Everyday multiscreening

How the simultaneous usage of multiple screens affects information processing and advertising effectiveness

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Chapter 1

General Introduction and Dissertation Outline

EVERYDAY MULTISCREENING

Technology has quickly become ingrained into people's lives. Today, people have access to a variety of screens. For example, the majority of people in the Netherlands and the United States have access to a TV, laptop, smartphone, and/or tablet (see Table 1.1; Deloitte Development LLC, 2015; SKO, 2016). Especially the amount of people who own a smartphone and tablet has increased enormously over the years. In 2013, about 61% of the Dutch population owned a smartphone and about 48% owned a tablet. In 2015, the amount of smartphone owners increased to 76% and tablet owners to 61% of the Dutch population (Wennekers, de Haan, & Huysmans, 2016). Screen saturation and the convergence of these technologies have led to an increase in a combined use of different screens. For example, more than a quarter of the smartphone and tablet owners stated to use their screen simultaneously when watching TV on a daily basis (Nielsen, 2013). This phenomenon of combining multiple screens at the same time is known as multiscreening and is the central topic of this dissertation.

Multiscreening – a form of media multitasking – is characterized by the combination of screens. Multiscreening is, for example, watching television and browsing the web on a laptop, reading e-mails on a tablet, or sending text messages on a smartphone simultaneously. First, multiscreening involves tasks that are self-contained (Benbunan-Fich, Adler, & Mavlanova, 2011). This means that it is possible to carry out the tasks independent of each other. Second, multiscreening involves – similar to media multitasking – multiple tasks that are carried out on different media with some temporal overlap (Adler & Benbunan-Fich, 2012; Benbunan-Fich et al., 2011; Salvucci & Taatgen, 2011). The visual nature of the screen makes it impossible for people to engage in two tasks on multiple screens with complete temporal overlap (Salvucci & Taatgen, 2011). Because of this media characteristic, visual attention needs to be divided between the screens (Brasel & Gips, 2011; Jeong & Fishbein, 2007). People use an interleaved strategy in which one task is temporarily suspended in order to focus on another task. In other words, people have to switch their visual attention between the different tasks. Switching can vary on a continuum from rapid switching to longer time spans between switches (Salvucci & Taatgen, 2011).

Table 1.1 Screen ownership in % of the Dutch and US population.

	NL[a]	US[b]
TV	96.8	82
Laptop	76.5	82
Smartphone	76.3	71
Tablet	62.1	54
Desktop	46.9	66
Game Device	31.7	56

[a] Source: SKO (2016)
[b] Source: Deloitte Development LLC (2015).

Implications of Multiscreening for Information Processing

In communication science, media effects are typically examined in a mono-media consumption situation. Effects are assessed based on exposure to, for example, a video clip, an advertisement, or other media content, without distractions. However, combining multiple tasks simultaneously has implications for the way people process media content. Especially the combination of multiple screens at the same time has at least two major implications for how people process media content. First, the simultaneous usage of multiple screens may lead to – similar to other forms of media multitasking – capacity interference. This means that information processing is limited by the availability of people's cognitive resources (Kahneman, 1973). According to the limited capacity model of motivated mediated message processing (Lang, 2006), people are limited in the amount of cognitive resources they use to process information of media content. These cognitive resources are used to encode information, turn it into mental representations, store these representations into memory, and retrieve it at a later point in time (Lang, 2000; Lang, 2006). However, people are limited in the amount of cognitive resources that they can allocate to different tasks at the same point in time (Kahneman, 1973; Lang, 2000). This means that people have to divide their cognitive resources between the different tasks when multiscreening. This happens at the expense of the processing of both messages.

Second, the use of multiple screens simultaneously may also lead to structural interference. When processing media content, multiple resources are required to process information through different sensory channels (i.e., audio and visual). Structural interference occurs when people use different media with concurrent

modalities (Kahneman, 1973), such as the concurrent visual modalities of the screens involved in multiscreening. According to the dual-channel paradigm, structural interference is caused when information of the same modality needs to be processed through the same sensory channel (Baddeley, 1997; Paivio, 1986; Wickens, 2002). Because of the concurrent visual modality when multiscreening, people need to divide their visual attention between the screens (Brasel & Gips, 2011; Salvucci & Taatgen, 2011) and information processing of media content on both screens might be limited.

Thus, it is assumed that multiscreening could affect the way people process media content. However, it is still relatively unknown what the effects are of multiscreening on the way people process media content compared to single screen use. Only recently, scholars have started to examine the phenomenon of multiscreening. It is found, for example, that people remember less of news items (Van Cauwenberge, Schaap, & van Roy, 2014), television episodes (Oviedo, Tornquist, Cameron, & Chiappe, 2015), and advertisements (Chinchanachokchai, Duff, & Sar, 2015) when they multiscreen opposed to single screen. Furthermore, television episodes are less likely to be enjoyed (Oviedo et al., 2015), multiscreening could increase engagement with political debates (Vaccari, Chadwick, & O'Loughlin, 2015), and time is perceived as going faster (Chinchanachokchai et al., 2015). These studies showed different implications of multiscreening on the processing of media content. This dissertation will contribute to this knowledge by systematically examining how multiscreening affects information processing of media content. More specifically, this dissertation focuses on how multiscreening affects advertising outcomes, such as brand memory and brand attitudes.

Multiscreening and Advertising

Television is the most often combined screen when multiscreening (eMarketer, 2016). The results of a survey employed among 2,076 US consumers showed that they engage in 2-3 additional activities when watching TV (Deloitte Development LLC, 2015). Also, the television is still the most important medium on which advertisers spent their money. In the Netherlands, it was announced that advertisers spent 483 million euros on television advertising. This is an increase of 5.6% compared to the year before (Screenforce, 2016). The prevalent occurrence of multiscreening in combination with the high amount of advertising spending shows that insights into how multiscreening affects advertising effectiveness is very important for advertisers. However, research into the effects of advertising mainly focus on effects when consumers are single tasking (Pilotta, Schultz, Drenik, & Rist, 2004). Therefore, it is still relatively unknown how multiscreening affects the processing of advertising and its consequences. To address this gap, the

current dissertation looks into how multiscreening affects advertising outcomes.

Based on media multitasking literature, it is expected that multiscreening has negative consequences for advertising outcomes in general. Especially for cognitive outcomes such as memory. The limited amount of cognitive resources people have to divide when multiscreening are assumed to be the cause of the detrimental effect of multiscreening on cognitive advertising effects. In addition, this memory deficit might be an underlying mechanism that explains why it is expected that people have less favorable advertising evaluations, such as brand attitudes, ad attitudes, or purchase intentions. On the other hand, multiscreening may also have a positive effect on affective advertising outcomes because people are less able to resist a persuasive message when multiscreening (Jeong & Hwang, 2012) or enjoy multiscreening more than single screening (Chinchanachokchai et al., 2015). This dissertation looks further into advertising effects when multiscreening and their underlying mechanisms and looks into the effect of multiscreening on cognitive and affective advertising outcomes.

Task Relevance

Most multiscreening research has focused on the negative consequences. So far, research has shown that multiscreening has negative consequences mainly on cognitive outcomes, such as memory (e.g., Kazakova, Cauberghe, Hudders, & Labyt, 2016) or comprehension (e.g., Van Cauwenberge et al., 2014). However, these negative consequences do not prevent people to engage in this behavior. Thus, beside the fact that it is very important for advertisers to know how multiscreening affects advertising outcomes, it is considered even more important to examine how advertising effectiveness can be improved. In the current dissertation, a possible facilitator of advertising effects when multiscreening is examined, namely task relevance. By doing this, this dissertation takes a unique positive approach by focusing on the possibilities instead of the detrimental effects of multiscreening.

Task relevance is a form of relatedness and is defined as two tasks that are carried out simultaneously with an overarching or similar goal (Wang, Irwin, Cooper, & Srivastava, 2015). It is assumed that related tasks are less detrimental to advertising effects because combining related tasks is less cognitively demanding than combining unrelated tasks. This assumption was confirmed in a meta-analysis of 49 media multitasking studies. In this meta-analysis, the results showed indeed that the cognitive deficit was stronger when two unrelated tasks were carried out (Jeong & Hwang, 2016). However, most experiments that manipulated task relevance did not find an effect on memory and attitudes (study 1 of Kazakova et al., 2016; Van Cauwenberge et al., 2014). Because of this discrepancy between the meta-analysis and the experiments, researchers have

called for more investigation on this topic. Therefore, this dissertation looks further into the facilitating role of task relevance by examining the underlying mechanisms of related (vs. unrelated) multiscreening on advertising outcomes.

DISSERTATION OUTLINE

The aim of this dissertation is to disentangle the phenomenon of multiscreening and how it affects information processing and advertising outcomes. This is examined by identifying three objectives:

1. Exploring the phenomenon of multiscreening in daily life
2. Examining how multiscreening affects advertising outcomes
3. Examining the facilitating role of task relevance

This dissertation consists of three parts in line with the three objectives. Each part consists of one or two chapters. Every chapter is published or publishable as an individual research paper. Hence, every chapter is self-contained and can be read individually. In total, this dissertation consists of one literature review and four empirical papers, all based on different datasets. A summary of these chapters is presented below. The three sections of this dissertation are: multiscreening in daily life (Chapter 2 & 3), multiscreening and advertising outcomes (Chapter 4 & 5), and multiscreening and task relevance (Chapter 6). This dissertation concludes with a general discussion on the findings (Chapter 7). See Figure 1.1 for the conceptual model of this dissertation and how the three parts and chapters relate to each other.

Part 1. Multiscreening in Daily Life

This part of the dissertation addresses the first objective, that is, to explore multiscreening in daily life. In order to disentangle the phenomenon of multiscreening it is first important to get a better understanding of the different dimensions of multiscreening and to explore the current knowledge on the topic. Second, in order to get a better understanding of the scope of multiscreening in everyday life, it is important to examine how often it occurs, which screens are often combined, and who is likely to multiscreen. Therefore, the first part of this dissertation consists of two chapters examining the dimensions and the prevalence of multiscreening.

Chapter 2 consists of a literature review describing a typology of multiscreening which is based on the multi-dimensions of media multitasking (Wang et al., 2015).

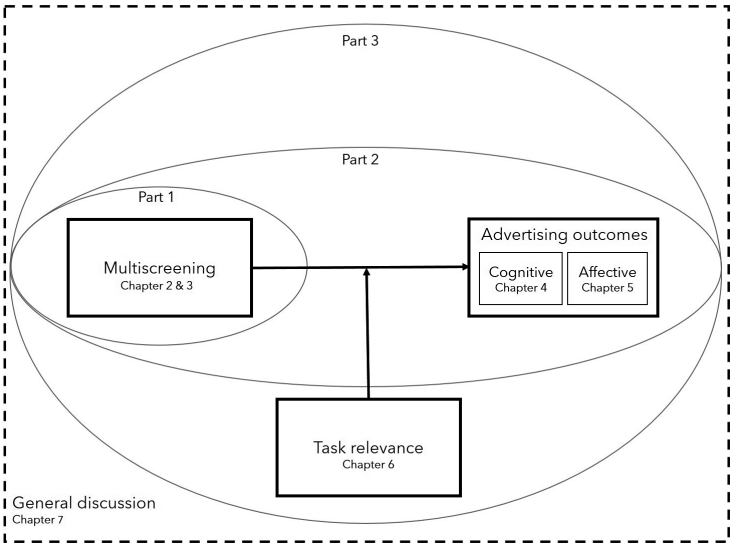

Figure 1.1 Conceptual model of the dissertation.

This framework is used in this chapter to describe and explain the phenomenon of multiscreening. The framework consist of four categories each with its own dimensions: 1) task relations (e.g., task hierarchy, task switch, shared modality), 2) task inputs (e.g., information flow), 3) task outputs (e.g., behavioral responses), and 4) user differences. The description of multiscreening per dimensions is completed with a review of recent literature in the field of multiscreening, media multitasking, and persuasion. Hence, this chapter provides an overview and conceptualization of multiscreening in the field of advertising effectiveness.

Chapter 3 reports on the prevalence of multiscreening, the composition of screens, and the multiscreeners. By means of a secondary analysis of an extensive diary study (N = 2,399) among a representative sample of the Dutch population, this chapter provides insight into these three elements of multiscreening.

Part 2. Multiscreening and Advertising Outcomes

The second part of the dissertation addresses the second objective, namely examining how multiscreening affects advertising outcomes. In two different chapters the effect of multiscreening on cognitive and affective advertising outcomes is examined.

Chapter 4 reports on multiscreening viewing behavior, reporting, and the effects of multiscreening on cognitive advertising outcomes. Attention allocation

is an important component of multiscreening because visual attention is constantly shifting when multiscreening (Jeong & Fishbein, 2007). However, not much is known about people's viewing behavior when multiscreening, whether people are able to report this behavior, and how this affects people's memory. Therefore, this study explores 1) people's viewing behavior, 2) reporting of attention, and 3) how multiscreening affects people's memory of both advertising and editorial content. This is examined by means of an eye-tracking experiment (N = 177).

Chapter 5 reports on the effect of multiscreening on affective advertising outcomes, such as brand attitude, message attitude, and purchase intention. So far, most studies in media multitasking and multiscreening focused on cognitive outcomes. However, it is assumed that the simultaneous usage of multiple tasks could also influence affective outcomes (For an overview see Jeong & Hwang, 2016). Some scholars argue that multiscreening could have a negative effect on evaluative outcomes because multiscreeners have more difficulties remembering the brand. It is assumed that easy-to-recognize brands are more liked than difficult-to-recognize brands (Alter & Oppenheimer, 2009). Other scholars argue that multiscreening could increase evaluative outcomes because people are less able to resist the persuasive message (Jeong & Hwang, 2012) or because people simply enjoy multiscreening more than single screening (Chinchanachokchai et al., 2015). This chapter focuses on how multiscreening affects evaluative outcomes by examining three possible underlying mechanisms, namely recognition, counterarguing, and enjoyment. A lab experiment (N = 182) was conducted to examine these underlying mechanisms.

Part 3. Multiscreening and Task Relevance

In the third part of this dissertation the third objective is addressed by examining task relevance as a facilitating factor of multiscreening effects. In the previous part on multiscreening and advertising effects, the results showed that multiscreening is mainly detrimental to advertising outcomes. However, the multi-dimensions of multiscreening also showed that some factors could facilitate information processing and advertising effects when multiscreening (see also Chapter 2). In the third part we take a positive approach by examining one of these dimensions as a possible facilitator of advertising effects.

Chapter 6 describes an experiment in which task relevance is examined as a possible facilitator of advertising outcomes. It is assumed that it is less cognitively demanding when combining tasks that are related opposed to combining tasks that are unrelated to each other (Wang et al., 2015). In addition, relatedness could stimulate goal directed attention allocation which implies that when tasks are related the messages would

gain more attention (Lang, 2000). Furthermore, attention could increase program involvement which stimulate memory and attitude of the brand (Krugman, 1983; Moorman, Neijens, & Smit, 2007; Tavassoli, Schultz, & Fitzsimons, 1995). In this chapter we examine, therefore, the effect of related/unrelated multiscreening and argue that the effects of this on brand memory and attitude are mediated by attention and, subsequently, program involvement. This assumption was examined in an online (N = 280) and lab (N = 185) experiment with different multiscreening settings and samples.