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Everyday multiscreening

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

Segijn, C.M.

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English Summary

Dutch Summary
(Nederlandse Samenvatting)

References

Author Contributions

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About the Author

ENGLISH SUMMARY

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

Today, people have access to a variety of screens, such as a television, laptop, smartphone, and tablet. Screen saturation and the convergence of these technologies have led to an increase in combining different screens simultaneously, also known as multiscreening. With so many new devices and screens competing for people's attention, they continue to be distracted. Multiscreening is assumed to affect the way people process media messages, such as advertising, for two reasons. First, they have a limited amount of cognitive capacities to process media content. During multiscreening these cognitive capacities need to be divided between the different screens which goes at the expense of the processing of both messages. Second, the visual nature of the screens force people to divide their visual attention between the screens. This limits the opportunity to process the information of the screen that is not focused on. Even though distractions in the form of different screens are ever present, it is still relatively unknown how multiscreening affects information processing and advertising effectiveness compared to single screening. Therefore, the aim of this dissertation was to disentangle the phenomenon of multiscreening and how it affects information processing and advertising effectiveness by; 1) exploring the phenomenon of multiscreening in daily life, 2) examining how multiscreening affects advertising outcomes, and 3) examining the facilitating role of task relevance.

CONCLUSIONS

Based on the results of this dissertation three conclusions can be drawn about multiscreening in daily life, two about multiscreening and advertising effectiveness, and one about multiscreening and task relevance.

1. MULTISCREENING IN DAILY LIFE

1.1. Multiscreening consists of different dimensions that could either hinder or facilitate information processing and advertising effectiveness.

A literature review described a typology of multiscreening based on dimensions of media multitasking. These eleven dimensions are divided into four categories: 1)

task relations: task hierarchy, task switch, task relevance, shared modality, and task contiguity, 2) task inputs: information modality, information flow, and emotional content, 3) task outputs: behavioral responses and time pressure, and 4) user differences. This overview showed that these dimensions could either hinder or facilitate information processing. For example, the visual modality of all screens (i.e., shared modality) could hinder information processing of advertising because people have to divide their visual attention. On the other hand, an additional screen also offers the possibility to engage in related content (i.e., task relevance).

1.2. In the Netherlands, people multiscreen more than 80 minutes a day, they combine a television most often with other screens, and multiscreening is for all ages.

The diary study showed that people in the Netherlands multiscreen on average more than 80 minutes a day, about three days a week, and mostly on Sundays. The television is most often combined and mostly with a smartphone, laptop, or tablet. Furthermore, the multiscreener has an average age of 41 years old, is predominantly female, has a higher than average education, and owns on average more than four screens. The younger people are the longer they will multiscreen but multiscreening happens across the life span.

1.3. People tend to focus only for short periods of time on a screen and switch often between screens.

The eye-tracking experiment showed that multiscreeners switched 2.5 times per minute, fifty percent of all gazes was shorter than 10 seconds, and most of multiscreeners' attention was allocated to the television. However, multiscreeners' viewing behavior may vary depending on the media content and tasks.

2. MULTISCREENING AND ADVERTISING OUTCOMES

2.1. Multiscreening has a negative effect on cognitive advertising outcomes (e.g., brand memory).

It was found that multiscreeners remember less of the media content (i.e., editorial and advertising content) compared to single screeners. However, people's memory of a message is unimpaired when most attention is devoted to the screen that displays the message.

2.2. Multiscreening could have a negative and positive effect on *affective advertising outcomes* (e.g., brand attitudes).

The effect of multiscreening on affective advertising outcomes and its underlying mechanisms was examined. First, it was found that multiscreeners – opposed to single screeners – have more difficulty in recognizing the brand afterwards and difficult to recognize brands result in more negative affective advertising outcomes. Second, it was found that multiscreeners – opposed to single screeners – have more difficulty to resist a persuasive message and less resistance result in more positive affective advertising outcomes.

3. MULTISCREENING AND TASK RELEVANCE

3.1 Engaging in multiscreening with related tasks (e.g., watching TV and chatting about TV content) results in better memory and more positive attitudes compared to multiscreening with unrelated tasks (e.g., watching TV and chatting about other content).

Thus, multiscreening is not always detrimental to advertising effectiveness. When people engage in related tasks (versus unrelated tasks) it results in better brand memory and more positive brand attitudes than when people engage in unrelated tasks, because related multiscreening increases attention to the television show, and subsequently program involvement. However, single screeners have the best brand memory and most positive attitudes.

IMPLICATIONS

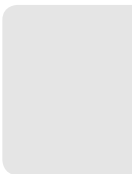
First, this dissertation contributes to the development of **theory** regarding multiscreening and advertising effectiveness by 1) contributing to the conceptualization of the phenomenon of multiscreening, 2) systematically examining the effects of multiscreening on both cognitive and affective advertising outcomes, 3) examining *why* multiscreening affects information processing and advertising effectiveness by going beyond measuring direct effects and tapping into underlying mechanisms of the effect, and 4) introducing a positive approach that focuses on how information processing and advertising effectiveness can be enhanced when multiscreening instead of focusing on detrimental effects.

Second, this dissertation has three valuable **methodological implications**. The

studies conducted in this dissertation contribute to the knowledge of 1) research designs when examining multiscreening – or other forms of media multitasking – by using different reference groups instead of only focusing on comparing multiscreening with single screening, 2) two methodological approaches used by two schools of multiscreening research by testing the same conceptual model with the approach of both schools, and 3) measuring attention allocation when multiscreening by comparing eye-tracking data with self-reported measures of attention.

Finally, this dissertation also has important **practical implications** that not only apply to advertisers but to everyone involved in designing persuasive messages that are distributed through screen media. The results of this dissertation showed that a message does not stand alone. The simultaneous usage of multiple screens could influence the way a message is processed. Even the content on the additional screen could have an impact. But more importantly, this dissertation showed that media content developers could anticipate this. The results of this dissertation showed at least two factors that could facilitate information processing and advertising effectiveness when multiscreening, namely attention and task relevance.

In sum, this dissertation shows that multiscreening is ingrained into people's daily lives and it impacts the way people process media content. Moreover, it shows that media messages never stand alone. The way a message is processed can be influenced by the use of additional screens and even media content that is shown on these additional screens. Finally, this dissertation shows that multiscreening is not only detrimental to information processing and advertising effectiveness, but there are some things media content developers can do to facilitate this process.



DUTCH SUMMARY (NEDERLANDSE SAMENVATTING)

Alledaags multiscreening. Hoe informatieverwerking en reclame effectiviteit wordt beïnvloed door het gebruik van meerdere schermen tegelijkertijd.

Het medialandschap is de laatste jaren snel veranderd. Mensen hebben tegenwoordig toegang tot verschillende schermen, zoals een televisie, laptop, smartphone of tablet. De hoeveelheid aan schermen en het gemak om deze schermen te combineren heeft ervoor gezorgd dat mensen dit vaker zijn gaan doen. Het tegelijkertijd gebruiken van verschillende schermen staat bekend als multiscreening. Multiscreening zou op twee manieren invloed kunnen hebben op de manier waarop mensen mediaboodschappen, zoals reclame, verwerken. Ten eerste hebben mensen een beperkt aantal cognitieve capaciteiten om informatie te kunnen verwerken. Deze capaciteiten worden bijvoorbeeld gebruikt om een mediaboodschap tot zich te nemen, op te slaan in het geheugen en op een later moment weer terug te halen uit het geheugen. Bij multiscreening moeten deze cognitieve capaciteiten worden verdeeld over de verschillende schermen en dit gaat ten koste van de verwerking van de informatie op deze schermen. Ten tweede moeten mensen hun visuele aandacht verdelen, omdat zij hun ogen niet op beide schermen tegelijkertijd kunnen richten. Visuele informatie kan alleen worden verwerkt als de ogen erop gericht zijn en dit gaat ten koste van de verwerking van de visuele informatie waar de ogen niet op zijn gericht. Hoewel meerdere schermen continue aanwezig zijn in onze samenleving, was er nog weinig bekend over de invloed van multiscreening op het verwerken van mediaboodschappen in het algemeen en reclame in het bijzonder. Dit proefschrift had als doel om meer grip te krijgen op het fenomeen multiscreening en de invloed hiervan op de verwerking van reclameboodschappen te bestuderen. Het proefschrift is opgedeeld in drie delen:

1. *Multiscreening in het dagelijks leven.* Dit deel gaat over wat multiscreening is, hoe vaak en in welke vorm het voorkomt en wie de multiscreeners zijn.
2. *Multiscreening en reclameverwerking.* In dit deel staat het effect van multiscreening op zowel cognitieve (bijv. merkherkenning) als affectieve (bijv. merkattitude) reclamereacties centraal.
3. *Multiscreening en het uitvoeren van gerelateerde taken.* Dit deel behandelt het verschil in effect van multiscreening op reclamereacties wanneer mensen twee gerelateerde taken combineren in vergelijking met wanneer mensen twee taken combineren die niet gerelateerd zijn.

CONCLUSIES

Gebaseerd op de resultaten uit dit proefschrift kunnen er verschillende conclusies worden getrokken die hieronder per deel zijn beschreven.

1. MULTISCREENING IN HET DAGELIJKS LEVEN

1.1 Multiscreening bestaat uit verschillende dimensies die de verwerking van mediaboodschappen zowel kunnen hinderen als faciliteren.

In een literatuurreview is een typologie van multiscreening beschreven gebaseerd op elf verschillende dimensies van media multitasking. Deze dimensies zijn gebaseerd op 1) de relatie tussen de taken (bijv. hiërarchie of aantal switches), 2) input van taken (bijv. informatie flow of emoties), 3) output van taken (bijv. het aantal vereiste handelingen of tijdsdruk) en 4) individuele verschillen. Dit overzicht bracht in beeld welke dimensies informatieverwerking hinderen en welke informatieverwerking faciliteren. Doordat de schermen die gecombineerd worden allemaal visueel zijn (dimensie: gedeelde modaliteit), zou de informatieverwerking kunnen hinderen. Aan de andere kant biedt een extra scherm ook de mogelijkheid om gerelateerde informatie aan te bieden wat weer faciliterend zou kunnen werken.

1.2. Nederlanders multiscreenen meer dan 80 minuten per dag, combineren de televisie het meest met andere schermen en multiscreening is voor alle leeftijden.

Het onderzoek met mediadagboeken liet zien dat Nederlanders gemiddeld meer dan 80 minuten per dag multiscreenen, gemiddeld drie dagen per week en het meeste op zondag. De televisie wordt het vaakst gecombineerd met een ander scherm. Het scherm dat het meest wordt gebruikt in combinatie met een televisie is de smartphone, laptop of tablet. De multiscreener is gemiddeld 41 jaar oud, de meerderheid is vrouw, heeft een iets hoger dan gemiddeld opleidingsniveau en bezit gemiddeld meer dan vier schermen. Tot slot bleek dat multiscreening voorkomt onder alle leeftijden, maar hoe jonger iemand is des te meer hij/zij zal multiscreenen.

1.3 Mensen hebben maar kort aandacht voor een scherm en switchen vaak tussen schermen.

Het eye-tracking onderzoek liet zien dat mensen ongeveer 2,5 keer per minuut switchen tussen schermen, dat 50% van alle fixaties 10 seconden of korter duurt en dat de meeste aandacht uitgaat naar het televisiescherm (versus de tablet). Hierbij

moet wel de kanttekening worden gemaakt dat deze aantallen kunnen verschillen bij andere mediaboodschappen (bijv. film versus reclameblok) of andere taken (bijv. lezen versus gamen).

2. MULTISCREENING EN RECLAMEVERWERKING

2.1 Multiscreening heeft een negatief effect op *cognitieve* reclamereacties.

De resultaten van dit proefschrift laten zien dat multiscreeners in het algemeen minder van de mediaboodschappen kunnen herinneren dan single screeners. Voldoende aandacht voor een scherm kan ervoor zorgen dat multiscreeners evenveel kunnen herinneren als single screeners, maar alleen van de boodschap op het scherm waar hun aandacht het meest op is gericht.

2.2 Multiscreening kan zowel een negatief als een positief effect hebben op *affectieve* reclamereacties.

In dit proefschrift is gekeken naar het effect van multiscreening op affectieve reclamereacties en de onderliggende mechanismen hiervan. Ten eerste blijkt dat multiscreeners (versus single screeners) meer moeite hebben om een merk achteraf te herkennen en daarom evalueren zij het merk negatiever. Ten tweede blijkt dat multiscreeners (versus single screeners) meer moeite hebben om weerstand te bieden aan een reclameboodschap en daarom evalueren zij het merk positiever.

3. MULTISCREENING EN HET UITVOEREN VAN GERELATEERDE TAKEN

3.1 Wanneer mensen twee gerelateerde taken tegelijkertijd uitvoeren resulteert dit in positievere reclamereacties dan wanneer mensen twee taken tegelijkertijd uitvoeren die niet gerelateerd zijn.

Multiscreening is niet altijd negatief voor reclameverwerking. Als multiscreeners twee gerelateerde taken tegelijkertijd uitvoeren (bijvoorbeeld televisiekijken + chatten over het programma), hebben zij een betere merkherinnering en beoordelen zij een merk positiever dan wanneer zij taken uitvoeren die niet gerelateerd zijn (bijvoorbeeld televisiekijken + chatten over een ander onderwerp). Dit komt doordat gerelateerde taken ervoor zorgen dat men meer aandacht heeft voor het televisieprogramma en men hierdoor meer betrokken raakt bij het programma. De merkherinnering is echter

nog het hoogst en merken worden het meest positief geëvalueerd wanneer mensen single screenen.

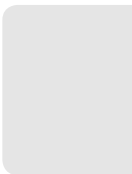
IMPLICATIES

Ten eerste draagt dit proefschrift bij aan de ontwikkeling van **theorie** over multiscreening en reclameverwerking door 1) het fenomeen multiscreening te conceptualiseren, 2) het systematisch onderzoeken van de invloed van multiscreening op zowel cognitieve als affectieve reclamereacties, 3) te onderzoeken *waarom* multiscreening reclameverwerking beïnvloedt en 4) een positieve benadering te introduceren en te onderzoeken hoe reclameverwerking gefaciliteerd zou kunnen worden.

Ten tweede heeft dit proefschrift drie belangrijke **methodologische implicaties**. Het onderzoek draagt bij aan de kennis over 1) onderzoekdesigns in multiscreening onderzoek door verschillende referentiegroepen te gebruiken en niet alleen multiscreening te vergelijken met single screening, 2) twee methodologische benaderingen in multiscreening onderzoek door deze twee benaderingen te gebruiken om hetzelfde model te testen en 3) het meten van aandacht door eye-tracking resultaten te vergelijken met zelfrapportage van aandacht.

Tot slot heeft dit proefschrift **praktische implicaties** die niet alleen voor adverteerders gelden, maar voor iedereen die betrokken is bij het ontwerpen van een persuasieve boodschap die wordt verzonden via schermen. De resultaten van dit proefschrift laten zien dat een mediaboodschap nooit op zichzelf staat. Het gebruik van meerdere schermen tegelijkertijd kan een invloed hebben op hoe de boodschap wordt verwerkt. Zelfs de inhoud van het andere scherm kan hier invloed op hebben. Tot slot laat dit proefschrift zien hoe men hiermee om zou kunnen gaan. Er zijn op z'n minst twee factoren die reclameverwerking kunnen beïnvloeden, namelijk aandacht en het uitvoeren van gerelateerde taken.

Samenvattend laat dit proefschrift zien dat multiscreening een onderdeel is van ons dagelijks leven en dat het invloed heeft op hoe mensen mediaboodschappen verwerken. Het laat ook zien dat een mediaboodschap nooit op zichzelf staat. De manier waarop een boodschap wordt verwerkt kan worden beïnvloed door het gebruik van een extra scherm of zelfs de mediaboodschap op dit extra scherm. Tot slot laat dit proefschrift zien dat multiscreening niet altijd negatief is voor reclameverwerking, maar dat er ook factoren zijn die dit proces kunnen faciliteren.



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AUTHOR CONTRIBUTIONS

PART 1: MULTISCREENING IN DAILY LIFE

Chapter 2: A typology of multiscreening

Claire Segijn

Conceptualization: CS. Methodology: CS. Writing (original draft preparation): CS.

Writing (reviews & editing): CS, HV, & ES. Visualization: CS.

Chapter 3: Insight into everyday media use with multiple screens

Claire Segijn, Hilde Voorveld, Lisa Vandeberg, Sjoerd Pennekamp, & Edith Smit

Conceptualization: CS, HV, LV, ES. Methodology: SP. Data collection: SP^a. Analysis:

CS. Writing (original draft preparation): CS. Writing (reviews & editing): all authors.

Visualization: CS & SP.

PART 2: MULTISCREENING AND ADVERTISING OUTCOMES

Chapter 4: Effects of multiscreening on cognitive advertising outcomes

Claire Segijn, Hilde Voorveld, Lisa Vandeberg, & Edith Smit

Conceptualization: all authors. Methodology: all authors. Data collection: CS.

Analysis: CS. Writing (original draft preparation): CS. Writing (reviews & editing): all

authors. Visualization: CS.

Chapter 5: Effects of multiscreening on affective advertising outcomes

Claire Segijn, Hilde Voorveld, & Edith Smit

Conceptualization: all authors. Methodology: all authors. Data collection: CS.

Analysis: CS. Writing (original draft preparation): CS. Writing (reviews & editing): all

authors. Visualization: CS.

PART 3: MULTISCREENING AND TASK RELEVANCE

Chapter 6: The facilitating role of task relevance

Claire Segijn, Hilde Voorveld, & Edith Smit

Conceptualization: all authors. Methodology: all authors. Data collection: CS.

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ABOUT THE AUTHOR

Claire Monique Segijn (December 24, 1988) completed her bachelor program in Communication Science at the University of Amsterdam (2007-2010) including the extracurricular and interdisciplinary honours programme. In 2010, she started with the Research Master Communication Science at the University of Amsterdam. After obtaining her research master's degree in Communication Science *Cum Laude* (with distinction) in 2012, she worked as a junior research manager at the Amsterdam School of Communication Research, research assistant, and lecturer.

In March 2014, she started with her 3-year PhD project on information processing and advertising effectiveness when multiscreening. Her work has been published in top-tier journals in the field of communication and advertising (e.g., *Human Communication Research*, *Journal of Advertising*). Furthermore, her work has been honored with the best student paper award of the American Academy of Advertising (2015, 2016), International Communication Association (2017), and has been nominated for best student paper of the annual conference of the European Advertising Association (EAA). During her PhD project she visited dr. Zheng Joyce Wang and her lab group at the School of Communication at the Ohio State University, and dr. Anastasia Kononova at the department of Advertising + Public Relations at the College of Communication Arts & Sciences, Michigan State University. She also participated in a summer school about knowledge exchange at the University of Oxford organized by the League of European Research Universities.

Besides conducting research, Claire also contributed to the review process of the annual conference of the EAA from 2014-2016, helped organizing a symposium, a summer school, and coordinated the organization of debates between academics and practitioners. Furthermore, she taught several courses both to undergraduate and graduate students, ranging from individual supervision to teaching in front of large groups of students. She obtained her University Teaching Qualification certificate in November 2015. After her PhD project, she started working as an assistant professor at the Amsterdam School of Communication Research, University of Amsterdam. In the fall semester, she will join the School of Journalism and Mass Communication, University of Minnesota, as an assistant professor.

PUBLICATIONS

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