2004). The absence of attention is the main cause of lacking ad effectiveness (Liu-Thompkins 2019). It is therefore not surprising that attention is a central construct in social science research, especially in marketing. However, most researchers are reluctant to define attention. They rather seem to stick to the most famous statement of William James (1890, p. 404) that 'everyone knows what attention is'. However, upon preliminary review of existing literature, the impression is rather that 'no one knows what attention is' (Hommel et al. 2019, p. 2288). In advertising and marketing research, attention is frequently characterized as the capacity to captivate the viewer and prompt them to engage with an advertisement (Pieters and Wedel 2004; Rossiter, Percy, and Bergkvist 2018). Due to intense brand competition in today's saturated marketplace, the advertising environment frequently presents an overwhelming amount of information that surpasses the receiver's capacity for effective processing. In the face of such competition, visual attention becomes pivotal in influencing what consumers observe and decide to actively process (Myers

et al. 2020). Thus, we focus on visual attention as prime channel for perceiving and receiving information from the environment in most situations (Pieters and Wedel 2004).

The capture of attention allows higher-order cognitive functions to operate on more concise and prominent input (LaBerge 1995). Most definitions of attention comprise the aspects of stage models and a limited information processing capacity (Kahneman 1973). Attention supports higher-order processes taking place in the working memory and is highly selective (Janiszewski 1993). Selective visual attention to advertising consists of two central determinants. The one determinant includes bottom-up factors that are inherent and refer to the characteristics of the stimulus. These are elements that are central to capture attention, like the size of the ad or large elements within the ad, and low visual complexity (Pieters, Wedel, and Batra 2010). Early bottom-up processes are associated with perceptual salience, filtering the environment for stimuli-inherent features such as color, contrast, or motion (Koelewijn, Bronkhorst, and Theeuwes 2010). These features quickly and almost automatically seize attention to advertising elements, even when the consumer is not actively seeking them. Subsequently holding attention involves top-down processes within the consumer (Pieters and Wedel 2004; Posner 1980; Yantis 2000). One example for this is that consumers are likely to spend more attention on an ad when it addresses a high product category involvement of the consumer (Rayner, Miller, and Rotello 2008). Moreover, top-down processes also arise from the viewer's affective and cognitive state, influenced for example by disposition, familiarity, or social or cultural background. The factors are inherent to individuals and their attentional processes. Personal factors, like product involvement or brand familiarity (Rayner et al. 2001; Rosbergen, Pieters, and Wedel 1997), influence individuals to willingly allocate more or less attention to advertisements and their components. Visual attention involves a dynamic interplay between these bottom-up and top-down processes (Pieters and Wedel 2004).

It becomes clear that visual attention is a two-stage process that begins with the establishment of initial contact and continues with holding contact (Langner and Klinke 2022). Consequently, advertising tactics aimed to influence consumer attention must either contribute to gaining initial attention, holding attention, or both.

2 Attention Tactics in Advertising

Attention tactics comprise all structural and executional elements that are used in ads to capture consumers' attention (Rossiter, Percy, and Bergkvist 2018). These elements explain 'half of the variation between ads in their ability to gain and hold attention …' (Rossiter, Percy, and Bergkvist 2018, p. 220; Rossiter 1981). Attention tactics have a long history in advertising research and practice. They are often based on 'rules of thumb' or practitioners' wisdom (De Pelsmacker 2021). Over the time, many of these tactics have made it into the marketing and advertising literature. Nowadays, attention tactics are a key component in advertising design. Yet, there is no work that summarizes all the tactics used in advertising to capture the consumers' attention.

Reflecting the two-stage model of attention, some tactics help to attract attention by enhancing the probability of gaining initial contact, i.e., triggering an orientation response (Berlyne 1960; Kroeber-Riel 1979; Langner and Klinke 2022; Pieters and Wedel 2004). Other tactics keep the consumers' gaze on the advertisement to ensure sustained attention. This distinction is important for the effectiveness of attention tactics: some tactics are particularly effective in standing out from the mass and getting noticed in the first place. The goal of these tactics is to get the target audience to focus on the promotional activity (Langner and Klinke 2022). At the same time, this initial orientation response that these tactics elicit may be brief and not hold attention for a longer time. Therefore, in addition to tactics for initial contact, there are also tactics that encourage viewers to hold contact once it has been established. This second step is necessary for the ad to convey the intended message.

Surprisingly, most authors use the terms of gaining and holding attention as synonyms to emphasize the importance of attention in general: ‘Ad messages must […] gain receiver’s attention’ (Andrews and Shimp 2018, p. 201), ‘… use creative elements in advertising that maintain target audience attention’ (Dahlén, Lange, and Smith 2010, p. 324), or ‘humor has proven to be one of the best techniques for […] getting attention and maintaining it’ (Clow and Baack 2021, p. 184).

Early publications by Kroeber-Riel (1979) and Kroeber-Riel and Meyer-Hentschel (1982) introduced different theoretical underpinnings of gaining and holding attention to consumer research. Following Berlyne (1960, pp. 44-77), several categories of stimuli inherent features can be differentiated: ‘Stimulus Intensity’ (e.g., color and size), ‘Innate Factors’ (e.g., instinctive responses to a stimulus such as the sexual drive), ‘Affective Value’ (e.g., association with rewarding or punishing situations), ‘Indicating Stimuli’ (e.g., socially conditioned stimuli such as arrows or pointing fingers), and ‘Collative Variables’ (e.g., surprise, novelty, change, and complexity). Kroeber-Riel and Meyer-Hentschel (1982) condensed these different stimuli features into three main categories: emotional (comprising innate and affective factors), cognitive (comprising collative factors), and physical (comprising intensity) stimuli.

Langner and Klinke (2022, p. 154) are the first to consistently apply Kroeber-Riel and Meyer-Hentschel's (1982) three mechanisms to differentiate attention tactics for ‘gaining initial contact’ and ‘holding and intensifying contact.’ They argue that gaining initial attention depends on physical intensity, while holding attention stems from emotional or cognitive surprising stimuli.

Accordingly, our second research goal is to theoretically distinguish between tactics for gaining and those for holding attention, based on their theoretical underpinnings. Therefore, we build on Langner and Klinke (2022) and further differentiate socially conditioned stimuli as an independent fourth category (Berlyne 1960).

3 Theoretical Aspects of Gaining and Holding Consumer Attention

3.1 Physical Intense Stimuli for Gaining Attention

Our eyes are in permanent search for deviations from the expected to quickly identify new information (Yantis and Egeth 1999). According to the Surprise-Attention Hypothesis (e.g., Asplund et al. 2010; Horstmann 2002, 2005), automatic discrepancy detection primary uses preattentive information to direct attention toward unexpected (i.e., surprising) stimuli. This process does not involve higher cognitions and is distinct from processing of cognitive engaging stimuli (see below). Unexpected stimuli are predicted on the basis of previous information. They lead to involuntary attention, which is evolutionary necessary to adapt to changing conditions. For example, Horstmann and Herwig (2015) showed that first fixations occurred much earlier on a stimulus with unexpected color or luminance. According to the Feature Integration Theory of Treisman and Gelade (1980), attracting initial attention largely depends on the structural *features* of an object, such as its size, color, shape, and movement. This stage is automatic and rapid, allowing to detect individual *features* within the visual field without significant cognitive effort. While there is some controversy whether these processes are preattentive (Wolfe and Utochkin 2019), there is consensus that these mechanisms unfold very early in perception. The *integration* of different features instead takes place in later processes. Ads can trigger these automatic processes by including design elements influencing the perceptual salience and thus physical intensity. Formally, we derive the following hypothesis:

> **H1:** The use of attention tactics employing *physical intense stimuli* facilitates gaining initial attention by reducing the time to first fixation on ads.

3.2 Biologically Significant Stimuli for Gaining and Holding Attention

Biologically significant cues elicit immediate emotional responses rooted in our genetic memory. These processes are evolutionary essential to ensure survival. They include the 'recognition and pursuit of receptive mates, identification and solicitation of potential allies, the detection of predators, and avoidance of social threats' (Klein, Shepherd, and Platt 2009, p. 958). These rapid biological processes proceed via an ancestral, subcortical route that triggers fast orienting toward animate objects (Klein, Shepherd, and Platt 2009). Faces, particularly the eyes, and (irregular) motion are two central drivers that facilitate detection of biologically alive objects (Scholl and Tremoulet 2000). Ads can employ such elements to evoke instinctive, rapid emotional reactions (Rossiter, Percy, and Bergkvist 2018). Examples include the use of faces and eyes of humans and animals. If perceptually salient (i.e., physically intense, e.g., by their size), stimuli in this category are also considered to induce bottom-up attention (Pieters and Wedel 2004; Theeuwes 1994), potentially aiding in gaining initial attention. For example, Koster et al. (2004) found evidence that threat appeals initiate and hold attention. This is caused by the evolutionary mechanisms that automatically direct our attention to imminent threat. However, they likely rather rely on early top-down processes that direct sustained attention to physically salient and emotionally resonant biological cues. Formally, we derive the following hypothesis:

H2a: If physically salient, the use of attention tactics employing *biological stimuli* facilitates gaining initial attention by decreasing the time to first fixation on ads.

H2b: The use of attention tactics employing *biological stimuli* facilitates holding attention by increasing the total gaze duration on ads.

3.3 Socially Conditioned Stimuli for Holding Attention

Social behaviors are evolutionarily beneficial and manifest through shared cultural or societal norms, such as customs, morals, rewards and positively associated states, punishments

and negatively associated states, desires, and relationships (Ghazanfar and Santos 2004; Klein, Shepherd, and Platt 2009). When individuals such as John Williams take the stage to conduct a symphony orchestra or a CEO enters a meeting room, they command attention due to their status and the societal norms that confer respect and authority to their roles. Similarly, George Clooney's endorsement of Nespresso capitalizes on these dynamics, leveraging socially conditioned attention to reach and influence target groups. Socially conditioned cues rely on higher order emotions and cognitions located within cortical structures (Klein, Shepherd, and Platt 2009). They involve more complex context dependent cognitive processes, such as evaluating, reflecting, and making context-based judgments. For example, celebrity endorsements hold attention by engaging consumers through personally and culturally conditioned narratives of the particular celebrity. In the case of George Clooney, narratives of charisma, luxury, and fame that are associated with his public appearance. Similarly, advertisements featuring beautiful landscapes, cityscapes, or renown cultural icons can evoke feelings of aspiration or nostalgia, effectively maintaining the viewer's attention through emotional resonance (Rossiter, Percy, and Bergkvist 2018). Economically significant cues such as price promotions engage consumers by tapping into learned behaviors around value and scarcity (Ang 2021). Socially conditioned stimuli thus leverage top-down processing, involving existing knowledge and expectations (Pieters and Wedel 2004). Thus, they hold attention by resonating with an individual's learned behaviors and cultural context, creating connections based on shared values or experiences. Formally, we derive the following hypothesis:

> **H3:** The use of attention employing *socially conditioned stimuli* facilitates holding attention by increasing the total gaze duration on ads.

3.4 Cognitive Engaging Stimuli for Holding Attention

Further building on the Surprise-Attention Hypothesis, surprise can also stem from higher order cognitive factors, such as semantic deviations (e.g., an octopus in a farmyard) or

syntactic anomalies (e.g., a creature that is part elephant, part rabbit, and part bird; Loftus and Mackworth 1978; Võ and Henderson 2009). Historically, there has been some debate over how quickly deviating objects are recognized and processed (Loftus and Mackworth 1978). However, advancements in eye-tracking technology helped clarify that while cognitive surprising stimuli may not contribute to gaining initial attention, their strength lies in holding attention for a longer time (Võ and Henderson 2009). These cognitive surprising stimuli engage consumers by activating higher order cognitive functions, prompting viewers to think, interpret, or fill in informational gaps. This leads to increased alertness and attention as the brain works to reconcile the unexpected elements with prior knowledge (Andrews and Shimp 2018; Langner and Klinke 2022). Humor is a frequently employed example in advertising. Reflecting on 'one hundred years of humor in American advertising,' Beard (2005) notes that 20% of television ads contain humorous appeals. Despite a decline over the last two decades, this strategy remains prevalent and seems to be experiencing a revival (Kantar 2023). Humor facilitates engagement through enjoyment, enhancing attention and eliciting positive affect (Eisend 2009). By requiring active mental participation, advertisements employing cognitive engaging stimuli are especially effective at holding attention for longer periods of time. However, they are prone to reactance in low involvement environments and sometime require higher initial involvement to enfold (especially when using text to create surprise). Kantar (2023) notes this as a reason why humor is more commonly used in TV commercials compared to digital ads, which typically rely on less cognitively demanding activations. Formally, we derive the following hypothesis:

> **H4:** The use of attention tactics employing *cognitive engaging stimuli* facilitates holding attention by increasing the total gaze duration on ads.

In conclusion, we extend the previous definition of attention tactics by Rossiter, Percy, and Bergkvist (2018) and include the underlying mechanisms that contribute to either gaining

or holding consumers' attention (Kroeber-Riel and Meyer-Hentschel 1982; Langner and Klinke 2022):

Advertising attention tactics comprise all structural (e.g., the size of the ad) and executional (e.g., a celebrity in the ad) elements that rely on physically intense, biologically significant, socially conditioned, or cognitively engaging stimuli that get employed to either gain or hold consumers' attention over a longer period of time.

Hierarchy of Effects Models describe that consumers pass certain stages while forming or changing brand associations and purchase intentions (Smith, Chen, and Yang 2008). While many slightly different Hierarchy of Effects Models exist in the literature and practice, they all share attention as their first phase (Barry 1987; Greenwald and Leavitt 1984; Lavidge and Steiner 1961; McGuire 1968; Smith, Chen, and Yang 2008). Gaining initial attention is the necessary condition for all following stages. Thereafter, increased attention should facilitate message elaboration and retention and benefit brand attitudes. Sustained attention to the ad thus allows for more elaboration, strengthening brand associations in memory and thus positively affecting ad recall (Pieters, Warlop, and Wedel 2002). Formally, we derive the following hypothesis:

H5: Sustained attention (measured by total gaze duration) increases ad recall.

III Systematic Literature Reviews on Attention Tactics in Marketing Communications Textbooks, Marketing and Advertising Journals, and US Trade Magazines, Complemented by Consumer Interviews

The first goal of our investigation is to identify a comprehensive list of attention tactics (RQ1). Therefore, we conducted systematic literature reviews, complemented by consumer interviews (e.g., Becker et al. 2023).

Our investigation began with a review of leading marketing communications textbooks from Amazon in the US, Germany, France, and the UK. They are an important source for identifying attention tactics, as they reflect the perspective of marketing education in the first place.

They usually compile and aggregate the knowledge generated in scientific research as well as from practical experience by marketing experts and researchers. Ideally, the review of textbooks should result in a comprehensive set of attention tactics, along with precise definitions that facilitate further analysis.

Hereafter, we reviewed scientific journals, reflecting the perspective of research. We integrate diverse research domains and perspectives on attention, including marketing and advertising, communications, and business in general. This wide-ranging review strategy enriches our understanding beyond the traditional marketing and advertising lens. Furthermore, journal publications should detail well-established and emerging attention tactics along with theoretical frameworks and empirical evidence for their effectiveness.

Recognizing the dynamic nature of marketing practice, we also reviewed the top three US trade magazines in the marketing and advertising domain: *Ad Week*, *Ad Age*, and *Marketing Week* (Library of Congress 2023). Practitioners often share case studies and practical examples in these magazines. Thus, they should provide insights into the practical application of successful attention tactics. They offer a real-world perspective on which tactics are currently used and considered to be effective. By including these in our research, we aim to identify the latest tactics that might have not yet been covered in textbooks or studied in journals. This allows us to incorporate the practitioners' perspective, essential for capturing the full spectrum of attention tactics applied and developed in the industry.

Augmenting our exploration, we conducted qualitative interviews with consumers to enrich our understanding and ensure a robust collection of attention tactics. Consumers are at the receiving end of advertising efforts. Focusing on real-life ad encounters on participants' personal Instagram accounts, the interviews should provide insight into experiences, preferences, and reactions to attention tactics. This potentially facilitates an exploration of emerging trends and uncharted tactics not yet widely recognized in the literature.

The second goal of our investigation (RQ2) is to define and clarify the underlying attentional mechanisms of these tactics and thus differentiate tactics for gaining initial attention and those for holding it (Langner and Klinke 2022). To achieve this, we analyze how individual tactics are defined and the extent to which sources differentiate between tactics for gaining versus holding attention. Furthermore, journal publications are a primary outlet for operationalizations. Accordingly, we investigate whether applied operationalizations reflect the two-step process of gaining and holding attention.

Summarizing, our systematic literature reviews and consumer interviews revolve around these two central research questions:

RQ1: Which attention tactics are covered and defined in the different sources?

RQ2: How do the sources differentiate between tactics for gaining and holding attention?

IV Study 1: Attention Tactics in Marketing Communications Textbooks

1 Procedure

We gathered all attention tactics from the leading marketing communications textbooks in the US, Germany, France, and the UK. To collect these, we chose Amazon as database. It has the world's largest selection of books and should therefore comprise the most central textbooks. For our search, conducted on February 22, 2022, we used the term 'marketing communications'. To ensure an unbiased search, we used Google Chrome's Incognito Mode. This approach prevented browsing history, cookies, and site data, or information entered in forms from influencing the results (Google 2024a). We included all search results that appeared on the first two pages. Amazon's relevance sorting helped us to identify the best-selling textbooks for marketing education. We included the US as well as the websites from Germany, France, and UK, as the latter are the three largest countries in Western Europe. We then extracted all ad design

elements mentioned (including available definitions) that were somehow related to capture consumers' attention. All design elements were then discussed by the author team and one additional marketing expert on whether they match the definition of an attention tactic. Moreover, all tactics were classified as gaining or holding tactics based on the previously described four attentional mechanisms (see Figure 5).

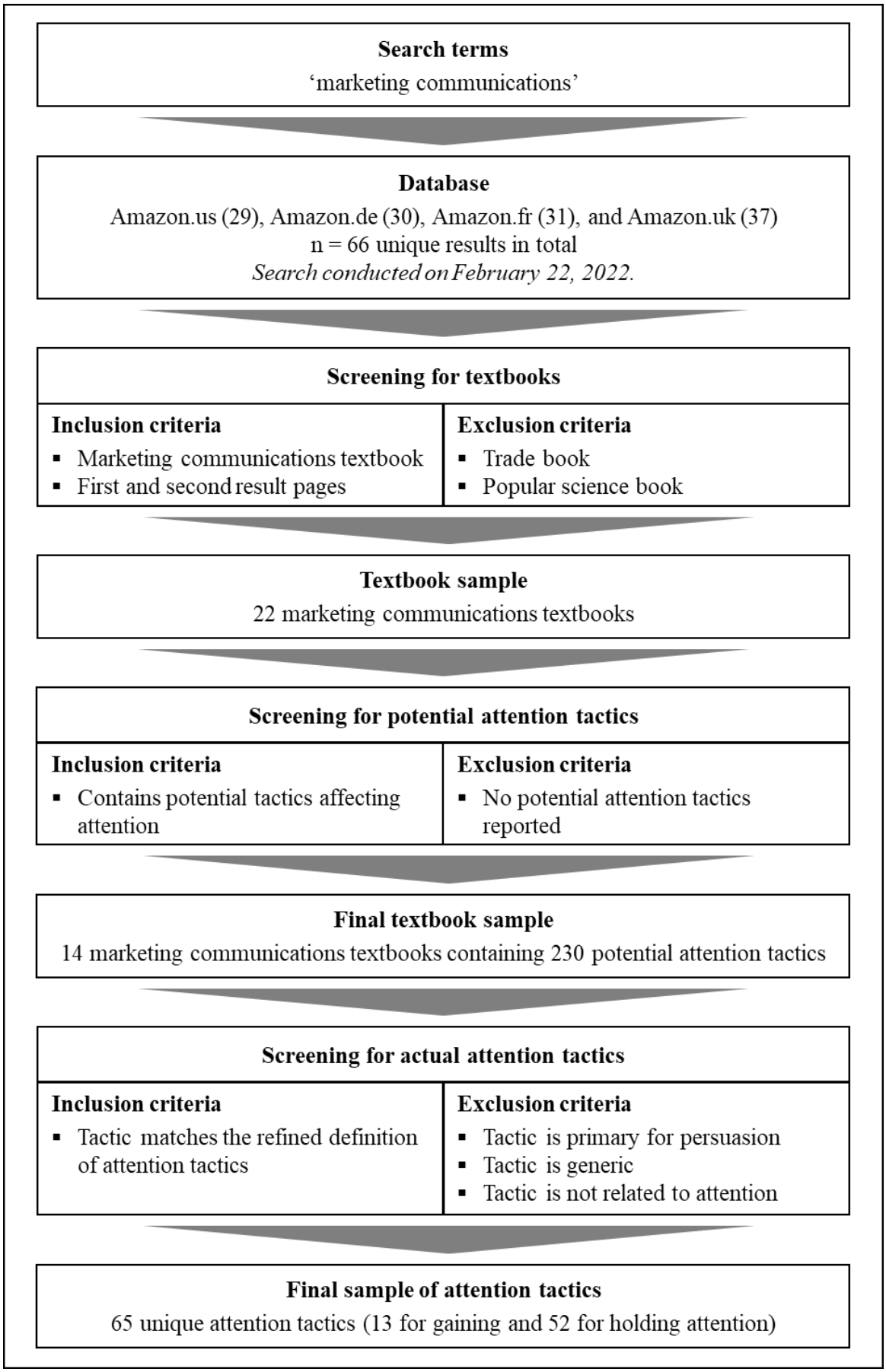


Figure 5: Systematic review procedure of marketing communications textbooks

2 Findings

2.1 Which Attention Tactics are Covered by Marketing Communications Textbooks?

We identified 22 unique textbooks that are titled or deal with ‘marketing communications’. However, only 14 textbooks contain structural of executional elements noted to affect attention. In total, we identified 267 of these elements. After eliminating duplicates, 230 elements were discussed as described above. Exclusion criteria included tactics primarily intended for persuasion (e.g., demonstration, dramatization, or information), generic tactics with no further operationalization (e.g., creativity, credibility, or emotional appeals), or tactics not related to attention at all (e.g., logos, repetition, or ad length). In total, 65 unique advertising attention tactics were identified, of which 13 were theoretically classified into primary gaining tactics and 52 as primary holding tactics (see Figure 8).

2.2 How Do Marketing Communications Textbooks Differentiate between Tactics for Gaining and Holding Attention?

Regarding the differentiation of gaining and holding attention, most textbooks reveal an almost indifferent understanding of the two distinct attention stages. Some authors initially emphasize the importance of both gaining and holding attention for advertising (e.g., Rossiter, Percy, and Bergkvist 2018). However, no textbook systematically applies this distinction at the level of individual tactics. For example, Ang (2021, p. 249) acknowledges both attentional stages when stating that storytelling helps to ‘attract and sustain attention’. Yet, when he describes that deviant ‘cues tend to arouse our emotions, and ... we quickly become oriented to them ...’ (p. 244), he implies only the first stage of gaining initial attention. Conversely, when stating that ‘humor increases our attention toward the ad’ (p. 246), he applies a one-dimensional understanding of attention more closely related to holding attention. Contrary, Clow and Baack

(2021, p. 184) stress that 'humor has proven to be one of the best techniques for […] getting attention and maintaining it'. This example shows that the terms used to describe attention diverge between the textbooks. Many synonyms for gaining and holding occur and are used to reinforce each other rather than purposefully differentiating between attentional stages.

To initiate attention, terms such as *'attract'* (Andrews and Shimp 2018, p. 233, 237, 240; Ang 2021, p. 248, 249; Blakeman 2018, p. 124, 206; Dahlén, Lange, and Smith 2009, p. 343; De Pelsmacker, Geuens, and Van den Bergh 2021, p. 208, 210, 215; Eagle et al. 2020, p. 109; Fill and Turnbull 2019, p. 617; Percy 2018, p. 200, 201), *'become oriented to'* (Ang 2021, p. 244), *'breaking'* or *'cutting through the clutter'* (Clow and Baack 2021, p. 184, 185), *'capture'* (Ang 2021, p. 244; Clow and Baack 2021, p. 178, 185), *'draw'* (Andrews and Shimp 2018, p. 204; Ang 2021, p. 249; Belch and Belch 2014, p. 300; Dahlén, Lange, and Smith 2009, p. 326, 330; Percy 2018, p. 201), *'gain'* (Andrews and Shimp 2018, p. 233; Clow and Baack 2021, p. 187; Dahlén, Lange, and Smith 2009, p. 326, 332; De Pelsmacker, Geuens, and Van den Bergh 2021, p. 215, Fill and Turnbull 2019, p. 620), *'get'* (Belch and Belch 2014, p. 303; Clow and Baack 2021, p. 184; Dahlén, Lange, and Smith 2009, p. 328; Eagle et al. 2020, p. 111; Fill and Turnbull 2019, p. 619, 628), *'notice'* (Ang 2021, p. 244), *'pulling the viewer in'* (Blakeman 2018, p. 124), and *'stand out'* (Dahlén, Lange, and Smith 2009, p. 328) are frequently used.

For holding attention, terms such as *'engage'* (Andrews and Shimp 2018, p. 204; Dahlén, Lange, and Smith 2009, p. 342; Fill and Turnbull 2019, p. 622), *'hold'* (Andrews and Shimp 2018, p. 237; Ang 2021, p. 253; Eagle et al. 2020, p. 109), *'maintain'* (Clow and Baack 2021, p. 184; Dahlén, Lange, and Smith 2009, p. 331), *'increase'* (e.g., Ang 2021, p. 246; Dahlén, Lange, and Smith 2009, p. 229, 338; Percy 2018, p. 201; Rossiter, Percy, and Bergkvist 2018, p. 223), *'secure'* (De Pelsmacker, Geuens, and Van den Bergh 2021, p. 214; Fill and

Turnbull 2019, p. 619), and *'sustain'* (Ang 2021, p. 249; Dahlén, Lange, and Smith 2009, p. 326, 331) are evident.

3 Discussion

To summarize, the textbooks offer a rich overview of different attention tactics. However, insights drawn from these textbooks regarding their ability to facilitate either gaining or holding attention are limited. Terms often overlap and are used interchangeably, suggesting a more one-dimensional understanding of attention across the texts. General terms such as *'affect'* (Rossiter, Percy, and Bergkvist 2018, p. 232), *'facilitate'* (Fill and Turnbull 2019, p. 616), *'help'* (Dahlén, Lange, and Smith 2009, p. 342), and *'improve'* (Clow and Baack 2021, p. 195) further blur the distinctions, being applied broadly to any form of engagement with the ad. Thus, we employ deductive theory-based classifications derived through discussions of the tactics and their descriptions found in the textbooks. The 65 attention tactics noted reside in 13 for gaining and 52 for holding attention (see Figure 8).

Textbooks were anticipated as a primary outlet for attention tactics because they reflect the perspective of marketing and advertising education and represent valuable compilations of scientific knowledge. However, they often lack the most recent developments in the field. Consequently, we will now shift our focus to the research perspective and dive into the original sources of scientific knowledge found in journal literature.

V Study 2: Attention Tactics in Journal Articles

1 Procedure

The systematic journal literature analysis followed a two-step process. First, we analyzed central publications on attention tactics known to the authors. Additionally, we further identified relevant articles by desk research. On this basis, we generated a list of suitable keywords for the subsequent database search (see Figure 6).

Second, the search was conducted on October 24, 2023, across two principal databases: EBSCOhost and Web of Science. This search aimed to identify publications relevant to a predetermined set of subjects, specifically marketing, advertising, promotion, communication, or business. These subjects were selected to increase the relevance of the results. Following the database search, a rigorous screening process by the first and second author was employed. Articles were excluded from further consideration if they failed to explicitly reference potential attention tactics in either their titles or abstracts. Articles meeting the initial screening criteria were then subject to a more thorough review. The full text of each article was examined, with the aim of identifying all notions of attention tactics. This deeper level of examination enabled the compilation of a comprehensive inventory of attention tactics discussed in the journal literature.

A key aspect of the analysis involved examining how attention was operationalized within the studies. This examination sought to illuminate the various ways in which the academic community differentiates between gaining and holding consumer attention. Definitions and operationalizations of attention were documented to generate insight into the methodological approaches and theoretical frameworks that underpin the identified research.

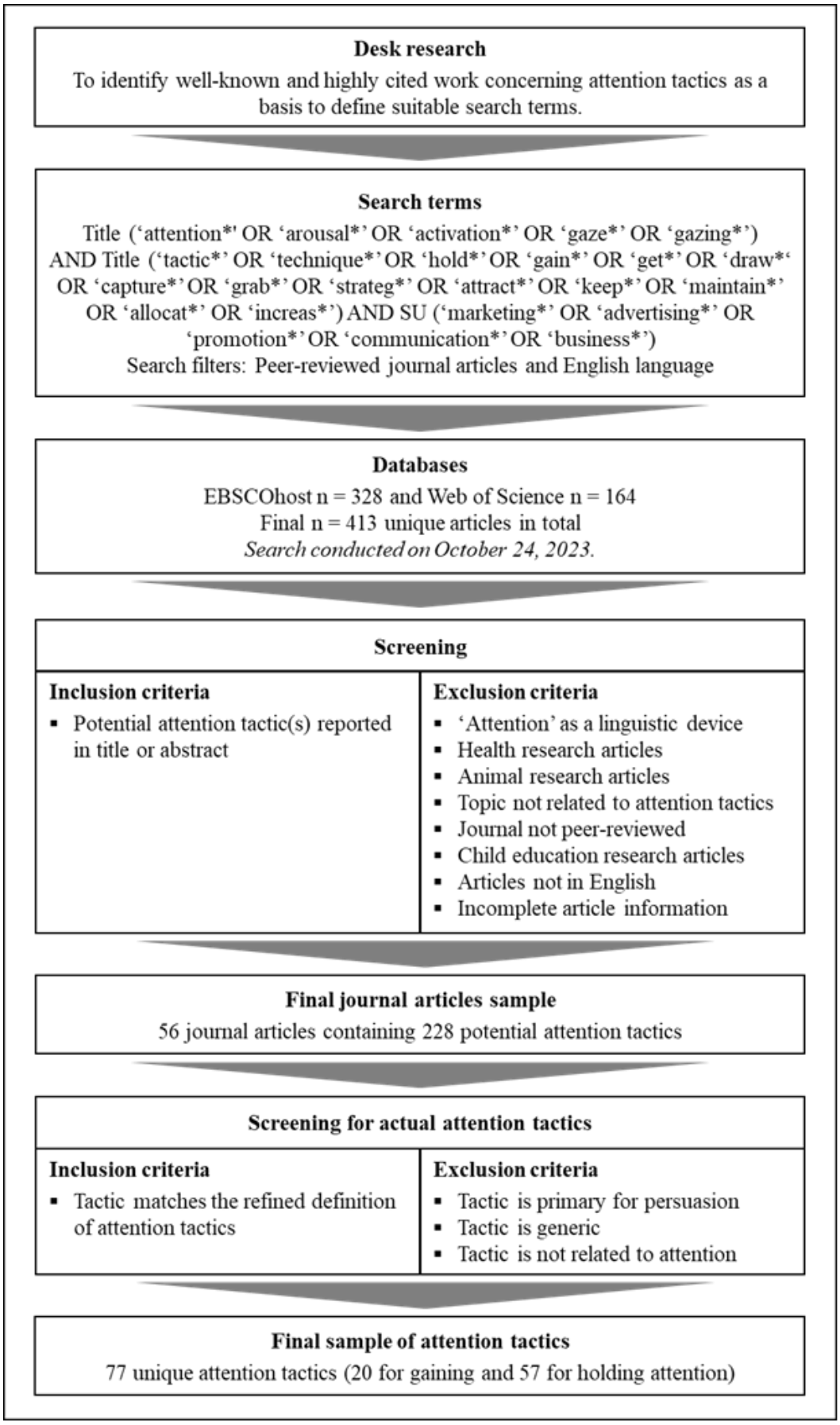


Figure 6: Systematic literature review procedure of journal articles

2 Findings

2.1 Which Attention Tactics are Covered in Journal Articles?

We identified 413 journal articles (after deletion of duplicates between and within the databases). 56 articles were considered relevant to the broad topic of attention tactics and selected for a full paper analysis. Based on this sample, we gathered a total of 228 potential attention tactics. Most of the time, the papers note more potential attention tactics in their literature and theory review than they actually focus on in the subsequent empirical parts. On average, 3.7 attention tactics are noted in each article, spanning from 1 (in 23 articles) to 21 tactics (in Page and Brewster 2007). After a further screening process by all three authors and one additional researcher, 77 attention tactics made it in the final list, of which 20 were theoretically classified as primary for gaining and 57 as primary for holding (see Figure 8). 44 of these tactics were newly identified. Reasons for exclusions were identical to Study 1 (see Figure 6).

2.2 How Do Journal Articles Differentiate between Tactics for Gaining and Holding Attention?

36 of the 56 articles report a broad variety of attention operationalizations (see Appendix 8). Four articles apply retention or recall in addition or as a proxy measure of attention (Dooley and Harkins 1970; Huang et al. 2021; Lombardot 2007; O'Malley and Latimer-Cheung 2013). Similarly to the textbooks, the differentiation between gaining and holding is frequently noted. However, the terms are mostly used as synonyms. Only eleven articles use measurements for both gaining and holding attention.

For gaining initial attention, reaction or response times, event related potentials (EEG and fMRT), change-detection, coding based on real-time or video-observation, and eye-tracking measures are used. Three recurring eye-tracking operationalizations of gaining initial atten-

tion are applied. *Minimum fixation or gaze duration thresholds* are binary measures that indicate whether or not an object was, for example, fixated at least once (e.g., Palcu, Sudkamp, and Florack 2017; Pieters and Wedel 2004). *Time to first fixation* and *first fixation duration* are measures of the efficiency of a stimulus to gain initial attention, of which time to first fixation is used more often (Bylinskii et al. 2017). A shorter time to first fixation usually indicates an increased attraction power of a stimulus, drawing the gaze from the environment to the stimulus (e.g., Stevens et al. 2020; Windels et al. 2018). A longer first fixation duration indicates an increased 'initial attention, interest and/or confusion' that causes the eye to rest and retrieve more information than usual (Windels et al. 2018, p. 424). Of all these measures, time to first fixation is most closely related to gaining initial attention, as it measures 'discoverability' (Windels et al. 2018, p. 424), while other operationalizations analyze the fixations and gazes when the first fixation or gaze already occurred on an area of interest (AOI).

For holding attention, self-reporting measurements, coding based on real-time or video-observation, event related potentials, and most dominantly eye-tracking is applied. For the latter, *total fixation duration, fixation count,* and *total gaze duration* represent the most frequently operationalizations (e.g., Bellman et al. 2019; Bylinskii et al. 2017; Stevens et al. 2020; Windels et al. 2018). An increasing number of fixations indicates a deeper processing of a stimulus. Total gaze duration includes all dwells on an object of interest. The choice of the adequate metric depends on the research question, and often multiple metrics are combined to get a more comprehensive picture of visual processing and attention (see Appendix 8; Bylinskii et al. 2017). Fixation metrics especially important to analyze distinct aspects of an object, for example, the brand, the testimonials' face, and the product image pictured in an ad. Total gaze duration allows for a broader assessment of the overall attention an AOI received, combining these elements to a single index and including gazes between these single elements. However, all

three measures, *total fixation duration, fixation count,* and *total gaze duration*, are often found to be highly correlated.

3 Discussion

The journal articles proofed as a rich source of attention tactics. 77 attention tactics were identified and classified into 20 gaining and 57 holding tactics. 44 tactics were newly identified and added to our total set of attention tactics. In sum, the journal literature and textbooks contained 108 different attention tactics. The high number of new tactics identified in the journal articles indicates that the search has yet not reached a saturation point. Attention tactics are highly valued and used in advertising and marketing practice. Thus, we include another source reflecting the perspective of practitioners and turn to practitioners' articles typically published in trade magazines.

VI Study 3: Attention Tactics in Trade Magazines

1 Procedure

We conducted our search on November 16, 2023, in the top three US advertising and marketing trade magazines: *Ad Week*, *Ad Age,* and *Marketing Week* (Library of Congress 2023). We used EBSCOhost as search databank. To cover a broad range of articles, we searched for the general term 'attention' in the title. Again, articles that did not report any potential attention tactic in the title or abstract were excluded from further investigation. Articles meeting the initial screening criteria were again subject to a more thorough review (see Figure 7).

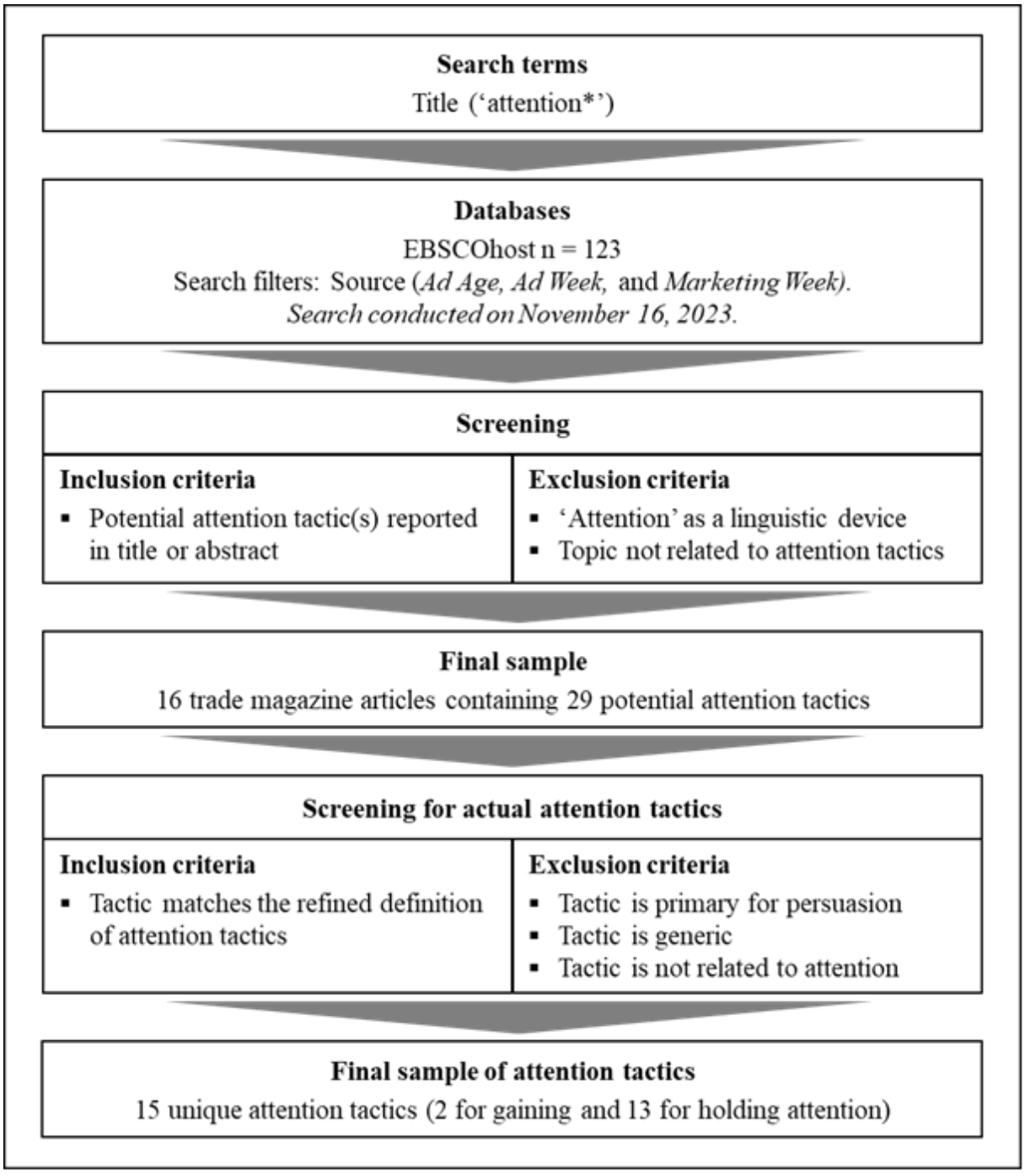


Figure 7: Systematic literature review procedure of US trade magazines

2 Findings

2.1 Which Attention Tactics are Covered in Trade Magazines?

Attention tactics only play a minor role in practitioner articles. Out of the resulting 123 trade magazine publications, only 16 articles dealt with attention tactics. Most of the time, ‘attention’ in the title was used as a keyword (socially significant cue) to gain attention for the article. In total, we identified 29 potential attention tactics (m = 1.9 per article). Based on this sample, we gathered 15 unique tactics aligning with our definition of attention tactics. 5 of these 15 tactics were newly added to our overall collection of attention tactics (see Figure 8).

2.2 How do Articles in Trade Magazines Differentiate between Tactics for Gaining and Holding Attention?

We find that none of the articles in trade magazines differentiates between gaining and holding attention. Based on our theoretical assumptions, we classified the identified 15 attention tactics in 2 primary for gaining and 13 primary for holding (see Figure 8).

3 Discussion

The review of trade magazines did uncover some further tactics (e.g., interaction elements or rewarded ads). However, overall the results of the trade magazines indicate a blind spot concerning attention tactics. Only 16 out of the analyzed 123 articles contain attention tactics. Altogether, they cover 15 unique tactics. This is surprising, considering the relevance of the topic for advertising and marketing practice. Thus, while attention is an important topic in trade magazines, publishing success stories of tactics that were capable to gain or hold attention are rather neglected. However, we could add 5 further tactics to our overall set of attention tactics. This relatively small return indicates that our search for attention tactics approximates saturation. To ensure that we did not overlook any important attention tactic, we further conduct

consumer interviews and thereby complement the final perspective of consumers to our investigation. Moreover, consumers may identify attention tactics that are not covered in the literature yet.

VII Study 4: Qualitative Consumer Interviews on Attention toward Ads

In Study 4, we incorporate the perspective of consumers since they are at the receiving end of advertising efforts. The interviews, based on real-life ad encounters on Instagram, provide insights into experiences, preferences, and reactions to attention tactics.

1 Method

1.1 Sample

52 participants (34 women) took part in Study 4. The sample ranges in age between 18 and 29 years (22.4 on average).

1.2 Design and Procedure

The study was conducted in a university library. A research assistant invited students who were studying to participate in exchange for a meal voucher worth 5 Euro. They received mobile eye-tracking glasses and were instructed to use their own private smartphone to go on their private Instagram account. The participants provided information on why the ad did or did not attract their attention for a total of 304 ads. The participants indicated that 168 ads did not receive any of their attention. These were excluded from further analysis. The remaining 136 ads that captured a minimum amount of attention were analyzed. The first and second authors discussed each response and coded it based on deductive categories (previously identified attention tactics) from Studies 1-3 and inductive content analysis. After coding the material, all responses were reviewed and coding was repeated based on the final categories.

After finishing their Instagram usage, the recording was reviewed together with the participants. For each ad in the video, they were asked why this ad did or did not capture their attention (limited to the first 10 ads due to ecological reasons). We used Tobii Pro Glasses 2 for high-definition video and audio recording, as well as eye-tracking (Tobii 2024). Participants could move completely freely and were not subject to any restrictions, especially with regard to head movements.

2 Findings

2.1 Which Attention Tactics are Recognized and thus Reported by Consumers?

The answers from the participants cover a relatively low number of actual attention tactics. They rather tend to describe situative or personal factors that shaped their level of ad engagement (e.g., ‘because it did not interest me’ (P [Participant] 7, 21 [age], f [female]) or ‘it is annoying’ (P43, 22, f)). Thus, personal relevance and a general mode of ad avoidance were frequently noted as reasons why an ad did not receive much attention. However, some participants explicitly addressed structural elements that caught their eye and caused them to stop (e.g., ‘it stood out because of the influencer who was advertising and because it surprised me that Edeka [a German brand] was advertising with influencers’ (P20, 25, f) or ‘catched my eye as it is a luxury brand’ (P5, 20, f)). Others addressed structural elements without further explanation (e.g., ‘the women and the colors’ (P23, 23, m [male]) or ‘it was a video’ (P3, 23, f)). In total, 24 unique attention tactics were noted in the consumer interviews. However, all of them were already identified in Studies 1-3 (see Figure 8).

2.2 How do Consumers Differentiate between Tactics for Gaining and Holding Attention?

The participants reflect an interchangeable understanding of attention. Only some explicitly recurred to the gaining power of advertisements (e.g., ‘the colors caught my eye …’

(P11, 22, f)). Most participants did not specify whether an element in the ad did gain or hold their attention. Based on our theoretical foundations, we classified the 24 identified attention tactics in 3 primary for gaining and 21 primary for holding attention (see Figure 8).

3 Discussion

The consumer interviews confirmed the findings of our systematic literature reviews (Studies 1-3) and did not result in further attention tactics. While some participants in the interviews reported certain attention getting elements in the encountered ads, most of the responses reflect top-down factors such as product or brand involvement and attitudes.

The answers from the consumer interviews cover 24 of the 114 final attention tactics. However, all of these tactics have been identified before. This suggests that the collection of tactics has reached saturation. Thus, we are as close as possible to our initial goal of generating a comprehensive list of attention tactics for academia and advertising practice.

VIII General Discussion

1 Which Attention Tactics are Covered in the Different Sources?

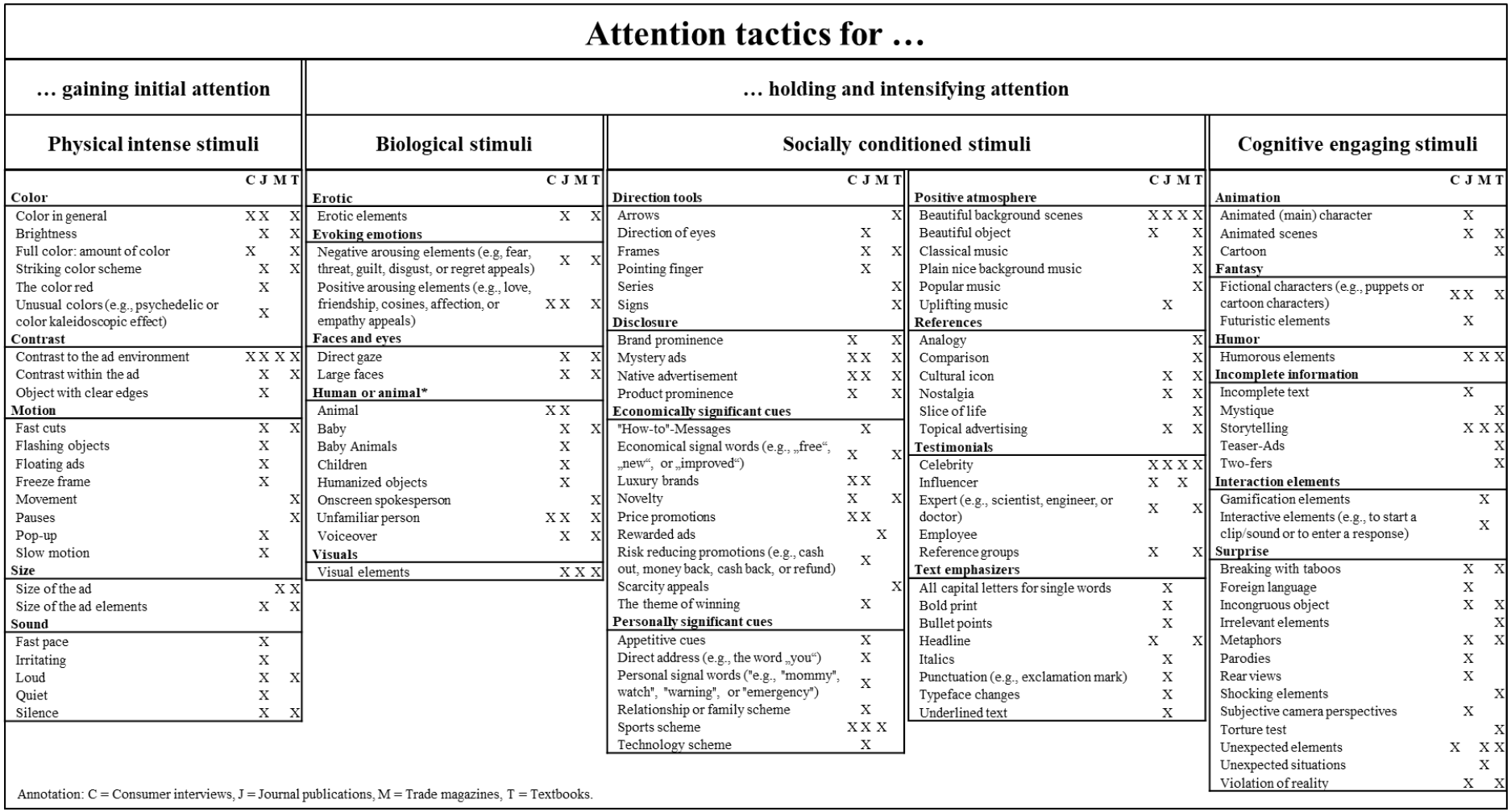
It becomes evident that journal publications and textbooks are by far the main outlet to identify attention tactics. They cover 109 of the identified 114 tactics. The review of trade magazines and consumer interviews did uncover some further tactics (e.g., influencers, interaction elements or rewarded ads). However, the results of the trade magazines indicate a blind spot concerning attention tactics. Only 16 out of the analyzed 123 articles contain attention tactics. Altogether, they cover 15 unique tactics. This is surprising, considering the relevance of the topic for advertising and marketing practice. Thus, while attention is an important topic in trade magazines, tactics to capture attention are rather neglected. The answers from the consumer interviews cover 24 of the 114 final attention tactics. However, all of these tactics have been identified before. This suggests that the collection of tactics has reached saturation. Thus, we

are as close as possible to our initial goal of generating a comprehensive list of attention tactics for academia and advertising practice.

2 How Do the Sources Differentiate between Tactics for Gaining and Holding Attention?

Regarding the distinction in gaining and holding attention, the textbooks frequently address this topic rather implicitly. They do not apply it on the level of single attention tactics. Rather, the terms are often used as synonyms and both emphasize the quest of capturing attention. Journal articles make this differentiation more explicit and frequently use measures of attention that reflect gaining and holding attention. However, only 11 out of 36 articles apply measurements that reflect both types of attention. Most of the time, words such as ‘gaining,’ ‘capturing,’ ‘drawing,’ or ‘holding’ are used as synonyms to describe some kind of attention. Only 4 articles intentionally apply different measurements to cover both stages of attention. Articles in trade magazines and consumers do not differentiate between gaining and holding attention. Most of the time, they apply a unidimensional understanding of attention and refer to gaining tactics with holding terms and vice versa.

Drawn from our systematic literature review of 22 marketing communications textbooks, 413 journal articles, and 123 marketing trade magazines, supplemented by 52 consumer interviews, we identified 114 attention tactics. Based on the theoretically founded, four underlying dominant mental process of these tactics (caused by physical intense, biological, socially conditioned, or cognitive engaging stimuli), we categorized them into 24 gaining-attention-tactics and 90 holding-attention-tactics. We grouped them in 24 superordinate categories. Figure 8 provides a detailed overview of the results. Now, we test their effectiveness in a field study on real-life media encounters.



Attention tactics for …

… gaining initial attention

Physical intense stimuli

	C	J	M	T
Color				
Color in general	X	X		X
Brightness		X		X
Full color: amount of color	X			X
Striking color scheme		X		X
The color red		X		
Unusual colors (e.g., psychedelic or color kaleidoscopic effect)		X		
Contrast				
Contrast to the ad environment	X	X	X	X
Contrast within the ad		X		X
Object with clear edges		X		
Motion				
Fast cuts		X		X
Flashing objects		X		
Floating ads		X		
Freeze frame		X		
Movement				X
Pauses				X
Pop-up		X		
Slow motion		X		
Size				
Size of the ad			X	X
Size of the ad elements		X		X
Sound				
Fast pace		X		
Irritating		X		
Loud		X		X
Quiet		X		
Silence		X		X

… holding and intensifying attention

Biological stimuli

	C	J	M	T
Erotic				
Erotic elements		X		X
Evoking emotions				
Negative arousing elements (e.g, fear, threat, guilt, disgust, or regret appeals)		X		X
Positive arousing elements (e.g., love, friendship, cosines, affection, or empathy appeals)	X	X		X
Faces and eyes				
Direct gaze		X		X
Large faces		X		X
Human or animal*				
Animal	X	X		
Baby		X		X
Baby Animals		X		
Children		X		
Humanized objects		X		
Onscreen spokesperson				X
Unfamiliar person	X	X		X
Voiceover		X		X
Visuals				
Visual elements	X	X	X	

Socially conditioned stimuli

	C	J	M	T
Direction tools				
Arrows				X
Direction of eyes		X		
Frames		X		X
Pointing finger		X		
Series				X
Signs				X
Disclosure				
Brand prominence		X		X
Mystery ads		X	X	X
Native advertisement		X	X	X
Product prominence		X		X
Economically significant cues				
"How-to"-Messages		X		
Economical signal words (e.g., „free“, „new“, or „improved“)		X		X
Luxury brands		X	X	
Novelty		X		X
Price promotions		X	X	
Rewarded ads			X	
Risk reducing promotions (e.g., cash out, money back, cash back, or refund)		X		
Scarcity appeals				X
The theme of winning		X		
Personally significant cues				
Appetitive cues		X		
Direct address (e.g., the word „you“)		X		
Personal signal words ("e.g., "mommy", watch", "warning", or "emergency")		X		
Relationship or family scheme		X		
Sports scheme		X	X	X
Technology scheme		X		

	C	J	M	T
Positive atmosphere				
Beautiful background scenes	X	X	X	X
Beautiful object	X			X
Classical music				X
Plain nice background music				X
Popular music				X
Uplifting music		X		
References				
Analogy				X
Comparison				X
Cultural icon		X		X
Nostalgia		X		X
Slice of life				X
Topical advertising		X		X
Testimonials				
Celebrity	X	X	X	X
Influencer	X		X	
Expert (e.g., scientist, engineer, or doctor)		X		X
Employee				
Reference groups	X			X
Text emphasizers				
All capital letters for single words		X		
Bold print		X		
Bullet points		X		
Headline	X			X
Italics		X		
Punctuation (e.g., exclamation mark)		X		
Typeface changes		X		
Underlined text		X		

Cognitive engaging stimuli

	C	J	M	T
Animation				
Animated (main) character		X		
Animated scenes		X		X
Cartoon				X
Fantasy				
Fictional characters (e.g., puppets or cartoon characters)		X	X	X
Futuristic elements		X		
Humor				
Humorous elements		X	X	X
Incomplete information				
Incomplete text		X		
Mystique				X
Storytelling		X	X	X
Teaser-Ads				X
Two-fers				X
Interaction elements				
Gamification elements			X	
Interactive elements (e.g., to start a clip/sound or to enter a response)			X	
Surprise				
Breaking with taboos		X		X
Foreign language		X		
Incongruous object		X		X
Irrelevant elements				X
Metaphors		X		X
Parodies		X		
Rear views		X		
Shocking elements				X
Subjective camera perspectives		X		
Torture test				X
Unexpected elements	X		X	X
Unexpected situations			X	
Violation of reality		X		X

Annotation: C = Consumer interviews, J = Journal publications, M = Trade magazines, T = Textbooks.

Figure 8: A comprehensive list of attention tactics to gain and hold attention

IX Study 5: Effectiveness of Attention Tactics in Real-Life Media Encounters

Our overall goals are to investigate how often these different attention tactics are applied in the field, their effectiveness for gaining and holding attention, and how ad attention translated into ad recall in the wild. Media and advertising reception takes place in diverse locations, at different times, on various devices. Moreover, ads are embedded in different media contexts and get consumed in unique environmental settings. Thus, exposure contexts strongly influence both attention to the ad and ad recall (Voorveld et al. 2018).

Eye-tracking technology can help us determine whether an ad is perceived and which elements receive eye fixations, so it provides rich insights into consumers' attention levels (Matukin, Ohme, and Boshoff 2016; Pieters and Wedel 2004). However, most eye-tracking research is conducted in unnatural environments (e.g., Cummins, Gong, and Reichert 2021; Myers et al. 2020; Simmonds et al. 2020; Smit, Boermann, and van Meurs 2015). Static stimuli and forced exposure (e.g., Dunaway and Soroka 2021; Lou and Alhabash 2020) as well as devices and other equipment provided by researchers are used rather than people's own devices. These unrealistic settings limit the applicability of the research results to real-world settings (De Pelsmacker 2021). Advertising that works under forced exposure or when participants are compelled to consider the information closely may fail to break through the clutter in real-life settings, or else induce shallow processing that is not sufficient to achieve actual, measurable attention or recall.

To overcome these limitations, we analyze the effectiveness of attention tactics in real-life media encounters that take place in consumers' households, using their own electronic devices. Thereby, we go beyond prior advertising research that analyzes the influence of attention tactics on advertising effectiveness in the laboratory and with self-report measurements (e.g.,

Bellman et al. 2017, 2019; Lancendorfer, Atkin, and Reece 2008; Seneviratne and Molesworth 2015; Stewart and Koslow 1989).

We do this by conducting a pioneering ego perspective videography study of consumers at home. In a mixed-method field approach, we combine observation through video recording (including audio) and mobile eye-tracking with qualitative data collection, using both short and in-depth interviews.

1 Method

1.1 Sample

Study 5, conducted from May 2021 to June 2023, includes 114 participants (63 women) recruited through convenience sampling. The non-student sample ranges in age between 18 and 70 years (m = 26.6 years). The choice of a convenience sample was necessary due to several considerations. First, this method enabled quick and cost-effective recruitment of participants, which was crucial given the large scope and limited resources of the study. Second, participation required significant effort from the respondents, including wearing eye-tracking glasses and engaging in extensive interviews. Therefore, it was practical to select participants who were easily accessible and willing to undertake this effort.

In total, the participants encountered 2,568 ads. An analysis including AOI coding and surveys for control variables of all these ads is impractical and far beyond the scope of our study. Therefore, we used stratified random sampling to include 768 of these real-life ads in our analysis. This approach ensured that all recalled and a stratified random selection of non-recalled ads based on their viewability (long, short, and almost none) were represented in our sample (see below for the selection process).

1.2 Equipment

We used mobile eye-tracking glasses (Tobii Pro Glasses 2) to record eye movements, simultaneous with video and audio. Participants could move completely freely and were not subject to any restrictions, especially with regard to head movements. The battery on the devices lasts up to 90 minutes per recording (Tobii 2024).

1.3 Design and Procedure

In advance of the recording, a research assistant contacted each participant and made an appointment. Then, they visited the participants at their private homes in the evening starting from 7 pm. All recordings took part at workdays from Monday to Thursday to ensure comparability between the individual evenings.

The research assistant set up the equipment and introduced the participants to the technical devices, the study procedure, and all aspects concerning data privacy (see Appendices 9-12). Participants were shown how to calibrate the eye-tracking glasses and how to initiate the recording. They were informed that the recording would take approximately 90 minutes and that the research assistant would call them as soon as the study is finished. For the study conditions, participants were asked to keep everything in their home setting as it would be on a regular evening at home. They should stay in their typical environment with the people normally present and follow their usual evening routines. They were allowed to do everything they would regularly do during the recording. They should also behave completely ordinary with regard to their use of devices and media, i.e., neither consume more nor less. The start of the recording should begin as soon as their leisure time routine started (see Appendix 12).

The research assistant then left. Every participant could start the recording individually. The recording stopped when the battery died. Directly after the recording, the research assistant revisited the participants and conducted the first part of the post-experience protocol. These short interviews were used to assess ad recall.

The second part of the interview took place on the next day (see Appendix 13 for the interview manual and questionnaires). Prior to this, the research assistant reviewed the whole video material and identified all ad encounters. All identified ads in the video footage were categorized as follows:

1. Ad viewable for a longer time (≥ 2s).
2. Ad briefly viewable (≥ 1s but < 2s).
3. Ad almost not viewable (<1s).

Then, in addition to all recalled ads assessed the day before, two not recalled ads in each of the above noted categories were selected from the video analysis. This resulted in up to six further ads for each participant. If more than two ads within each category were available, ads were selected at random. The three categories were chosen for specific reasons: the 1 second threshold aligns with the 1-second-policy applied in digital media practice (Media Rating Council 2016). This standard in online advertising is used by digital publishers, search engines, and social media platforms to determine the obligation to pay for advertisements based on the ads' viewability (Google 2024b). The 2-second threshold holds also particularly relevance in advertising. Studies indicate that the average viewing duration for digital ads is notably short, often around or less than 2 seconds. For instance, research indicates that many digital ads are viewed for less than 2 seconds due to the fast-paced nature of online browsing and the overwhelming number of ads consumers encounter. Eye square GmbH (2020, p. 2) notes that 'after only 2.5 seconds, 62.5% of the users have already left'. 2 seconds are furthermore suggested as another threshold to determine ad effectiveness for video ads (Media Rating Council 2016).

1.4 Measures

Ad recall. Participants' ad recall was measured by asking for their free recall ('Do you remember seeing ads for brands or products?') and aided recall (e.g., 'Do you remember seeing ads for brands or products featured by influencers? If yes, which brands and products were

these?'). For aided recall, we asked them about devices (e.g., television), testimonials (e.g., celebrities), platforms (e.g., Instagram), or ad types (e.g., banner ads) (see Appendix 13).

Attention to the ad. Time to first fixation was selected to measure gaining initial attention, while total gaze duration serves as the measure for holding attention.

The Tobii Pro Glasses 2 tracked the eye movements of participants. The data was prepared and exported using iMotions Version 9.1. Progress in marketing research technology, like eye-tracking, allows for the direct measurement of visual attention toward advertising (Pieters, Warlop, and Wedel 2002; Pieters and Wedel 2007). Considering the significance of attention in eliciting responses to visual stimuli, the utilization of eye-tracking allows researchers to directly quantify the visual attention devoted by consumers to ads. Eye-tracking provides a substantial advantage over subjective self-reported measures, which capture only conscious opinions (Micu and Plummer 2010). Eye-tracking can more reliably illuminate visual attention through metrics like total gaze duration and can also assess the effectiveness of an ad in gaining initial attention, for example by the time to first fixation (Krugman et al. 1994).

We determine the time to first fixation (passed time until the first fixation was detected inside the AOI) as a measurement of gaining initial attention. A shorter time to first fixation indicates discoverability, i.e., the AOI quickly attracts attention (Bojko and Adamczyk 2010). Thus, time to first fixation serves as a measure of how fast an ad gained initial attention (Myers et al. 2020; Windels et al. 2018).

Various eye-tracking variables have been employed to measure holding attention. Most frequently, total gaze duration or dwell time (Pieters and Wedel 2004; Pieters, Wedel, and Batra 2010) and the number of fixations (Bylinskii et al. 2017) are used. However, these measures are often highly correlated. We rely on total gaze duration in milliseconds as the measure of holding attention. We also investigate correlations with number of fixations to determine whether a separate analysis of both variables is necessary (Windels et al. 2018).

AOI coding. We coded the AOIs frame by frame to adapt to the dynamic situations. A fixation occurred if a participant's eyes stayed at a particular point for a minimum of 80 milli-seconds (Boerman and Müller 2022).

Content coding. Using an expert coding procedure (Becker et al. 2023; Chandy et al. 2001; Tellis et al. 2019), two research assistants received an intensive one-day training on the definitions and coding instructions for the 114 attention tactics. Then, they test coded 20 ads from two participants that were not part of the final study sample. Afterwards, they discussed questions and difficulties with the first and second author. To capture initial attention, dynamic ads (e.g., video ads or a sequence of static images) were coded separately for the first second and the entire duration of the ad (including the first second). For static ads, the coding method for gaining initial attention was the same as for holding attention.

The two expert coders coded the 114 identified attention tactics for the 768 selected ads based on the video footage. They were asked to base their coding only on the information seen in the video recordings and not to seek for further information from external sources (Becker et al. 2023). Coders determined whether the ad employed a certain attention tactic on a scale from 0 (= no use of the tactic), 1 (= weak use of the tactic), 2 (intermediate use of the tactic), to 3 (strong use of the tactic). Overall inter-coder agreement was found to be almost perfect (99% agreement allowing for 1 scale point tolerance; see Appendix 14). Only two tactics fell below 90% agreement (Birkimer and Brown 1979), i.e., contrast within the ad (77% inter-coder agree-ment) and use of bold print within the first second (89%). For these tactics, cases with disagree-ment (discrepancies larger than 1 scale point) were resolved through discussion. For the effec-tiveness of an attention tactic, it is essential that the tactic is used with at least some level of intensity. Thus, we averaged the values of the two coders and transformed them into binary scales (Mafael et al. 2021), using an intermediate to strong presence of an attention tactic (av-erage coder score ≥ 2) as a threshold for the presence of a certain tactic (Schütmaat et al. 2023).

Such binary scales are often used for the coding of similar objects in the marketing literature (e.g., Becker et al. 2023; Tellis et al. 2019; see Appendix 14).

Covariates. In the course of the video-supported in-depth interviews, further ad characteristics were assessed for the selected ads as control (see Appendix 15). Gaining attention theoretically results from processes taking place in early perception stages (Wolfe and Utochkin 2019). Thus, we only include control variables for individual ad assessments (i.e., later stages in perception) for the analysis of holding attention. Therefore, participants determined whether the respective ad they had encountered and which was included in the selection sample was *unique* (Mafael et al. 2021), *entertaining*, *emotional*, or *informative* (Ducoffe 1995). Furthermore, they assessed their *involvement* with *the ad* and *the brand* (Zaichkowsky 1986), as well as their *attitude towards the ad* and *the brand* (Bergkvist and Langner 2019; Bergkvist and Rossiter 2007, 2009; MacKenzie and Lutz 1989). As all covariates are doubly concrete (Bergkvist and Langner 2017), they were measured by 7-point, single item rating scales with scale enumerations reflecting the polarity of the respective construct (e.g., the ad was not unique [0] to unique [6] or bad [-3] to good [+3]; Bergkvist and Langner 2020). Moreover, *prior ad exposure* was assessed by asking the participants how often they have seen the ad before (never [0], once [1], two to three times [2], four to five times [3], and more than five times [4]). Single item scales were adopted from previous studies if available. Otherwise, they were self-developed based on their definition. See Appendix 16 for definitions and scales.

Randomized oversampling. To restore the proportions of the original sample (2,568 ads), we utilized randomized oversampling. Oversampling techniques are a popular approach in machine learning (Bej et al. 2021; Chawla et al. 2002). This approach was crucial because the sample selection process (all recalled ads, and two non-recalled ads in each of the aforementioned categories) could have otherwise introduced systematic biases, especially for overall means (e.g., given the assumption that there is a linkage between viewing duration and recall,

an over-representation of recalled and thus longer viewed ads inflates the average viewing duration of all ads). For regression models, this bias should be less impactful. However, for transparency and to allow for comparisons between the more conservative selection sample and the larger remodeled full sample, we analyze and report the findings for both data sets.

In the full sample, 1,291 ads had a long viewability (>2s), 329 ads had a short viewability (≥ 1s but < 2s), and 948 ads had no viewability (<1s). Recalled ads showed a different distribution with 211 ads having a long viewability, 57 ads having a short viewability, and 18 ads having almost no viewability. Consequently, for non-recalled ads, 1,080 had a long viewability, 272 had a short viewability, and 930 had almost no viewability. To address this bias, we oversampled the non-recalled ads to align with the proportions seen in the full sample. Therefore, ads within each category were randomized drawn with replacement until the original number of non-recalled ads (2,282) was restored. This process helps mitigate selection biases and ensures the reliability and generalizability of the findings (Buda, Maki, and Mazurowski 2018).

2 Findings

In total, we identified 2,568 ads across 114 participants and 7,944 minutes of video footage (mean = 22.6 ads per participant, min. = 0, max. = 107). Thus, participants encountered on average one ad every third minute. The results show that 80% of all ads in our sample received gazes for less than 1.69 seconds[1].

Data preparation. To prepare the data for analysis, we first verified that the attention tactics were adequately represented in the sample. Frequencies of attention tactics were assessed separately for gaining initial attention (for dynamic ads, based on the first second) and holding attention (for dynamic ads, based on the full duration). To ensure that the respective

[1] 1.69 seconds is the mean for the 80% percentile of the re-modelled full sample with 2,568 ads. The mean for the 80% percentile of the stratified selection sample containing 768 ads is 2.01 seconds. Longer viewed ads are over-represented in this sample.

tactic is sufficiently present, only those tactics that appeared at least five times in the selected sample were included (see Appendix 14; Tabachnick and Fidel 1989). Accordingly, out of the 114 tactics, 41 attention tactics were considered for inclusion in the model for gaining initial attention, and 48 attention tactics for holding attention (see Appendix 14).

Initially, we excluded ads that had no fixation at all (time to first fixation = missing value) or were immediately fixated from the AOI onset (time to first fixation = 0) for the analysis of gaining initial attention. For time to first fixation, a lower value indicates that the AOI was viewed more quickly. Conversely, a missing value signifies that the AOI did not gain any attention. Thus, zero values and missing values are problematic for interpretation and integration into the model. Therefore, we excluded ads with missing values from the analysis and first compare separate models for zero values, one including and one excluding them. For gaining initial attention, 5 tactics were thus dropped due to zero values or missing values for the dependent variable time to first fixation. Hence, of the 41 tactics for gaining attention, 36 tactics were subject to the analysis.

We used linear mixed models to account for random intercepts for participants calculated in R with *lme4* package (Bates et al. 2015). To test our hypotheses, we specified separate models for each dataset (the selection sample and oversampled full sample) and for the dependent variable *time to first fixation* (gaining initial attention) and *total gaze duration* (holding attention). For both datasets, models excluding zero values for the analysis of time to first fixation exhibited better statistical fit indices (Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), log-likelihood, log-likelihood ratio, and R^2; see Table 2). Therefore, we only consider models excluding zero in the subsequent analysis of time to first fixation.

We aim to provide a comprehensive assessment of the identified attention tactics' effectiveness for both stages of attention. Thus, we test all tactics for both the initial gaining of

attention and the subsequent holding of attention. We rely on two-sided p-values as a more conservative approach to determining significance in our field study (Golder et al. 2023).

Table 2: Fit indices for linear mixed models explaining time to first fixation

Dataset	Including/ Excluding Zero	R^2 (marginal)	R^2 (conditional)	AIC	BIC	Log-Likelihood	Log-Likelihood Ratio
Selection Sample (768 ads)	Including	.14	.24	10,559.72	10,736.65	-5,240.86	527.32
	Excluding	.16	.23	7,129.68	7,291.72	-3,525.84	529.95
Oversampled full sample (2,568 ads)	Including	.21	.47	37,158.00	37,383.30	-18,534.00	951.07
	Excluding	.22	.50	26,335.06	26,547.00	-13,128.53	821.07

Annotation: All overall linear mixed models above are highly significant ($p < .000$). Results for both models are reported for transparency reasons and to allow for comparisons between both samples.

2.1 Results for the Impact of Attention Tactics on Gaining Initial Attention

The 36 identified and sufficiently present attention tactics were assessed for their gaining power. We first ran a correlation analysis for the variables to prevent multicollinearity. All correlations between the attention tactics for both datasets are found to be below .7 (highest correlation between striking color schemes and brightness with $r = .61$ in the selection sample dataset). We further calculated VIF values, which were found to be all below 10 (the highest VIF value was 2.34 for price promotions in the oversampled full sample data set). We ran two separate models for both datasets. Time to first fixation is especially sensitive to outliers, thus we winsorized values above the 90% percentile (Wilcox 2023; Zubedi, Sartono, and Notodiputro 2022). Significant negative coefficients indicate that a tactic was effective.

Selection sample. The overall model (*lmer*) was highly significant ($p < .000$), with a marginal R^2 of .16 and a conditional adjusted R^2 of .23. Significant tactics with negative coefficients, indicating effectiveness in reducing the time to first fixation, include size of the ad (β

= -674.25, $p < .000$) and unfamiliar persons ($\beta = -186.36$, $p = .040$). Other significant tactics with positive coefficients, indicating they extend the time to first fixation, include color in general ($\beta = 606.42$, $p = .011$) and voiceover ($\beta = 481.34$, $p < .000$). No further tactics were found to be significant in the selection sample.

Oversampled full sample. The overall model (*lmer*) is highly significant ($p < .000$), with a R^2 of .22 and a conditional adjusted R^2 of .50. Significant tactics with negative coefficients, indicating effectiveness in reducing the time to first fixation, include size of the ad ($\beta = -988.39$, $p < .000$), direct gaze ($\beta = -353.87$, $p = .002$), foreign language ($\beta = -198.71$, $p = .001$), and unfamiliar persons ($\beta = -200.60$, $p < .000$). Other significant tactics with positive coefficients, indicating they extend the time to first fixation, include animated characters ($\beta = 1428.38$, $p < .000$), plain nice background music ($\beta = 639.81$, $p < .000$), voiceover ($\beta = 439.70$, $p < .000$), and movement ($\beta = 452.43$, $p = .003$). No further tactics were found to be significant in the oversampled full sample.

Table 3 summarizes the effects of attention tactics on gaining initial attention, measured by time to first fixation, across the selection sample and oversampled full sample. Coefficients (β) and p-values (two-sided) are presented for each tactic. Tactics are sorted by negative (effective) and positive (ineffective) coefficients. Tactics significant in both models do not deviate in their effect direction, indicating alignment. Resulting from a higher test power, the oversampling model reveals more significant effects than the smaller selection sample.

Table 3: Results for the impact of attention tactics on time to first fixation

Tactic	Selection Sample (N = 768)	Oversampled Full Sample (N = 2,568)
	β (two-sided p-value)	β (two-sided p-value)
	Negative coefficients (desired direction)	
Size of the ad	**-674.25 (p < .000)**	**-988.39 (p < .000)**
Unfamiliar person	**-186.36 (p = .040)**	**-200.60 (p < .000)**
Direct gaze	-300.51 (p = .124)	**-353.87 (p = .002)**
Capital letters	-85.44 (p = .437)	**-155.12 (p = .009)**
Foreign language	-95.98 (p = .421)	**-198.71 (p = .001)**
Full color: amount of color	-108.28 (p = .335)	**-174.65 (p = .004)**
Brand prominence	-47.82 (p = .547)	**-137.60 (p = .002)**
Native advertisement	-536.43 (p = .090)	-43.79 (p = .854)
The color red	-164.25 (p = .378)	-203.34 (p = .061)
Celebrity	-353.53 (p = .146)	-68.16 (p = .621)
Visual elements	-79.48 (p = .783)	-155.50 (p = .298)
Price promotions	-289.94 (p = .136)	-128.57 (p = .216)
Contrast within the ad	-94.66 (p = .312)	-95.34 (p = .056)
	Positive coefficients (undesired direction)	
Voiceover	**481.34 (p < .000)**	**439.70 (p < .000)**
Color in general	**606.42 (p = .011)**	**704.73 (p < .000)**
Animated character	632.84 (p = .118)	**1428.38 (p < .000)**
Movement	337.29 (p = .314)	**452.43 (p = .003)**
Plain nice background music	8.92 (p = .975)	**639.81 (p < .000)**
Erotic elements	181.52 (p = .604)	**850.35 (p < .000)**
Faces	113.39 (p = .600)	**227.90 (p = .037)**
Economical signal words	198.62 (p = .352)	43.63 (p = .699)
Positive arousing elements	7.68 (p = .968)	138.98 (p = .196)
Uplifting music	156.25 (p = .366)	35.02 (p = .757)
Appetitive cues	159.96 (p = .615)	187.49 (p = .264)
Teaser ads	358.59 (p = .280)	138.51 (p = .558)
Onscreen spokesperson	22.03 (p = .918)	120.30 (p = .369)
Influencer	34.51 (p = .855)	182.11 (p = .198)
	Ambiguous coefficients	
Animated scenes	72.58 (p = .826)	**-576.85 (p = .002)**
Product prominence	-8.07 (p = .916)	**132.49 (p = .001)**
Brightness	-80.54 (p = .557)	**232.19 (p = .004)**
Sports scheme	234.37 (p = .222)	-129.71 (p = .247)
Size of the ad elements	76.21 (p = .481)	-0.28 (p = .996)
Direct address	-115.46 (p = .330)	18.87 (p = .736)
Bold print	-33.95 (p = .731)	21.26 (p = .698)
Striking color schemes	165.79 (p = .175)	-78.52 (p = .212)
Beautiful background scenes	3.72 (p = .990)	-174.89 (p = .230)

Annotation: Tactics that reach significance are highlighted in bold. Results for both models are reported for transparency reasons and to allow for comparisons between both samples.

2.2 Results for the Impact of Attention Tactics on Holding Attention

The holding power of the 48 identified and sufficiently present attention tactics was assessed. We initially calculated correlations between total gaze durations and the fixation count to assess whether a separate analysis appears promising. We found an almost perfect correlation of .97 for both datasets (selection sample and oversampled full sample). Thus, we chose total gaze duration as dependent variable for the following calculations, as it includes the whole gaze on an AOI. Thereby, it better reflects low involvement settings, compared to fixation count, which is more closely related to information processing.

To prevent multicollinearity, we first conducted a correlation analysis for the tactics, finding all correlations below .7. The highest correlation was between economical signal words and price promotions with r = .68 in the selection sample. Additionally, we calculated VIF values, all of which were below 10, with the highest being 2.36. In contrast, correlations between covariates were higher (e.g., $r_{\text{unique*entertaining}} = .77$, oversampled full sample), resulting in higher VIF values for covariates, though all were below 4 and thus not problematic (highest for entertainment with = 3.70 in the oversampled full sample and 3.40 in the selection sample; Daoud 2017). Therefore, we expect multicollinearity is no issue. We ran two separate models for both datasets and winsorized values above the 90% percentile to reduce the impact of outliers. Models with covariates showed higher fit indices (see Table 4). Significant positive coefficients indicate the effectiveness of a tactic.

Table 4: Fit indices for linear mixed models explaining total gaze duration

Dataset	Including/ Excluding Covariates	R^2	Adjusted R^2	AIC	BIC	Log-Likelihood	Log-Likelihood Ratio
Selection Sample (768 ads)	Including	.39	.63	39,311.33	39,650.71	-19,595.67	1,927.38
	Excluding	.30	.56	39,737.86	40,026.34	-19,817.93	1,475.98
Oversampled full sample (2,568 ads)	Including	.36	.49	11,359.52	11,625.11	-5,619.76	1,186.21
	Excluding	.27	.41	11,536.94	11,762.69	-5,717.47	988.23

Annotation: All overall linear mixed models above are highly significant ($p < .000$). Results for both models are reported for transparency reasons and to allow for comparisons between both samples.

Selection sample. The overall model (*lmer*) was highly significant ($p < .000$) with a R^2 of .39 and a conditional adjusted R^2 of .63. Significant tactics with positive coefficients, indicating they increase the total gaze duration, include beautiful background scenes ($\beta = 3381.24$, $p = .017$), direct address ($\beta = 1762.88$, $p = .002$), direct gaze ($\beta = 1927.10$, $p = .020$), influencer ($\beta = 3968.38$, $p < .000$), positive arousing elements ($\beta = 2355.16$, $p = .006$), product prominence ($\beta = 1213.48$, $p = .003$), and unfamiliar person ($\beta = 1452.42$, $p = .003$). Conversely, tactics with negative coefficients, indicating they reduce the total gaze duration, include erotic elements ($\beta = -5279.91$, $p = .007$) and faces ($\beta = -1935.08$, $p = .038$). Other tactics did not show significant effects in the selection sample.

Covariates such as entertainment ($\beta = 480.62$, $p = .018$) and ad attitude ($\beta = 416.14$, $p = .014$) were significant in the selection sample and showed a positive impact on total gaze duration. Prior exposure instead was negatively affecting the total gaze duration ($\beta = -425.93$, $p = .001$). The other covariates revealed a less strong effect and thus remained insignificant.

Oversampled full sample. The overall model (*lmer*) was highly significant ($p < .000$), with an R^2 of .36 and an adjusted R^2 of .49. Significant tactics with positive coefficients, indicating they increase the total gaze duration, include beautiful background scenes ($\beta = 4978.94$, $p < .000$), direct address ($\beta = 993.07$, $p < .000$), direct gaze ($\beta = 2092.56$, $p < .000$), influencer ($\beta = 5130.74$, $p < .000$), positive arousing elements ($\beta = 2019.16$, $p < .000$), product prominence

(β = 643.41, p < .000), unfamiliar person (β = 1730.89, p < .000), baby (β = 4895.38, p < .000), brand prominence (β = 625.58, p < .000), celebrity (β = 1639.31, p = .001), contrast within the ad (β = 701.09, p = .001), foreign language (β = 595.26, p = .015), size of the ad (β = 1726.37, p < .000), the theme of winning (β = 2232.71, p = .025), violation of reality (β = 4842.29, p = .001), and voiceover (β = 826.27, p = .001).

On the other hand, significant tactics with negative coefficients, indicating they reduce the total gaze duration, include erotic elements (β = -7748.12, p < .000), faces (β = -1867.43, p < .000), typeface changes (β = -5120.54, p < .000), employee (β = -3036.98, p = .001), striking color schemes (β = -921.69, p < .000), animated character (β = -4014.37, p < .000), bold print (β = -652.38, p = .002), capital letters (β = -832.74, p < .000), child (β = -1775.27, p = .008), technology scheme (β = -3559.73, p < .000), and uplifting music (β = -1180.33, p = .005).

The covariates entertainment (β = 348.76, p < .000), ad attitude (β = 308.17, p < .000), uniqueness (β = 195.95, p = .014), brand involvement (β = 256.72, p < .000), and informative-ness of the ad (β = 378.81, p < .000) were significant in the oversampled full sample and showed a positive impact on total gaze duration. Prior exposure (β = -328.26, p < .000), ad involvement (β = -149.08, p = .008), and brand attitude (β = -207.83, p = .008) revealed negative effects on total gaze duration. Emotionality did not reach significance (β = 137.35, p = .096).

Table 5 summarizes the effects of attention tactics on holding attention, measured by total gaze duration, across the selection sample and oversampled full sample. Coefficients (β) and p-values (two-sided) are presented for each tactic. Tactics are sorted by positive (effective) and negative (ineffective) coefficients. Tactics significant in both models do not deviate in their effect direction, indicating alignment. Resulting from a higher test power, the oversampling model reveals more significant effects than the smaller selection sample.

Table 5: Results for the impact of attention tactics on total gaze duration

Tactics	Selection sample (N = 768)	Oversampled full sample (N = 2,568)
	ß (two-sided p-value)	ß (two-sided p-value)
	Positive coefficients (desired direction)	
Beautiful background scenes	**3381.24 (p = .017)**	**4978.94 (p < .000)**
Direct address	**1762.88 (p = .002)**	**993.07 (p < .000)**
Direct gaze	**1927.10 (p = .020)**	**2092.56 (p < .000)**
Influencer	**3968.38 (p < .000)**	**5130.74 (p < .000)**
Positive arousing elements	**2355.16 (p = .006)**	**2019.16 (p < .000)**
Economical signal words	**1793.04 (p = .040)**	**931.11 (p = .007)**
Product prominence	**1213.48 (p = .003)**	**643.41 (p < .000)**
Unfamiliar person	**1452.42 (p = .003)**	**1730.89 (p < .000)**
Baby	3755.22 (p = .117)	**4895.38 (p < .000)**
Brand prominence	334.89 (p = .409)	**625.58 (p < .000)**
Celebrity	1476.99 (p = .219)	**1639.31 (p = .001)**
Contrast within the ad	1422.71 (p = .003)	**701.09 (p = .001)**
Foreign language	346.28 (p = .581)	**595.26 (p = .015)**
Size of the ad	1471.88 (p = .060)	**1726.37 (p < .000)**
The theme of winning	540.57 (p = .798)	**2232.71 (p = .025)**
Violation of reality	3943.28 (p = .205)	**4842.29 (p = .001)**
Voiceover	763.41 (p = .181)	**826.27 (p = .001)**
Animal	2367.60 (p = .167)	918.34 (p = .315)
Animated scenes	965.20 (p = .519)	1100.18 (p = .111)
Full color: amount of color	342.12 (p = .632)	614.90 (p = .053)
Movement	158.25 (p = .912)	875.41 (p = .082)
Novelty	400.49 (p = .776)	296.59 (p = .649)
Onscreen spokesperson	985.57 (p = .373)	938.25 (p = .090)
Plain nice background music	972.18 (p = .475)	744.78 (p = .232)
Popular music	4474.32 (p = .043)	57.52 (p = .947)
Size of the ad elements	562.20 (p = .394)	480.70 (p = .089)
Teaser ads	1830.91 (p = .464)	732.23 (p = .511)
Visual elements	763.81 (p = .665)	890.20 (p = .248)
	Negative coefficients (undesired direction)	
Erotic elements	**-5279.91 (p = .007)**	**-7748.12 (p < .000)**
Large faces	**-1935.08 (p = .038)**	**-1867.43 (p < .000)**
Typeface changes	-4149.50 (p = .057)	**-5120.54 (p < .000)**
Employee	-3566.66 (p = .089)	**-3036.98 (p = .001)**
Striking color schemes	-703.21 (p = .261)	**-921.69 (p < .000)**
Animated character	-2804.79 (p = .244)	**-4014.37 (p < .000)**
Bold print	-369.46 (p = .444)	**-652.38 (p = .002)**
Capital letters	-671.32 (p = .196)	**-832.74 (p < .000)**
Child	-1807.32 (p = .218)	**-1775.27 (p = .008)**
Technology scheme	-4556.85 (p = .035)	**-3559.73 (p < .000)**
Uplifting music	-906.45 (p = .341)	**-1180.33 (p = .005)**
Brightness	-1129.05 (p = .136)	-67.41 (p = .840)

Price promotions	-210.47 (p = .810)	-73.62 (p = .840)
Relationship or family scheme	-989.74 (p = .492)	-500.42 (p = .468)
	Ambiguous coefficients	
Appetitive cues	1287.73 (p = .260)	-732.55 (p = .234)
Color in general	423.06 (p = .792)	-505.62 (p = .475)
Native advertisement	1148.48 (p = .498)	-176.77 (p = .849)
Slice of life	1629.49 (p = .489)	-592.00 (p = .620)
Sports scheme	-441.48 (p = .654)	288.66 (p = .494)
The color red	-705.97 (p = .452)	101.97 (p = .796)
	Covariates	
Entertainment	**480.62 (p = .018)**	**348.76 (p < .000)**
Ad attitude	**416.14 (p = .014)**	**308.17 (p < .000)**
Prior exposure	**-425.93 (p = .001)**	**-328.26 (p < .000)**
Uniqueness	307.13 (p = .073)	**195.95 (p = .014)**
Informativeness	174.75 (p = .244)	**378.81 (p < .000)**
Ad involvement	53.90 (p = .686)	**-149.08 (p = .008)**
Brand involvement	-46.85 (p = .754)	**256.72 (p < .000)**
Brand attitude	24.89 (p = .895)	**-207.83 (p = .008)**
Emotionality	-117.25 (p = .485)	137.35 (p = .096)

Annotation: Tactics that reach significance are highlighted in bold. Results for both models are reported for transparency reasons and to allow for comparisons between both samples.

2.3 Results for the Impact of Holding Attention on Ad Recall

In total, 286 ads out of 2,568 ads (11.14%) that were identified in the videos were recalled in the post-experience protocols which were carried out shortly after the recording (192 free recalled, 94 additionally recalled upon slight aid by asking for particular ad types, media, and devices). We employed ordinal (*clmm*) and binary (*glmer*) logistic regression models with random effects to evaluate the impact of total gaze duration on ad recall. The dependent variable total gaze duration was windsorized above the 90% percentile to correct for outlier biases (Wilcox 2023).

Selection sample. The ordinal regression model indicated a significant positive effect of total gaze duration on ad recall. Specifically, the coefficient for total gaze duration was .61 (SE = .07, z = 8.16, p = .001). This translates to an odds ratio of 1.84, suggesting that a one-unit increase in total gaze duration increases the likelihood of better ad recall by approximately 1.84 times. The random intercept for participants had a variance of .10 and a standard deviation of

.32, highlighting variability in recall across participants. Threshold estimates were .61 (SE = .09, z = 6.74) for the 1|2 threshold and 1.25 (SE = .10, z = 12.26) for the 2|3 threshold.

For the binary logistic regression model, where free and aided recall levels were consolidated into a single category, the results also showed a significant positive effect of total gaze duration on ad recall. The coefficient for total gaze duration was .75 (SE = .09, z = 8.59, p = .001), resulting in an odds ratio of 2.16. This indicates that a one-unit increase in total gaze duration more than doubles the likelihood of better ad recall. The model's fit was evidenced by a log-likelihood of -460.3 and an AIC of 926.6. The random intercept for participants had a variance of .19 and a standard deviation of .43. McFadden's pseudo R^2 for this model was .09, indicating that approximately 9% of the variance in ad recall was explained by total gaze duration.

Oversampled full sample. To validate and strengthen our findings, we extended our analysis to an oversampled full sample comprising 2,568 observations. Similar to the selection sample, we used ordinal and binary logistic regression models with random effects.

In the oversampled dataset, the ordinal regression model continued to demonstrate a significant positive effect of total gaze duration on ad recall. The coefficient for total gaze duration was 0.64 (SE = .06, z = 9.85, p = .001), corresponding to an odds ratio of 1.89. This suggests that a one-unit increase in total gaze duration increases the likelihood of better ad recall by approximately 1.89 times. The random intercept for participants showed increased variability with a variance of .70 and a standard deviation of .83. Threshold estimates were higher compared to the selection sample, with 2.38 (SE = .12, z = 20.53) for the 1|2 threshold and 2.87 (SE = 0.13, z = 22.93) for the 2|3 threshold.

The binary logistic regression model for the oversampled dataset also affirmed the positive impact of total gaze duration on ad recall. The coefficient for total gaze duration was .68 (SE = .07, z = 10.03, p = .001), translating to an odds ratio of 1.97. This indicates that a one-

unit increase in total gaze duration nearly doubles the likelihood of better ad recall. The random intercept for participants had a variance of .76 and a standard deviation of .87. McFadden's pseudo R^2 for this model was .09, suggesting that again approximately 9% of the variance in ad recall was explained by total gaze duration.

X Discussion

The captured ads in the selection sample already provide rich insights into the effectiveness of the employed attention tactics. Nevertheless, the oversampled full sample better reflects tactics that were underrepresented in the selection sample, thus restoring the proportions of all ads participants encountered in our field study. Therefore, we primarily rely on the results of the oversampled full sample for the following discussion and implications for practitioners. However, we also report and discuss the findings of both samples for transparency and to allow for comparisons.

1 Tactics for Gaining Initial Attention

Our results confirm the critical importance of certain design elements in gaining initial attention of consumers. In line with Rossiter, Percy, and Bergkvist (2018) who base their quote on Rossiter (1981), we find that about half of the variation in the gaining power of an ad can be explained by attention tactics. In both the selection sample and the oversampled full sample, *larger ad size* and *unfamiliar persons* significantly reduced the time to first fixation, thereby effectively gaining initial attention. Size of the ad had the largest impact on gaining initial attention. This finding is consistent with the Feature Integration Theory (Treisman and Gelade 1980), which posits that prominent structural features can capture attention quickly.

Moreover, direct gaze, capital letters, foreign language, full color: amount of color, and brand prominence were all effective in the oversampled full sample in reducing the time to first fixation. Ads featuring direct gaze drew viewers' attention more quickly, consistent with prior

research indicating the compelling nature of eye contact in images (To and Patrick 2021). The use of capital letters and foreign languages also helped capture attention due to their visual salience and novelty, respectively. The prominence of brand elements within the ad also proved effective in capturing attention more quickly. Prominent brand elements serve as important cues that help consumers quickly identify and categorize media content (Pieters and Wedel 2004). This quick identification process is due to consumers' learned behavior of screening for relevant and irrelevant content, allowing them to efficiently process the vast amount of information they encounter. Thus, prominently displaying brand elements can leverage this conditioned response. On the one hand, this enables ads to capture attention more effectively. On the other, it also reveals ad content quickly to consumers and thus facilitates ad avoidance.

Noteworthy, certain tactics that are traditionally believed to capture attention, such as the use of colors in general, had a counterproductive effect, increasing the time to first fixation. According to the Surprise-Attention Hypothesis (e.g., Asplund et al. 2010; Horstmann 2002, 2005), the colorful environments, where most ads are placed (e.g., Instagram, TikTok, or TV), may also mitigate the effect of colors in general. When colorful content is expected, the opposite might be more effective to capture attention. This would explain why ads with colors, compared to ads with no or very few colors (e.g., products on white backgrounds), were more successful in gaining initial attention. Moreover, voiceover also significantly increased the time to first fixation in both samples, as did plain nice background music. This might root from the difficulty of attributing the acoustic input to the ad, when there is a corresponding visual cue. Furthermore, the source of the sounds are always the speakers, not the ad itself. Again, the Surprise-Attention Hypothesis could also help explaining the contrary effect of voice over. As sounds and voices are highly likely to appear while consuming media, they do not trigger automatic visual reactions. Similarly, movement and large faces, significant in the oversampled full sample, also extended the time to first fixation.

Interestingly, erotic elements did not show the expected positive results and may even detract from quick engagement with the ad. This might reflect socially desirable behavior if participants remember that they are being observed for the research.

In summary, we find that the size of the ad plays a crucial role in gaining initial attention. This aligns with H1, which emphasizes the importance of physical intensity for this task. We further find that biological cues, such as picturing (unfamiliar) persons and especially employing eyes with direct gaze helped gaining initial attention, aligning with H2a. However, we find mixed results for other physically intense tactics, such as colors, sounds, or motion. Thus, only the size of the ad remains as a clear candidate to improve visual salience to effectively gain initial attention.

2 Tactics for Holding Attention

Several attention tactics revealed a significant impact on holding the attention of the participants. Again, in line with Rossiter, Percy, and Bergkvist (2018) and Rossiter (1981), about half of the variation of the ads holding power can be explained by attention tactics. In both the selection sample and the oversampled full sample, tactics such as beautiful background scenes, direct address, direct gaze, and influencers, positive arousing elements, and unfamiliar persons significantly increased total gaze duration, thereby effectively holding attention. This aligns with our theoretical assumptions that biologically and socially significant stimuli increase attention due to their evolutionary significance (H2b and H3). Influencers reveal an extraordinary impact on holding attention, particularly in the oversampled full sample. They likely hold attention due to their established relationship and trust with their audience, making their endorsements more compelling and engaging. The prominence of brand and product elements also proved effective in holding attention. This may be because recognizable brand and product cues can create interest and leverage existing brand knowledge and associations. Clear and easy discoverable ads thus seem to be more effective in conveying their messages compared to more

complex ads. This aligns with previous research on ad complexity (Pieters, Wedel, and Batra 2010).

Conversely, certain elements traditionally expected to hold attention actually decreased total gaze duration. Large faces, which had a negative effect in both samples, might detract from other important elements in an ad, such as a visually appealing background or product displays. Consequently, their level of information may not be sufficient to ensure longer viewing durations. Erotic elements also showed a strong negative effect on total gaze duration. This contradicts their widespread use in social media (Vandenbosch, van Oosten, and Peter 2015), which suggests that such content is generally engaging. However, as with gaining initial attention, participants might have reacted more aversely to ads with erotic content due to their awareness of being part of a study.

Other tactics that reduced attention included typeface changes, employees, and striking color schemes. These findings suggest that these typical elements of ads were less compelling and likely led to ad avoidance. The presence of such elements might have been perceived as overly complex, distracting, or irrelevant, thus failing to maintain viewer engagement and resulting in shorter gaze durations.

In summary, biologically and socially significant stimuli, such as influencers, beautiful background scenes, and direct gaze, are effective in holding attention, aligning with H2b and H3. However, certain tactics like large faces and erotic elements, which might be expected to hold attention, were counterproductive, possibly due to the context of the study.

Cognitive engaging stimuli were less frequently present in the analysed tactics. This is surprising, given the noted relevance of humor in advertising (e.g., Eisend 2009). Tactics employing cognitive engaging stimuli, such as the use of foreign language or the violation of reality, only reached significance in the oversampled full sample. Thus, their effect is likely less impactful. This is not surprising, given the short amount of time ads are considered. It takes

time to resolve cognitive conflicts, and consumers do not invest this time but move on to the next content or switch the device. In summary, we find some empirical evidence aligning with H4. However, due to the lack of presence in our sample, we could not investigate more forms of cognitive engaging stimuli to assess their effectiveness.

3 Impact of Holding Attention on Ad Recall

The consistent finding across both the selection sample and the oversampled full sample is the significant positive effect of total gaze duration on ad recall, supporting H5. This reinforces the idea that sustained visual attention is a critical driver of memory retention in advertising. The odds ratios for both models (1.84 and 1.89 for the ordinal models; 2.16 and 1.97 for the binary models) indicate a robust relationship between longer gaze durations and higher recall rates. This is consistent with Hierarchy of Effects Models, emphasizing attention as a foundational step in the advertising funnel (Rossiter, Percy, and Bergkvist 2018).

4 Model and Sample Discussion

For both attention measures, time to first fixation and total gaze duration, the selection sample and oversampled full sample yielded similar effect patterns. More tactics achieved significance in the oversampled full sample, which can be attributed to the larger sample size. However, no conflicting results were observed between the two models. Thus, we consider both models valid. The increased threshold estimates in the oversampled full sample, compared to the selection sample, further substantiate the model's robustness by better reflecting a more difficult to achieve, real-world ad recall.

XI Conclusion

Our study provides a comprehensive list of attention tactics for gaining and holding attention. Through three systematic literature review studies analyzing marketing communications textbooks, scientific journals, and marketing trade magazines, complemented by in-depth

consumer interviews, we identified 114 attention tactics and tested them in a pioneering field study. Employing mobile eye-tracking in 114 consumer homes, we test frequently applied attention tactics and thus provide real-life evidence on their effectiveness for gaining and holding attention.

Despite the strengths of our study, some limitations should be considered. The use of convenience sampling may have introduced biases, as our sample might not be fully representative of the broader population. However, the large non-student sample should already possess a sufficient level of generalizability. Additionally, while the oversampling method helps balance the dataset, it might overemphasize the significance of certain tactics. Therefore, we relied on two-sided p-values and transparently drew comparisons between both samples. Since our field approach relies on correlative data, we do not control for causality. Thus, findings about non-significant relations or negative effects should not be used to disregard their practical relevance. Instead, they should inspire further research that lays emphasis on manipulating and testing the identified attention tactics in controlled conditions.

Our findings highlight that attention tactics explain about half of the variation in the ads for both gaining and holding attention. Certain attention tactics, particularly larger ad sizes and direct gaze, are crucial for gaining initial attention, while tactics such as emotionally engaging content and influencers are vital for holding attention. By understanding and leveraging these tactics, advertisers can enhance the effectiveness of their campaigns, ultimately improving ad recall and influence further downstream variables in the advertising funnel.

This paper underscores the critical need to distinguish between tactics for gaining and holding consumer attention, a consideration often neglected in both academic research and practical application. Practitioners are encouraged to employ tactics that effectively gain and then hold consumer attention to effectively reach consumers. To facilitate this, we provide an

extensive toolbox of 114 advertising attention tactics. We have rigorously tested frequent tactics to validate their real-world efficacy and to confirm our theoretical assumptions about the biological and psychological mechanisms underlying these tactics. Researchers and practitioners can leverage this theoretical knowledge to develop, test, and apply innovative tactics.

Article 3

Decoding the Vampire Effect: Investigating the Impact of Celebrities Overshadowing a Brand on Attention Allocation and Downstream Ad Processing

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D Decoding the Vampire Effect: Investigating the Impact of Celebrities Overshadowing a Brand on Attention Allocation and Downstream Ad Processing

(Authors: Lennart Borgmann, Julian Felix Kopka, and Tobias Langner)

Abstract: Companies hire celebrities to enhance brand awareness and image. However, celebrities may also pose a threat to ad effectiveness. It is a common belief that celebrities attract attention but also distract from the brand. Research on this so-called ‘vampire effect’ is scarce and its impact on downstream ad processing has not been investigated. In a large scale eye-tracking experiment (n = 112) under realistic exposure conditions with AI-modified celebrity video ads, we investigate the effects of celebrities versus non-celebrities on consumer attention, ad attitude, brand recall, and purchase intention. We find a relative vampire effect: celebrities attract more attention than non-celebrities, but do not impair attention to the brand or product. Notably, the relative vampire effect has no negative impact on downstream brand processing: brand recall and purchase intention remain unaffected, while ad attitude benefits from celebrities, underscoring their value in transferring positive associations to the ad.

I Introduction

Celebrity endorsements are a popular advertising means. They aim at attracting consumer attention and transferring positive associations to brands, products, or services (Bergkvist and Zhou 2016). Celebrities feature in up to 25% of advertisements globally (Knoll and Matthes 2017), and even over 50% for events such as the Super Bowl (Taylor 2024). Despite their omnipresence in advertising and their immense costs, the effectiveness of celebrity endorsements remains a subject of debate (Knoll and Matthes 2017). A famous example is the 2002 Chrysler campaign with Celine Dion (Greenberg and Irwin 2003). The 14 million three-year contract was intended to lift car sales and brand image, but failed to meet expectations. The ads, which prominently featured Dion, seemed to promote the singer more effectively than the vehicles (Stein 2003). This incident exemplifies the so-called ‘vampire effect’, where a celebrity’s presence overshadows the brand, leading to diminished brand recall (Erfgen, Zenker, and Sattler 2015).

Existing research on celebrity endorsements and the vampire effect is highly limited. We conducted a systematic literature review and identified only six relevant studies on this topic (see Appendix 17). Erfgen, Zenker, and Sattler (2015) present the most extensive examination of the vampire effect so far. They find a negative impact of celebrities on brand recall, which is mitigated by a strong cognitive link between the celebrity and the brand. However, the external validity of their investigation is limited due to unrealistic stimuli exposure (De Pelsmacker 2021). The other studies replicated decreases in brand recall (Chan and Chau 2023; Liu and Liu 2020) or were not able to do so (Kuvita and Karlíček 2014). Chan and Chau (2023) as well as Kuvita and Karlíček (2014) expanded their focus on attention allocation and found that celebrities receive more attention than brands or products. However, among other limitations, their studies lack from a missing non-celebrity condition. Thus, their results allow no conclusions on celebrity vs. non-celebrity effects.

The question remains whether celebrity endorsers, compared to non-celebrity endorsers, actually trigger the vampire effect and how it influences ad effectiveness along the advertising funnel (see Figure 9) under realistic conditions.

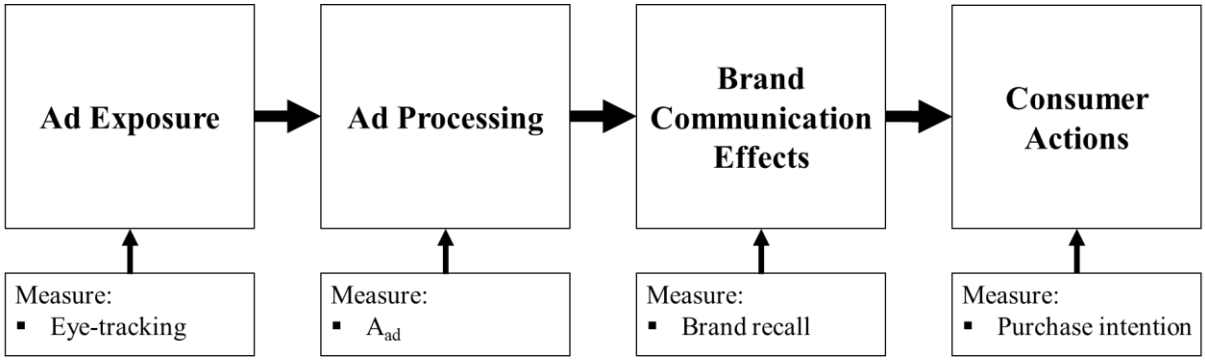

Figure 9: The advertising funnel and measures reflecting each stage (based on Bergkvist and Langner 2023)

Our study addresses the identified gaps in the literature, making significant contributions to both advertising theory and practice. We leverage AI technology to generate non-celebrity versions of real celebrities used in video ads and employ eye-tracking alongside with self-reported measures. Thereby, we conduct a nuanced analysis of the vampire effect and its interplay with attention allocation, brand recall, ad attitude, and purchase intention. This allows us to explore celebrity effects across both early (attention) and later (ad attitude, brand recall, and purchase intention) stages of information processing. Moreover, our study provides significant insights into the effectiveness of celebrities in advertising in general. In practical terms, a simulated YouTube interface combined with real celebrity video ads mark a pivotal advancement in ad display authenticity. It mirrors the actual consumer experience more accurately than artificial laboratory studies, and thus enhances the external validity of our findings.

II Theoretical Background and Hypotheses

1 Effects of Celebrity Endorsers on Attention

Human faces are highly emotionally and socially significant stimuli and thus naturally attracting attention (Palermo and Rhodes 2007; Rossiter, Percy, and Bergkvist 2018). Their social significance increases with higher familiarity, partially due to the mere exposure effect (Rossiter and Smidts 2012; Zajonc 1968). Thus, familiar celebrities attract more attention compared to unfamiliar non-celebrities. However, this increased attention may not directly contribute to advertising goals such as an enhanced learning of a brand. Moreover, the additional time spent looking at the familiar celebrity might reduce the time left for processing other ad elements. It means that an attention-grabbing element unintentionally diverts the desired attention away from the ad's core message (Kuvita and Karlíček 2014) This is known as the 'absolute' vampire effect (Bruns, Langner, and Bergkvist 2018; Erfgen, Zenker, and Sattler 2015). Chan and Chau (2023) document such a shift in their study and thus support the concept of an absolute vampire effect. Yet, their results are limited because their studies on attention lack a non-celebrity condition. Contrary, Bruns, Langner, and Bergkvist (2018) identified a 'relative' vampire effect. In their study, participants browsed through an online magazine with ads endorsed by celebrities or non-celebrities. They find that celebrities attract more attention than non-celebrities. However, this gain in attention does not translate into decreased attention toward brand elements, resembling the relative vampire effect. Following Bruns, Langner, and Bergkvist (2018), we therefore propose:

> **H1a-d:** Due to the relative vampire effect, celebrities, compared to non-celebrities, increase attention to (a) the overall video ad and (b) the endorser, and particularly (c) the endorsers' face, while (d) the brand, product, and slogan will not be affected.

2 Effects of Celebrity Endorsers on Brand Recall

We assume that the relative vampire effect has negative effects on the downstream advertising processing. The relative vampire effect should lead to deeper processing of celebrities (compared to non-celebrities), which in turn overshadows brand learning and impair brand recall. Moreover, the accessibility-diagnosticity framework (Feldman and Lynch 1988) suggests that celebrities, due to their familiarity, occupy a more accessible and diagnostic position in consumer memory. This increased accessibility together with the deeper processing of the celebrity make celebrities a more salient source of information, potentially overshadowing the brand recall in comparison to unfamiliar endorsers (Erfgen, Zenker, and Sattler 2015). Thus, we assume:

H2: Due to the relative vampire effect, celebrities, compared to non-celebrities, do not increase brand recall.

3 Effects of Celebrity Endorsers on Attitude toward the Ad

We assume that the decrease in brand learning caused by celebrity endorsers also hinders the learning or reinforcement of positive attributes with the endorsed brand. In turn, consumers overall attitude toward the ad will be less favorable. Thus, we assume:

H3: Due to the relative vampire effect, celebrities, compared to non-celebrities, do not increase brand attitudes.

4 Effects of Celebrity Endorsers on Purchase Intentions

Ultimately, being unable to recall the endorsed brand or holding a less favorable attitude toward the ad may result in a decreased willingness to purchase the promoted product or service. Thus, we propose:

H4: Due to the relative vampire effect, celebrities, compared to non-celebrities, do not increase purchase intention.

The hypotheses are summarized in the conceptual model (see Figure 10).

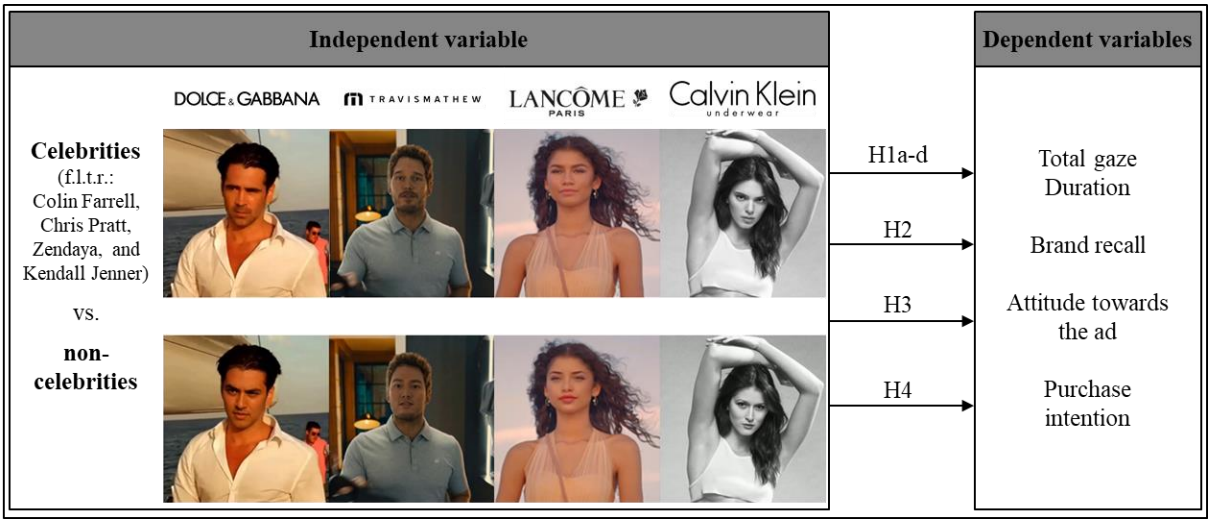

Figure 10: Conceptual model of the study

III Study: An Eye-Tracking Experiment on Celebrity Video Ad Effects on Consumer Attention, Brand Recall, Ad Attitude and Purchase Intention

1 Design

The experiment employs a single factor (celebrity vs. non-celebrity) between-subjects design. To examine the effects of celebrity video ads, we analyze consumers' visual attention using a desktop-mounted eye-tracker (Tobi X2-60) and questionnaire data.

2 Participants

112 participants (65 female), recruited at a large German university (convenience sample), voluntarily took part in the experiment (age from 18 to 34 years; M = 22.8 years). 12 participants (5 female) were excluded because they guessed the research topic.

3 Stimuli

We collected 50 video ads employing famous celebrities that recently aired on YouTube. To identify these videos, we initially searched for ‘celebrity ad’ or ‘celebrity commercial’ on YouTube. We then screened the search results and associated video recommendations of YouTube. All identified videos were then transferred into a non-celebrity version of a close infamous lookalike through AI software (swapface.org and deepswap.ai). Despite the advantages in this area of technology, not all non-celebrity video versions achieved a sufficient realism. Only 9 videos could be successfully transferred into a realistic non-celebrity version. To increase stimulus comparability, we selected two short (16s) and two long celebrity video ads (31s), featuring both male and female famous actors or models for luxury brands, two in the fashion and two in the perfume industry (Colin Farrell for Dolce and Gabbana; see Appendix 18; and Chris Pratt for Travis Mathew; see Appendix 19; Kendall Jenner for Calvin Klein; see Appendix 20; and Zendaya for Lancôme; see Appendix 21).

YouTube is an adequate viewing context due to its widespread use as a popular video-sharing platform and its prevalence as an advertising medium (Wyzowl 2024). Moreover, YouTube’s ad formats, including pre-roll and mid-roll video ads, mirror those ads commonly encountered by users during their online browsing experience.

4 Procedure

The participants were invited to the laboratory and seated in front of a 24-inch screen. The cover story informed participants that they were subject to a test on their viewing behaviour on YouTube, seeing a video of the American sitcom Modern Family. They were instructed to view the video as they would normally do without any specific requirements. They were randomly assigned to either the ‘celebrity’ or ‘non-celebrity’ condition. Two pre-roll ads ran before the 5-minute pilot episode of Modern Family started. Two further mid-roll ads interrupted the video after 2:30 minutes. Thus, all participants encountered four ads in total. After viewing the

remaining 2:30 minutes of the episode, participants proceeded with the questionnaire on ad recall, attitude toward the ad, purchase intention and familiarity of the testimonial.

By embedding the ads within a well-known television series like Modern Family, participants were exposed to content that closely resembles their typical viewing experience on YouTube. Moreover, distracting elements such as a video preview section, a comment section, and a disclaimer indicating the video will resume after the ad (i.e., a disabled skip-button; see Figure 11) further contribute to a realistic viewing environment.

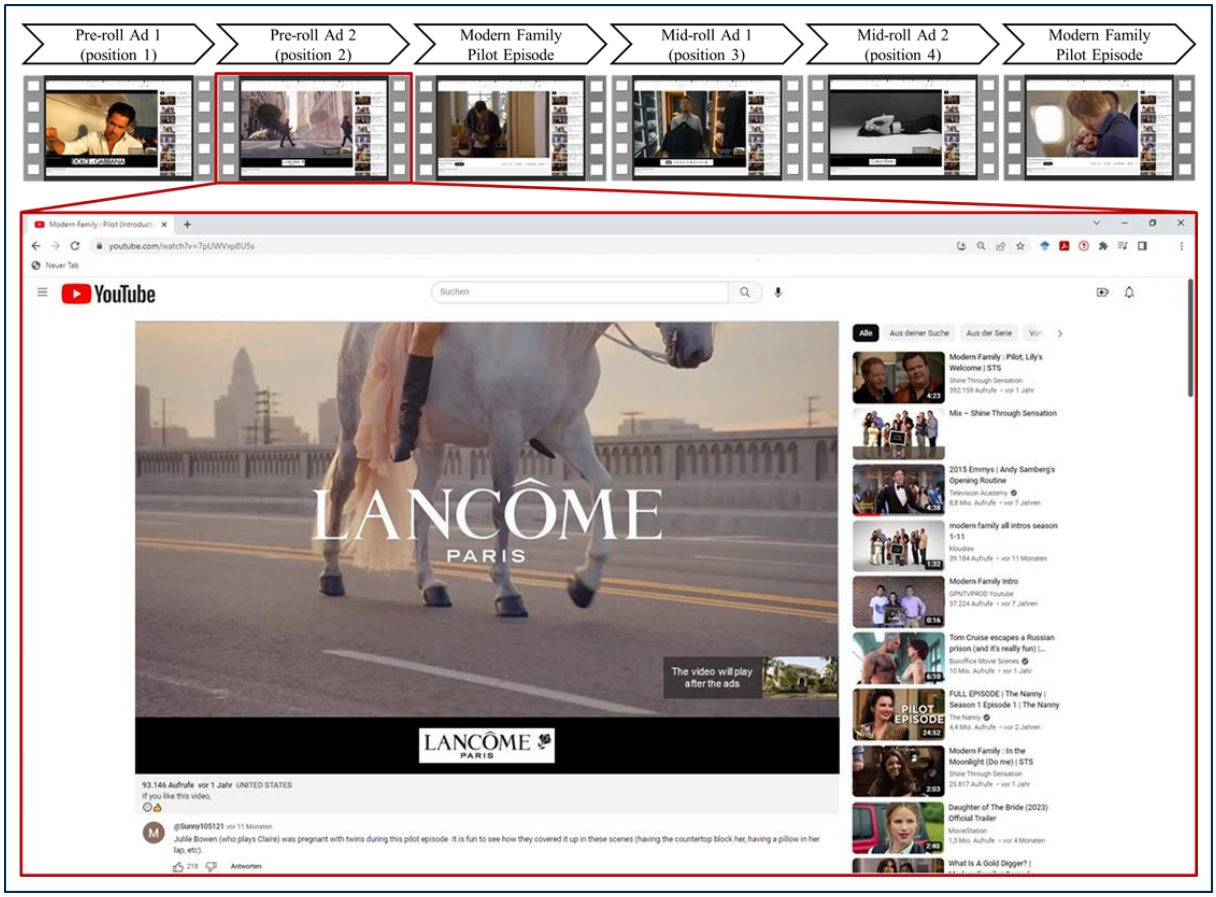

Figure 11: Experimental procedure of stimuli exposure and native context embedment

5 Equipment and Measures

We used Tobii X2-60 desktop-mounted eye-tracker. Participants could move freely and sat relaxed in a 60 cm distance to the 24-inch display. We used the iMotions Version 9.1 to

process the data. Areas of interest (AOIs) were coded frame by frame for the full video, testimonials, a permanent brand logo below the video, products, and in-video brand logos.

The *total gaze duration* in seconds within each social media ad's AOI serves to measure attention. *Brand recall* was assessed by two expert coders, determining whether the participants were able to correctly recall the brand name. The coders agreed in all cases. *Attitude toward the ad*, *purchase intention*, and *familiarity of the testimonial* were measured by established single-item 7-point rating scales (see Appendix 22).

IV Results

In total, the 112 participants viewed each four video ads, either in the celebrity (53 participants, 212 ads) or non-celebrity condition (59 participants, 236 ads). We controlled for the familiarity of the celebrities and non-celebrities. In the celebrity condition, only ad exposures for participants who were familiar with the respective celebrities were included in the data set (familiarity ≥ 5; scale from 0-6). Analogously, only stimuli where participants experienced the non-celebrities as unfamiliar were considered (familiarity ≤ 1). The resulting sample contained 45 participants seeing 120 ads with familiar celebrities and 52 participants seeing 184 ads with unfamiliar non-celebrities.

To correct for the imbalance of cell sizes, we employed the random under-sampling procedure (Seiffert et al. 2009). This involved randomly eliminating ads from the higher cell count group to match the number of ads in the smaller cell count group. Specifically, ads were randomly removed from each non-celebrity condition to match the number of ads in each corresponding celebrity condition. This ensured a balanced number of ad exposures analyzed between the two conditions, allowing for a more accurate comparison of the participants' responses to celebrity versus non-celebrity ads.

Due to variations in celebrity status, the final sample contained the following number of ads for each celebrity/non-celebrity pair:

- 42 ads for Chris Pratt (21 celebrity ads and 21 non-celebrity ads),
- 16 for Colin Farrell (8 celebrity ads and 8 non-celebrity ads),
- 56 for Kendall Jenner (28 celebrity ads and 28 non-celebrity ads),
- 72 for Zendaya (36 celebrity ads and 36 non-celebrity ads).

The total number of ads analyzed was 186, equally distributed between the celebrity and non-celebrity conditions (93 celebrity ads and 93 non-celebrity ads).

Overall attention to the video ads. Testing H1a, an independent samples t-test indicated no significant difference for total gaze duration of overall video ads ($t(184) = -.60$, $p_{\text{one-sided}} = .273$; $d = .09$). Thus, we must reject H1a. However, the mean differences align with our expectations: Participants spent on average 21.04s (SD = 7.61) viewing ads with celebrities, compared to 20.32s (SD = 8.66) for ads with non-celebrities.

Attention to the celebrity and the celebrity's face. To examine H1b and H1c, independent samples t-tests were conducted. A marginally significant difference for total gaze duration emerged for the total gaze duration participants allocated to celebrities compared to non-celebrities ($t(184) = -1.65$, $p_{\text{one-sided}} = .051$; $d = .24$). Participants spent an average of 9.90s (SD = 3.87) gazing at celebrities, whereas only 8.90s (SD = 4.32) gazing at non-celebrities. This effect is corroborated by the viewing times for the testimonials faces. Participants spent an average of 5.04s (SD = 2.94) gazing at celebrities' faces, whereas only 4.12s (SD = 3.01) gazing at non-celebrities' faces ($t(184) = -2.09$; $p_{\text{one-sided}} = .019$; $d = .31$). Hence, H1b and H1c are supported.

Attention toward brand elements. To test consumers' attention toward the brand, product, and slogan (H1d), independent samples t-tests revealed no significant mean differences in total gaze duration for all elements, as well as their sum ($t(184) = -.47$; $M_{\text{celebrity}} = 3.68$s; $M_{\text{non-celebrity}} = 3.48$; $p_{\text{one-sided}} = .319$; $d = .07$; see Table 6). This aligns with H1d.

Table 6: Mean differences comparing celebrities versus non-celebrities

Dependent Variable	$\text{Mean}_{\text{Celebrity}}$ (SD)	$\text{Mean}_{\text{Non-Celebrity}}$ (SD)	Test statistic for mean differences
Overall video ad[a]	21.04s (7.61)	20.32s (8.66)	t(184) = -.60, $p_{\text{one-sided}}$ = .273; d = .09
Testimonial[a]	9.90s (3.87)	8.90s (4.32)	t(184) = -1.65, $p_{\text{one-sided}}$ = .051; d = .24
Testimonial (face)[a]	5.04s (2.94)	4.12s (3.01)	t(184) = -2.09; $p_{\text{one-sided}}$ = .019; d = .31
Brand logo below the video[a]	.54s (.67)	.54s (.67)	t(184) = -.00; $p_{\text{one-sided}}$ = .499; d = .00
In-video brand logo[a]	2.09s (1.13)	2.11s (1.03)	t(112) = .08; $p_{\text{one-sided}}$ = .468; d = .02
Product[a]	1.78s (1.19)	1.58s (1.08)	t(128) = -1.02; $p_{\text{one-sided}}$ = .156; d = .18
Slogan[a]	2.35s (.64)	2.09s (1.19)	t(40) = -.88; $p_{\text{one-sided}}$ = .192; d = .27
Sum of all brand elements[a]	3.68s (2.99)	3.48s (2.80)	t(184) = -.47; $p_{\text{one-sided}}$ = .319; d = .07
Attitude toward the ad[b]	4.63 (1.37)	4.09 (1.64)	t(184) = -2.47; $p_{\text{one-sided}}$ = .007; d = .36
Puchase intention[b]	2.94 (1.88)	2.70 (1.77)	t(184) = -.88; $p_{\text{one-sided}}$ = .189; d = .13

Annotation: Variables measured by [a]total gaze duration in s and [b]7-point rating scales.

Relative attention distribution. The increase in attention duration for the video ad with a celebrity endorser (+.72s; n.s.) is exclusively consumed (100%) by the increased attention duration for the celebrity itself (+1s; the testimonials' face accounts for +.92). No effect of a celebrity compared to non-celebrity video ad emerged for attention duration to the brand elements.

Brand recall. A chi-square test of independence was conducted to examine the association between brand recall and endorser type (celebrity vs. non-celebrity). The results indicated that there was no significant association between brand recall and endorser type ($\chi^2(1, n = 186) = .36$, $p = .548$). This suggests that celebrities (vs. non-celebrity) did not significantly influence whether participants recalled the brand. Hence, our findings align with H2. The observed and expected frequencies are summarized in Table 7.

Table 7: Cross-tabulation of brand recall by endorser type

	Celebrity	**Non-celebrity**	**Total**
Not Recalled	59	55	114
Recalled	34	38	72
Total	93	93	186

Annotation: Expected counts were included to confirm that the chi-square test assumptions were met.

Attitude toward the ad. To test the effect of celebrities on attitude toward the ad, an independent samples t-test was conducted. A significant mean difference is revealed ($t(184) = -2.47$; $M_{celebrity} = 4.63$; $M_{non\text{-}celebrity} = 4.09$; $p_{one\text{-}sided} = .007$; $d = .36$), rejecting H3.

Purchase intention. To test the direct effect of celebrities on purchase intention, an independent samples t-test was conducted. No significant mean difference is found ($t(184) = -.88$; $M_{celebrity} = 2.94$; $M_{non\text{-}celebrity} = 2.70$; $p_{one\text{-}sided} = .189$; $d = .13$), aligning with H4.

Effect of the relative vampire effect on subsequent variables. A Relative Vampire Effect Index was calculated to assess the relative distribution of visual attention between endorsers and brand elements by using the following formula:

$$\textit{Relative Vampire Effect Index} = \frac{Total\ gaze\ duration\ on\ the\ testimonial+c}{Total\ gaze\ duration\ on\ all\ brand\ elements+c};\ \textit{with } c = 1.$$

Consistently, the correlation between the index and the binary celebrity factor revealed a positive correlation, confirming the relative shift of attention toward celebrities compared to non-celebrities ($r = .24$, $p_{\text{one-sided}} = .001$). However, correlations with brand recall, attitude toward the ad, and purchase intention are not significant (see Appendix 23). This further corroborates that the relative vampire effect does not mitigate downstream ad processing variables.

V Discussion

We find no significant effect for celebrities on the overall amount of time participants spent watching the video ads. Thus, we must reject H1a. However, the results still support the concept of a relative vampire effect for attention, confirming the findings of Bruns, Langner, and Bergkvist (2018). Total gaze durations for the testimonial (H1b) and its' face (H1c) are higher for celebrities than non-celebrities. Contrary, total gaze durations for brand, product, and slogan (H1d) are not affected. Our findings challenge the belief that celebrities eclipse the brand message in ads by an absolute vampire effect (Chan and Chau 2023; Erfgen, Zenker, and Sattler 2015). In our study, celebrities did not detract attention from brand elements. However, the additional time they attract to an ad only benefits celebrities themselves. This constitutes a relative vampire effect (Bruns, Langner, and Bergkvist 2018)

Unlike Erfgen, Zenker, and Sattler (2015) and Chan and Chau (2023), we find no effect on brand recall (H2). One possible explanation is that the attention attracted by the celebrity, while substantial, does not distract any attention from the brand elements or overshadow them in a way that impairs recall. Instead, the attention gained by the celebrities is complemented by

a sufficient focus on the brand elements so that brand recall is comparable for both types of endorsements.

Participants report significantly more positive attitudes toward ads featuring celebrities, disproving our H3. This may be explained through celebrities' status as powerful symbols. They embody success or images that consumers aspire to. Thereby, they enhance self-esteem or social standing through association (Deaner, Khera, and Platt 2005; Hayden et al. 2007). This psychological mechanisms aligns with social identity theory (Tajfel and Turner 2004). Individuals seek to maintain a positive social identity by associating themselves with admired groups or individuals. In this case, the association is made with the celebrities. The halo effect further elaborates on this phenomenon. It suggests that positive celebrity attributes contribute to more favorable attitudes toward the ads in which they appear (Erdogan 1999). In our study, participants spent more than three seconds on average viewing brand elements in both conditions. This potentially provides sufficient time to transfer a positive image from the celebrity to the ad, preventing a negative impact of the relative vampire effect.

Finally, similar to brand recall (H2), celebrities did not affect purchase intentions (H4). Forming purchase intentions involves more cognitive effort compared to the affective processes that shape attitudes (Teng and Laroche 2007). These cognitive processes might take longer to unfold and thereby influence consumers' responses only after repeated exposures. Eisend and Langner (2010) support this view by showing that the immediate effects of celebrity endorsers primarily result from affective processes. In contrast, constructs requiring more cognitive effort, such as purchase intentions, have a delayed impact. This suggests that the lack of effect on purchase intentions in our study could be due to the delayed influence of cognitive processes.

VI Conclusion and Future Research

The findings support the existence of a relative vampire effect. However, we do not find significant adverse impacts on downstream processing (i.e., brand recall, attitude toward the

brand, and purchase intention). This implies that while celebrities in advertisements do attract more attention compared to non-celebrity endorsers, this heightened focus must not detract from the viewer's engagement with the brand elements to a measurable extent. Thus, a relative vampire effect might not be as detrimental as an absolute one. In fact, attracting more attention to the celebrity within the ad could potentially increase consumers' total ad engagement. This extended engagement may provide an opportunity to absorb and process both the celebrity and brand elements, even if their attention gravitates more toward the celebrity. This underscores the persuasive value of celebrities in advertising.

The study opens avenues for further research on moderators that lead to the occurrence of an absolute or relative vampire effect. It was observed that participants allocated sufficient time regarding brand elements. This enabled the connection between the celebrity and the brand in the first place, and led to an enhanced attitude toward the ad and increased purchase intentions. Therefore, further research is necessary in contexts where ads are skippable and the forced exposure of the laboratory setting is reduced, limitations of the current study. While not present for every video, non-skippable ads are still common on YouTube. However, skippable ads could significantly reduce the viewing time, potentially amplifying the impact of the relative vampire effect. Moreover, consumers are constantly multitasking and multiscreen when consuming entertaining content like YouTube-Videos. Hence, in further studies, participants should for example be allowed to use their smartphones while conducting the experiment. Finally, the proximity between the celebrity and the endorsed product as well as their interaction could also have an impact on consumers' gaze.

Article 4

(Not) the Right Time for Social Media Ads? Exploring the Impact of Social Media Detox on Attention to the Ad

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E (Not) the Right Time for Social Media Ads? Exploring the Impact of Social Media Detox on Attention to the Ad

(Authors: Lennart Borgmann, Julian Felix Kopka, and Tobias Langner)

Abstract: Social media takes up a large part of consumers' daily time. In response, social media detox is on the rise, such that consumers set time constraints or even take complete social media time-outs. Research into the effects of such detox phases on the effectiveness of advertising is critical but lacking. Two qualitative studies identify motivations for social media detox (n = 36) and explore its effects on ad reception (n = 22). Then, two mobile eye-tracking experiments, conducted under realistic viewing conditions, reveal that time-outs decrease attention to social media ads aired after the detox phase, whereas time constraints exert no impact (n = 50; n = 80). Thus, social media platforms should track the time-outs taken by their users, and advertisers should avoid airing ads immediately after social media time-outs to increase ad effectiveness.

I Introduction

Social media is taking up an ever-increasing amount of people's daily leisure time. This is especially true for younger consumers, who devote nearly 6 hours per day to social media platforms (TechJury 2023). To reclaim their time, consumers increasingly turn to social media detox efforts (Schmitt, Breuer, and Wulf 2021). Google searches for 'social media detox' have increased remarkably in the past three years (see Appendix 24; Google 2024c), and consumer magazines and newspapers frequently address this topic (e.g., Epstein 2023; Garrard 2023; McKeen 2020; Romney 2018). New software, including smartphone apps such as iOS Screen Time, Android Digital Wellbeing, Moment, or Forest, promise to help consumers detox from social media. According to a recent CivicScience (2022) study, 58% of U.S. consumers engage in social media detox in the form of time-outs at least once a week and 32% even take a break for at least 2 hours every day. Among Gen Z social media users, 20% have already applied social media detox, and 22% intend to use it in the future (CivicScience 2023). This collected evidence reveals that detoxing already is prevalent and seems likely to persist as a relevant trend in social media usage. In turn, its implications for advertisers need to be identified. Yet scientific research into such consumer behaviors remains scarce and mainly limited to the psychology domain, rather than marketing or advertising (Radtke et al. 2022). Previous studies also tend to focus on the (positive) psychological consequences of social media detox for individual consumers. This includes improvements to cognitive and physical performance (Turel, Brevers, and Bechara 2018), health, well-being (Vanman, Bauer, and Tobin 2018), life satisfaction (Tromholt 2016), and social relationships (Hunt et al. 2018).

To the best of our knowledge, this is the first investigation of the impact of social media detox on consumers' attention to social media ads. We address the following research questions: (1) What are the motivations and conditions that promote or prevent social media detoxes? (2) Which types of social media detoxes are applied by consumers? And (3) how do

social media detoxes influence attention to social media ads? To explore these questions, we conduct a series of four studies. First, we conduct online in-depth qualitative consumer interviews to examine motivations and conditions for social media detox and identify prevalent types of it (Study 1, n = 36). Then, we investigate the influence of the two prevalent types, time-outs and time constraints, on ad attention on social media (Study 2, n = 22). Finally, two mobile eye-tracking experiments (Study 3, n = 50; Study 4, n = 80) in realistic viewing conditions add empirical evidence on the effects. The qualitative findings confirm that social media plays an essential role in consumers' daily lives for communication, entertainment, and information-seeking. Participants' responses suggest that they experience deprivation of these needs due to social media detox. This may decrease their attention to ads while opting for more relevant native content. Our empirical findings confirm that social media detox in the form of time-outs exert a strong negative impact on attention to social media ads. When consumers revisit social media platforms after a period of abstinence, they consider ads for a significantly shorter time than they normally do. In contrast, time constraints created mixed results: while the qualitative interviews suggested that time constraints might reduce ad attention, neither of the experiments (Study 3 and Study 4) revealed significant changes in viewing times for ads under time constraints.

We contribute to advertising theory and practice in several ways. First, we introduce the concept of social media detox and operationalize its two forms: time-outs and time constraints. Second, we identify the motivations and conditions that promote or prevent social media detoxes and explore its influence on attention to ads. These insights help advertisers and researchers better understand the circumstances surrounding social media detox. Third, we establish first empirical evidence on whether different forms of social media detox reduce attention to ads. Our findings suggest that advertisers should avoid airing ads immediately after social media time-outs to increase ad effectiveness.

II Theoretical Background and Hypotheses

1 Different Types of Social Media Detox

Prior literature uses a wide variety of terms to describe the conscious non-use of digital devices and social media, such as *abstinence*, *break*, *disconnection*, or *unplugging* (e.g., Fioravanti, Prostamo, and Casale 2020). As an umbrella term, 'digital detox' comprises all these labels. It refers to a reduction or withdrawal from digital devices in general (Radtke et al. 2022). Social media detox signifies consumers' conscious efforts to reduce their use of social media in particular (Syvertsen and Enli 2020). It can be achieved in two ways (see Figure 12). A more intense form involves eliminating all social media usage during *time-outs*. During social media time-outs, consumers do not use social media for a particular period of time. This can range from several minutes to whole days. In the digital detox app Forest for example, the minimum time-out is 10 minutes, and the maximum is 3 hours (www.forestapp.cc). Most consumers who voluntarily detox struggle with break periods longer than a few hours. About 21% indicate they can handle social media abstinence no longer than a day (Bitkom Research 2022). Even short time-outs feel like severe interventions with motivational consequences. In contrast, a milder form, also called partial detox (Welledits, Schmidkonz, and Kraft 2019), restricts social media usage by imposing *time constraints*. In this case, consumers set time restrictions for themselves (e.g., 1 minute of browsing per session, a maximum of 10 minutes a day)

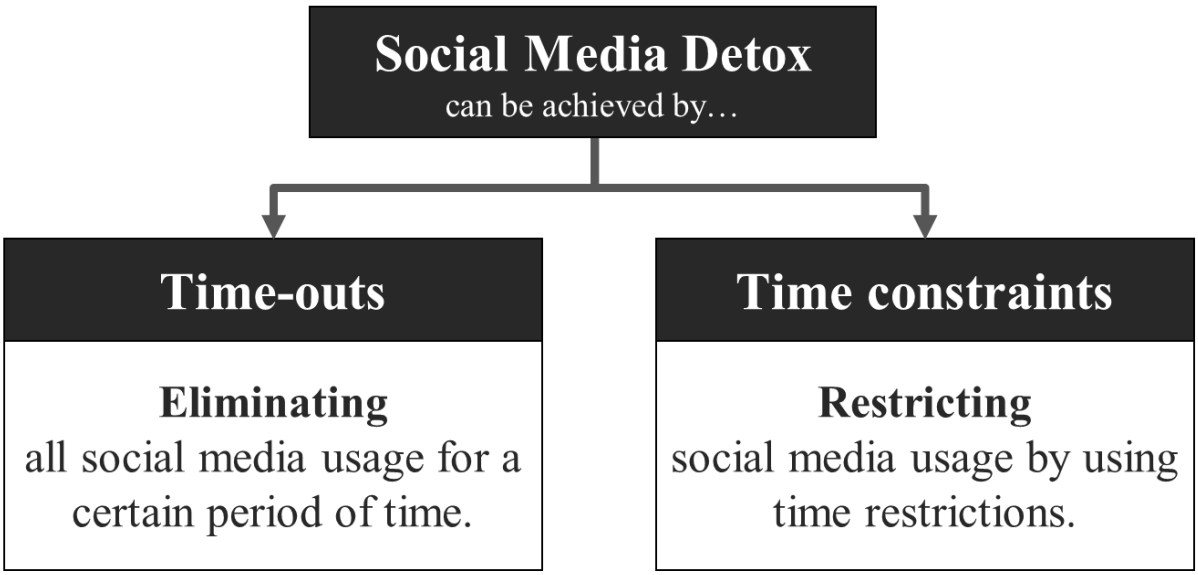


Figure 12: The two forms of social media detox

2 Influences of Detox on Consumer Behavior

Classic need theories predict that motivations to use an object increase when such usage is deprived (e.g., through detox), and no similar substitutes are available (Dai and Fishbach 2014; Lewin 1935; Maslow 1943, 1954; Wilcockson, Osborne, and Ellis 2019). A sense of longing after a deprivation period manifests in many consumer behavior domains, such as nutritional sciences: Cravings for chocolate (Richard et al. 2017) and rice (Komatsu et al. 2015), as well as various salty (Beauchamp et al. 1990), carbohydrate-laden, or protein-rich (Coelho, Polivy, and Herman 2006) foods, increase when consumers experience deprivation of those foods. Recent research on social touch indicates that the more time people practice social distancing, such as during COVID-19, the more they crave physical touch (Von Mohr, Kirsch, and Fotopoulou 2021). Social relationship deprivation also increases subsequent needs for social reconnection and proximity (Chester, DeWall, and Pond 2016).

3 Impacts of Social Media Detox on Attention to Social Media Ads

3.1 Time-Outs and Attention to Social Media Ads

Cravings also occur after smartphone and social media abstinence (Wilcockson, Osborne, and Ellis 2019). Stieger and Lewetz (2018, p. 618) propose that 'social media is evidently such an integral part of everyday life that being without it leads to withdrawal symptoms (craving, boredom), relapses, and social pressure to get back on social media'. Social media consumption provides rewards; users anticipate they will obtain gratification from messages, likes, or comments (Muench 2014). These rewards do not emerge predictably in every usage situation though. Instead, they appear randomly and offer intermittent reinforcement (Mujica et al. 2022; Skinner 1938). This fosters conditioning that prompts users to check regularly for updates on social media and reinforces their social media dependence.

Two main drivers may evoke increased longing for social media after a time-out: deprivation of social needs (Orben, Tomova, and Blakemore 2020) and fear of missing out (Bui et al. 2021; Eide et al. 2018; Roberts and David 2020). Feelings of social deprivation can result in perceived social isolation, because it impedes the provision of positive social feedback (Oberst et al. 2017). After a time-out, upon returning to the platform, consumers likely will have experienced deprivation of specific social media needs. Consequently, they will strongly prioritize their access to gratifying native social media content rather than ads. The fear of missing out on recent developments in their social circle also likely increases with a time-out. This fear should strengthen users' focus on native social media content and decrease their willingness to engage with social media ads even further. Therefore, we hypothesize:

H1: Compared to no social media time-outs, time-outs reduce attention (total gaze duration) to social media ads that appear after the time-outs.

3.2 Time Constraints and Attention to Social Media Ads

When consumers have only a limited amount of time, they experience time pressure and become more selective in the distribution of their attention (Pieters and Warlop 1999). This narrow focus leaves limited opportunity to process information about irrelevant cues (Wu and Xie 2018). Accordingly, when experiencing time constraints, consumers likely avoid ads (Rojas-Méndez and Davies 2017). In turn, they opt for native, rewarding content, such as news and updates from social contacts, to meet their deprived needs (Beyens, Frison, and Eggermont 2016). Social media time constraints should thus encourage consumers to amplify their search for native content while devoting less time to or even actively ignoring ads which do not match their needs. In this sense, time-constrained social media users may be similar to banner-blind searchers, who have a specific search target and actively try to ignore content that does not relate to that target (Langner, Christ, and Klinke 2019). Thus, we hypothesize:

H2: Compared to no social media time constraints, time constraints reduce attention (total gaze duration) to social media ads.

3.3 Combined Effects of Time-Outs and Time Constraints on Attention to Social Media Ads

In practice, social media detox apps like iOS Screen Time offer options for combining the two detox forms. For example, consumers might avoid excessive consumption after a time-out by setting time constraints. We anticipate stronger combined effects of time-outs and time constraints: When time constraints are applied after a social media time-out, the urge to satisfy deprived needs (e.g., catching up with friends) likely gets reinforced. This should further reduce consumers' attention to social media ads. Regarding the combined effect of the two forms of social media detox, we hypothesize:

H3: Compared to using either social media time-outs or time constraints alone, the combination of time-outs and time constraints leads to less attention (total gaze duration) paid to social media ads.

The hypothesized effects are summarized in Figure 13. In testing them, we seek to offer profound insights into this novel phenomenon and establish initial empirical evidence for the impacts of social media detox on ad effectiveness. Thus, we adopt a mixed qualitative and quantitative approach. This methodology has been endorsed in advertising literature (Bergkvist and Langner 2023) and exemplified in recent research (Lawry 2022; Martínez-Navarro and Bigné 2022; Schütmaat et al. 2023; Wolfsteiner et al. 2023).

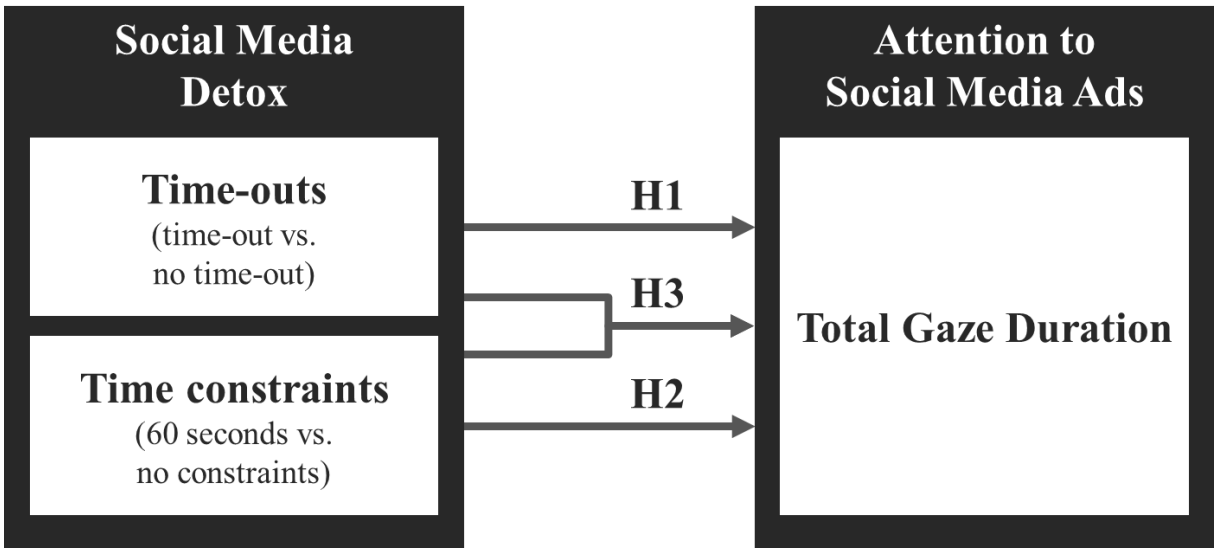


Figure 13: Conceptual model

III Study 1: Qualitative Online Interviews on Social Media Detox

Noting the lack of advertising research on social media detox, we explore this new phenomenon by conducting qualitative interviews, designed to gather insights on social media detox forms, motivations, and situational contexts that promote or hinder it.

1 Participants

The structured online interviews included 36 students (24 females) of a German university aged 19 to 34 years (M = 24.3), who participated in return for course credit (see Appendix 25).

2 Procedure

To begin, we asked participants about their understanding of the term 'social media detox'. Afterwards, a standardized definition of social media detox ('*Social media detox describes the practice of consciously reducing the use of social media for a certain period of time.'*) was provided to ensure a common understanding of the term. The subsequent questions were adapted to participants' past experience with social media detox. They covered topics related to different forms of social media detoxes, motivations for detoxes, situational contexts, and barriers to detoxing. We list all questions and representative responses in Appendix 26. Finally, we collected demographic information (gender, age, and education).

3 Method

To structure the qualitative data, the first and second authors independently read all of the participants' responses and developed an individual coding scheme. We used both deductive and inductive content analyses to classify recurring themes in the participants' responses. The two coding schemes were then reviewed and any discrepancies resolved through discussion (Youn and Kim 2019). All interviews were translated from German into English using a backward-translation process and verified by an expert fluent in both languages (Balasubramanian and Gistri 2022).

4 Results

Forms of Social Media Detoxes. Participants demonstrated a clear understanding of the term ‘social media detox’. They describe it as a deliberate withdrawal from or temporary reduction in the use of specific social media platforms. Additionally, they note increasing personal well-being and focusing on mental health as central goals. Thereby, participants identified two main forms of social media detoxes. First, milder *time-constrained* consumption represents an attempt to reduce time spent on social media without completely abstaining. Approximately one-third of the participants noted setting time limits for their social media apps. Some of them elaborated on how to set such limits, such as choosing ‘a time period in which you are only on social media’ (P [Participant] 3, [age] 27, m [male]). Second, a more stringent approach involves complete *time-outs*. This might be achieved by uninstalling apps, hiding cell phones, blocking apps, and deactivating or temporarily deleting social media accounts. In addition, participants noted a more *conscious consumption* of social media or cell phones in general, for example by choosing which apps to use, disabling notifications or muting the phone, and increasing usage awareness.

Prior Experience with Social Media Detox or Future Intentions. A significant proportion of the participants (15/36) have engaged in social media detox once (7) or multiple times (8) in the past. Others are considering one in the future (6). However, 15 participants had never done social media detox nor were planning one.

Motivations that Promote Social Media Detox. When asked about their reasons for undertaking or considering social media detox, participants cited unhealthy facets of social media that they wanted to avoid, such as the portrayal of unrealistic lifestyles. They also regarded social media detoxes as means to reduce addiction and stress, while focusing on more important things in their lives and ultimately promoting mental health.

Motivations that Prevent Social Media Detox. In addition, we asked about what might discourage people from social media detoxes. Participants described a dependence on social media as a source of information and a means of communication, entertainment, passing time, inspiration, and relaxation. Accordingly, some cited the fear of missing out as a strong motivator for continued use.

Situations that Promote Social Media Detox. We asked participants to either recall or imagine situations in their lives that might prompt a social media detox. Most of them indicated that recognizing their own strong dependence on social media could function as an initiator. Stressful times, such as during exam weeks or while working on a challenging project, where also noted to promote social media detoxes. Three participants specified dramatic live events that created a need for social media detoxes in their effort to refocus on important things in life or 'to simply find yourself again' (P9, 23, f [female]). In addition, social media detoxes appear more likely during recovery phases, such as vacations, as well as while 'being together with close friends on certain occasions' (P26, 34, f). One participant strategically incorporates detox phases into her daily routine: she does not use social media 'in the morning after getting up' and 'in the evening before going to bed' (P13, 21, f).

Situations that Prevent Social Media Detox. When avoiding a social media detox, participants highlighted the need for social media in certain situations. They provided reasons such as engaging in online social activities (e.g., 'when an important sporting event takes place' (P36, 22, m)) or bridging distances with close others (e.g., during a 'long-distance relationship' and to stay in 'contact with family members abroad' (P2, 25, f)). Participants also mentioned that during stress-free times, they avoid detoxes because social media provides a source of distraction and diversion. Moreover, individuals depend on it, particularly when other sources of stimulation are unavailable (e.g., 'during a lockdown, such as in the Covid-19 pandemic' (P35,

24, m)), or when dealing with loneliness during difficult times (e.g., ‘after a break-up’ (P24, 27, m; P28, 21, f)).

5 Discussion

Participants’ understanding of social media detox aligns with established definitions (Radtke et al. 2022). Participants often include the underlying goal of the detox, such as to improve personal well-being and mental health. Different motivations also prevent consumers’ from adopting social media detoxes, such as the essential role that social media plays in their daily lives for communication, entertainment, and information-seeking. Overall, these initial findings align with classic need theories and suggest that consumers may experience deprivation of their specific social media needs (e.g., communication, entertainment, information) due to a detox. Furthermore, such a practice may intensify the fear of missing out.

IV Study 2: Qualitative In-Depth Interviews on Time-Outs and Time Constraints

With Study 2, we explore consumers’ reactions to social media detoxes that take the two prevalent forms, time-outs and time constraints, on social media consumption and attention to social media ads. We thus attain more in-depth insights and also test the validity of the manipulations that we plan to use in the subsequent experiments (Studies 3 and 4).

1 Participants

The semi-structured interviews involve 22 German consumers (17 females), ranging in age from 20 to 32 years (m = 24.9; see Appendix 27).

2 Procedure

We investigate the influence of both forms of detox on attention to social media ads. Thus, we include two different interview conditions, defined by pre-interview manipulations.

To manipulate time-outs, Group A was instructed upfront not to use any social media platforms on the day of the interview, from the time they woke up until the interview took place. Then, at the beginning of the interview, these participants were instructed to visit Instagram and use it as they normally would in such a situation (i.e., after a time-out). They could use it as long as they wanted and stop whenever they chose; once they did, we conducted the interview.

To manipulate time constraints, Group B was introduced to a scenario where they decided to implement a social media detox by applying time constraints of 60s [seconds] for each Instagram session. Then, they set the timer and visited Instagram. They had to close the app as soon as the timer expired.

3 Method

After each Instagram session ended, we started the semi-structured qualitative interviews. Several questions were asked about the recent Instagram interaction to stimulate a deeper discussion about feelings and thoughts, content participants did or did not engage with, and their reaction and attention to social media advertising, compared with their normal Instagram interactions. The translation and coding procedure were similar to Study 1. We list the study questions and sample responses in Appendix 28.

Manipulation of Time-Outs. We manipulate time-outs in a way that is specific and realistic. The participants in the time-out condition were instructed not to use social media platforms (e.g., Instagram, Facebook, TikTok, Snapchat, WhatsApp stories) on the day of the study session. Including multiple social media platforms in the restriction is important to prevent participants from turning to substitute sources of gratification (Dai and Fishbach 2014). The average time-out duration of the participants of this condition was about 7.4 hours.

Manipulation of Time Constraints. In 2022, an average user spent 186s for a single session on Instagram (BusinessDIT 2023). Though, session durations vary across settings. In

particular, situational factors motivate the use of social media, as well as the time spent on it (Voorveld and Viswanathan 2015). To determine an average session duration for the situation created by our study setting, we conducted a preliminary study. A convenience sample of 10 female student participants, aged 18 to 27 years (M = 21.5), took part voluntarily and received a meal voucher worth 5 Euro. At the beginning of the study, participants received mobile eye-tracking glasses (Tobii Pro 2) and were instructed to use Instagram as they normally would. We issued no time constraints; they were told to close Instagram when they wanted. The average Instagram session duration was 255.50s (SD = 164.96s), thus longer than the average usage time reported in market research.

To be effective, the time constraint manipulation should limit conventional session durations but still be ecologically valid. Therefore, we chose a 60s time constraint for our manipulation. It represents about one-third of an average Instagram session duration and one-fourth of the average Instagram session duration in our preliminary study. Furthermore, this constraint is ecologically valid, because existing detox apps (e.g., Apple's iOS Screen Time) also use 60s as a minimum time constraint.

4 Results

Participants' Experiences with Time-Outs and Time Constraints. The manipulation of time-outs represented an actual restriction on participants' regular Instagram usage pattern. One participant noted that during the time-out he 'felt a bit of pressure to use Instagram and a bit as if something was missing, as if something was being taken away, like in withdrawal' (P2, TO [Time-Out], 26, m). Another participant described having 'withdrawal symptoms because [she] felt the urge to scroll on Instagram again to pass time, or to stay in touch with friends' (P8, TO, 23, f). Similarly, the time constraint manipulation represented a clear limitation on regular usage. When prompted to offer their reaction to the time constraint, one participant explained: 'So 1 minute was already very, very little. Somehow, I felt a bit under pressure there' (P9, TC

[Time Constraint], 23, f). Similarly, another respondent felt as if ‘somehow one was a bit under time pressure’ (P14, TC, 27, f).

Impacts of Time-Outs on Attention to Social Media Ads. When participants reported their reactions to social media advertising after the time-out, several respondents indicated that they skipped ads faster or completely ignored them. This is illustrated by a participant who ‘did not watch any commercials this time’ (P22, TO, 32, f). These choices appear to reflect the increased importance of native content after social media time-outs: ‘Ads didn’t really interest me at all, because I was more focused on what people were doing’ (P4, TO, 25, f) or ‘if there was advertising, I skipped it immediately. Not paid attention at all, I wanted to go directly to my more important content’ (P7, TO, 24, f). One participant explained that ads hindered her pursuit of her actual goals, namely, ‘to catch up on everything as quickly as possible and see what the others had done’ (P7, TO, 24, f).

The Impact of Time Constraints on Attention to Social Media Ads. For participants in the time-constrained situation, we found similar outcomes. One participant described allocating her spare Instagram usage time to consuming native content rather than engaging with ads: ‘In between, advertising was displayed ... and I just skipped it and didn’t look at it at all, because it would have taken up my time’ (P9, TC, 23, f). The ads also evoked greater annoyance: ‘The advertising bothers you more, because of course you have less time and you are robbed of even more time by the advertising’ (P13, TC, 25, f). Such heightened annoyance in turn prompted quicker disengagement from ads: ‘It definitely bothered me more now and I got rid of it faster’ (P15, TC, 26, f). Another respondent even claimed complete disregard: ‘So now with the time limit I have actually ignored the advertising, so I quickly went over it’ (P14, TC, 27, f).

5 Discussion

Both forms of social media detox thus appear to affect attention to the ad. Time-outs and time constraints seem to prompt participants to take less or even no time browsing ads.

Such behaviors might reflect a general search mode that consumers enter when they encounter ads while under time pressure. However, these indications of the effects of social media detox on advertising reception represent participants' subjective perceptions. To investigate and verify these effects and differences, we conduct two experiments, using mobile eye-tracking in realistic settings.

V Study 3: The Impact of Time Constraints and Time-Outs on Attention to Social Media Ads

1 Design

With this experiment, we seek to establish the influence of time-outs, time constraints, and their combination on attention to social media ads. Thus, we employ a 2 (time-out vs. no time-out) × 2 (time constraint of 60s vs. no time constraint) between-subjects design. To examine the influence of social media time-outs, we analyze consumers' attention toward social media ads when they revisit Instagram for the first time after a time-out. To assess the impact of social media time constraints, we analyze consumers' attention toward social media ads while subjected to a 60s time limit for their use. To determine the complementary effects, we also had participants take a time-out and then set a 60s timer for their subsequent Instagram session.

2 Sample

Eye-tracking studies, especially mobile versions, are very resource-intensive, because they require individual processing of participants and manual coding of areas of interest (AOIs). Thus, they typically feature sample sizes of around 30 participants (Meißner et al. 2019; Pfeiffer et al. 2020) and average cell sizes of 11 (Scott et al. 2019). Our study includes 50 undergraduate students (26 women) of a German university who took part in exchange for course credits. The sample ranges in age between 20 and 30 years (M = 22.4). 7 participants were excluded from the analysis because they disregarded the instructions (3), had no Instagram account and just

installed one for the experiment (1), or participated in an earlier eye-tracking study conducted by the research team (1). In addition, two participants encountered no ads and therefore could not be included in the analysis. This resulted in cell sizes ranging from 9 to 13 participants.

3 Procedure

The study was conducted in a university laboratory. In advance of the experiment, participants received an e-mail informing them that the experiment would be about their personal use of Instagram. They were randomly assigned to one of the four treatment groups, in two steps. First, half of the participants were assigned to the time-out condition and the other half to the no time-out condition. Second, at the beginning of the experiment, they were randomly assigned to the time constraint versus no time constraint condition. In the time-out condition, participants were not allowed to use Instagram or other social media platforms on the day of the experiment, from the time they woke up until the study began. The other group received no specific instructions. In the laboratory, a research assistant set up the mobile eye-tracker. Participants were asked if they followed the emailed instructions, after assuring them that there would be no consequences if they did not. Participants who reported that they failed to engage in the social media time-out were excluded from further analysis. In the time constraint condition, participants were allowed to use Instagram for 60s. They had to set a timer and then stop using Instagram when the timer rang. In the other condition, participants could stay on Instagram as long as they wanted. As ‘advertising takes place in the wild, not in a consumer lab’ (De Pelsmacker 2021, p. 841), our participants used their personal Instagram accounts on their own smartphones without any restrictions. They encountered real ads placed in their individual Instagram content, ensuring a naturalistic browsing experience and ad environment. After the Instagram session, participants answered questions about their sociodemographic background (e.g., age, gender) and a control question assessing the last time they accessed social media. The participants in the time-out condition affirmed that they underwent a detox period of at

least 3 hours and had not used social media before their appointment on the day of the experiment.

4 Equipment and Measures

We used Tobii Pro Glasses 2 for high-definition video and audio recording as well as eye-tracking. Participants could move freely and were not subject to any restrictions, especially with regard to head movements. The glasses tracked participants' eye movements, and the resulting data were prepared and exported using iMotions Version 9.1. We coded visual AOIs for all identified ads in the videos frame by frame to reflect the dynamic situations. The total gaze duration in seconds within each social media ad's AOI serves to measure attention to the ad.

5 Results

Descriptive Results. The participants encountered 4.7 unique ads on average (i.e., different ads; repeated exposures to identical ads did not occur) while browsing Instagram. Within the first minute of the session, participants saw 3.7 unique ads on average. In total, we identified 200 unique ads in the data, 161 of which were viewed within the first minute. In a preliminary outlier analysis, we identified 5 ads with gaze durations greater than 3 standard deviations away from the group mean, which we removed from the analysis (Maslowska, Smit, and van den Putte 2013).

Manipulation Check. As a check of the time constraints manipulation, we compared session durations of participants in the no constraint versus the 60s constraint conditions, using the Welch-test to correct for unequal variances (Rasch, Kubinger, and Moder 2011; Ruxton 2006). All participants in the time-constrained condition made use of the full minute and did not close Instagram earlier. Participants in the group with no time constraints used Instagram on average for 155.95s, thus significantly longer than in the time-constrained condition (M_{No}

$_{constraints}$ = 155.95s, SD = 77.60s; $M_{Constraints}$ = 63.43s, SD = 2.11s; T = 5.59; $p_{one\text{-}sided}$ = .001; d = 1.67). Therefore, the manipulation of time constraints was successful.

Impacts of Time-Outs and Time Constraints on Attention to Social Media Ads. We operationalize attention to social media ads as the time participants look at a social media ad (total gaze duration). To test the overall model, we conducted an analysis of variance for the four experimental conditions in the 2 × 2-between-subjects design: Condition $1_{No\ constraint,\ no\ time\text{-}out}$; Condition $2_{No\ constraint,\ time\text{-}out}$; Condition $3_{Time\ constraint,\ no\ time\text{-}out}$; and Condition $4_{Time\ constraint,\ time\text{-}out}$. Because we cannot assume variance homogeneity in the data, we used the Welch-ANOVA. The overall model is significant (F_{Welch} (3, 82.229) = 6.17; p = .001; η^2 = .099), indicating mean differences in the experimental conditions. We compare the group means with a priori contrasts to test our hypotheses (see Tables 8 and 9; Figures 14 and 15).

The Impact of Time-Outs on Ad Attention. The paired contrast for groups without time-outs (Condition 1 and Condition 3) versus those with time-outs (Condition 2 and Condition 4) reveals a highly significant difference in means ($M_{No\ time\text{-}out}$ = 1.35s; $M_{Time\text{-}out}$ = .85s; T = 4.20; $p_{one\text{-}sided}$ < .000 d = 1.38). We corroborate this result by comparing Condition 1 and Condition 2 ($M_{No\ constraint,\ no\ time\text{-}out}$ = 1.32s; $M_{No\ constraint,\ time\text{-}out}$ = .89s; T = 2.32; $p_{one\text{-}sided}$ = .012; d = .55). In line with our prediction that a time-out negatively affects subsequent attention to the ad (total gaze duration), the statistical analyses reveal support for H1. In detail, viewing time for ads is one-third shorter in the time-out condition than in the no time-out condition.

The Impact of Time Constraints on Ad Attention. The paired contrast for groups without time constraints (Condition 1 and Condition 2) versus with time constraints (Condition 3 and Condition 4) instead reveal no significant difference in means ($M_{No\ constraint}$ = 1.04s; $M_{Constraint}$ = 1.08s; T = .22; $p_{one\text{-}sided}$ = .414; d = .07), which is corroborated by the comparison of Condition 1 and Condition 3 ($M_{No\ constraint,\ no\ time\text{-}out}$ = 1.32s; $M_{Constraint,\ no\ time\text{-}out}$ = 1.39s; T = -.34; $p_{one\text{-}sided}$ = .369; d = -.08). These findings do not offer support for H2. Rather, the time spent viewing ads

under the influence of time constraints is nearly identical to that spent in the group without time constraints.

The Impact of Combined Time Constraints and Time-Outs on Ad Attention. Finally, to test their combined influence, we contrast Condition $4_{\text{Constraint, time-out}}$ with Condition $2_{\text{No constraint, time-out}}$ and then contrast Condition $4_{\text{Constraint, time-out}}$ with Condition $3_{\text{Constraint, no time-out}}$. The first contrast reveals no significant effect ($M_{\text{Constraint, time-out}}$ = .76s; $M_{\text{No constraint, time-out}}$ = .89s; T = 1.27; $p_{\text{one-sided}}$ = .103; d = .25), whereas the latter indicates a highly significant effect ($M_{\text{Constraint, time-out}}$ = .76s; $M_{\text{Constraint, no time-out}}$ = 1.39s; T = 3.65; $p_{\text{one-sided}}$ = .001; d = .84). Again, we cannot find an effect for time constraints; total gaze duration decreases only if time-outs are present. Therefore, we must reject H3.

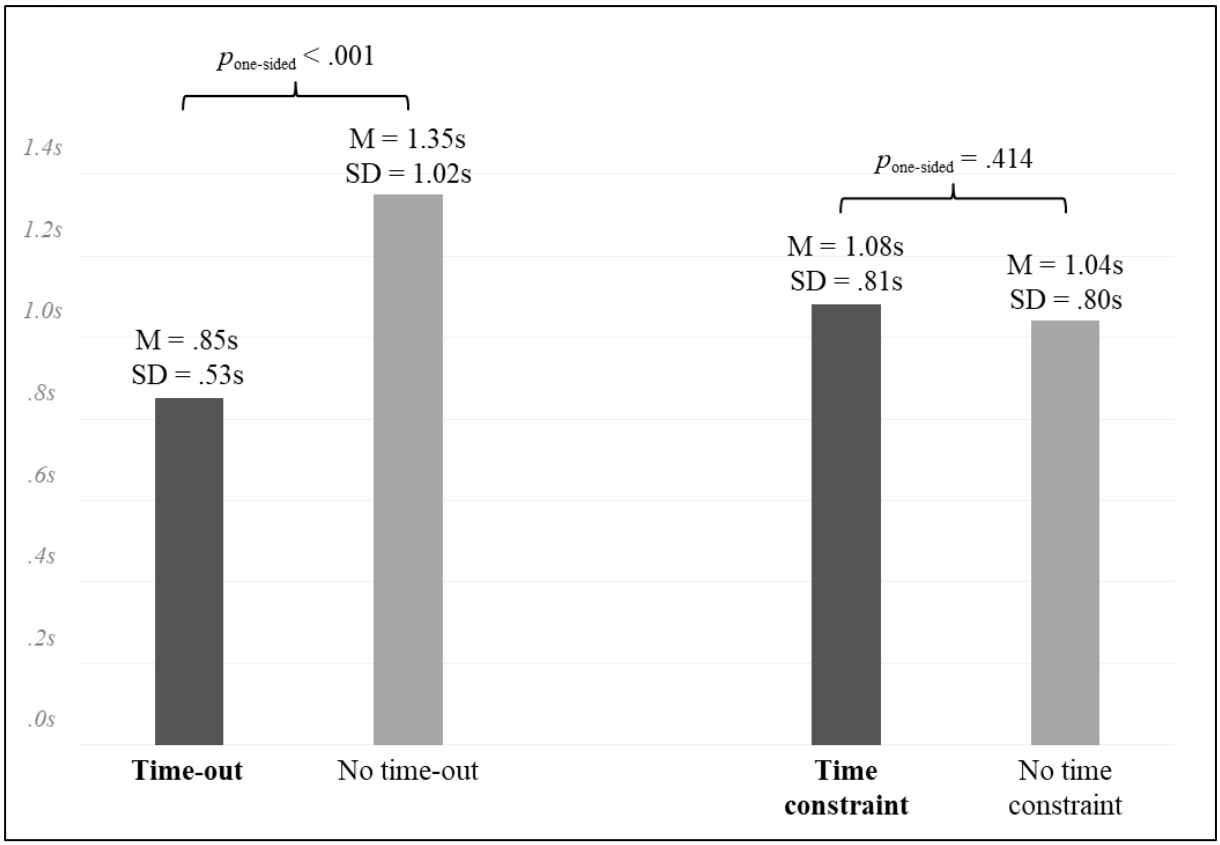
Table 8: Descriptive statistics, Study 3

Experimental condition	$n_{Participants}$	n_{Ads}	Mean [s]	SD
Condition $1_{No\ constraint,\ no\ time\text{-}out}$	9	41	1.32	1.10
Condition $2_{No\ constraint,\ time\text{-}out}$	13	79	.89	.54
Condition $3_{Constraint,\ no\ time\text{-}out}$	12	38	1.39	.93
Condition $4_{Constraint,\ time\text{-}out}$	9	37	.76	.51
Total	43	195	1.05	.80

Table 9: A priori contrasts, Study 3

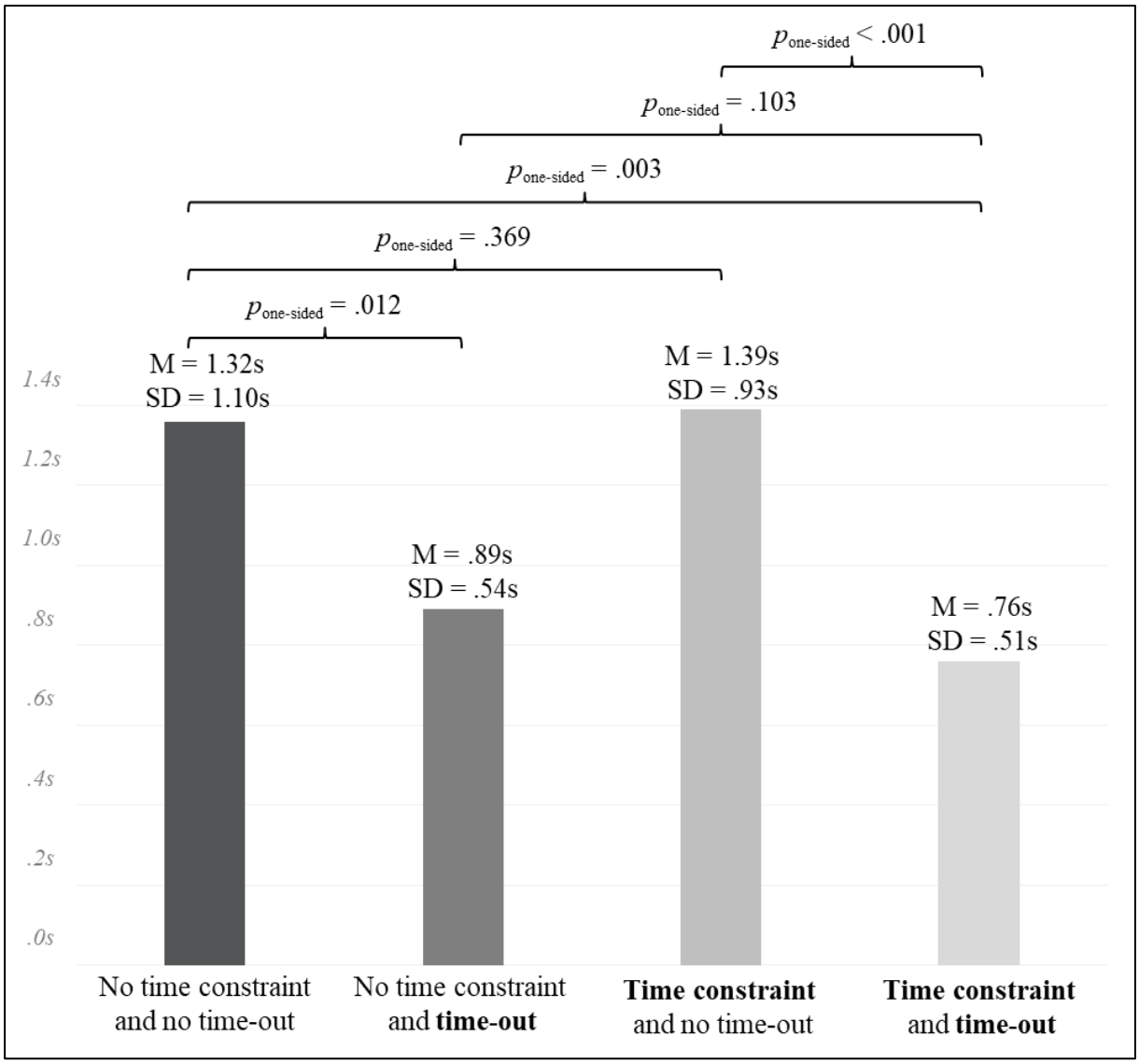
Contrast	Mean Difference [s]	Standard Error [s]	T	df	Sig. one-sided	Sig. two-sided	Cohen's d
C1 vs. C2	.42	.18	2.32	50.08	.012	.024	.55
C1 vs. C3	-.76	.23	-.34	76.41	.369	.738	-.08
C1 vs. C4	.55	.19	2.90	57.77	.003	.005	.64
C2 cs. C4	.13	.10	1.27	73.61	.103	.207	.25
C3 cs. C4	.63	.17	3.65	57.73	.000	.001	.84
C1+C2 vs. C3+C4	.55	.25	.22	106.23	.414	.827	.07
C1+C3 vs. C2+C4	1.05	.25	4.20	106.23	.000	.000	1.38

Annotation: Mean differences and standard errors are in seconds. C1 = Condition 1 (No constraint, no time-out); C2 = Condition 2 (No constraint, time-out); C3 = Condition 3 (Constraint, no time-out); C4 = Condition 4 (Constraint, time-out).



Annotation: The y-axis represents attention toward social media ads, measured as total gaze duration in seconds [s]. Data are from Study 3.

Figure 14: A priori paired contrasts for groups with and without time-outs and time constraints



Annotation: The y-axis represents attention toward social media ads, measured as total gaze duration in seconds [s]. Data are from Study 3.

Figure 15: Mean differences, standard deviations, and a priori contrasts for groups with and without time-outs and time constraints

6 Discussion

Social media detox, in the form of time-outs, results in significantly shorter viewing times for ads. According to Sawilowsky's (2009) classification, a Cohen's d of 1.38 for the paired contrasts represents a very strong effect. These results are consistent with our theoretical predictions and confirm H1. However, time constraints have no effect on ad viewing time. Theory suggests that time constraints should cause consumers to narrow their attentional focus

(Pieters and Warlop 1999). In turn, they choose relevant native content over irrelevant ads and derive more satisfaction from their limited time (Beyens, Frison, and Eggermont 2016). Our results conflict with these theoretical assumptions. In our lab experiment, participants in the purely time-constrained condition viewed ads for nearly the same duration (1.39s) as participants in the control condition, which had no manipulation (1.32s). In the combined time-outs and time constraints condition, the effect likely is due to time-outs solely. The laboratory setup, which necessitated advance appointments, may have affected the time constraints' impact. Moreover, informing participants about the study's focus on Instagram might have influenced their usage of the app on the day of the experiment. The restriction of time constraints to the laboratory setting allowed for immediate resumption of Instagram use after the experiment. Thus, to further investigate time constraints, we designed a follow-up experiment in a university library. This venue provides a realistic environment for the experiment's scenario: A study break with social media use restrictions, reflecting participants' real situation and addressing their motivation to continue studying.

VI Study 4: Reanalyzing the Impact of Time Constraints on Attention to Social Media Ads

1 Design, Procedure, Equipment, and Measures

Study 4 uses a single-factor, between-subject design (time constraints of 60s vs. no time constraints). In a university library, research assistants approached students and asked them to take a short break from their studies to participate in the experiment, in exchange for a meal voucher worth 5 Euro. Participants received mobile eye-tracking glasses and were instructed to visit Instagram with their own smartphone. They were randomly assigned to either the time constraint (n = 38) or no time constraint (n = 42) condition. The manipulation of time constraints, procedure, equipment, and measures were identical to those in Study 3.

2 Participants

The 80 participants (50 women) who took part in Study 4 were mostly students (ranging in age from 18 to 31 years; M = 22.4). Due to technical issues (1) and a failure to follow the instructions (5), 6 participants were excluded from further analysis. Another 4 participants did not encounter any ads and thus were not included. Thus, 32 participants remained in the time constraint and 38 in the no time constraint conditions.

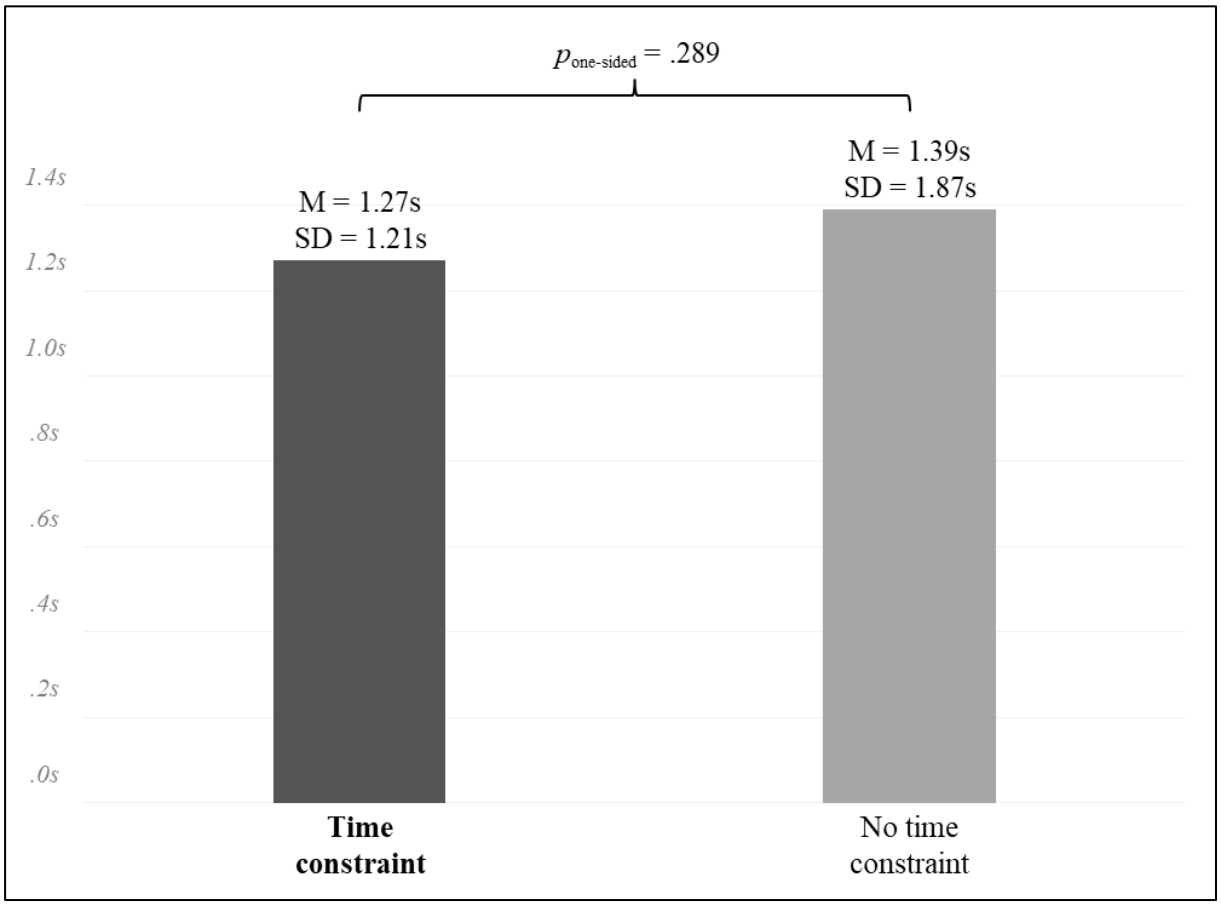
3 Results

Descriptive Results. Participants saw an average of 4.5 unique ads while browsing Instagram. Within the first minute of each session, participants saw an average of 3.1 unique ads. In total, we identified 313 unique ads in the data, 215 of which were viewed within the first minute. In a preliminary outlier analysis, we identified 5 ads with gaze durations greater than 3 standard deviations from the group mean, which we removed from the analysis (Maslowska, Smit, and van den Putte 2013).

Manipulation Check. As a manipulation check, we compared the session durations of participants in the no constraint condition with the 60s condition using the Welch-test. Again, all participants in the time-constrained condition made use of the full minute and did not close Instagram earlier. Participants in the group with no time constraints used Instagram significantly longer than 60s: on average, for 165.85s ($M_{\text{No constraint}}$ = 165.85s, SD = 135.46s; $M_{\text{Constraint}}$ = 64.34s, SD = 5.37s; T = 4.68; $p_{\text{one-sided}}$ = .001; d = 1.03). Thus, the manipulation was successful.

Impact of Time Constraints on Ad Attention. To test the influence of time constraints on ad attention (total gaze duration), the analysis relied only on data gathered within the first 60s, to ensure comparability between conditions. A Welch-test showed no significant mean difference in total gaze duration between conditions with and without time constraints ($M_{\text{No constraint}}$ = 1.39s; $M_{\text{Constraint}}$ = 1.27s, T = .56, $p_{\text{one-sided}}$ = .289; d = .08). Viewing time for ads remained

constant, whether participants were subject to time constraints or not, so we again must reject H2 (see Table 10, Figure 16).



Annotation: The y-axis represents attention toward social media ads, measured as total gaze duration in seconds [s]. Data are from Study 4.

Figure 16: Welch-test for experimental groups with and without time constraints

Table 10: Descriptive statistics and Welch-test, Study 4

Descriptive statistics					
	$n_{Participants}$	**n_{Ad}**	**Mean [s]**	**SD [s]**	**Standard Error [s]**
No time constraint	38	114	1.39	1.87	.18
Time constraint	32	96	1.27	1.21	.12
Welch-Test					
T	**Df**	**Sig. one-sided**	**Sig. two-sided**	**Mean Difference [s]**	**Cohen's d**
.56	195.67	.289	.578	.12	.08

Annotation: Means, standard deviations, standard errors, and mean differences are in seconds.

VII General Discussion

Social media detoxes in the form of time-outs exert a strong negative impact on attention to social media ads. When consumers revisit social media platforms after a period of social media abstinence, they consider ads for a significantly shorter time than they normally do. This is indicated in statements from the qualitative interviews and objectively measured viewing times in Study 3 (i.e., .89s after a time-out versus 1.32s without a recent time-out). These findings align with literature on classic need theories (Dai and Fishbach 2014). Apparently, consumers' longing for social updates increases with their rising sense or fear of missing out (Eide et al. 2018) and deprivation of their social interaction needs (Orben, Tomova, and Blakemore 2020). To counteract these negative effects, they focus on relevant native content, which better satisfies their craving for social connectedness. In turn, the time they devote to ads decreases, because they classify ads as goal-irrelevant clutter (Ferreira et al. 2017).

For time constraints though, we uncover mixed results. In the qualitative interviews, participants indicated that time constraints created time pressure. This prompted them to focus more on native content and, seemingly, spend less time gazing at ads. But neither experiment (Studies 3 and 4) revealed shorter viewing times for social media ads under time constraints. Rather, these participants consumed ads in more or less the same manner, independent of any time constraints. These surprising results conflict with classic need theories and findings from some previous empirical research that predicts that consumers focus more narrowly on gratifying native content in the presence of time constraints (Pieters and Warlop 1999). Ads are generally perceived as less relevant, so ad avoidance seemingly should be higher in such situations, whereas viewing times for ads should be lower (Wu and Xie 2018). We do not find evidence of this effect in our eye-tracking data though.

As a potential explanation, we turn to the response deprivation hypothesis (Herrod et al. 2023; Premack 1959; Timberlake and Allison 1974). When social media are consumed as usual,

many times throughout the day, perhaps a baseline saturation level remains in place. A constraint of 60s for a single social media encounter thus might not be strong enough to stimulate a behavioral response. Instead, detox effects appear to occur only when some baseline level of gratification is prevented, as in the case for the time-out condition (Study 3).

1 Implications for Advertising Research and Practice

In this initial research into the effects of two types of social media detox on attention to social media ads, we theoretically establish the concept of social media detox from an advertising perspective and empirically test consumer behavior in detox conditions toward advertisements. Detoxing is a lasting, unavoidable trend in social media use; it will continue to influence the effectiveness of advertising. Because advertisers need ways and means to continue reaching target customers, they require a comprehensive understanding of the phenomenon from an advertising perspective.

Empirically, we find a strong impact of time-outs exclusively. Although advertisers generally want to communicate quickly, viewing times on Instagram were notably even shorter after recent social media time-outs (1.32s with no manipulation, .76–.89s after time-outs; Study 3). Thus, our findings provide a clear caution to advertisers: avoid these times in general or reduce the information load to the absolute minimum level necessary (e.g., pure brand awareness). Advertisements that seek deeper message involvement should instead be placed when previous social media sessions have been recent. Platforms such as Facebook, Instagram, and TikTok can easily track users' login behavior. They can use our findings to provide advertisers with information regarding recent social media time-outs of their target groups. This allows them to strategically plan not to air ads immediately after time-outs, or to adapt the information load of aired ads.

2 Limitations and Further Research

Continued research might address some of the limitations of our experimental settings. For example, the time constraints remained active for only one Instagram session, which could have produced the lack of effect on attention to social media ads. Participants knew that they could use Instagram again quite soon and without restriction after the experiment. Thus, our manipulation might have created no influence of time constraints. Continued research should investigate other time constraints, such as those applied for several hours or even a whole day. If such manipulations undercut a baseline level of gratification, they might induce detox effects.

Another limitation pertains to our manipulation of time-outs, which were not uniform in length across participants. Research designs thus might specify the length of abstinence (e.g., fixed amount of hours or days) to uncover potential boundary conditions. From a theoretical perspective, a turning point likely exists, at which the link between the medium and its gratification becomes unconditioned and diminishes future cravings to consume the medium again (Murre and Dros 2015).

Finally, while our approach enhances ecological validity, it introduces variability that we could not control. Since each participant used their own personal Instagram account, the content and ads were unique to each participant. Future research could employ more controlled settings with standardized ad content and placement to address this limitation. One possibility is to use manipulated Instagram feeds in which ads and their environment are kept constant. In this context, the role of creative ad strategies to counteract the effects of social media detox could be studied. Our theoretical background suggests that a critical criterion is the level of gratification a stimulus provides. Some types of ads thus may be more effective after detox periods, but others might perform particularly poorly. Ads that satisfy entertainment or social needs represent promising candidates for tests of effectiveness in detox conditions.

F Final Concluding Discussion

I Summary of the Findings

Attention is one of the most influential and omnipresent constructs in advertising and marketing. It is the fundamental requirement for consumers to be able to engage with commercial content. Hence, it determines what information consumers are actually able to perceive and therefore to process (Rossiter and Percy 2017). The more attention is devoted to a specific object, the more consumers can learn and remember about it (Ward, Zheng, and Broniarczyk 2023). It is the gatekeeper for advertising and marketing success (Berger, Moe, and Schweidel 2023; Rossiter, Percy, and Bergkvist 2018). Thereby, it resembles the first and most important step of the advertising processing funnel (Rossiter and Percy 2017). Without attention, there is no advertising and marketing success at all (MacInnis and Jaworski 1989; Rossiter and Percy 2017; Segijn and Eisend 2019; Van Raaij 1989). Thus, attention is of outstanding interest for academic scholars as well as businesses. It has become the ‘new economy’ and one of the most valuable resources in the advertising and marketing domain (MacGregor 2016).

The existing studies focusing on attention and attentional effects in the advertising and marketing discipline mostly apply survey studies (Becker, Alzahabi, and Hopwood 2013; Dias 2016; Lau 2017; Voorveld and van der Goot 2013; Wang and Tchernev 2012) or experiments (Alzahabi and Becker 2013; Beuckels et al. 2021a, b; Brasel and Gips 2017; Garaus, Wagner, and Bäck 2017; Kazakova et. al 2015; 2016; Segijn et al. 2017). Thus, the effects are predominantly investigated in controlled environments. Thereby, this research is largely ignoring the natural surroundings that greatly influence consumers’ attention allocation when consuming media content (De Pelsmacker 2021). This is crucial as advertising and marketing research are applied sciences whose contribution is closely linked to its practical impact in the field. Hence, it must consider that consumers in fact are constantly distracted. They frequently check their

smartphones, browse through social media, or use the TV or radio as background stimulation. Thus, since advertising ‘takes place in the wild, not in a consumer lab’ (De Pelsmacker 2021, p. 841), the same has to be true for its research.

Advertising scholars and practitioners know and apply a lot of different means to get consumers’ attention (Rossiter, Percy, and Bergkvist 2018). These design elements for capturing attention are widely discussed in advertising and marketing research and practice. Yet, to date, there is no comprehensive overview of attention tactics. Moreover, most of these tactics are ‘rules of thumb’ or practitioners’ wisdom (De Pelsmacker 2021). This is due to the fact that research is lacking studies that investigate their effectiveness in real-life media encounters. On top of that, they have not been examined with regard to their ability of gaining and holding consumers’ attention (Langner and Klinke 2022).

The same is true for the application of celebrities with special regard to their attentional effects. They are an attention tactic with particular practical significance, as shown by the recent Super Bowl commercials, where celebrities are featured in more of 50% of the ads (Taylor 2024). Advertisers and marketers employ them not only to capture consumers’ attention, but to transfer positive associations to brands, products, or services (Bergkvist and Zhou 2016). Yet, their effectiveness, especially concerning consumers’ attention allocation, continues to be a topic of debate (Knoll and Matthes 2017).

Social media is a key channel for advertisers to reach their target audiences. In particular, young consumers are constantly online, spending nearly 6 hours per day on social media platforms (TechJury 2023). However, consumers are starting to reclaim their valuable time and attention. Social media detox has become a lasting trend in consumer behavior, impacting ad reception. Yet, social media detox and its influence on consumers’ attention is still a blind spot in advertising and marketing research and practice.

Drawing on these considerations and addressing the resulting research gaps, this thesis has taken the following leading research question as a basis: How to gain and hold consumers' attention?

In four self-contained articles, this research question was comprehensively addressed. The articles build on each other, but at the same time provide clearly distinguishable contributions. Thus, each article contributed in its own unique way to answering the leading research question. The first article uncovered modern media consumption and attention allocation in consumers' everyday lives. It used mobile videography to observe 30 consumers in their private homes during their media leisure time in the evening. The second article is the main component of this thesis. It assembled a comprehensive list of advertising attention tactics, consisting of 114 design elements that are able to gain and hold consumers' attention. Building upon this, their effectiveness is investigated in 114 consumer homes where real-life media encounters are examined with mobile eye-tracking. The third article was dedicated to examine the effectiveness of celebrity endorsements as a special attention tactic. This was done in a controlled setting with manipulated video ads. The fourth and last article introduced the so-called social media detox phenomenon by conceptualizing it in its two forms, time-outs and time constraints. After examining motivations and obstacles for applying detoxes, it investigated the effects of time-outs and time constraints on consumers' attention allocation with regard to native content as well as social media ads.

Article 1

The first article addresses the first research gap uncovered in the literature and examines consumers' modern media consumption behavior as well as their related attention allocation. As most studies to date investigated media and device-related behaviors as well as attention in surveys or experiments, this paper focuses on videography with mobile eye-tracking glasses to unobtrusively study consumer behavior. Thereby, the first article had two major goals. The first

goal was to assess how consumers' everyday media consumption and attention allocation is shaped at home during their leisure time in the evening. The second goal was to reveal the consequences for attention allocation to and the reception of advertising.

The article extends the findings of Jayasinghe and Ritson (2013) and derives five different contexts of media consumption at consumers' home. These contexts are the time, the device, the spatial, the social and the ad reception context. For each context, the paper identifies several phenomena as well as their consequences for advertising reception, e.g., an individual prime time (time context), smartphone centricity (device context), screen arrangement (spatial context), conversation starter (social context) and ad avoidance (ad reception context).

Article 2

The second article presents five studies to close the second research gap. It investigates attention-tactics as design elements to capture consumers' attention and their different mechanisms of influencing consumers' attention allocation as well as further ad processing. Three major goals guided that part of the research. First, the article aimed to assemble a comprehensive list of attention tactics that are known in academia, research, and practice and identified by consumers. Second, the article had the goal to uncover the underlying psychological mechanisms that explain the effectiveness of the different tactics. Thereby, they should be categorized in tactics for gaining and tactics for holding consumers' attention. The third goal was to assess how these tactics work in real-life media encounters with regard to their capability of capturing consumers' attention and, moreover, influencing ad recall.

To answer these research questions, the article first comprises systematic literature reviews of marketing communications textbooks, journal publications, and trade magazines. These reviews are complemented by qualitative consumer interviews assessing attention tactics directly after real-life ad encounters. The result is a comprehensive list of all attention tactics

that can be employed to capture consumers' attention. Based on this, their effectiveness is investigated in a large scale videography study employing mobile eye-tracking glasses. The results indicate that the size of an ad is particularly influential in gaining initial attention. Other theoretically significant tactics, such as colors, sounds, and motions, yield mixed results. Several tactics notably enhanced the attention consumers devoted to ads. Those that proved effective are especially influencers and other tactics that evoke positive emotions. Additionally, the field study findings confirm that ads receiving more attention are more likely to be recalled.

Article 3

The third article deals with the third research gap, focusing on the attentional effects of celebrity endorsements as a special attention tactic, as well as further ad downstream processing effects. Celebrities are an attention tactic with particular relevance to advertising practice (Bergkvist and Zhou 2016). An eye-tracking study captured consumers' gaze behaviors with regard to celebrity versus non-celebrity advertisements, further investigating the so-called vampire effect. Thereby, the third article had three major goals. The primary goal was to confirm that celebrities, by leveraging their status and familiarity with target groups, attract more attention compared to non-celebrities. The second goal was to find out whether celebrity endorsers actually trigger the vampire effect, i.e., consuming all of the additional attention. The third goal was to reveal how the vampire effect influences ad effectiveness along the advertising funnel.

The article reveals that while advertisements with celebrity endorsers attract longer attention than non-celebrity endorsers, this additional attention is exclusively directed toward the celebrities. This phenomenon, known as the relative vampire effect, is confirmed (Bruns, Langner, and Bergkvist 2018). Yet, this effect does not reduce attention to the brand or product. Consequently, the vampire effect does not negatively affect brand recall. Beyond that, ad attitude is higher for ads with a celebrity endorser. Thus, they are capable to transfer favorable associations.

Article 4

The fourth article investigates the fourth research gap and explores the so-called social media detox phenomenon as well as its impact on consumers' attention to the ad. Social media detox is a rising and lasting trend in contemporary social media use. Three major goals guided that research. First, the article aimed to explore which motivations and external factors drive or hinder the application of a social media detox. Second, the article had the goal to uncover the typical forms of social media detoxes, and how are they applied by consumers. Third, the article investigated how consumers' attention to social media ads differs under the impact of social media detox.

The article consists of four studies, online as well as in-depth qualitative interviews and two mobile eye-tracking experiments. The studies reveal that consumers apply social media detox to reduce the negative impacts social media is exerting on their life. At the same time, a certain social media dependence prevents the detox in some cases. Moreover, the findings confirm the conceptualization of two different types of social media detoxes: milder time constraints to reduce the use of social media, and more drastic complete time-outs. When applying social media detoxes in the form of time-outs, consumers' attention to the ad is significantly impaired. In contrast, the effects of time constraint diverge: In the qualitative study, consumers state that constraints reduce attention to the ad. Yet, none of the experiments can confirm this effect.

II Implications for Research and Practice

The findings of this thesis have important implications for scholars and practitioners in the field of advertising and marketing.

First, the work presented in this thesis provides an important complement to marketing and consumer research examining consumers' media consumption and attention allocation using video observation methods (e.g., Jayasinghe and Ritson 2013; Rigby et al. 2017; Rooksby

et al. 2015; Shokrpour and Darnell 2017). It takes a pioneering step out of the laboratory into consumer' homes to study attention allocation to ads where it actually takes place. This thesis presents an expansion of the media consumption and attention allocation contexts introduced by Jayasinghe and Ritson (2013). Besides, it extends prior observation research that was limited by static methods. By applying mobile eye-tracking in consumers' private homes, it is the first paper to unobtrusively analyze consumer behavior and their attention distribution through a first-person view, able to dynamically capture all actions as that are taking place, as well as gaze directions. Thereby, it is able to resemble consumers' real-life behavior as realistic as possible.

Second, the research in this thesis represents pioneering work in the field of advertising attention tactics. It provides an overview by creating a comprehensive list of all 114 attention tactics taken together from the perspectives of scholars, researchers, practitioners, and consumers. In addition, it uncovers the underlying psychological and biological mechanisms of the tactics and explains why and how they are able to capture consumers' attention. It differentiates between physical intensity for gaining attention and biologically significant, socially conditioned, and cognitively engaging stimuli for holding attention. In this sense, the thesis is testing the effectiveness of 36 tactics for gaining attention and 48 for holding attention, examining 768 real-life ad encounters by applying mobile eye-tracking.

Third, this thesis extends prior advertising and marketing literature on attentional effects of celebrity endorsements, focusing on the so-called vampire effect (e.g., Bruns, Langner, and Bergkvist 2018; Chan and Chau 2023; Erfgen, Zenker, and Sattler 2015; Zahmati et al. 2023). By applying eye-tracking and comparing real celebrity YouTube video ads versus manipulated non-celebrity video ads, the work in this thesis shows how consumers' attention is distributed in the respective cases. To do so, a native YouTube environment is employed. It hints that the

vampire effect does not necessarily harm attention to the ad and subsequent advertising effectiveness. On the contrary, celebrity endorsement still can boost advertising attention as well as its performance by raising ad attitude.

Fourth, the studies in this thesis investigate attentional effects of the social media detox phenomenon and thereby also extend prior literature on digital detox. First, it operationalizes social media detox in its two prevalent forms, namely, time-outs and time constraints. Furthermore, it examines the motivations that boost or hinder social media detox efforts. In addition, it theoretically derives and empirically shows how time-outs and time constraints influence consumers' attention to the ad. Thereby, it provides advertisers and marketers with recommendations on how and when to air their ads with regard to social media detoxes.

For practitioners, this thesis also offers several relevant implications. On the one hand, it is necessary to take the characteristics of the modern media environment and related consumer behavior into account. Consumers' attention and attention spans are heavily limited. They are almost always distributing their attention between numerous devices and ads have to compete for attention in a heavily cluttered media environment. On the other hand, the thesis gives valuable insights on the different contexts of attention allocation. For example, ad scheduling should align with individual viewing habits of the respective age groups since a universal prime time does not exist anymore. Moreover, a smartphone-first approach in ad campaign planning is necessary, together with cross-device strategies to account for consumers screen arrangement habits while they are multitasking.

One of the most important points to consider is the attention-grabbing potential when designing an ad or marketing campaign. For an ad to be effective, is it a must that design elements are employed that are not only able to get in contact with consumers, but further hold their attention to enable ad processing. Otherwise, without attention, there is no effect of the ad at all. The thesis therefore provides marketers and advertisers with the most comprehensive list

of attention tactics. Moreover, it describes the biological and psychological mechanisms of these tactics. Furthermore, supported by strong empirical evidence with high external validity, the effectiveness of commonly used tactics is evaluated. This allows for the selection of proven tactics when designing ads.

This thesis suggests that practitioners should still carefully consider employing celebrity endorsements in their marketing campaigns, especially with regard to the attention-grabbing effect. They are able to hold consumers' attention longer than their non-celebrity counterparts, giving the ad more opportunity to conveying its message. Hence, they are able to enhance the attitude toward the ad. Yet, they do not help with brand recall and have no effect on gaining initial attention. Therefore, celebrities appear at least questionable as a tactic for capturing consumers' attention.

In addition, this thesis also provides recommendations for dealing with consumers' detox efforts with regard to social media. Since viewing times are shorts after a recent time-out from social media, ads airing in these phases should mainly focus on brand awareness. To deliver more information, for example with an image campaign, ads should be displayed when consumers' have recently consumed social media. Moreover, ads that are able to address typical social media needs like social connectedness or entertainment can overcome the negative effects of detox efforts on attention to the ad.

III Limitations and Future Research

This thesis aimed to address and overcome many of the common shortcomings prevalent in the majority of advertising and marketing research (De Pelsmacker 2021). However, research designs with high external validity often have their own limitations. Thus, this thesis yields some limitations that pave the way for future research.

The Tobii Pro Glasses II are almost identical to regular glasses, being relatively light and thereby quite unobtrusive while wearing them. Nevertheless, the technological development

will soon offer even better suited equipment for tracking consumer behavior with focus on media consumption and attention allocation in the wild. For example, Ray-Ban and Meta recently introduced smart glasses (Ray-Ban 2024). Moreover, alternative measures of attention, such as viewport time (Bruns et al. 2024), could advance research on attention to various social media posts in larger sample sizes, which are impractical for eye-tracking designs.

Further, in our study, consumers had to stay in their private homes, and were still affected by the measures related to the COVID pandemic. This means that they could not fully pursue their regular activities in their free time in the evenings. This may have affected the results. In addition, we focused on leisure time in the evening on workdays to keep the findings comparable. Extending the time and place restrictions thus offers many opportunities to expand this study of media consumption and attention allocation, as it is the first of its kind in its current form.

The same is true for the exploration of the effectiveness of the attention tactics. Future research on the effectiveness of less frequent tactics that therefore could not have been tested requires further attention. While the study tests the attention tactics at consumers' homes in the evening, future advertising and marketing research on attention tactics should substantiate findings by varying or canceling the applied restrictions. For example, assessing the attention-grabbing power outside, at weekends, at different day parts, with stronger social influences would be a great opportunity to further investigate the actual effectiveness of different tactics. Moreover, future research should consider airing manipulated ads on consumers' devices while observing them to investigate their effect in different surroundings, or examine the effect of repeated exposition. Other avenues comprise testing ads that better align with specific social media needs (e.g., entertainment or social connection) or employing influencers.

With regard to the attentional and downstream ad processing effects of celebrities, further studies should use different celebrities as well as different brands. Thereby, the impact of differences regarding the popularity of the used brands and celebrities can be minimized. Extending this, future research should also test the effects for unknown brands, e.g., by employing fictitious brands. Research designs are particularly needed to directly compare identical ads in both static and dynamic formats, to more reliably assess potential celebrity effects. Artificial intelligence will be a promising tool to facilitate previously impractical manipulations of stimuli (Van Berlo, Campbell, and Voorveld 2024). Moreover, further studies should investigate the effect of interactions with the platform, like skipping, swiping or scrolling, which was not enabled in the context of this study. In addition, other platforms than YouTube should be tested, especially TikTok or Instagram with their vertical and short content.

Concerning the attentional impact of social media detoxes, avenues for future research result of the limitations concerning our manipulation of time-outs and time constraints. Variations of both forms, as well as more controlled settings concerning the length of both forms of detox should be applied in further studies. Additionally, a longitudinal design could investigate changes over time. Furthermore, other settings, for example detoxes applied at home instead of the university in different forms, should be tested. Ultimately, subsequent research could test the effectiveness of attention tactics under detox conditions by airing manipulated ads in consumers' feeds.

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H Appendix

I Article 1

Appendix 1: Participants in the study

Participant No.	Weekday	Relationship Status	Age	Job	Gender
1	Monday	In a relationship	26	Gardener	female
2	Tuesday	In a relationship	26	Clerk	male
3	Wednesday	In a relationship	24	Trainee	female
4	Thursday	Single	27	Pool supervisor	male
5	Monday	Single	23	Bank clerk	male
6	Tuesday	Single	25	IT system manager	male
7	Wednesday	In a relationship	26	Student	female
8	Thursday	In a relationship	25	Student	female
9	Monday	Single	18	School student	female
10	Tuesday	Single	24	College student	female
11	Wednesday	In a relationship	29	Merchant	male
12	Thursday	In a relationship	28	Sales representative	male
13	Wednesday	In a relationship	48	Senior school councilor	male
14	Thursday	In a relationship	30	Teacher	female
15	Monday	Single	24	College student	female
16	Tuesday	Single	23	College student	female
17	Wednesday	In a relationship	25	College student	female
18	Thursday	In a relationship	27	Project controller	male
19	Monday	In a relationship	25	Working student	female
20	Tuesday	In a relationship	60	Store managerin	female
21	Wednesday	In a relationship	26	Supervisor	female
22	Thursday	In a relationship	26	Sales clerk	female

23	Monday	In a relationship	23	Pedagogical assistant	female
24	Tuesday	In a relationship	20	Apprenticeship	male
25	Wednesday	In a relationship	21	Apprenticeship	female
26	Thursday	In a relationship	21	Cutting machine operator	male
27	Monday	In a relationship	23	College student	male
28	Tuesday	In a relationship	27	College student	male
29	Wednesday	In a relationship	23	College student	female
30	Tuesday	Single	24	Marketing manager	male

Appendix 2: Tobii Pro Glasses 2

Einführung in die Beobachtungsstudie

Liebe Teilnehmerin, lieber Teilnehmer,

vielen Dank noch einmal, dass Sie sich die Zeit für diese Studie nehmen. Sie helfen damit einem Studierenden bei seiner Abschlussarbeit/Seminararbeit und unterstützen die wissenschaftliche Forschung an der Bergischen Universität.

Die Studie besteht aus insgesamt drei Teilen:

1. Einer Eye-Tracking-Aufzeichnung über ca. 2 Stunden zur Nutzung von Medien und elektronischen Geräten während Ihrer alltäglichen Feierabendroutine,
2. einem kurzen Telefonat, nachdem Sie mit der Aufzeichnung fertig sind sowie
3. einem Interview am Folgetag.

Alle Daten werden **streng anonym** und **vertraulich** behandelt und dienen ausschließlich der wissenschaftlichen Forschung und Lehre. Wir sichern Ihnen ein umfassendes Recht auf Löschung oder Schwärzung von Inhalten des aufgezeichneten Videomaterials zu, sollten Sie Bedenken bezüglich der Auswertung haben. Auf Wunsch wird es Ihnen ermöglicht, das Videomaterial vor der Auswertung zu sichten.

Vorab bitten wir Sie, zwei Erklärungen sorgfältig durchzulesen und zu unterzeichnen:

1. **Verfahrensverzeichnis zur Datenerhebung:**
   Bitte lesen Sie sich das Verfahrensverzeichnis zur Erhebung sorgfältig durch. Hier erklären wir Ihnen, wie wir mit den Daten umgehen, die im Zusammenhang mit der Studie erhoben werden.

2. **Erklärung zur Überlassung der Daten:**
   Wir bitten Sie uns mit Ihrer Unterschrift zu bestätigen, dass wir Ihre Daten für die wissenschaftliche Forschung und Lehre nutzen dürfen.

Einführung in die Eye-Tracking Studie

Wir bitten Sie, die Eye-Tracking-Brille während Ihrer alltäglichen Feierabendroutine beim Umgang mit digitalen Medien zu tragen. Dies sollte in Ihrer typischen Umgebung, mit den üblichen Personen im Zeitraum zwischen 18 und 22 Uhr stattfinden. Bitte starten Sie zu einem beliebigen Zeitpunkt während dieser Zeitspanne mit der Aufzeichnung und melden Sie sich nach Ablauf von zwei Stunden kurz bei Ihrem Interviewer. Dieser wird Ihnen dann wenige kurze Fragen stellen und das weitere Vorgehen erklären.

Bei Fragen stehen wir Ihnen gerne jederzeit zur Verfügung. Wenden Sie sich dazu gerne einfach an Ihren Interviewer.

Appendix 3: Introduction to the study

Verfahrensverzeichnis zur Erhebung personenbezogener Daten

Sehr geehrte Interviewteilnehmerin,

sehr geehrter Interviewteilnehmer,

vielen Dank, dass Sie an der folgenden Studie zum Thema „Geräte- und Mediennutzung" teilnehmen. Bitte versichern Sie uns mit Ihrer Einverständniserklärung, dass wir Ihre Daten und Antworten zu **rein wissenschaftlichen Zwecken** auswerten dürfen. Alle Ihre Antworten werden selbstverständlich vertraulich behandelt und in späteren Publikationen vollständig anonymisiert.

1. **Name und Kontakt des Verantwortlichen:**
   Die Videoaufzeichnung und das Interview wird im Zusammenhang mit einer Forschungsarbeit am Lehrstuhl für Marketing an der Schumpeter School of Business and Economics der Bergischen Universität Wuppertal durchgeführt. Verantwortlicher Ansprechpartner seitens des Lehrstuhls ist Julian Felix Kopka (kopka@wiwi.uni-wuppertal.de).

2. **Zweck der Verarbeitung:**
   Ihre Antworten und Daten werden zu rein wissenschaftlichen Zwecken ausgewertet. Erkenntnisinteresse ist es das geräte- und medienspezifische Nutzungsverhalten von Konsumenten zu ergründen.

3. **Wem werden diese Daten zur Verfügung gestellt?**
   Es erfolgt keine Weitergabe Ihrer Daten an Dritte Personen. Im Rahmen der wissenschaftlichen Forschung und des wissenschaftlichen Publizierens wird berechtigten wissenschaftlichem Personal und Studierenden der Zugang zu den anonymisierten Daten unter Auflagen ermöglicht.

4. **Vorgesehene Löschfristen der Daten:**
   Die Daten werden anonymisiert und zu Dokumentations- und Belegzwecken gespeichert.

5. **Allg. Beschreibung der technischen Sicherheit der Daten:**
   Ihre Daten werden nach der Aufzeichnung auf einem gesicherten Server gespeichert.

6. **Rechte der Probanden:**
   Nach der Erhebung erhalten Sie auf Wunsch die Möglichkeit, die erhobenen Daten über Sie als erstes zu sichten und Löschungen oder Schwärzungen vornehmen zu lassen.

Hiermit willige ich ein, dass meine Daten und Antworten zu den oben genannten Zwecken aufgezeichnet und gespeichert werden:

Datum:_____

Unterschrift:_____

Appendix 4: Record of processing activities for the collection of personal data

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Überlassungserklärung

Hiermit erkläre ich, Frau/Herr _____, wohnhaft in (Str., Nr., PLZ, Ort) _____, dass ich die als Proband der Studie zum Geräte- und Mediennutzungsverhalten über mich erhobenen Daten den Lehrpersonen des Lehrstuhls für Marketing überlasse. Damit erlaube ich die umfassende und unbeschränkte Nutzung der Daten für Forschung und Lehre, das Recht auf Vervielfältigung sowie die Verbreitung und Übersetzung und das Recht zur Bearbeitung und Änderung inklusive Nutzung und Vervielfältigung der dabei entstehenden Ergebnisse. Die Verwendung dieser Daten begründet keine Mitautorenschaft in künftigen Publikationen. Gleichzeitig erkläre ich hiermit, dass ich die Daten nicht selber an Dritte weitergeben oder anderweitig veröffentlichen oder zu Veröffentlichungszwecken nutzen werde. Die mir zugesicherten Rechte auf Datenschutz und Löschung bleiben von dieser Erklärung unberührt.

_____ _____

(Ort und Datum) (Unterschrift)

Appendix 5: Participants' consent declaration for data use

Datum: _____ **Probandenkürzel: ____**

Zeitrahmen Erhebung: _____

Post-Experience Protokoll

Liebe Teilnehmerin, lieber Teilnehmer,

vielen Dank noch einmal, dass Sie sich heute die Zeit für diese Studie nehmen.

Im nun folgenden **ersten Teil** des Interviews werde ich Ihnen kurz ein paar allgemeinere Fragen zu Ihrem medien- und gerätebezogenen **Verhalten** in der gerade aufgenommenen Situation stellen.

Morgen werden wir im **zweiten Teil** des Interviews tiefer in die Situation einsteigen. Dazu werden wir gemeinsam einzelne **Nutzungssequenzen** mit Hilfe des **Videomaterials** erneut anschauen und ich werde Sie erneut befragen.

Wenn Sie die Fragen beantworten, möchte ich Sie bitten, einfach **alles** zu erzählen, was Ihnen dazu einfällt. Sie können sich so viel Zeit dafür lassen, wie Sie brauchen. Es gibt **keine richtigen oder falschen** Antworten. Ich bitte Sie nur darum, all das wiederzugeben, was Sie tatsächlich denken oder fühlen. Die beste Antwort ist Ihre **eigene und persönliche Meinung**. Sagen Sie mir bitte Bescheid, wenn Sie eine Frage nicht verstehen.

Alle Daten werden **streng anonym** und **vertraulich** behandelt und dienen ausschließlich der wissenschaftlichen Forschung.

Ich würde unser Gespräch gerne mit Hilfe eines Diktiergerätes aufzeichnen. Sind Sie damit einverstanden? (Wenn ja, **Aufnahme starten!**)

Wenn Sie keine weiteren Fragen mehr haben, können wir anfangen.

Appendix 6: Post-experience protocol

Teil I: Freie Nachbefragung unmittelbar im Anschluss an die Erhebung

Ich möchte mit Ihnen kurz über die gerade erlebte Erhebungssituation sprechen, in der Sie die Kamerabrille getragen haben.

1. Was würden Sie sagen, war die Situation eher **gewöhnlich** bzw. **alltäglich** oder gab es **ungewöhnliche** Vorkommnisse oder Besonderheiten irgendeiner Art, ganz egal welcher?
2. Was schätzen Sie, wie **oft** haben Sie Ihr **Smartphone** aktiviert bzw. genutzt?
3. Erinnern Sie sich an eine oder mehrere **Werbungen** von **Marken** oder für **Produkte**?
    a. **Warum** ist Ihnen diese Werbung aufgefallen?
    b. Können Sie sich an die **Situation** erinnern? Was wollten Sie **ursprünglich** an Ihrem Gerät [XY] machen?
4. Gab es in der Situation **Gelegenheiten**, etwas zu teilen (wenn ja, **welche**)?
5. **Warum** haben Sie geteilt (nicht geteilt)? **Warum** kam das in Frage (gar nicht in Frage)?
6. Haben Sie **überlegt** oder **gezögert**, ob Sie teilen oder nicht teilen?
7. Wie intensiv haben Sie sich mit der **Teilentscheidung** und den **Konsequenzen** des Teilens auseinandergesetzt?
8. Ist das Teilen (Nicht-Teilen) eher **spontan** oder eher **überlegt** erfolgt?
9. **Was** haben Sie geteilt (bewusst nicht geteilt)? Und mit **wem**? Haben Sie den Beitrag eher mit **mehr** oder mit **weniger** Leuten im Vergleich zu sonst geteilt?

Appendix 6: Post-experience protocol (continued)

Teil II: Videogestützte Nachbefragung am nächsten Tag

Ich möchte im folgenden Gespräch gerne noch einmal genauer über die Erhebungssituation von gestern Abend sprechen, in der Sie die Kamerabrille getragen haben. Bitte versetzen Sie sich noch einmal in die Situation zurück und überlegen Sie, was Sie in der Zeit gemacht und woran Sie gedacht haben.

Ich habe bereits einzelne Nutzungssequenzen markiert, über die ich gerne mit Ihnen sprechen möchte. Zunächst würde ich gerne von Ihnen wissen, wie eine passende Überschrift für die Sequenz lauten könnte. Im Anschluss würde ich Ihnen einige Fragen zu der entsprechenden Sequenz stellen.

Ich würde unser Gespräch gerne wieder mit Hilfe eines Diktiergerätes aufzeichnen. Sind Sie damit einverstanden? (Wenn ja, **Aufnahme starten!**)

Lassen Sie uns mit der ersten Sequenz starten.

[Sequenz wird abgespielt; Prozess für jede Sequenz wiederholen]

*Vorab: **Sequenzen** identifizieren, in denen **Geräte** und **Medien** genutzt werden, und einzeln erfassen. Anmerkung: Für kurze Sequenzen nur Frage 1 erfragen.*

*Ebenfalls: **Phänomene** identifizieren und notieren. Phänomene sind Ereignisse, die nicht als Sequenz erfasst werden, allerdings im Forschungsinteresse liegen und mit abgefragt werden sollen.*

Sequenz/ Phänomen	Start	Ende	„Überschrift“ durch Probanden: Titel der Sequenz/ Beschreibung des Phänomens
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Appendix 6: Post-experience protocol (continued)

[Folgende Abschnitte für jede Sequenz erfassen]

Lassen Sie uns nun über die Sequenz [Titel XY] sprechen. Sie haben in der Sequenz unter anderem [das/die Geräte XY] genutzt.

Abschnitt 1: Motivation und Rezeption

1. **Warum** nutzen Sie das **[Gerät XY]** in dieser **[Sequenz XY]**?

   [Nur falls mehrere Geräte genutzt werden: Frage für alle genannten Geräte in der Sequenz wiederholen]

   a. **Warum** nutzen Sie in dieser Sequenz **mehrere Geräte**?
   b. **Warum** erfolgt ein Wechsel von einem Gerät zum anderen? Was ist der Anlass/Auslöser?
   c. **Warum** werden die verschiedenen Geräte nebeneinander/voreinander/… positioniert/gehalten/arrangiert?

2. Wie würden Sie Ihre **Gedanken** und **Gefühle** in dieser Sequenz beschreiben?
3. **Warum nutzen** Sie das angesprochene **[Medium XY]** in dieser **[Sequenz XY]**?
4. **Achten Sie** im **[Medium XY]** in dieser **[Sequenz XY]** bewusst auf bestimmte Inhalte? **Welche** sind das und **warum** sind es gerade diese Inhalte?
5. *[Nur falls mehrere Medien genutzt werden]*

   a. **Warum** nutzen Sie in dieser Sequenz mehrere Medien? *[Konkrete Benennung der Medien, z. B. Facebook]*
   b. **Warum** erfolgt ein Wechsel von einem Medium zum anderen? Was ist der Anlass/Auslöser?

Abschnitt 2: Teilverhalten

Nun geht es um Ihr **Teilverhalten** in der **Nutzungssequenz** in Bezug auf **digitale Beiträge** (z. B. Artikel, Videos, Bilder, etc.). Hierbei ist jegliche Art des digitalen Teilens bzw. Weiterleitens gemeint (z. B. über Facebook, WhatsApp, Instagram, etc.).

1. Gab es in der Sequenz **Gelegenheiten**, etwas zu teilen (wenn ja, **welche**)? *[Falls keine Gelegenheit genannt wird: auf genutzte Medien hinweisen; auf Beiträge hinweisen, mit denen interagiert wurde]*
2. **Warum** haben Sie geteilt (nicht geteilt)? **Warum** kam das in Frage (gar nicht in Frage)?
3. Haben Sie **überlegt** oder **gezögert**, ob Sie teilen oder nicht teilen?

   Ich habe bezüglich des Teilens (Nicht-Teilens)…

… **nicht** überlegt. ○ ○ ○ ○ ○ ○ ○ … **intensiv** überlegt.
0 1 2 3 4 5 6

Appendix 6: Post-experience protocol (continued)

4. Wie intensiv haben Sie sich mit der **Teilentscheidung** und den **Konsequenzen** des Teilens auseinandergesetzt?
Ich habe mich mit der **Teilentscheidung** und den **Konsequenzen** des Teilens …

… **nicht** auseinandergesetzt. ○ ○ ○ ○ ○ ○ ○ … **intensiv** auseinandergesetzt.
0 1 2 3 4 5 6

5. Ist das Teilen (Nicht-Teilen) eher **spontan** oder eher **überlegt** erfolgt?
Die **Entscheidung**, den digitalen Beitrag zu **teilen** (nicht zu teilen), war …

… eher **spontan**. ○ ○ ○ ○ ○ ○ ○ … eher **überlegt**.
-3 -2 -1 0 1 2 3

6. **Was** haben Sie geteilt (bewusst nicht geteilt)? Was war für Sie **besonders** an dem Beitrag?

7. Wie intensiv haben Sie sich mit dem **Inhalt** auseinandergesetzt, bevor Sie den Beitrag geteilt haben (nicht geteilt haben)?
Ich habe mich mit dem **Inhalt** des digitalen Beitrags, **bevor** ich diesen geteilt habe (nicht geteilt habe), …

… **nicht** auseinandergesetzt. ○ ○ ○ ○ ○ ○ ○ … **intensiv** auseinandergesetzt.
0 1 2 3 4 5 6

8. *[Falls geteilt]* Mit **wem** haben Sie diesen Beitrag geteilt und **warum** mit diesen Personen? Haben Sie den Beitrag eher mit **weniger** oder eher mit **mehr** Leuten im Vergleich zu sonst geteilt?
Ich habe den Beitrag mit …

… **weniger** Personen als sonst geteilt. ○ ○ ○ ○ ○ ○ ○ … **mehr** Personen als sonst geteilt.
-3 -2 -1 0 1 2 3

Appendix 6: Post-experience protocol (continued)

Abschnitt 3: Werbeverhalten

1. Ist Ihnen in der Sequenz **Werbung** auf [Medium XY] aufgefallen?
   a. Wenn ja, **wie viele Werbeanzeigen** sind Ihnen auf [Medium XY] aufgefallen?
   b. Für welche **Marken** ist Ihnen Werbung auf [Medium XY] aufgefallen?
   c. **Warum** ist Ihnen diese Werbung aufgefallen? Was war an der Werbung besonders?
   d. Bitte **bewerten** Sie die Werbung einmal kurz anhand der folgenden Adjektive:

gewöhnlich ○ ○ ○ ○ ○ ○ ○ außergewöhnlich
-3 -2 -1 0 1 2 3

2. *[Falls keine Werbung erinnert werden kann]:* **Woran** könnte es Ihrer Meinung nach liegen, dass Sie keine Werbung wahrgenommen haben?

Appendix 6: Post-experience protocol (continued)

Teil III: Abschließende Befragung

Bitte beantworten Sie abschließend die nachfolgenden Fragen.

1. Was würden Sie sagen, wie **häufig** teilen Sie im Allgemeinen digitale Beiträge?

eher **selten** ○ ○ ○ ○ ○ ○ ○ eher **oft**
-3 -2 -1 0 1 2 3

2. Haben Sie am Abend der Aufzeichnung eher **weniger** oder eher **mehr** Beiträge geteilt als sonst?

eher **weniger** ○ ○ ○ ○ ○ ○ ○ eher **mehr**
-3 -2 -1 0 1 2 3

3. Haben Sie am Abend der Aufzeichnung die Beiträge eher mit **weniger** oder eher mit **mehr Personen** geteilt als sonst?

eher **weniger** ○ ○ ○ ○ ○ ○ ○ eher **mehr**
-3 -2 -1 0 1 2 3

4. Sind Sie Rechts- oder Linkshänder?
- □ Rechtshänder
- □ Linkshänder
- □ Keine Präferenz

5. Welche Smartphone-Marke und welches Modell nutzen Sie in Ihrem Alltag?

_____

6. Wie ist Ihr Beziehungsstatus?
- □ ledig
- □ in einer festen Partnerschaft
- □ verheiratet
- □ geschieden
- □ verwitwet

7. Wie alt sind Sie?

_____ Jahre alt

8. Welchen Beruf üben Sie aktuell aus?

_____

Appendix 6: Post-experience protocol (continued)

9. Was ist Ihr aktuell höchster Bildungsabschluss?

- □ Hauptschule
- □ Realschule
- □ Abitur
- □ Berufsausbildung
- □ Bachelorstudium
- □ Masterstudium
- □ Diplom
- □ Promotion
- □ Sonstiges, und zwar: _____

10. Geschlecht:

- □ weiblich
- □ männlich
- □ divers

Vielen Dank für Ihre Teilnahme!

Appendix 6: Post-experience protocol (continued)

Erläuterungen bei Rückfragen:

Was genau meinen Sie mit Medien?
Medien sind alle möglichen Anbieter, die Ihnen Inhalte und Informationen bereitstellen. Mögliche Beispiele sind unter Anderem WhatsApp, Instagram und Facebook oder Spiegel Online.

Was genau meinen Sie mit Geräte?
Geräte sind alle stationären und mobilen elektronischen Endgeräte, mit denen Sie im Internet auf Inhalte zugreifen können. Bspw. zu nennen wären hier das Smartphone, Tablets, Laptops, e-Reader, Smart-TVs, Desktop-PCs und SmartWatches.

Appendix 6: Post-experience protocol (continued)

Appendix 7: Overview of participants' starting times, usage of linear television and statements on the assessment of the survey situation

Participant No.	Starting Time (pm)	Linear Television	Assessment of the survey situation
1	6:33	Yes	There was nothing unusual about it.
2	6:21	No	There were no unusual incidents regarding the situation.
3	7:29	Yes	No special features.
4	6:40	No	I didn't really do anything different now. I kept in mind that I had glasses on. But then I quickly forgot about it, I would say.
5	7:04	No	I also tuned it out and was actually able to carry on as normal and did my normal everyday life as I normally would.
6	5:06	No	Everything was pretty mundane the whole time.
7	5:43	No	I behaved for the most part as I would have done otherwise.
8	7:51	Yes	Because I wear glasses myself, this did not limit me.
9	6:17	No	There was nothing unpleasant or anything and after the first few minutes you didn't feel disturbed or anything.
10	6:09	No	No, there were no unusual things.
11	5:13	No	With glasses on your nose, it is of course not an everyday occurrence, but what I have done is actually very normal.
12	4:44	No	Yes, yes, it is rather unusual. But I sometimes forgot about the glasses when I was doing one thing or another.
13	9:42	Yes	-
14	5:06	Yes	Rather ordinary, apart from the fact that I was wearing glasses.
15	6:16	No	Yes, at the beginning it was very strange to have to wear glasses, but apart from that, the experience was actually quite normal.
16	6:21	No	I would say that the situation was rather commonplace or ordinary.
17	4:58	No	It was actually the same as always.
18	4:33	No	It was a completely normal, relaxed evening.
19	6:20	No	-
20	6:01	Yes	-

21	5:51	No	It was a completely normal evening for me.
22	7:50	No	Basically, it was an ordinary Thursday evening.
23	9:35	Yes	Of course, I've never had a device like this on before, but you get used to it very quickly.
24	6:48	No	At the beginning I felt like I was being watched. But after a while, I didn't really think about the fact that I was wearing glasses anymore.
25	5:47	No	I was also able to forget about the glasses relatively quickly and just go about my everyday life as normal.
26	3:43	No	So for me it was just like having my normal everyday life.
27	9:17	No	You do what you normally do.
28	5:21	No	It wasn't somehow unpleasant or didn't stop me from doing anything that I would normally do.
29	6:43	Yes	It was actually quite similar in terms of media behavior.
30	8:18	No	I would say at the time of Corona it was a relatively ordinary evening.

II Article 2

Appendix 8: Operationalizations of gaining and holding attention in scientific journals

Authors	Operationalization of gaining initial attention	Operationalization of holding attention	Others
Bellman et al. (2019)		Number of fixations Fixation duration (seconds) Blink rate (% change) Blink duration (seconds)	
Berger, Moe, and Schweidel (2023)		How far down the page a user scrolls Intention to continue reading (self-reporting measurement)	
Bolls and Lang (2003)	Reaction time	Self-reporting measurement of involvement	
Burdwood and Simons (2016)	Event related potentials (P3 and LPP)		
Carlson, Torrence, and Vander Hyde (2016)	Reaction time		
Cummins, Gong, and Reichert (2021)		Total time spent browsing an ad Total fixation duration Sum of fixation durations	
Dooley and Harkins (1970)	Video-observation (coding: number of times looking)	Video-observation (coding: total time spent looking)	Retention
Felix and Borges (2014)		Viewing time (seconds)	
Fels and Weiss (2000)	Response time		
Gordon-Hecker et al. (2020)		Fixation count	
Heath, Nairn, and Bottomley (2009)		Fixations per second	
Hong, Thong, and Tam (2004)	Response time		
Huang et al. (2021)		Dwell time	Recall
Kessels, Ruiter, and Jansma (2010)	Reaction times Event related potentials (P300)		
Liao (2023)	Time to first fixation	Fixation duration Fixation count	
Lombardot (2007)		Self-reporting measurement of attention	Recall

Lyyra, Astikainen, and Hietanen (2018)	Change detection performance		
Mcnamara and Tiffin (1941)		Time spent (in seconds) upon each advertisement	
Meeds and Farnall (2018)		Number of total seconds each reader's gaze was captured in a region of interest	
Neeley and Schumann (2004)		Observation: manual coding	
Okruszek et al. (2023)	Event related potentials (N1, N2)	Event related potentials (posterior late positive potential)	
O'Malley and Latimer-Cheung (2013)		Number of fixations Dwell time	Recall
Palcu, Sudkamp, and Florack (2017)	AOI hit likelihood (binary)	Dwell time (i.e., total gaze duration)	
Pieters and Wedel (2004)	Ad selection (binary, at least one fixation on the ad)	Total gaze duration	
Pozharliev et al. (2015)	Event related potentials (P2, P3, and LPP)		
Rice et al. (2023)	Observation (coding: visitors who glanced at the sign)	Observation (coding: visitors who viewed the sign for an extended period)	
Ruiter et al. (2006)	Reaction times Event related potentials (N100 and P300)		
Sabri (2012)	Self-reporting measurement of attention	Self-reporting measurement of attention	
Sanders-Jackson et al. (2011)		Fixation duration of gaze (i.e., total gaze duration)	
Sanford et al. (2006)	Text-Change Detection		
Stevens et al. (2020)	Time to first fixation	Dwell time	
Sutton and Fischer (2021)		Fixation duration Fixation count	
Wang et al. (2005)	Event related potentials (P3a and MMN)		
Wilson and Casper (2016)	Initial noting: percentage of subjects attending for at least 0.25 seconds	Subsequent reexamining: percentage of participants attending a second time for at least 0.25 seconds	
Windels et al. (2018)	Time to first fixation First fixation duration	Total fixation duration	
Wolfsteiner and Garaus (2023)		Self-reporting measurement of attention	

Einführung in die Eye-Tracking Studie

Liebe Teilnehmerin, lieber Teilnehmer,

vielen Dank, dass Sie sich die Zeit für diese Studie nehmen. Sie helfen damit einem Studierenden bei seiner Abschlussarbeit/Seminararbeit und unterstützen die wissenschaftliche Forschung an der Bergischen Universität.

Die Studie besteht aus insgesamt drei Teilen:

1. Einer **Eye-Tracking-Aufzeichnung** über ca. 90 Minuten zur Nutzung von Medien und elektronischen Geräten während Ihrer alltäglichen Feierabendroutine,
2. einem **kurzen Interview**, nachdem Sie mit der Aufzeichnung fertig sind sowie
3. einem **ausführlichen Interview** am Folgetag.

Alle Daten werden **streng anonym** und **vertraulich** behandelt und dienen ausschließlich der wissenschaftlichen Forschung und Lehre. Wir sichern Ihnen ein umfassendes Recht auf Löschung oder Schwärzung von Inhalten des aufgezeichneten Videomaterials zu, sollten Sie Bedenken bezüglich der Auswertung haben. Auf Wunsch wird es Ihnen ermöglicht, das Videomaterial vor der Auswertung zu sichten.

Vorab bitten wir Sie, zwei Erklärungen sorgfältig durchzulesen und zu unterzeichnen:

1. **Verfahrensverzeichnis zur Datenerhebung:**
   Bitte lesen Sie sich das Verfahrensverzeichnis zur Erhebung sorgfältig durch. Hier erklären wir Ihnen, wie wir mit den Daten umgehen, die im Zusammenhang mit der Studie erhoben werden.

2. **Erklärung zur Überlassung der Daten:**
   Wir bitten Sie uns mit Ihrer Unterschrift zu bestätigen, dass wir Ihre Daten für die wissenschaftliche Forschung und Lehre nutzen dürfen.

Appendix 9: Introduction to the study

Verfahrensverzeichnis zur Erhebung personenbezogener Daten

Sehr geehrte Teilnehmerin,

sehr geehrter Teilnehmer,

vielen Dank, dass Sie an der folgenden Studie zum Thema „Geräte- und Mediennutzung“ teilnehmen. Bitte versichern Sie uns mit Ihrer Einverständniserklärung, dass wir Ihre Daten und Antworten zu **rein wissenschaftlichen Zwecken** auswerten dürfen. Alle Ihre Antworten werden selbstverständlich vertraulich behandelt und in späteren Publikationen vollständig anonymisiert.

1. **Name und Kontakt des Verantwortlichen:**
   Die Videoaufzeichnung und das Interview wird im Zusammenhang mit einer Forschungsarbeit am Lehrstuhl für Marketing an der Schumpeter School of Business and Economics der Bergischen Universität Wuppertal durchgeführt. Verantwortlicher Ansprechpartner seitens des Lehrstuhls ist Julian Felix Kopka (kopka@wiwi.uni-wuppertal.de).

2. **Zweck der Verarbeitung:**
   Ihre Antworten und Daten werden zu rein wissenschaftlichen Zwecken ausgewertet. Erkenntnisinteresse ist es das geräte- und medienspezifische Nutzungsverhalten von Konsumenten zu ergründen.

3. **Wem werden diese Daten zur Verfügung gestellt?**
   Es erfolgt keine Weitergabe Ihrer Daten an Dritte Personen. Im Rahmen der wissenschaftlichen Forschung und des wissenschaftlichen Publizierens wird berechtigten wissenschaftlichem Personal und Studierenden der Zugang zu den anonymisierten Daten unter Auflagen ermöglicht.

4. **Vorgesehene Löschfristen der Daten:**
   Die Daten werden anonymisiert und zu Dokumentations- und Belegzwecken gespeichert.

5. **Allg. Beschreibung der technischen Sicherheit der Daten:**
   Ihre Daten werden nach der Aufzeichnung auf einem gesicherten Server gespeichert.

6. **Rechte der Probanden:**
   Nach der Erhebung erhalten Sie auf Wunsch die Möglichkeit, die erhobenen Daten über Sie als erstes zu sichten und Löschungen oder Schwärzungen vornehmen zu lassen.

Hiermit willige ich ein, dass meine Daten und Antworten zu den oben genannten Zwecken aufgezeichnet und gespeichert werden:

Datum:_____

Unterschrift:_____

Appendix 10: Record of processing activities for the collection of personal data

BERGISCHE
UNIVERSITÄT
WUPPERTAL

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AKTENZEICHEN LA

Bergische Universität Wuppertal, Prof. Dr. Tobias Langner, Gaußstraße 20, 42119 Wuppertal

Überlassungserklärung

Hiermit erkläre ich, Frau/Herr _____, wohnhaft in (Str., Nr., PLZ, Ort) _____, dass ich die als Proband der Studie zum Geräte- und Mediennutzungsverhalten über mich erhobenen Daten den Lehrpersonen des Lehrstuhls für Marketing überlasse. Damit erlaube ich die umfassende und unbeschränkte Nutzung der Daten für Forschung und Lehre, das Recht auf Vervielfältigung sowie die Verbreitung und Übersetzung und das Recht zur Bearbeitung und Änderung inklusive Nutzung und Vervielfältigung der dabei entstehenden Ergebnisse. Die Verwendung dieser Daten begründet keine Mitautorenschaft in künftigen Publikationen. Gleichzeitig erkläre ich hiermit, dass ich die Daten nicht selber an Dritte weitergeben oder anderweitig veröffentlichen oder zu Veröffentlichungszwecken nutzen werde. Die mir zugesicherten Rechte auf Datenschutz und Löschung bleiben von dieser Erklärung unberührt.

_____ _____

(Ort und Datum) (Unterschrift)

Appendix 11: Participants' consent declaration for data use

Einführung in die Eye-Tracking Studie

Bitte lesen Sie zu Beginn der Aufnahme diese Instruktionen sorgfältig durch:

1. Wir bitten Sie, die Eye-Tracking-Brille während Ihrer **alltäglichen Feierabendroutine in der Hauptmedienzeit ab 19:00 Uhr** zu tragen.
2. Die **Hauptmedienzeit** ist die Zeit am Abend, die man auch als **Höhepunkt des abendlichen Medienkonsums** bezeichnen kann.
3. Eine **typische Beispielsituation** könnte wie folgt aussehen: Sie sitzen am Abend nach dem Abendessen **auf dem Sofa mit Ihrem Partner**, Freunden oder alleine **und konsumieren Medien**. Unter Medienkonsum verstehen wir die Nutzung **digitaler Endgeräte** wie Fernsehen, Smartphones, Tablets, Laptops, aber auch den Konsum **gedruckter Medien** wie Bücher oder Zeitschriften.
4. Dies sollte in Ihrer **typischen Umgebung**, **alleine oder mit den üblichen Personen** sowie Ihren **gewohnten Abläufen am Abend** stattfinden.
5. Bitte verhalten Sie sich **so normal wie möglich**. Während der Aufnahme dürfen Sie alles machen, **was Sie sonst auch in dieser Zeit tun würden**. **Ignorieren Sie die Eye-Tracking-Brille** so gut es geht.
6. Bitte **verwahren Sie alle Erhebungsgegenstände** (Laptop, Laptoptasche, Eye-Tracker-Tasche, Fragebögen und Instruktionen, etc.) an einem Ort, den Sie während der Erhebung **nicht sehen können,** wie z. B. in einer Schublade.
7. Bitte melden Sie sich **nach der Erhebung kurz bei Ihrem Interviewer**.

Bei Fragen stehen wir Ihnen gerne jederzeit zur Verfügung. Wenden Sie sich dazu einfach an Ihren Interviewer.

Ich habe diese Instruktionen gelesen und verstanden: _____(Unterschrift)

Appendix 12: Introduction to the eye-tracking recording and following procedure

Datum: _____ **Probandenkürzel: ____**

Zeitrahmen Erhebung: _____

Post-Experience Protokoll

Liebe Teilnehmerin, lieber Teilnehmer,

vielen Dank, dass Sie sich heute die Zeit für diese Studie nehmen.

Im folgenden **ersten Teil** des Interviews werde ich Ihnen kurz ein paar allgemeine Fragen zu Ihrem **Medienverhalten** in der gerade aufgenommenen Situation stellen.

Morgen werden wir im **zweiten Teil** des Interviews tiefer in die Situation einsteigen.

Wenn Sie die Fragen beantworten, möchte ich Sie bitten, einfach **alles** zu erzählen, was Ihnen dazu einfällt. Sie können sich so viel Zeit dafür lassen, wie Sie brauchen. Es gibt **keine richtigen oder falschen** Antworten. Ich bitte Sie nur darum, **all das wiederzugeben, was Sie tatsächlich denken oder fühlen**. Die beste Antwort ist Ihre **eigene und persönliche Meinung**. Sagen Sie mir bitte Bescheid, **wenn Sie eine Frage nicht verstehen**.

Alle Daten werden **streng anonym** und **vertraulich** behandelt und dienen ausschließlich der wissenschaftlichen Forschung.

Ich würde unser Gespräch gerne mit Hilfe eines Diktiergerätes aufzeichnen. Sind Sie damit einverstanden? (Wenn ja, **Aufnahme starten!**)

Wenn Sie keine weiteren Fragen mehr haben, können wir anfangen.

Appendix 13: Post-experience protocol

Teil I: Freie Nachbefragung unmittelbar im Anschluss an die Erhebung

Ich möchte mit Ihnen kurz über die gerade erlebte Erhebungssituation sprechen.

1. Was würden Sie sagen, war die Situation eher **gewöhnlich** bzw. **alltäglich** oder gab es **ungewöhnliche** Vorkommnisse oder Besonderheiten irgendeiner Art, ganz egal welcher?
2. **Bitte denken Sie an die Erhebungssituation zurück:** Erinnern Sie sich daran, vorhin **Werbung** für **Marken** oder **Produkte** gesehen zu haben? **Denken Sie bitte genau nach.** Für welche Marken und Produkte wurde dort geworben?
3. Welche **elektronischen Geräte** oder **gedruckte Medien** haben Sie vorhin in der Erhebungssituation genutzt? *[Nennungen notieren und Fragen 4 bis 8 stellen, sofern zutreffend]*
4. **Haben Sie vorhin Fernsehen geschaut?** Haben Sie Werbung im Fernsehen gesehen? Für welche Marken und Produkte wurde dort geworben?
5. **Haben Sie vorhin Ihr Smartphone genutzt?** Haben Sie Werbung auf dem Smartphone gesehen? Für welche Marken und Produkte wurde dort geworben?
6. **Haben Sie vorhin Ihr Tablet genutzt?** Haben Sie Werbung auf dem Tablet gesehen? Für welche Marken und Produkte wurde dort geworben?
7. **Haben Sie vorhin Ihren Laptop/Computer genutzt?** Haben Sie Werbung auf dem Laptop/Computer gesehen? Für welche Marken und Produkte wurde dort geworben?
8. **Haben Sie vorhin eine Zeitschrift gelesen?** Haben Sie Werbung in der Zeitschrift gesehen? Für welche Marken und Produkte wurde dort geworben?
9. Erinnern Sie sich daran, Werbung für Marken oder Produkte gesehen zu haben, die von **Influencern** vorgestellt wurden? Wenn ja, welche Marken und Produkte waren dies?
10. Erinnern Sie sich daran, Werbung für Marken oder Produkte gesehen zu haben, die von **Prominenten** beworben wurden? Wenn ja, welche Marken und Produkte waren dies?
11. Erinnern Sie sich daran, Werbung für Marken oder Produkte gesehen zu haben, die von Ihnen **unbekannten Personen** beworben wurden? Wenn ja, welche Marken und Produkte waren dies?
12. Erinnern Sie sich daran, Werbung für Marken oder Produkte gesehen zu haben, die in **Stories** (z. B. auf Instagram) vorgekommen sind? Wenn ja, welche Marken und Produkte waren dies?
13. Erinnern Sie sich daran, Werbung für Marken oder Produkte gesehen zu haben, die in **Posts** (z. B. auf Facebook oder Instagram) vorgekommen sind? Wenn ja, welche Marken und Produkte waren dies?
14. Erinnern Sie sich daran, Werbung für Marken oder Produkte gesehen zu haben, die in **Reels** (z. B. auf TikTok oder Instagram) vorgekommen sind? Wenn ja, welche Marken und Produkte waren dies?

Appendix 13: Post-experience protocol (continued)

15. Erinnern Sie sich daran, Werbung für Marken oder Produkte auf **Internetseiten** gesehen zu haben, die Sie besucht haben? Wenn ja, welche Marken und Produkte wurden dort beworben?

16. Erinnern Sie sich an **Bannerwerbung**, die Sie gesehen haben? Wenn ja, welche Marken und Produkte wurden dort beworben?

17. Wann gehen Sie an einem **typischen Wochentag wie heute ins Bett?**

18. Bitte notieren Sie sich **heute vor dem Schlafen** kurz**, wann Sie tatsächlich zu Bett gegangen sind.**

Appendix 13: Post-experience protocol (continued)

Teil II: Videogestützte Nachbefragung am nächsten Tag

Ich möchte im folgenden Gespräch gerne noch einmal genauer über die Erhebungssituation von gestern Abend sprechen.

Ich habe einzelne Nutzungssequenzen identifiziert, über die ich gerne mit Ihnen sprechen möchte. Zunächst würde ich gerne von Ihnen wissen, wie eine passende Überschrift für die Sequenz lauten könnte. Im Anschluss würde ich Ihnen einige Fragen zu der entsprechenden Sequenz stellen.

Ich würde unser Gespräch gerne wieder mit Hilfe eines Diktiergerätes aufzeichnen. Sind Sie damit einverstanden? (Wenn ja, **Aufnahme starten!**)

Lassen Sie uns mit der ersten Sequenz starten.

[Sequenz wird abgespielt; Prozess für jede Sequenz wiederholen.

*Vorab: **Sequenzen** identifizieren, in denen **Geräte** und **Medien** genutzt werden, und einzeln erfassen.*

*Ebenfalls: **Phänomene** identifizieren und notieren. Phänomene sind Ereignisse, die nicht als Sequenz erfasst werden, allerdings im Forschungsinteresse liegen und mit abgefragt werden sollen.]*

Sequenz/ Phänomen	Start	Ende	„Überschrift“ durch Probanden: Titel der Sequenz/ Beschreibung des Phänomens
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

4

Appendix 13: Post-experience protocol (continued)

[Folgende Abschnitte für jede Sequenz erfassen]

Lassen Sie uns nun über die Sequenz [Titel XY] sprechen. Sie haben in der Sequenz unter anderem [das/die Geräte XY] genutzt.

Abschnitt 1: Motivation und Situation

1. **Warum** nutzen Sie das **[Gerät XY]** in dieser **[Sequenz XY]**?

   [Nur falls mehrere Geräte genutzt werden: Frage für alle genannten Geräte in der Sequenz wiederholen]

   a. **Warum** nutzen Sie in dieser Sequenz **mehrere Geräte**?
   b. **Warum** erfolgt ein Wechsel von einem Gerät zum anderen?

2. **Warum nutzen** Sie das angesprochene **[Medium XY]** in dieser **[Sequenz XY]**?

   [Nur falls mehrere Medien genutzt werden: Frage für alle genannten Medien in der Sequenz wiederholen]

   a. **Warum** nutzen Sie in dieser Sequenz **mehrere Medien**?
   b. **Warum** erfolgt ein Wechsel von einem Medium zum anderen?

Abschnitt 2: Teilverhalten

Nun geht es um Ihr **Teilverhalten** in der **Nutzungssequenz** in Bezug auf **digitale Beiträge, die bereits existieren, also keine von Ihnen selbst erstellten Inhalte.** Mit digitalen Beiträgen sind zum Beispiel Online-Artikel, Videos oder digitale Bilder gemeint. Hierbei ist **jegliche Art des digitalen Teilens** bzw. **Weiterleitens gemeint**. Dies könnte zum Beispiel das Teilen eines Beitrages bei Facebook oder das Weiterleiten eines Beitrages über WhatsApp sein. *[Alle Teilvorgänge in der Sequenz werden identifiziert und abgefragt.]*

1. Gab es in dieser Sequenz Situationen, in denen Sie mit Anderen etwas geteilt haben?

   [Falls geteilt]: **Welche Inhalte haben Sie geteilt?**

2. **Warum** haben Sie geteilt (nicht geteilt)? **Warum** kam das in Frage (gar nicht in Frage)?
3. Wie intensiv haben Sie sich mit der **Teilentscheidung** und den **Konsequenzen** des Teilens auseinandergesetzt?

   Ich habe mich mit der **Teilentscheidung** und den **Konsequenzen** des Teilens …

   … **nicht** auseinandergesetzt. ○ 0 ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 … **intensiv** auseinandergesetzt**.**

4. Wie intensiv haben Sie sich mit dem **Inhalt** auseinandergesetzt, bevor Sie den Beitrag geteilt haben (nicht geteilt haben)?

Appendix 13: Post-experience protocol (continued)

Ich habe mich mit dem **Inhalt** des digitalen Beitrags, **bevor** ich diesen geteilt habe (nicht geteilt habe), …

… **nicht** auseinandergesetzt. ○ ○ ○ ○ ○ ○ ○ … **intensiv** auseinandergesetzt.
0 1 2 3 4 5 6

5. *[Falls geteilt]:* Haben Sie den Beitrag eher mit **weniger** oder eher mit **mehr** Leuten im Vergleich zu sonst geteilt?
   Ich habe den Beitrag mit …

… **weniger** Personen als sonst geteilt. ○ ○ ○ ○ ○ ○ ○ … **mehr** Personen als sonst geteilt.
-3 -2 -1 0 1 2 3

6. **Warum** haben Sie den Beitrag mit weniger, mit gleich vielen, oder mit mehr Personen als sonst geteilt?

Abschnitt 3: Werberezeption

1. Ist Ihnen in dieser Sequenz gestern **Werbung** für **Marken** oder für **Produkte** auf [Medium XY] aufgefallen? Wenn ja, **welche Werbung** ist Ihnen aufgefallen?
   a. Für welche **Marken** oder **Produkte** ist Ihnen Werbung auf [Medium XY] aufgefallen?
   b. **Warum** ist Ihnen diese Werbung aufgefallen? Was war an der Werbung **besonders**?
2. *[Falls keine Werbung erinnert werden kann]:* **Woran** könnte es Ihrer Meinung nach liegen, dass Sie in dieser Sequenz gestern die **Werbung** nicht wahrgenommen haben?

Appendix 13: Post-experience protocol (continued)

Teil III: Werbeevaluation

Für den folgenden Teil der Befragung werden **alle Werbungen** identifiziert, die **frei erinnert** und **gestützt erinnert** wurden sowie **jeweils zwei Maßnahmen** die **nicht erinnert** aber **länger betrachtet (> 2 Sekunden)** , **nur sehr kurz betrachtet (< 2 Sekunden)** oder **aktiv vermieden/weggeklickt** wurden. *[Alle Werbungen werden identifiziert, kategorisiert und randomisiert ausgewählt.]*

Folgende Werbungen ergeben sich aus der Nachbefragung (Teil I):

Frei erinnerte Werbung 1: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Frei erinnerte Werbung 2: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Frei erinnerte Werbung 3: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Frei erinnerte Werbung 4: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Gestützt erinnerte Werbung 1: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Gestützt erinnerte Werbung 2: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Gestützt erinnerte Werbung 3: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Appendix 13: Post-experience protocol (continued)

Gestützt erinnerte Werbung 4: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Folgende Werbungen ergeben sich aus der Analyse des Videomaterials (Teil II):

Nicht erinnerte Werbungen, zu denen befragt werden soll:

Länger betrachtete Werbung 1: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Länger betrachtete Werbung 2: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Kurz oder nicht betrachtete Werbung 1: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Kurz oder nicht betrachtete Werbung 2: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Aktiv vermiedene Werbung 1: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Aktiv vermiedene Werbung 2: _____(kurze Beschreibung)

Startzeit: _____ Endzeit: _____ Laufende Nummer: _____

Appendix 13: Post-experience protocol (continued)

Teil IV: Abschließende Befragung

Bitte beantworten Sie abschließend die nachfolgenden Fragen.

1. Was würden Sie sagen, wie **häufig** teilen Sie im Allgemeinen digitale Beiträge?

eher **selten** ○ ○ ○ ○ ○ ○ ○ eher **oft**
-3 -2 -1 0 1 2 3

2. Haben Sie am Abend der Aufzeichnung eher **weniger** oder eher **mehr** Beiträge geteilt als sonst?

eher **weniger** ○ ○ ○ ○ ○ ○ ○ eher **mehr**
-3 -2 -1 0 1 2 3

3. Haben Sie am Abend der Aufzeichnung die Beiträge eher mit **weniger** oder eher mit **mehr Personen** geteilt als sonst?

eher **weniger** ○ ○ ○ ○ ○ ○ ○ eher **mehr**
-3 -2 -1 0 1 2 3

4. **Sind Sie Rechts- oder Linkshänder?**
   - □ Rechtshänder
   - □ Linkshänder
   - □ Keine Präferenz

5. **Welche Smartphone-Marke und welches Modell nutzen Sie in Ihrem Alltag?**

   _____

6. **Wie ist Ihr Beziehungsstatus?**
   - □ ledig
   - □ in einer festen Partnerschaft
   - □ verheiratet
   - □ geschieden
   - □ verwitwet

7. **Wie alt sind Sie?**

   _____ Jahre alt

8. **Welchen Beruf üben Sie aktuell aus?**

_____

9

Appendix 13: Post-experience protocol (continued)

9. Was ist Ihr aktuell höchster Bildungsabschluss?

- □ Hauptschule
- □ Realschule
- □ Abitur
- □ Berufsausbildung
- □ Bachelorstudium
- □ Masterstudium
- □ Diplom
- □ Promotion
- □ Sonstiges, und zwar: _____

10. Geschlecht:

1. weiblich
2. männlich
3. divers

11. Wann sind Sie gestern ins Bett gegangen?

_____

Vielen Dank für Ihre Teilnahme!

10

Appendix 13: Post-experience protocol (continued)

Erläuterungen bei Rückfragen:

Was genau meinen Sie mit Medien?
Medien sind alle möglichen Anbieter, die Ihnen Inhalte und Informationen bereitstellen. Mögliche Beispiele sind unter Anderem WhatsApp, Instagram und Facebook oder Spiegel Online.

Was genau meinen Sie mit Geräte?
Geräte sind alle stationären und mobilen elektronischen Endgeräte, mit denen Sie im Internet auf Inhalte zugreifen können. Bspw. zu nennen wären hier das Smartphone, Tablets, Laptops, e-Reader, Smart-TVs, Desktop-PCs und SmartWatches.

Appendix 13: Post-experience protocol (continued)

Appendix 14: Coding instructions for attention tactics, inter-coder agreement and number of identified attention tactics

No.	Attention tactic	Instruction for coders Please rate to which degree the following tactic is present in the ad on the following scale: 0 = No use of the tactic 1 = Weak use of the tactic 2 = Intermediate use of the tactic 3 = Strong use of the tactic	Coder agreement for the first second of the ad	Coder agreement for the full duration of the ad	Selected for discussion	Number of ads with tactic present in the first second	Number of ads with tactic present for full duration
			Inter-coder agreement was defined by the following calculation: $\sum$ads with $\lvert(\text{Score C1}_i - \text{Score C2}_i)\rvert < 2$ / $\sum$ads			Number of ads with tactic present was defined by the following calculation: $\sum$Mean (Score C1 + Score C2) ≥ 2	
1	Capital letters (for single words)	Indicates whether the ad uses all capital letters for single words to highlight them in contrast to the rest of the text or to stand out from the environment.	95,83%	94,53%	No	122	172
2	Analogy	Indicates whether an analogy is included in the ad. An analogy refers to a rhetorical figure or technique where a comparison is made between the advertised product or service and another concept or situation to highlight similarities.	99,35%	99,35%	No	1	1
3	Animal	Indicates whether the ad features one or more animals.	100,00%	99,87%	No	6	10
4	Animated (main) character	Indicates whether the ad features an animated main character, which is a central figure within the ad content that is not a live-action or real person but rather a digitally created or illustrated character.	99,87%	100,00%	No	6	7

5	Animated scenes	Indicates whether the ad incorporates animated scenes, which can include a variety of elements, such as characters, objects, or backgrounds that are brought to life through animation. This can be achieved using techniques like traditional hand-drawn animation, computer-generated imagery (CGI), or other digital animation methods.	99,22%	99,61%	No	13	19
6	Appetitive cues	Indicates whether the ad utilizes appetitive cues, incorporating sensory elements or visuals that evoke positive and pleasurable associations, aiming to stimulate desires. For example, smokers have a greater attentional bias toward smoking cues compared with other objects.	99,87%	99,61%	No	7	22
7	Arrows	Indicates whether the ad uses arrows pointing to specific elements.	99,74%	100,00%	No	0	0
8	Baby	Indicates whether a baby is included in the ad.	100,00%	100,00%	No	4	6
9	Baby animals (e.g., puppies)	Indicates whether the ad features baby animals (e.g., young dogs).	100,00%	100,00%	No	0	0
10	Beautiful background scenes	Indicates whether beautiful background scenes are included in the ad. It refers to a visually captivating and aesthetically pleasing environment or setting that is used to enhance the overall appeal of the advertisement.	99,22%	99,22%	No	11	14

11	Beautiful object	Indicates whether a beautiful object is included in the ad. It refers to a visually appealing and aesthetically pleasing item, product, or element that is prominently featured in an advertisement.	99,74%	99,74%	No	0	0
12	Bold print	Indicates whether the ad uses bold print, employing thicker and darker text to highlight it in contrast to the rest of the text or to stand out from the environment.	90,36%	88,93%	Yes	170	234
13	Brand prominence	Indicates whether the brand logo is prominently shown throughout the whole ad.	95,96%	95,31%	No	216	281
14	Breaking with taboos	Indicates whether the ad deliberately breaks with social taboos or conventions, using surprising and controversial content.	100,00%	100,00%	No	1	1
15	Brightness	Indicates whether the ad uses bright and vivid colors, such as shades of red, orange, yellow, green, or blue.	91,93%	94,40%	No	83	97
16	Bullet points	Indicates whether the ad uses bullet points, incorporating concise and visually distinct lists to present information in a clear and organized manner within the advertisement.	99,87%	99,87%	No	0	0
17	Cartoon	Indicates whether cartoon (e.g., cartoon scenes) is used in the ad. A cartoon is a specific form of animation that typically features exaggerated or caricatured characters.	100,00%	100,00%	No	0	0

18	Celebrity	Indicates whether a celebrity is included in the ad. A celebrity is a person who is widely recognized, often by the general public, for their achievements, contributions, or activities in a particular field such as television, film, sport, business, or politics.	99,35%	98,96%	No	16	24
19	Children	Indicates whether a child is included in the ad.	99,61%	99,61%	No	4	16
20	Classical music	Indicates whether the ad features classical music.	100,00%	100,00%	No	1	1
21	Color in general	Indicates whether the ad is in color or black and white.	98,44%	98,05%	No	749	752
22	Comparison	Indicates whether the ad involves a comparison, utilizing visual or verbal elements to highlight contrasts or similarities between products, services, or situations within the advertisement.	98,96%	98,96%	No	0	4
23	Contrast to the ad environment (e.g., negative space)	Indicates whether the ad is in clear contrast to its environment. E.g., negative space refers to the empty or blank spaces around and between the main subjects or elements in an advertisement.	99,22%	99,22%	No	1	1
24	Contrast within the ad (e.g., simple object on white space)	Indicates whether there is a contrast inside the ad. E.g., simple object on white space refers to a design or layout technique where a single, uncluttered, and easily recognizable object or element is placed against a clean, minimalistic, or predominantly white background.	76,95%	78,91%	Yes	152	186

25	Cultural icon	A cultural icon refers to a person, figure, symbol or object that is widely known and significant in a particular culture or society, such as the Dalai Lama, Harry Potter, the Christian cross or the Eiffel Tower.	100,00%	99,87%	No	0	0
26	Direct address (e.g., the word ‘you’)	Indicates whether the ad employs direct address, featuring language that directly speaks to the viewer, often using the word ‘you’ or other personal pronouns to create a sense of personal connection or engagement within the advertisement.	98,96%	98,31%	No	48	97
27	Direct gaze	Indicates whether the ad features large eyes that directly gaze at the viewer.	99,48%	98,96%	No	30	48
28	Direction of eyes	Indicates whether the ad uses the direction of depicted eyes, particularly those of characters or subjects within the visual content, using eye gaze as a strategic visual element to guide viewer attention.	99,87%	99,87%	No	1	1
29	Economical signal words (e.g., ‘free’, ‘new’, ‘improved’)	Indicates whether the ad incorporates economical signal words which refer to specific words or phrases strategically chosen to convey a sense of economic value, savings, or financial benefits associated with a product or service, such as ‘free’, ‘new’, or ‘improved’.	95,96%	96,09%	No	43	73

30	Erotic elements	Indicates whether erotic elements are used in the ad. Erotic elements refer to the use of sexual or sensual content and images. This includes, in particular, the depiction of erotic poses, lots of bare skin and plunging necklines.	99,61%	99,61%	No	8	7
31	Employee	Indicates whether an employee of the advertising brand is used as a testimonial.	99,87%	99,87%	No	5	5
32	Expert (e.g., scientist, engineer or doctor)	Indicates whether an archetypal figure with high credibility, such as a scientist, engineer, or doctor, is included in the advertisement.	99,87%	99,87%	No	0	0
33	Faces	Indicates whether the ad prominently features large faces.	96,74%	98,18%	No	19	35
34	Fast cuts	Indicates whether fast cuts are used in the ad. Fast cuts involve rapidly switching between short, distinct video clips or scenes within a short duration.	99,35%	99,22%	No	1	3
35	Fast pace	Indicates whether the ad has a fast pace, with quick transitions, storylines and visual and auditory elements at high speed.	99,48%	99,61%	No	1	3
36	Fictional characters	Indicates whether the ad incorporates fictional characters. Fictional characters are characters that are created and exist within the realm of fiction, such as literature, film, television, or other forms of storytelling.	98,57%	98,70%	No	0	1

37	Flashing objects	Indicates whether the ad utilizes flashing objects, involving the rapid and intermittent appearance or disappearance of visual elements, often accompanied by changes in color or intensity.	98,70%	99,22%	No	2	1
38	Floating ads	Indicates whether the ad is floating. When the consumer scrolls on the display, the ad moves (e.g., to the bottom right-hand corner) and continues to play there. If the consumer scrolls upwards, it moves back to its original position.	100,00%	100,00%	No	0	0
39	Foreign language	Indicates whether the ad includes foreign language elements, incorporating languages other than the primary language of the target audience.	99,09%	98,44%	No	74	89
40	Frames	Indicates whether the ad strategically uses frames or borders around specific content, utilizing them as visual elements to guide viewers' gaze.	99,74%	99,87%	No	2	2
41	Freeze frame	Indicates whether the ad incorporates freeze frames, involving the momentary halting or pausing of visual motion within the content.	99,87%	99,87%	No	1	1
42	Full color: amount of color	Indicates whether the ad uses a lot of color.	96,22%	94,14%	No	652	678
43	Striking color schemes	Indicates whether the advertisement uses striking color schemes, such as intensive colors (e.g., red, yellow, blue) or neon colors, over a large area.	100,00%	100,00%	No	133	152

44	Futuristic elements	Indicates whether the ad intentionally includes elements that convey a futuristic theme, leveraging visuals, settings, or technologies associated with advanced and imaginative visions of the future.	100,00%	100,00%	No	0	0
45	Gamification elements	Indicates whether the ad incorporates gamification elements, such as interactive games or challenges.	99,74%	99,74%	No	0	1
46	Headline	Indicates whether the ad features a headline, employing a prominently displayed title or heading.	99,87%	99,87%	No	1	1
47	How-to Messages	Indicates whether the ad incorporates 'how-to' messages, providing step-by-step instructions or demonstrations on how to use a product or achieve a particular outcome, guiding the viewer through practical information within the advertisement.	99,48%	99,48%	No	0	2
48	Humanized objects	Indicates whether the ad incorporates human-like characteristics or qualities into inanimate objects. For example, an advertisement might feature a talking car, a smiling sun, or a friendly household appliance.	99,87%	99,87%	No	1	1
49	Humorous elements	Indicates whether the ad incorporates comedic or funny elements.	99,35%	99,61%	No	2	4
50	Incomplete text	Indicates whether the ad includes incomplete text, employing partial or cut-off phrases.	99,87%	99,87%	No	0	0

51	Incongruous object	Indicates whether the ad features an incongruous object, incorporating an element that is unexpected or out of place within the context of the advertisement.	99,87%	99,87%	No	0	0
52	Influencer	Indicates whether the ad features an influencer. An influencer is an individual who has a significant and engaged audience on social media platforms or other online channels. They leverage their credibility, authenticity, and authority within a specific niche or industry to promote products or services to their audience.	98,57%	97,66%	No	27	32
53	Interactive elements (e.g., to start a clip/sound or to enter a response)	Indicates whether the ad incorporates interactive elements, such as options to start a video clip or sound, or prompts for viewer responses.	99,09%	99,22%	No	1	1
54	Irrelevant elements	Indicates whether the ad intentionally includes irrelevant elements, incorporating content that may seem unrelated or unexpected within the context of the advertisement.	99,87%	99,87%	No	0	0
55	Irritating	Indicates whether the ad includes irritating or disruptive sound elements, such as loud or dissonant noises.	100,00%	100,00%	No	0	0
56	Italics	Indicates whether the ad uses italics, employing slanted and stylized text to create a visually distinct and impactful element within the ad to highlight it in contrast to the rest of the text or to stand out from the environment.	100,00%	100,00%	No	0	0

57	Loud	Indicates whether the ad features high-volume auditory components.	100,00%	100,00%	No	0	0
58	Luxury brands	Indicates whether the ad contains products or content associated with high-end or luxury brands. Luxury brands are characterized by high-quality services or goods and a high degree of social recognition, but are only owned or consumed by a few people due to their very high price and/or exclusivity.	99,35%	99,35%	No	1	1
59	Metaphors	Indicates whether the ad utilizes metaphors, incorporating symbolic or figurative elements. Metaphors refer to figures of speech or images that are used to convey a message by drawing parallels between the advertised product or service and another concept or idea. Metaphors involve making a comparison to highlight similarities and create a vivid and memorable impression.	99,87%	100,00%	No	0	0
60	Movement	Indicates whether movement is used in the ad. It refers to the use of dynamic visual elements or motion.	98,31%	98,83%	No	7	13
61	Mystery ads	Indicates whether the ad adopts a mystery approach, incorporating elements of suspense, intrigue, or ambiguity. This may involve withholding specific information, creating enigmatic narratives, or utilizing cryptic visuals.	99,61%	99,61%	No	0	0

62	Mystique	Indicates whether the ad incorporates mystique. Mystique refers to an atmosphere of mystery, intrigue, or allure that is intentionally cultivated around a product, brand, or marketing campaign. Creating mystique involves presenting the product or brand in a way that sparks curiosity and captivates the audience's imagination.	99,74%	99,74%	No	1	1
63	Native advertisement	Indicates whether the ad is designed as native advertisement. It refers to a type of advertising content that is designed to blend seamlessly with the surrounding non-promotional content, to the extent that it appears as a natural or 'native' part of the platform or publication where it is placed.	96,22%	96,22%	No	11	11
64	Negative arousing elements (e.g., fear, threat, guilt, disgust or regret appeals)	Indicates whether the ad includes elements designed to evoke negative emotions such as fear, threat, guilt, disgust, or regret appeals.	99,09%	99,61%	No	1	2
65	Nostalgia	Indicates whether nostalgia is used in the ad. It refers to the use of sentimental or wistful content and themes that evoke a sense of longing or affection for the past.	100,00%	100,00%	No	1	2
66	Novelty	Indicates whether novelty is used in the ad. It refers to the use of new, original, or innovative elements and concepts.	99,48%	99,61%	No	8	13

67	Object with clear edges	Indicates whether the ad prominently features objects with distinct and well-defined edges, utilizing clear lines that outline the shape of the object.	100,00%	100,00%	No	0	0
68	Onscreen spokesperson	Indicates whether the ad includes an on-screen spokesperson, featuring an individual who directly addresses the audience or presents information within the ad.	97,53%	97,53%	No	28	37
69	Parodies	Indicates whether the ad features parodies, incorporating humorous or satirical imitations of well-known concepts, products, or cultural references.	100,00%	100,00%	No	0	0
70	Pauses	Indicates whether the ad strategically incorporates pauses, involving intentional breaks or interruptions in visual or auditory elements.	100,00%	100,00%	No	0	0
71	Personal signal words (‘e.g., ‘mommy’, watch’, ‘warning’, or ‘emergency’)	Indicates whether the ad incorporates personal signal words, such as ‘mommy’, ‘watch’, ‘warning’, or ‘emergency’.	100,00%	99,74%	No	0	1
72	Plain nice background music	Indicates whether the ad incorporates plain, pleasant background music, using unobtrusive and agreeable musical elements to enhance the overall mood and atmosphere within the ad.	92,19%	92,71%	No	13	15

73	Pointing finger	Indicates whether the ad strategically features a pointing finger or hand gesture, using it as a visual cue to draw attention to specific elements, convey direction, or emphasize key information within the ad.	99,74%	99,74%	No	0	0
74	Popular music	Indicates whether the ad features popular music, incorporating well-known and widely recognized songs or musical tracks as a prominent auditory element within the advertisement.	99,61%	99,74%	No	4	5
75	Pop-up	Indicates whether the ad features pop-up elements, involving sudden appearances of additional windows or layers that overlay the main content.	98,70%	98,70%	No	1	1
76	Positive arousing elements (e.g., love, friendship, cosines, affection or empathy appeals)	Indicates whether the ad incorporates elements designed to evoke positive emotions such as love, friendship, cosines, affection, or empathy appeals.	96,61%	95,57%	No	27	59
77	Price promotions	Indicates whether the ad highlights price promotions, emphasizing discounts, special offers, or competitive pricing strategies.	98,57%	98,05%	No	51	73
78	Product prominence	Indicates whether the ad places a strong emphasis on showcasing the featured product, ensuring it is visually prominent and central to the advertisement's composition.	97,92%	95,44%	No	293	392

79	Punctuation (e.g., exclamation mark)	Indicates whether the advertisement incorporates specific punctuation marks, such as exclamation marks, question marks, or other punctuation elements. Punctuation marks are utilized to add emphasis, convey tone, or evoke certain emotions within the advertisement.	98,57%	98,57%	No	0	1
80	Quiet sound	Determines whether the ad incorporates low-volume auditory components.	100,00%	100,00%	No	0	0
81	Rear views	Indicates whether the ad features rear views, focusing on the depiction of subjects or scenes from behind.	99,74%	99,61%	No	0	0
82	Reference groups	Indicates whether reference groups are used in the ad. Reference groups are defined as groups that are psychologically significant for one's attitudes and behavior, portraying individuals or social clusters that the target audience may identify with or aspire to be part of.	98,96%	99,09%	No	1	3
83	Relationship or family scheme	Indicates whether the ad follows a relationship or family scheme, incorporating elements related to interpersonal connections, family dynamics, or social relationships.	96,74%	98,31%	No	6	17
84	Rewarded ads	Indicates whether the ad promises rewards, where viewers receive incentives, such as virtual rewards, discounts, or additional content, in exchange for their engagement or interaction with the ad.	100,00%	100,00%	No	0	0

85	Risk reducing promotions (e.g., ‘cash out”, ‘money back,” ‘cash back” or ‘refund”)	Indicates whether the ad incorporates risk-reducing promotions, such as ‘cash out’, ‘money back’, ‘cash back’, or ‘refund’ offers, aiming to mitigate perceived financial risks for consumers and enhance the appeal of the advertised product or service.	99,74%	99,74%	No	1	2
86	Scarcity appeals	Indicates whether the ad employs scarcity appeals like limitations, leveraging the principle of limited availability or exclusivity to create a sense of urgency, prompting viewers to take immediate action or make a decision due to the perceived scarcity of the advertised product or opportunity.	99,74%	99,74%	No	3	4
87	Series	Indicates whether the ad utilizes a sequence of scenes or objects to direct the viewer’s gaze, creating a cohesive visual narrative or message.	96,09%	97,14%	No	0	0
88	Shocking elements	Indicates whether the ad contains shocking elements by using provocative or evocative content.	100,00%	100,00%	No	0	0
89	Signs	Indicates whether the ad incorporates visual signs or symbols as directional cues, strategically using them to guide the viewer’s gaze, convey messages, and provide a visual pathway to key information within the advertisement.	99,61%	99,61%	No	0	0
90	Silence	Indicates whether the ad employs periods or moments of complete silence.	99,87%	99,87%	No	0	0
91	Size of the ad	Indicates whether the ad is large in size relative to its environment.	99,61%	99,09%	No	674	676

92	Size of the ad elements	Indicates whether single ad elements are large in size relative to their environment.	99,22%	99,48%	No	662	670
93	Slice of life	Indicates whether the ad adopts a ‘slice of life’ approach, portraying realistic and relatable everyday scenarios or situations and familiar aspects of daily life.	97,66%	97,92%	No	2	5
94	Slow motion	Indicates whether the ad incorporates slow motion effects, involving a reduction in the speed of the action.	99,74%	100,00%	No	0	0
95	Sports scheme	Indicates whether the ad adopts a sports scheme, incorporating elements related to sports, athletics, or physical activities.	99,74%	100,00%	No	26	30
96	Storytelling	Indicates whether the ad employs storytelling, utilizing narrative techniques to convey a sequence of events, emotions, or messages in a compelling and engaging manner.	98,96%	98,83%	No	0	1
97	Subjective camera perspectives	Indicates whether the ad employs subjective camera perspectives, using viewpoints that simulate the visual experience of a character or viewer within the ad to create a more immersive and engaging visual narrative.	99,87%	99,87%	No	1	2
98	Teaser-ads	Indicates whether the ad adopts a teaser format, intentionally providing limited information or hints.	99,35%	99,22%	No	9	11
99	Technology scheme	Indicates whether the ad adopts a technology scheme, incorporating elements related to technology, innovation, or modern advancements.	99,48%	99,35%	No	4	5

100	The color red	Indicates whether the ad prominently features the color red.	98,83%	98,18%	No	33	42
101	The theme of winning	Indicates whether the ad revolves around a theme of winning, incorporating elements such as contests, competitions, or achievements to capture attention and create a positive association with the idea of success or victory within the advertisement.	99,09%	98,96%	No	5	8
102	Topical advertising	Indicates whether topical advertising is used in the ad. It refers to ad campaigns that are closely tied to current events, trends, or specific moments in time.	98,96%	99,09%	No	1	4
103	Torture test	Indicates whether a torture test is used in the ad. This involves testing the product or service under extreme and often unrealistic conditions to demonstrate its durability, strength or superior performance.	100,00%	100,00%	No	0	0
104	Two-fers	Indicates whether the ad employs ‘two-fers’ by presenting a dual message, prompting active audience engagement to fill in informational gaps. Often using fraternal twins to symbolize opposing concepts, like good and evil, this tactic plays on the ‘naughty but nice’ appeal.	100,00%	100,00%	No	1	1
105	Typeface changes	Indicates whether the ad incorporates changes in typeface, employing variations in font styles or formats to highlight words or sentences in contrast to the rest of the text or to stand out from the environment.	100,00%	99,87%	No	3	5

106	Underlined text	Indicates whether the ad uses underlined text, employing lines beneath words or phrases to highlight them in contrast to the rest of the text or to stand out from the environment.	100,00%	100,00%	No	0	0
107	Unexpected elements	Indicates whether the ad includes unexpected elements, incorporating content that defies viewer expectations or challenges conventional norms.	99,74%	99,87%	No	1	1
108	Unexpected situations	Indicates whether the ad presents unexpected or surprising situations, incorporating scenarios that deviate from typical or predictable narratives.	99,87%	99,87%	No	0	0
109	Unfamiliar person	Indicates whether the ad features individuals who are not widely recognized or familiar, avoiding the use of well-known figures, celebrities, or public personas within the advertisement.	98,18%	96,09%	No	171	241
110	Unusual colors (e.g., psychedelic effects or color kaleidoscopic effect)	Indicates whether the ad incorporates unusual colors, such as through the use of psychedelic effects or kaleidoscopic patterns. Psychedelic effects involve vibrant, surreal color combinations often associated with altered perceptions, and kaleidoscopic patterns refer to intricate, colorful geometric designs reminiscent of a kaleidoscope.	98,57%	99,22%	No	0	1
111	Uplifting music	Indicates whether the ad includes uplifting music, featuring musical elements that evoke positive energy, optimism, and a sense of inspiration.	98,57%	98,83%	No	31	32

112	Violation of reality	Indicates whether the ad involves a violation of reality, incorporating surreal or fantastical elements that diverge from the ordinary.	100,00%	99,35%	No	0	6
113	Visual elements	Indicates whether visuals are used in the ad. Visuals can encompass a wide range of elements, including images, photographs, illustrations, and graphics.	99,35%	99,22%	No	755	758
114	Voiceover	Indicates whether the ad employs a voiceover, featuring an off-screen narrator or speaker who provides commentary, information, or storytelling throughout the ad.	98,70%	96,61%	No	104	140

Zusatzfragebogen Werbeevaluation

[Vom Interviewer auszufüllen]

Probandenkürzel: _____ Zeitraum im Video von: _____ bis: _____

Laufende Nummer: _____

Die Werbung wurde:
- □ frei erinnert
- □ gestützt erinnert
- □ nicht erinnert

Die Werbung wurde:
- □ länger betrachtet
- □ nur kurz betrachtet
- □ aktiv vermieden

[Vom Probanden auszufüllen/ zu beantworten]

[Falls erinnert]: **Warum** ist Ihnen diese Werbung in dieser Sequenz gestern aufgefallen? Was war **besonders** an der Werbung?

[Falls nicht erinnert]: **Woran** könnte es Ihrer Meinung nach liegen, dass Sie diese Werbung in dieser Sequenz gestern nicht wahrgenommen haben?

Bitte **bewerten** Sie die **Werbung** einmal kurz anhand der folgenden Skalen.

Die Werbung war …

… **nicht einzigartig**.	○ ○ ○ ○ ○ ○ ○ (0 1 2 3 4 5 6)	… **einzigartig**.
… **nicht unterhaltsam**.	○ ○ ○ ○ ○ ○ ○ (0 1 2 3 4 5 6)	… **unterhaltsam**.
… **nicht emotional**.	○ ○ ○ ○ ○ ○ ○ (0 1 2 3 4 5 6)	… **emotional**.
… **nicht informativ**.	○ ○ ○ ○ ○ ○ ○ (0 1 2 3 4 5 6)	… **informativ**.

1

Appendix 15: Assessment of the covariates for the selected ads

Die Werbung betraf ein **Thema**, für das ich mich **persönlich** …

… **nicht interessiere**. ○ ○ ○ ○ ○ ○ ○ … **interessiere**.
0 1 2 3 4 5 6

Die beworbene Marke ist eine **Marke**, für die ich mich **persönlich** …

… **nicht interessiere**. ○ ○ ○ ○ ○ ○ ○ … **interessiere**.
0 1 2 3 4 5 6

Bitte beurteilen Sie die Werbung. Ich finde die Werbung …

… **schlecht.** ○ ○ ○ ○ ○ ○ ○ … **gut.**
-3 -2 -1 0 1 2 3

Bitte beurteilen Sie die Marke. Ich finde die Marke …

… **schlecht.** ○ ○ ○ ○ ○ ○ ○ … **gut.**
-3 -2 -1 0 1 2 3

Alles in allem, was glauben Sie, wie viele Male haben Sie diese Werbung vorher schon gesehen?

- □ Keinmal.
- □ Einmal.
- □ Zwei- bis dreimal.
- □ Vier- bis fünfmal.
- □ Öfter als fünfmal.

2

Appendix 15: Assessment of the covariates for the selected ads (continued)

Appendix 16: Measures of covariates

Covariate	Definition	Scale	Source
Ad Uniqueness	Uniqueness refers to the degree to which an ad contains elements that are different from other ads or unusual (Mafael et al. 2021).	7-point scale: not unique [0] to unique [6]	Custom scale
Ad Entertainment	The capability of the ad to fulfill consumers' desire for aesthetic enjoyment, escapism, diversion, or emotional release (Ducoffe 1995).	7-point scale: not entertaining [0] to entertaining [6]	Custom scale
Ad Emotionality	Degree to which the ad is perceived as emotional.	7-point scale: not emotional [0] to emotional [6]	Custom scale
Ad Informativeness	The extent to which an ad can provide sufficient information to consumers about the product and its associated benefits (Ducoffe 1996).	7-point scale: not informative [0] to informative [6]	Custom scale
Ad Involvement	Perceived relevance of an ad on inherent needs, values and interests (Zaichkowsky 1986).	7-point scale: not interesting [0] to interesting [6]	Custom scale
Brand Involvement	Perceived relevance of a brand on inherent needs, values and interests (Zaichkowsky 1986).	7-point scale: not interesting [0] to interesting [6]	Custom scale
Attitude Towards Ad	A predisposition to respond in a favorable or unfavorable manner toward an ad at the time of exposure (MacKenzie and Lutz 1989).	7-point scale: bad [-3] to good [+3]	Bergkvist and Rossiter 2007
Attitude Towards Brand	A predisposition to respond in a favorable or unfavorable manner toward a brand at the time of exposure (MacKenzie and Lutz 1989).	7-point scale: bad [-3] to good [+3]	Bergkvist and Rossiter 2007
Prior Ad Exposure	Number of prior exposures to the ad.	5-point scale: never [0] to more than five times [4]	Custom scale

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Appendix 17: Systematic literature review on celebrity research focussing on attention or brand recall relevant to the vampire effect

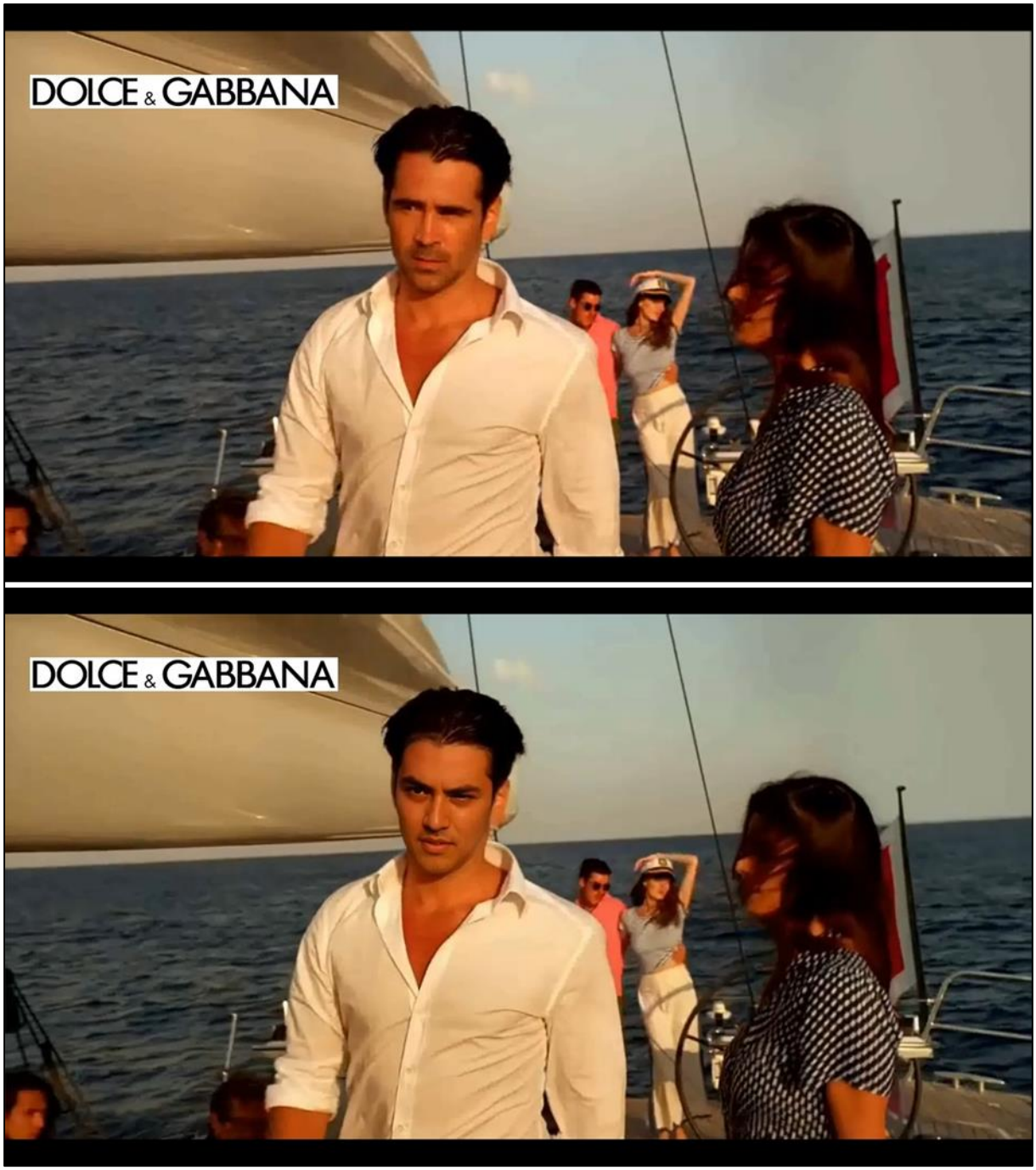
Source	Title	Study Overview	Key Findings	Key Limitations
Chan and Chau (2023)	Mitigating the Vampire Effect of Using Celebrity in Advertising: An Eye-Tracking Approach	Study 1: ▪ Eye-tracking study with real-life 15s TV commercials of 101 brands across eight categories. ▪ Each commercial was viewed by 40 participants, each participant viewed 6 commercials; no total N reported). Study 2: ▪ Replication of Study 1 using only celebrity commercials (40) on a smartphone screen to test the moderating influence of screen size. ▪ No N reported. Study 3: ▪ Controlled laboratory experiment (N = 40; convenience sample). Manipulation of celebrity–product contact (body gesture versus eye contact versus looking straight at the camera).	▪ Unaided brand name recall was lower for ads containing a celebrity than for those without a celebrity. ▪ No difference for unaided message recall. ▪ Fixation ratio on celebrity is longer than that on advertised product, ad message, and background, but not on brand logo. ▪ Participants allocated more attention to the celebrity endorser at the expense of other ad elements, except for brand logo.	▪ Limited internal validity due to the comparison of celebrities with ad elements instead of a non-celebrity control. ▪ Limited external validity due to unrealistic exposition conditions without providing a context embedment for the ads.

Erfgen, Zenker, and Sattler (2015)	The vampire effect: When do celebrity endorsers harm brand recall?	Study 1: ▪ Online-survey (N = 992; representative sample). ▪ Two experimental conditions (celebrity vs. non-celebrity). ▪ Ad exposure for six seconds. Study 2: ▪ Retest of Study 1. ▪ Online-survey (N = 617) ▪ Two-group between-subjects design with 2 (celebrity vs. non-celebrity) × 2 (fashion versus toothpaste brand). Study 3: ▪ Online-survey (N = 611). ▪ Full-factorial between-subjects design with 2 (celebrity vs. non-celebrity) × 2 (more versus less familiar brand). Study 4: ▪ Online study (N = 2,923). 16 different endorsers and eight brands. ▪ Retesting the combined effects from Studies 1-3.	▪ Use of a celebrity impairs brand recall (Vampire Effect). ▪ Negative celebrity effect on recall decreased with a stronger cognitive link between the celebrity and the brand. ▪ Vampire effect occurs for familiar as well as for less familiar brands.	▪ Limited external validity due to unrealistic exposition conditions in online surveys. ▪ Limited external validity due to unrealistic exposition conditions without providing a context embedment for the ads. ▪ Limited external validity, as only one stimulus per group was presented to each participant.
Kuvita and Karlíček (2014)	The Risk of Vampire Effect in Advertisements Using Celebrity Endorsement	Study 1: ▪ Eye-tracking study (N = 12; student sample). ▪ Three experimental conditions (unrelated celebrity ad versus related celebrity ad versus ad without a celebrity). ▪ Exposure to one stimulus ad and four filler ads per participant. Study 2: ▪ Survey study (N = 60; student sample). ▪ Similar procedure to Study 1 without for eye-tracking.	▪ More attention toward faces of celebrities. ▪ Ads with unrelated celebrity endorsement showed lower levels of product recall. ▪ No effect for brand recall.	▪ Limited internal validity due to inconsistent ad design between experimental. ▪ Limited external validity due to unrealistic exposition conditions without providing a context embedment for the ads. ▪ Limited external validity, as only one stimulus per group was presented to each participant. ▪ Limited external validity due to small sample size (20 per cell).

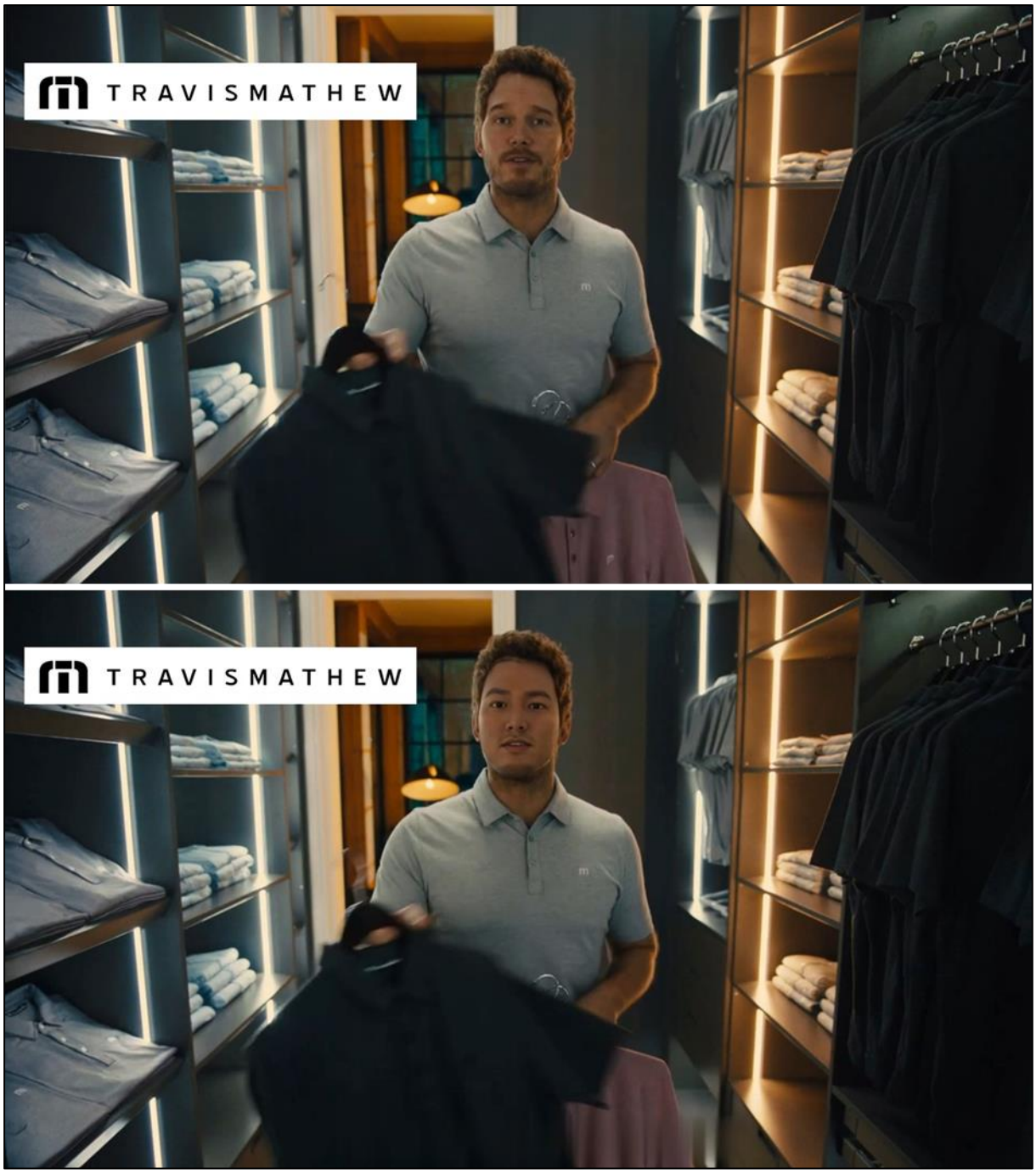
Liu and Liu (2020)	Big Star Undercover: The Reinforcing Effect of Attenuated Celebrity Endorsers' Faces on Consumers' Brand Memory	Study 1a: ▪ Online survey (N = 171). ▪ Between-subjects design (uncovered versus partly covered celebrity face). Study 1b: ▪ Eye-tracking study (N = 30; student sample). ▪ Participants viewed ads, including the target ad with face either uncovered or partly covered, while their gaze was recorded. Study 2: ▪ Online survey (N = 363). ▪ Exploration of the moderating effect of celebrity identification. ▪ Three experimental conditions (Celebrity face uncovered versus covered versus covered with an identification cue). Study 3: ▪ Online survey (N = 516). ▪ Exploring engagement's mediating role. ▪ Three experimental conditions (Celebrity with a clear versus blurred versus no face).	▪ Partly covering a recognized celebrity's face enhanced brand recall. ▪ No effect on brand recognition. ▪ Partly covering the face redirected visual attention to other ad elements (e.g., brand name). ▪ Identification cues significantly improved both brand recall and recognition in the covered face condition. ▪ Blurring the celebrity's face increased ad engagement and brand recall when participants could identify the celebrity, mediated by engagement.	▪ Limited internal validity due to missing non-celebrity control condition. ▪ Limited external validity due to unrealistic exposition conditions without providing a context embedment for the ads. ▪ Limited external validity, as only one stimulus per group was presented to each participant

Tokmak and Aksoy (2021)	Evaluation of Celebrity Endorsement Effectiveness Within the Context of Vampire Effect by Using Eye Tracking Technique	▪ Laboratory eye-tracking study (N = 134; 120 after exclusions; convenience sample). ▪ Two experimental groups (celebrity vs. non-celebrity) and a control group (product picture only). ▪ Ad exposure for six seconds.	▪ Human endorsers are the first and most fixated elements. ▪ Visual attention to non-celebrity is higher than it is to celebrity. ▪ Positive attitude effects of celebrities.	▪ Limited internal validity due to inconsistent ad design between experimental. ▪ Limited external validity due to unrealistic exposition conditions without providing a context embedment for the ads. ▪ Limited external validity, as only one stimulus per group was presented to each participant.
Zahmati et al. (2023)	An eye-tracking study on how the popularity and gender of the endorsers affected the audience's attention on the advertisement	▪ Eye-tracking experiment (N = 80; student sample). ▪ 2 (male versus female) × 3 (celebrity versus non-celebrity and a control condition without an endorser) within-subjects design. ▪ Three variations for element positions, resulting in 14 different stimuli. ▪ Ad exposure/duration of 15s.	▪ Humans in the advertisements caught the audience's attention. ▪ Popularity had a statistically significant impact on the length of fixation on body AOIs. ▪ No distinction in the participants' attention given to male and female endorsers.	▪ Limited external validity due to unrealistic exposition conditions without providing a context embedment for the ads. ▪ Limited external validity, due to the within-subjects design, as participants could guess the study subject.

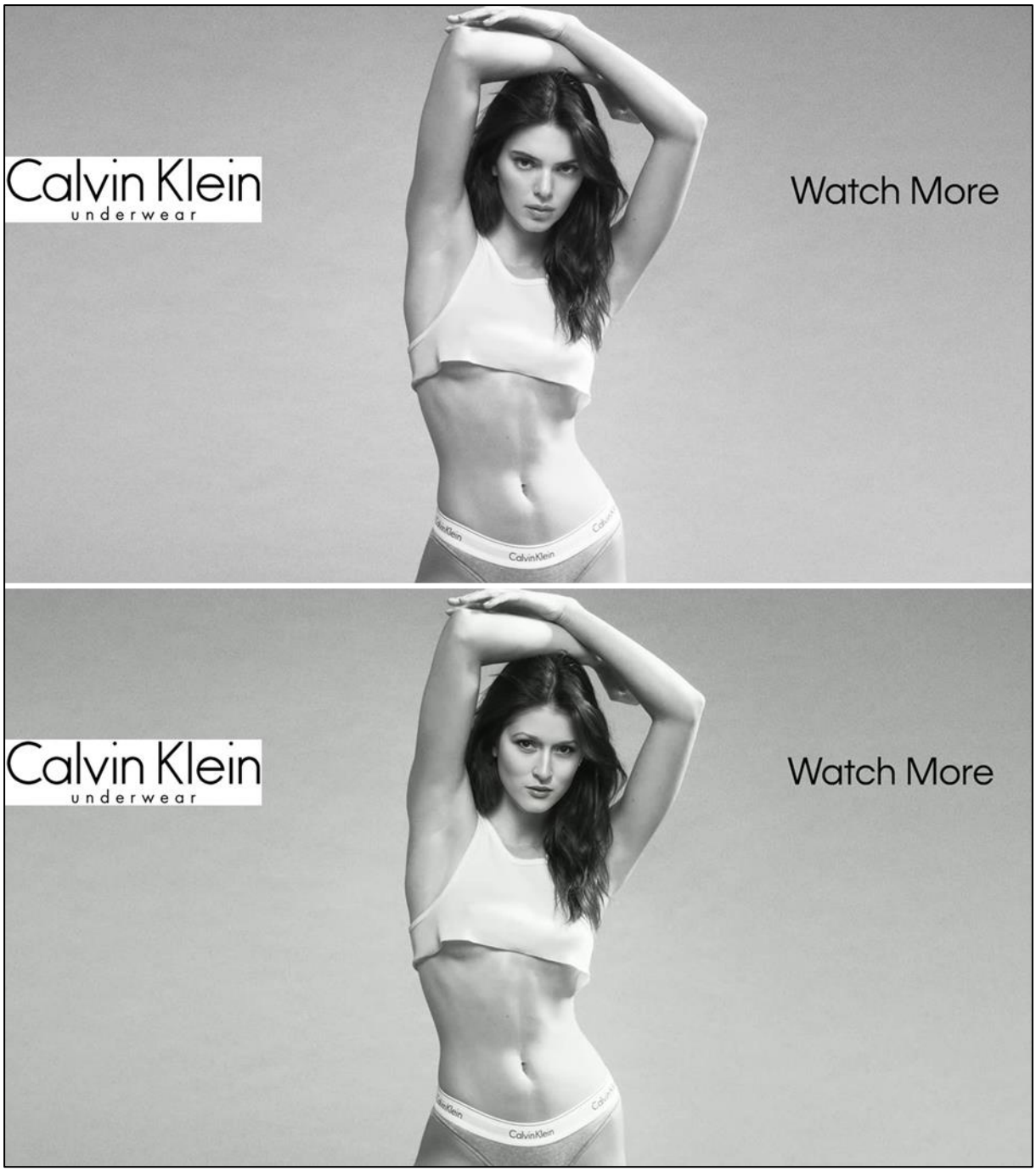
Annotation: Systematic literature analysis in EBSCOhost, global search terms: 'celebrity endorsement' AND 'vampire effect'. The search yielded 101 results, which were screened by the first two authors based on the title and abstract for relevance to the research subject, i.e., dealing with celebrity research focusing on attention and/or brand recall as dependent variables. Chan and Chau (2023) were added as a recent relevant study known to the authors that did not appear in the results. The search was conducted on March 20, 2024.



Appendix 18: Colin Farrell video ad for Dolce & Gabbana (top) and AI-generated equivalent



Appendix 19: Chris Pratt video ad for Travis Mathew (top) and AI-generated equivalent



Appendix 20: Kendall Jenner video ad for Calvin Klein (top) and AI-generated equivalent

Appendix 21: Zendaya video ad for Lancôme (top) and AI-generated equivalent

Appendix 22: Measurement of constructs in the study

Method	Construct	Variable / Single-Item	Exemplary source
Eye-Tracking	(Visual) attention	Total gaze duration	Felix and Borges 2014; Rosbergen, Pieters, and Wedel 1997
Self-report questionnaire	(Unaided) brand recall	Please write down all the brands from the commercials that you can remember.	Erfgen, Zenker, and Sattler 2015; Rosbergen, Pieters, and Wedel 1997
	Attitude toward the ad	Please rate the ad on the following scale: I dislike it (0) to I like it (6).	Adapted from Bergkvist and Rossiter 2009
	Purchase Intention	How likely is it that you will buy the brand in the future? Very unlikely (0) to very likely (6).	Adapted from Bergkvist and Rossiter 2009
	Familiarity of the testimonial	Please rate the person shown in the ad on the following scale: unfamiliar (0) to familiar (6).	Adapted from Erfgen, Zenker, and Sattler 2015

Appendix 23: Correlation of constructs in the study

Correlation of constructs	No.	1	2	3	4	5	6	7	8	9	10	11	12
Non-celebrity vs. celebrity	**1**	1											
Brand recall	**2**	-.04	1										
Attitude toward the ad	**3**	.18*	.20**	1									
Purchase intention	**4**	.07	.37**	.46**	1								
Video[a]	**5**	.04	.04	.11	-.08	1							
Testimonial[a]	**6**	.12	.23**	.13	.12	.67**	1						
Testimonial (face)[a]	**7**	.15*	-.11	-.06	-.16*	.58**	.65**	1					
Brand logo below video[a]	**8**	.00	-.04	.03	-.09	-.02	-.23**	-.06	1				
In-video brand logo[a]	**9**	-.01	.14	.12	.04	.40**	.36**	.10	-.14	1			
Product[a]	**10**	.09	.30**	.33**	.24**	.41**	.44**	-.00	-.12	.25**	1		
Slogan[a]	**11**	.14	.12	.25	.06	.59**	.55**	.56**	-.06	.52**	.30	1	
Relative Vampire Effect Index[b]	**12**	.24**	.00	-.09	-.07	-.21**	-.12	-.08	-.08	-.20*	-.08	.00	1

** $p_{\text{two-sided}} = .001$; * $p_{\text{two-sided}} < .05$; [a] total gaze duration in ms; [b] Index variable (see results section).

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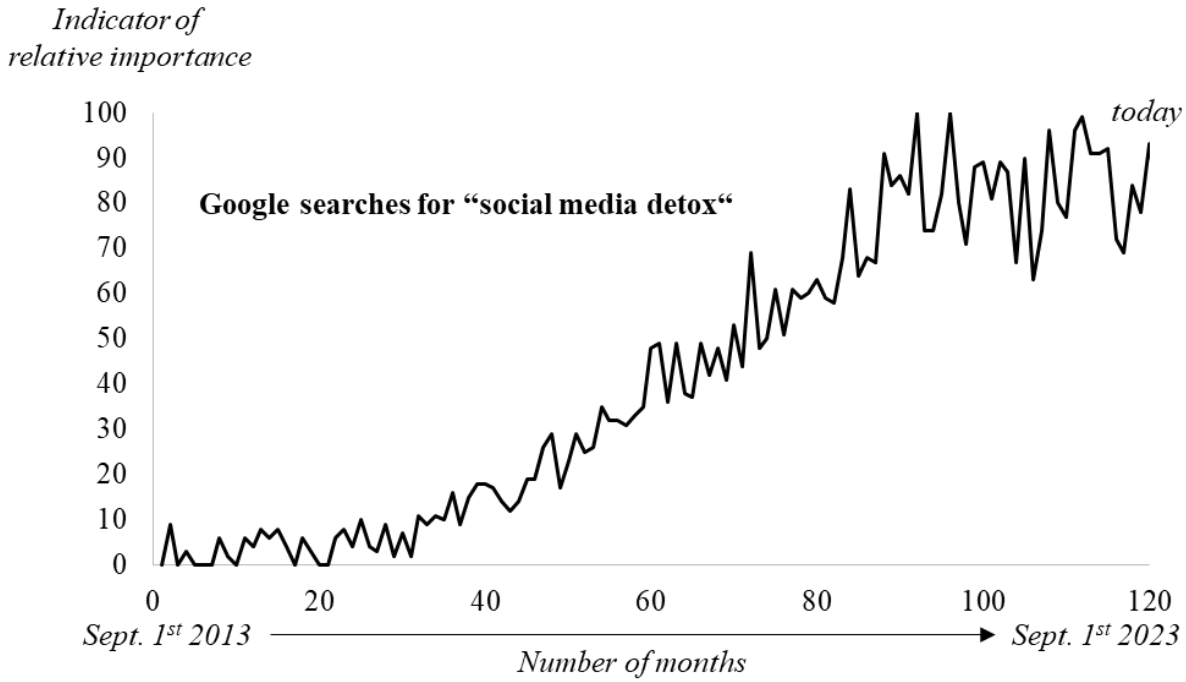

Annotation: *Indicator of relative importance* = '… data is normalized and presented on a scale from 0-100, where each point on the graph is divided by the highest point, or 100'.

Appendix 24: Google searches for 'social media detox' (Google 2024)

Appendix 25: Participants in the qualitative online interviews

Participant No.	Social media detox experience	Age	Gender
1	None and no intentions	22	female
2	Several	25	female
3	None and no intentions	24	female
4	None and no intentions	27	male
5	None and no intentions	25	female
6	Several	23	male
7	One	24	female
8	None and no intentions	24	female
9	None and no intentions	23	female
10	Several	25	female
11	None and no intentions	22	male
12	None, but intentions	30	female
13	None, but intentions	21	female
14	None and no intentions	22	male
15	None and no intentions	23	female
16	None and no intentions	27	female
17	None and no intentions	22	female
18	Several	26	female
19	One	28	female
20	One	23	male
21	None, but intentions	22	female
22	One	19	female
23	Several	22	female
24	One	27	male
25	None and no intentions	30	male
26	None and no intentions	34	female
27	One	26	female
28	None, but intentions	21	female
29	Several	27	female
30	None, but intentions	23	male
31	One	23	female
32	Several	26	male
33	None and no intentions	22	male
34	None and no intentions	22	female
35	None, but intentions	24	male
36	Several	22	male
Mean:		**24.3**	

Appendix 26: Results of the qualitative online interviews

Theme	Participants' Quotes
Understanding of Social Media Detoxes	
'Have you heard before of the term 'social media detox'? Please describe in your own words what you understand by this term.'	
Social media detox	'This means that you consciously decide to do without social. In other words, you consciously try not to scroll through Instagram, for example. The goal is to improve your health' (P3, 24, f).
	'To consciously refrain from using Insta and take a break to feel better and not be under constant pressure and comparison with others' (P28, 21, f).
	'Temporarily reducing or completely abandoning the use of social media channels' (P31, 23, f).
	'To take a break from social media by uninstalling the respective apps' (P36, 22, m).
Forms of Social Media Detoxes	
'There are many different ways and forms to do a social media detox. What different forms of social media detox do you know?'	
Time constraints	'Choose a time period in which you are only on social media' (P3, 27, m).
	'Set time limits' (P5, 25, f; P11, 22, m; P12, 30, f; P21, 22, f; P23, 22, f; P25, 30, m; P28, 21, f; P29, 27, f; P33, 22, m; P36, 22, m).
	'Set a daily usage time limit? Example: Only 20 minutes of social media per day' (P15, 23, f).
	'Only reduce the time spent on social media (e.g., using screen time on Apple)' (P22, 19, f).
	'[Only] consume social media at certain times' (P28, 21, f).
Time-outs	'Uninstalling apps' (P2, 25, f; P6, 23, m; P7, 24, f; P10, 25, f; P11, 22, m; P12, 30, f; P17, 22, f; P19, 28, f; P20, 23, m; P22, 19, f; P24, 27, m; P25, 30, m; P26, 34, f; P28, 21, f; P29, 27, f; P30, 23, m; P32, 26, m; P33, 22, m; P35, 24, m; P36, 22, m).
	'Hide the cell phone in a box' (P2, 25, f).
	'Block the apps' (P5, 25, f).
	'Do not take your cell phone to bed' (P5, 25, f).
	'Completely deactivate every social media platform' (P15, 23, f; P35, 24, m).
	'Leaving the house without taking your cell phone with you' (P17, 22, f).
	'No social media on certain days' (P21, 22, f).
	'Do not take a smartphone to hobbies or meetings' (P21, 22, f).

Conscious consumption	‘Perhaps limit yourself to a few apps that you only want to use’ (P2, 25, f; P27, 26, f).
	‘Conscious avoidance’ (P11, 22, m; P24, 27, m).
	‘Disable notifications’ (P11, 22, m; P18, 26, f).
	‘Deactivate only certain platforms’ (P15, 23, f).
	‘Mute your cell phone’ (P28, 21, f).
	‘Track the time you spend on social media’ (P34, 22, f).

Prior Experience with Social Media Detox or Future Intentions

‘Have you already used Social Media Detox once or even several times in the past?’

Prior experience	Yes, I have already done a social media detox several times. (8/36 participants)
	Yes, I have already done a social media detox once. (7/36 participants)
No experience but intentions	No, I have not done a social media detox yet, but I plan to do one in the future. (6/36 participants)
No experience and intentions	No, I have not yet done a social media detox and am not planning to do one. (15/36 participants)

Motivations that Promote Social Media Detoxes

‘For what reasons did you already do a social media detox?’ and ‘For what reasons are you planning a social media detox in the future?’

Avoiding unrealistic ways of life	‘Because it is not good for you to constantly compare yourself’ and ‘the lives of others sometimes look nicer/better because influencers go on vacation a lot and you may not have the time or opportunity yourself’ (P28, 21, f).
	‘Reduce the gap to reality’ (P30, 23, m).
	‘Feeling that everyone has a great life except me’ (P32, 26, m). ‘... fake people are being portrayed as role models and you need a break from everything’ (P35, 24, m).
Avoiding fear of missing out (FOMO)	‘Overcoming the fear of missing out’ (P13, 21, f).
	‘FOMO’ (P30, 23, m; P32, 26, m).
Promoting mental health	‘Due to impaired mental health’ (P18, 26, f).
	‘Focusing on myself and my well-being’ (P22, 19, f).
Reducing risk of addiction	‘Reduce addiction factor’ (P2, 25, f).
	‘Unhealthy addiction to watching social media, posting, etc.’ (P18, 26, f).
	‘To avoid becoming addicted ([for example in the] pandemic time when we had nothing to do)’ (P22, 19, f).
	‘It became an automatism to click on the app’ (P36, 22, m).
Stress reduction	‘Take a mental break from sensory overload’ (P2, 25, f).
	‘Social media is stressful’ and ‘permanent new information puts a strain on the psyche’ (P13, 21, f).

	‘To reduce stress’ (P21, 22, f).
Time for other things	‘Having more time’ (P2, 25, f).
	‘... to reduce the enormous waste of time that comes with using it to zero’ (P6, 23, m).
	‘Use more time for more meaningful things, such as family and hobbies’ (P22, 19, f).
	‘Time waster with no added value’ (P24, 27, m).
	‘Too much time wasted there’ (P31, 22, f).
	‘Spent too much time on social media’ (P36, 22, m).
External factors	‘Motivation to keep going together with friends’ (P2, 25, f).
Temporary or permanent disinterest	‘Had no more desire for the platforms’ and ‘short-term lack of interest’ (P7, 24, f).
	‘Tired of the same old content’ (P36, 22, m).

Motivations that Prevent Social Media Detoxes

‘On the other hand, what reasons do you personally see against carrying out a social media detox?’ and ‘Why do you not want to do a social media detox?’

Experiencing fear of missing out (FOMO)	‘FOMO’ (P2, 25, f; P30, 23, m).
	‘Fear of missing out’ (P20, 23, m).
	‘Feeling of exclusion?’ (P24, 27, m).
	‘One misses important things’ (P29, 27, f).
	‘You might think you are missing something’ (P31, 23, f).
	‘Feeling of missing out (FOMO)’ (P32, 26, m).
	‘One misses out on current developments’ (P36, 22, m).
Communication	‘Missed messages’ (P2, 25, f).
	‘Exchange with friends’ (P10, 25, f).
	‘Quick availability’ (P13, 21, f).
	‘Maintaining social contacts’ (P20, 23, m).
	‘Contact with other friends who live further away’ (P21, 22, f).
	‘Missing contact with people’ and ‘difficult to make contact’ (P24, 27, m).
	‘You cannot be reached’ and ‘social contacts, even with friends/acquaintances who live further away’ (P29, 27, f).
	‘There is no exchange of opinions (e.g., by reading comment sections)’ (P36, 22, m).
Information	‘Stay up to date with current trends’ (P2, 25, f).
	‘You stay up to date with everything that happens in your circle of friends and in the world’ (P12, 30, f).

	‘Quick availability of current information’ (P13, 21, f).
	‘To receive updates from friends’ and ‘To always be up to date with news (politics, environment, etc.)’ (P18, 26, f).
	‘Helpful for following world events more easily’ (P19, 28, f).
	‘Stay informed about the latest trends’ and ‘do not miss some important information (dates, deadlines)’ (P21, 22, f).
	‘These days, almost everything is done via social media, so if you do not use it, it is as if you do not know anything about the world’ (P22, 19, f).
	‘Information deficit’ (P24, 27, m).
	‘Staying up to date’ (P27, 26, f).
	‘You are interested in what others do’ (P28, 21, f).
	‘Information purposes’ (P32, 26, m).
	‘Without social media, you get very little these days because everything is spread through it’ and ‘hardly anyone watches the news on TV or likes to read the newspaper’ (P35, 24, m).
Entertainment	‘Funny memes’ (P10, 25, f).
	‘Social media is fun’ (P23, 22, f).
	‘It [social media] also has a humorous aspect, the fun would be missing’ (P29, 27, f).
	‘The craving for entertainment’ (P30, 23, m).
Passing time	‘Boredom’ (P2, 25, f).
	‘Is a good distraction and disconnection tool’ (P19, 28, f).
	‘Distraction’ and ‘sometimes it is just ‘nice’ to be on your cell phone in the evening and pass the time on TikTok’ (P28, 21, f).
Inspiration	‘Discovering new trends in music or clothing’ (P18, 26, f).
	‘Helpful for travel and leisure inspiration’ (P19, 28, f).
	‘One seeks to be inspired’ (P28, 21, f).
Relaxation	‘Relaxation after a stressful day’ (P28, 21, f).
External factors	‘Job-related inability to reduce’ (P2, 25, f).
Ineffectiveness of social media detoxes	‘Actually, it is not really useful if you return to your old habits after the detox’ and ‘it [social media detox] is usually too short-lasting’ (P7, 24, f).
	‘You quickly get used to social media again afterwards’ (P10, 25, f).

Situations that Promote Social Media Detoxes

‘What are those situations in your life where you have already done a social media detox?’, ‘What are those situations in which you can imagine doing a social media detox in the future?’, and ‘Can you imagine situations in the future where you would change your current opinion and do a social media detox?’

Decreasing social media gratifications (wear out)	‘The fun increasingly diminished’ (P2, 25, f).
Addictive behavior	‘Whenever I realized that I was addicted’ (P2, 25, f).
	‘Just in case I spend too much time on it’ (P3, 24, f).
	‘When consumption becomes too excessive’ (P4, 27, m).
	‘Phases in which cell phone use was exaggerated’ (P10, 25, f).
	‘If you consume too much’, ‘feeling of dependency’, and ‘if it affects my lifestyle’ (P11, 22, m).
	‘When my consumption becomes too extreme’ (P15, 23, f).
	‘If I used significantly more social media’ and ‘when I realize that I am neglecting other things’ (P16, 27, f).
	‘During the Covid-19 pandemic when we were all at home and could not do much, I spent most of my time on social media. To get away from it and do better things, we decided as a family to reduce our consumption’ (P22, 19, f).
	‘Yes, when you see the screen time of several hours a day, for example, you do think about it’ (P33, 22, m).
Shattering events and phases in life	‘Especially in difficult times, I think it is good to do something like this to simply find yourself again’ (P9, 23, f).
	‘After the death of a family member’ (P18, 26, f).
	‘In phases of sadness’ (P31, 23, f).
Stressful times	‘Examination phase’ (P13, 21, f; P18, 26, f; P19, 28, f; P21, 22, f; P24, 27, m; P28, 21, f; P30, 21, m; P31, 23, f; P32, 26, m; P36, 22, m).
	‘Situations in which you are overstimulated by all the input from social media’ (P12, 30, f).
	‘When I am between jobs’ (P15, 23, f).
	‘Stressful everyday life’ (P18, 26, f).
	‘In especially stressful times’ (P21, 22, f).
	‘When I started my studies to save time’ (P23, 22, f).
	‘Had a stressful time’ (P27, 26, f).
	‘During an important event e.g., Bachelor thesis’ and ‘when you need to stay focused on something’ (P30, 21, m).
	‘Phase of depressive mood’ (P32, 26, m).
Recovery phases	‘Vacation’ (P4, 27, m; P21, 22, f; P28, 21, f; P29, 27, f).
	‘Retreat’ (P4, 27, m).
	‘Yes, I can take a trip into the wilderness or to a place where there is no way to connect’ (P26, 34, f).
	‘Staying abroad’ (P29, 27, f).
	‘Sometimes on vacation’ (P33, 22, m).

Place of work	‘At the university’ (P13, 21, f).
Daily routines	‘In the morning after getting up’ and ‘in the evening before going to bed’ (P13, 21, f).
Social influences	‘Being together with close friends on certain occasions could also help me to switch off’ (P26, 34, f).
Situations that Prevent Social Media Detoxes	
‘In which situations in your life would you definitely not do a social media detox?’	
Social participation tool	‘For important events’ (P13, 21, f).
	‘Where there are problems, e.g., in society, that can be supported by e.g., petitions (raising awareness)’ and ‘when information I get from social media is relevant to me’ (P18, 26, f).
	‘When something important and very topical happens in the world (environmental disasters, political changes...)’ (P19, 28, f).
	‘When I need to be available’ (P22, 19, f).
	‘When family or friends need you and you want/need to be available for them’ (P29, 27, f).
	‘Abroad (making contacts)’ (P32, 26, m).
	‘When my favorite artists have announced big announcements’ and ‘when an important sporting event takes place’ (P36, 22, m).
Lack of other sources of gratifications	‘If I had no other form of entertainment’ (P7, 24, f).
	‘[Being in] quarantine’ (P30, 23, m).
	‘During a lockdown, such as in the Covid-19 pandemic’ (P35, 24, m).
Stress-free times	‘At times when I have a lot of free time, as it also serves as a pastime’ (P12, 30, f).
	‘When I have a lot of free time’ (P21, 22, f).
	‘Semester break’ (P30, 23, m).
Physical distance to close others	‘Long-distance relationship’ and ‘contact with family members abroad’ (P2, 25, f).
	‘[During] vacation’ (P20, 23, m).
	‘When you are alone and friends/family do not have time for you’ (P28, 21, f).
Shattering events and phases in life	‘After a break-up’ (P24, 27, m; P28, 21, f).

Appendix 27: Participants in the qualitative in-depth interviews

Participant No.	Manipulation	Duration of time-out	Age	Job	Gender
1	Time-out	460m	25	Student	female
2	Time-out	360m	26	Student	male
3	Time-out	360m	24	Student	female
4	Time-out	240m	25	Nurse	female
5	Time-out	270m	25	Businesswoman	female
6	Time-out	480m	25	Student	female
7	Time-out	310m	24	Student	female
8	Time-out	435m	23	Student	female
9	Time constraints	-	23	Student	female
10	Time constraints	-	20	Student	male
11	Time-out	740m	24	Student	female
12	Time constraints	-	24	Student	female
13	Time constraints	-	25	Student	female
14	Time constraints	-	27	Student	female
15	Time constraints	-	26	Student	female
16	Time constraints	-	25	Student	male
17	Time constraints	-	24	Student	female
18	Time constraints	-	25	Medical assistant	female
19	Time constraints	-	26	Painter	male
20	Time constraints	-	25	Medical assistant	female
21	Time-out	540m	25	Fitness instructor	male
22	Time-out	660m	32	Self-Employed	female
Mean:		**441.4m**	**24.9**		

Appendix 28: Results of the qualitative in-depth interviews

Theme	Participants' Quotes
Impacts of Time-outs on Attention to Social Media Ads	
'How did you deal with advertising in this situation? How was this different compared to without time out?'	
Withdrawal symptoms	'I felt a release [after finally using Instagram again].... Simply knowing that you are not allowed to do that makes my desire even stronger' (P1, TO, 25, f).
	'I felt a bit of pressure to use Instagram and a bit as if something was missing, as if something was being taken away, like in withdrawal' (P2, TO, 26, m).
	'I had withdrawal symptoms because I felt the urge to scroll on Instagram again to pass time, or to stay in touch with my friends' (P8, TO, 23, f).
Fear of missing out	'At first I thought I had missed so much, so it was ... like it was some kind of flood coming at me. There was also a bit of excitement because I was allowed to use Instagram' (P2, TO, 26, m).
	'Theoretically, I could have waited a little longer, but I still wondered if I had missed something' (P7, TO, 24, f).
	'I asked myself whether I had received any news about what was happening in the world, what my friends were doing. I was very interested, very open-minded' (P8, TO, 23, f).
Positive rewards	'A bit of happiness hormones were released at the very beginning. But that quickly subsided again. The dopamine level quickly felt low again, so you needed another kick' (P2, TO, 26, m).
	'Cool. I finally could look again at what people have posted in their stories and who might have posted a new photo on their feed.... That is such a moment, it was like oh yes, finally I can do it again. So it was quite a reward' (P3, TO, 24, f).
Increased ad avoidance	'So I do not think I noticed exactly whether there was advertising or not. Because I was actually just picking out friends.... I think I notice advertising more when I am on my cell phone for longer' (P1, TO, 25, f).
	'... the advertising annoyed me.... Whenever there was an advertisement, I skipped it immediately. I did not even pay attention to it. I wanted to skip straight to my more important content. And when I am on Instagram a few times a day, I somehow pay a bit more attention to the ads and take them in more' (P2, TO, 26, m).
	'If there was advertising, I skipped it immediately. Not paid attention at all' (P7, TO, 24, f).
	'I found the advertising even more annoying, I have to say, because I wanted to get information as quickly as possible and the advertising disturbed me a bit' (P7, TO, 24, f).
	'What bothered me was definitely the increasing amount of advertising on Instagram. And also suggested pages that I do not follow at all and also things like meme pages, comedy pages, things like that' (P8, TO, 23, f).
	'I did not watch any advertising this time. And without time out, I am more likely to get carried away and let myself be sprinkled with advertising' (P22, TO, 32, f).

Heightened importance of native content	‘For now, I have only selected the influencers and people from my inner circle. The ones whose posts I think have added value or who might have posted something special’ (P1, TO, 25, f).
	‘I only wanted to look at what was relevant and not what was recommended or suggested to me’ (P2, TO, 26, m).
	‘I really just wanted to look at my friends or the people I know’ (P3, TO, 24, f).
	‘Ads didn’t really interest me at all, because I was more focused on what people were doing’ (P4, TO, 25, f).
	‘I looked at a few stories from friends to see what they were up to yesterday and had a quick look at the stories of my favorite influencers’ (P5, TO, 25, f).
	‘I wanted to catch up on everything as quickly as possible and see what the others had done’ (P7, TO, 24, f).
	‘I was perhaps also able to ignore the advertising a little better because I concentrated more on the content that actually interests me’ (P7, TO, 24, f).
	‘Only the bare essentials. What friends, acquaintances etc. do’ (P21, TO, 25, m).
Conscious Instagram consumption	‘I was more aware of the app and paid attention to why I was using it’ (P6, TO, 25, f).
	‘I roughly looked through who had uploaded a story and whether it interested me. I then only looked at the ones that interested me’ (P11, TO, 24, f).
Effective ad encounters	‘I did not quite perceive it as advertising because Leon [an Influencer] was appearing as a person. I just thought, oh, it’s just his product, but it’s actually advertising. It is advertising, but I did not perceive it as such because it was so subliminal that I would have said it was a recommendation from a friend of mine’ (P1, TO, 25, f).
	‘I looked at a few stories from friends to see what they were up to yesterday and had a quick look at the stories of my favorite influencers’ (P5, TO, 25, f).
	‘Yes, there were advertisements for jewelry or make-up, for example, that appealed to me more and advertisements for products like shoes or something that did not appeal to me’ (P7, TO, 24, f).
	‘I think I paid more attention to advertising that might interest me personally now because of the cookies that bother everyone yes and our data is available’ (P8, TO, 23, f).
The Impact of Time Constraints on Attention to Social Media Ads	
‘How did you deal with advertising in this situation? How was this different compared to without a time constraint?’	
Shorter usage time	‘You couldn’t look at everything. So 1 minute was already very, very little’ (P9, TC, 23, f).
	‘I just consumed and the minute felt relatively short. So I think I’m used to being on Instagram for longer’ (P10, TC, 20, m).
	‘I probably would have looked at more stories now but time was running out’ (P15, TC, 26, f).

Time pressure	‘Somehow I felt a bit under pressure there’ (P9, TC, 23, f).
	‘Accordingly, I may have felt a bit under pressure’ (P10, TC, 20, m).
	‘I felt a bit stressed because I knew I had so little time and hardly wanted to read through anything’ (P13, TC, 25, f).
	‘Somehow one was a bit under time pressure’ (P14, TC, 27, f).
	‘I felt a bit under pressure’ (P15, TC, 26, f).
	‘You felt a bit under pressure, like you were being put under pressure’ (P19, TC, 26, m).
	‘Unconscious pressure in fact, light [pressure]’ (P20, TC, 25, f).
Acceleration of information processing	‘I think without a time limit I would concentrate more on the content and perhaps read through everything a bit more. Yes exactly, without a time limit I would read through things more. Somehow look at it more intensively. And not swipe through it like that. And probably look through it a bit longer’ (P14, TC, 27, f).
	‘I clicked through the stories more quickly. So I didn’t finish watching them because I knew OK, I have to hurry a bit’ (P15, TC, 26, f).
	‘That you view everything rather superficially and have not read through the individual posts’ (P17, TC, 24, m).
	‘I tried to consume as much as possible in that sense, be it watching stories, the feed or somehow the normal course of reels or similar’ (P18, TC, 25, f).
Increased ad avoidance	‘In between, advertising was displayed ... and I just skipped it and did not look at it at all, because it would have taken up my time’ (P9, TC, 23, f).
	‘The advertising bothers you more, because of course you have less time and you are robbed of even more time by the advertising’ (P13, TC, 25, f).
	‘So now with the time limit I have actually ignored the advertising, so I quickly went over it’ (P14, TC, 27, f).
	‘It [advertising] definitely bothered me more now and I got rid of it faster’ (P15, TC, 26, f).
	‘I just skipped them and did not pay attention to them, and without a time limit I would just watch certain ones’ (P17, TC, 24, m).
	‘So the ads between the stories bothered and annoyed me’ (P18, TC, 25, f).
	‘I actually scrolled right over them [ads] and yes, if I do not have a time limit, so to speak, then you sometimes stop there if it is a well-crafted advertising video’ (P19, TC, 26, m).
Focus on native content	‘At first it was always the things that I had a personal connection to that were interesting. The stories of yes, usually the people you know’ (P9, TC, 23, f).
	‘I was hoping to see posts or stories from close friends because that interests me more than advertising, for example. But I was also shown news and found that more interesting than the ads’ (P14, TC, 27, f).
	‘I was interested in the topics of the creators I follow. I actually only ever watched stories from the people I like’ (P18, TC, 25, f).

Conscious Instagram consumption	‘So maybe it was a bit more conscious to look at it that way. If I knew that I only had one minute at a time, I would consume things a little more consciously and maybe also look at what is important to me and not just let it all pour in, but keep an overview myself’ (P9, TC, 23, f).
	‘So I was somehow more consciously watching Instagram’ (P10, TC, 20, m).
Effective ad encounters	‘At the moment I am generally looking more closely at anything to do with skin care because I am trying to at least engage with it. So I would say maybe this ad’ (P15, TC, 26, f).
	‘So when I see ads [in general], I sometimes watch them. It depends on the topic. For example, sports advertising or advertising related to games or other things, but not otherwise’ (P16, TC, 25, m).
	‘One ad was a Corona [beer brand] ad, which was more appealing than the others. It was kind of like a social marketing ad or something like this’ (P19, TC, 26, m).