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Playful persuasion

Advergames as gamified advertising

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Chapter 1

General Introduction, Key
Findings, and Discussion

General Introduction, Key Findings, and Discussion

People like to play. This has long since been recognized by advertisers, who have been using game thinking and game mechanics to promote engagement with their commercial messages (Terlutter & Capella, 2013). This process is better known as *gamification*. One of the most popular types of gamified advertising is the advergame. Many studies into advergames have been conducted over the past years, however findings concerning the effectiveness of advergames have generally been mixed. Also, most studies have focused on traditional desktop-based advergames and not yet included more recently emerged applications of advergames—like mobile and virtual reality (VR) advergames.

This dissertation is a collection of studies into the workings of advergames. Its aim is to investigate the underlying mechanisms of advergame effects and to identify and explore boundary conditions of these effects that are specific to emerging advergame formats like mobile and VR advergames. Throughout the ensuing chapters, several research questions will be investigated: What engagement experiences drive branded app responses? What are the most important advergame effects and moderators? How well can young consumers differentiate between advergames (commercial) and regular games (non-commercial) on their smartphones? How can VR technology enhance consumer's experiences when playing VR advergames? The remainder of this first chapter serves as a general introduction to these topics, a summary of the key findings, and a discussion of the most important theoretical and societal implication.

A Brief History of Gamified Advertising

Historically, advertisers and marketers were quick to recognize and harness the power of play. As early as the late eighteen-hundreds, puzzle cards containing product placements are known to have been used to promote the sale of over-the-counter medicine (Petty, 2019). Some consider these branded puzzle cards precursors of modern-day gamified advertising.

The first historical account explicitly describing the use of game mechanics to promote commercial behavior can be traced back to a 1913 patent application. In that year, on behalf of the Massachusetts-based Advertisers Company, Francis Gibson (1914) filed a patent application for what could arguably be considered the first documented conceptualization of gamified advertising—and the invention of the modern-day advergame.

In the patent application, the invention is described as “[a game] apparatus capable of use in certain forms as a medium for advertisement education” (Gibson, 1914, p. 2). Sharing resemblance with contemporary definitions of gamified advertising, Gibson

introduced the idea of using game mechanics to *teach* players particular commercial behaviors. Interestingly, Gibson even described how playing the game is believed to increase players' perceived value of the embedded brand: "[...] the game acquaints the player with merchandise of a particular make, trade mark or brand in a proceeding in which he acquires that merchandise as a desired article of value for which he plays" (p. 2).

It was not until the popularization of arcade games in the late seventies (Nelson, 2016), and later due to the rise of home computing and the internet during the nineties and early two-thousands, that using gamified advertising techniques became widespread. The term *advergame* first appeared in the popular press around the turn of the twenty-first century, and found its way into the academic literature not much later (e.g., Nelson, 2005).

Conceptualizing Advergaming as Gamified Advertising

The word 'advergame' is a portmanteau of the words *advertising* and *game*. As a subject of study, the advergame has been conceptualized in various ways. It could be argued that most of these conceptualizations fit within one of two main approaches: the 'advergame as a game' approach or the 'advergame as advertising' approach. Where both approaches are still being used to conceptualize advergaming, the title of this dissertation might already suggest that in this dissertation advergaming is conceptualized as advertising, rather than as games.

Chen and Ringel (2001) were among the first to define advergaming and introduced the term *advergaming* as a new direction for interactive advertising. Their definition, "the use of interactive gaming technology to deliver embedded advertising messages to consumers" (p. 2), clearly conceptualized the advergame as an advertising technique rather than as a game. Interestingly however, it is the 'advergame as a game' type of conceptualization that will prove most dominant in the academic debate throughout most of the early two-thousands. During that time, the term advergame was used to refer to any type of digital game that contained branded content (Nelson, 2005).

Where Chen and Ringel (2001) still persisted that advergaming were digital products and "indigenous to the digital space" (p. 1), Mallinckrodt and Mizerski (2007) challenged this. They suggested to conceptualize advergaming as a form of branded entertainment—meaning that not the medium, but the fact that a branded message was integrated into a game format defined the advergame. Although their definition conceptualized advergaming as gamified advertising again, it did not yet allow for a clear differentiation between various types of gamified advertising.

This was addressed by Terlutter and Capella (2013), when they introduced their conceptualization of gamified advertising. They outlined a clear distinction between advergaming and other types of gamified advertising—like in-game advertising. In line with Terlutter and Capella (2013), advergaming are conceptualized as gamified advertising and are thus conceptually defined as: "[a] marketing practice [that] leverages game

thinking and game mechanics to drive engagement with a brand—to ultimately reach a commercial goal” (Van Berlo, Van Reijmersdal, Smit, & Van der Laan, 2019, p. 1).

Structure of this Dissertation

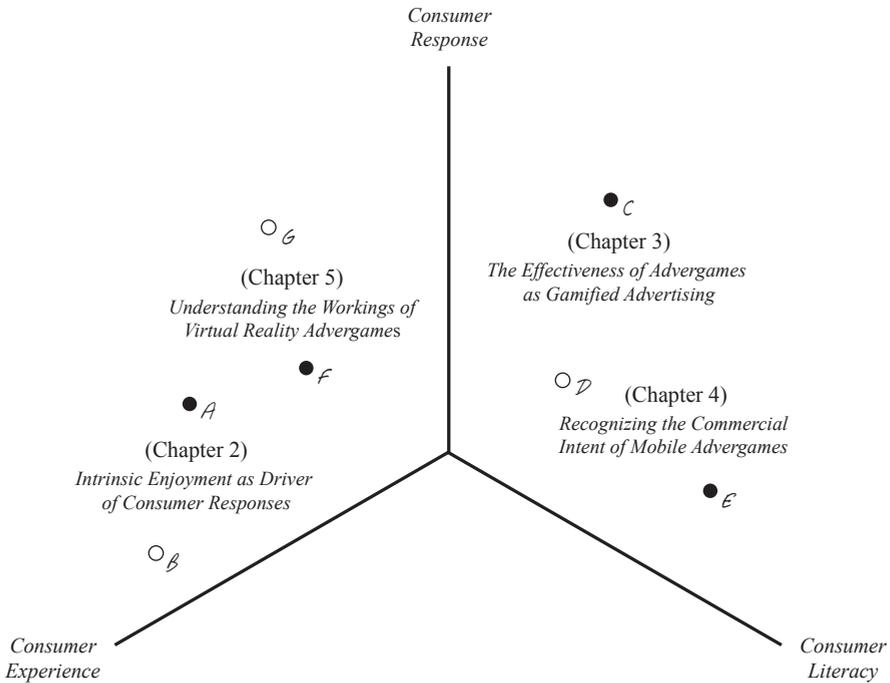
The empirical chapters of this dissertation describe four studies: an observational study (**chapter 2**), two experimental studies (**chapters 4 & 5**), and a meta-analysis (**chapter 3**). A unique data set was collected for each of the observational and experimental studies. For the meta-analysis, statistical information from 34 data sets were included.

The chapters describing the observational and experimental studies (**chapters 2, 4, & 5**) each contain two papers: a main paper and an accompanying supplementary paper. Note that the term *paper* in this case refers to a document with unique analyses and findings (e.g., journal article, book chapter). The main paper describes the most important findings of the study and the supplementary paper offers additional insight into the data set. To clearly differentiate between chapters and papers in this dissertation, the chapters are numbered (e.g., chapter 1, chapter 2) and the papers are assigned letters (e.g., paper A, paper B).

The topics addressed in each paper vary between chapters. On a more abstract level, however, the studies can be characterized addressing a combination of three main themes: (1) consumer response, (2) consumer experience, and (3) consumer literacy. Most of the papers address consumer responses in the context of gamified advertising. This means that they investigate the effect of advergaming in terms of commercial outcomes—like brand attitudes, purchase intention, or choice behavior. Some papers address consumer experience, by investigating media engagement or presence in a commercial context. A final set of papers addresses consumer literacy and investigates consumers’ abilities to recognize the commercial nature of advergaming. For a visual overview of the chapters, see Figure 1.

Notably, all papers (i.e., main and supplementary) in this dissertation are self-contained. This means that they have their own introduction, theoretical framework, methodology section, results section, discussion, and reference list.

Figure 1
Empirical Chapters Plotted Along Three Themes



Note. The main papers are indicated with a black dot and supplementary papers with a white dot.

Overview and Key Findings

Intrinsic Enjoyment as Driver of Consumer Responses

The first empirical chapter (**chapter 2**) investigates how people engage with branded apps. Notably, this chapter differs from the other empirical chapters in that it does not directly address the workings of gamified advertising—but instead focuses on consumer engagement. Despite this different focus, the chapter is included in this dissertation because its findings establish the importance of consumer engagement through intrinsic enjoyment experiences. A type of engagement that consumers are particularly believed to experience when interacting with gamified advertising.

In the chapter, survey methodology and structural equation modeling ($N = 298$) are used to estimate a multi-dimensional model of media engagement. The model is grounded in the media engagement framework (Calder, Malthouse, & Schaedel, 2009) and includes four *types of engagement experiences* important for branded app users: (1) personal identification, (2) social empowerment, (3) intrinsic enjoyment, and (4) convenience. The results indicate that personal identification experiences predict app use and subsequently brand attitudes and that intrinsic enjoyment and convenience experiences are important drivers of app attention and app attitude—and indirectly affect brand attitude via the app attitude. No direct or indirect effects were found for social empowerment experiences.

The Effectiveness of Advergimes as Gamified Advertising

Chapter 3 contains a meta-analysis ($k = 34$, $N = 5,276$) of advergence effects. Five outcome variables are considered in this study: ad attitude, brand memory, persuasion, choice behavior, and persuasion knowledge. The results indicate that overall, compared to other types of advertising, advergimes: are evaluated more positively than advertising messages, have a less positive effect on brand memory, are more persuasive, drive more choice behavior, and are less likely to be recognized as advertising.

Moreover, a meta-regression model reveals that consumers' age and general digital skills mitigate the persuasiveness of advergimes. More concretely, we found that younger consumers and consumers from countries with lower general digital skills seem more susceptible to the persuasive effect of advergimes. Overall, the results indicate that advergimes can be used effectively to drive consumer responses.

Recognizing the Commercial Intent of Mobile Advergimes

The next chapter, **chapter 4**, consists of two papers—of which the supplementary paper is written in Dutch. The papers describe an experimental study ($N = 98$) that examines adolescents' abilities to recognize the commercial intent of mobile advergimes. The results show that brand familiarity can moderate these abilities. Concretely, the results show that adolescents are able to recognize the commercial intent of advergimes, however only when the brands integrated into the gameplay are familiar to them. Contrary to what was expected, recognizing the commercial nature of advergimes seems to positively affect players' attitude toward the embedded brand.

Furthermore, smartphone attachment was found to facilitate the recognition of commercial intent of advergimes, meaning that adolescents who experience higher levels of smartphone attachment (when compared to lower levels) are better able to differentiate between advergimes and games without advertising. Interestingly, no association between smartphone attachment and brand responses was found—suggesting that smartphone attachment does not affect adolescents' susceptibility toward the advertised message.

Understanding the Workings of Virtual Reality Advergimes

Virtual reality marketing is considered one of the new frontiers of marketing (Alcañiz, Guixeres, & Bigné, 2019). Head-mounted display (HMD) VR hardware is rapidly becoming more accessible and companies have started adopting VR as a serious marketing platform. In the final empirical chapter (**chapter 5**), the focus is, therefore, on VR advergimes.

The chapter describes an experimental study ($N = 81$) addressing the moderating role of virtual product appeal and the mediating role of emotional response in the effect of brand exposure in HMD VR on brand responses. The results show that when virtual products are integrated into the gameplay of a branded VR game, virtual product appeal moderates the effect of exposure to this brand on brand attitude. Moreover, we found that exposure to brands in HMD VR evokes emotional responses that indirectly drive brand attitude and purchase intention. In the supplementary paper, the role of presence in the processing of brand information is discussed. The paper shows that playing branded VR games can improve (implicit) brand memory and that higher levels of immersion can strengthen the consolidation of brand information in memory.

Five Main Conclusions

All in all, five main conclusions can be drawn from the studies in this dissertation. First, *(i) intrinsic enjoyment experiences can be important drivers of consumer responses*. In the context of branded apps, intrinsic enjoyment experiences were found predictive of positive app attitudes and increased app attention. App attitude, subsequently, was found to predict brand attitude. Overall, these results highlight the important role of intrinsic enjoyment experiences for driving consumer responses and give an indication of why gamified advertising is effective.

Second, *(ii) gamified advertising is in many ways more effective than non-gamified advertising*. A meta-analysis of advergence effects revealed that gamified advertising generally outperforms non-gamified advertising on most important advertising metrics—with the exception of cognitive brand measures like brand recall and recognition. Advergimes are overall found to be more persuasive and more effective in driving choice behavior than non-gamified advertising. Furthermore, as advertising messages, advergimes are generally evaluated more positively than non-gamified advertising. Overall, the results indicate that advergimes show serious commercial utility.

Third, *(iii) consumers often fail to recognize the commercial nature of advergimes*. From the studies in this dissertation, it becomes clear that many consumers struggle with recognizing the commercial nature of advergimes. The meta-analysis demonstrates that both children and adults are less likely to recognize advergimes as advertising, when compared to non-gamified advertising messages—with children struggling considerably more with this than adults.

Fourth, (iv) *when young consumers identify an advergame as advertising then this could increase its persuasiveness impact*. In one of the studies, adolescents who recognized that advergames are advertising reported more positive brand attitudes than adolescents who did not recognize this. Interestingly, this implies that when brands target young consumers, they might benefit from disclosing the commercial nature of the advergame.

Fifth, (v) *technological affordances can enhance consumer experiences when playing advergames*. An example of a technological affordance that is investigated in this dissertation is the placement of virtual products in head-mounted display (HMD) VR advergames. This allows consumers to interact with the product in HMD VR. The results indicate that a consumer's evaluation of embedded virtual products moderates the effect of playing VR advergames on brand attitude. More concretely, this means that while playing VR advergames, consumers who find an embedded virtual product more appealing will generally evaluate the product's brand also more positively—and vice versa.

Limitations and Suggestions for Future Research

To place the conclusion into context, the following two limitations should be addressed: (1) the validity of the current conceptualization of branded app engagement in a gamified advertising context, and (2) the stimulus materials used in the experimental studies. Note that the limitations discussed here concern issues that transcend those of the individual studies. A discussion of the limitations per individual study can be found in their respective papers.

The first limitation pertains to the validity of using the multi-dimensional conceptualization of branded app engagement (as described in **chapter 2**), for explaining engagement with gamified advertising. In the broader context of branded apps, intrinsic enjoyment and convenience for example are found to be important drivers of consumer responses. Despite, at least on an operational level, advergames could be considered a specific type of branded app, it is actually unknown whether insights from this model can directly be applied in a gamified advertising context.

Considering that people's motivations to engage with gamified content might be different from their motivations to engage with branded apps (as is the case in **chapter 2**), a follow-up study in which engagement with gamified content is modeled seems warranted. Convenience experiences are for example believed to be less important in the context of gamified media than in the context of branded apps. Future studies into engagement with gamified media content should focus on the specific experiential value that various game mechanics provide.

A second limitation that should briefly be discussed is the single-message design that was adopted in both experimental studies (**chapters 4 & 5**). In both studies, only a

single advergime was used as stimulus material. Interestingly, the systematic review of the experimental advergime literature (**chapter 3**) indicates that it is common practice to adopt a single-message experimental design when studying advergimes. However, such a design generally makes it more difficult to make broad theoretical inferences from a study's results (Reeves, Yeykelis, & Cummings, 2016).

In the context of this dissertation no indications were found that the adoption of a single-message design has threatened the external validity of the conclusions. Going forward however, researchers are advised to consider adopting a multiple-message design when studying the effects of advergimes. The most straightforward way to do this is by asking participants to play various advergimes within a single study. Ultimately, this would improve the external validity of the findings.

Theoretical and Societal Implications

Several important implications can be drawn. Similarly to the limitations discussed in the previous section, the implications discussed in this chapter transcend those of the individual studies. A discussion of the implications per individual study can be found in their respective papers.

Implications for Theory

The first important implication for theory concerns the underlying mechanisms of advergime effects. When looking at the overall effects of advergimes, the outcomes of affective processes (e.g., brand attitude, emotional response) seem predominantly positive, where the outcomes of cognitive processes (e.g., brand memory, persuasion knowledge activation) seem predominantly negative. This means that, despite being evidently effective for driving affective (and subsequently behavioral) responses, gamifying content comes at a (cognitive) cost and hinders the allocation of cognitive resources required for the (critical) processing of the actual gamified message. These findings offer insights into the underlying mechanisms of advergimes and suggest that gamification of advertising stimulates the affective processing of the advertised message, while at the same time hindering its cognitive processing and thus limits the encoding and storage of the embedded brand information.

A second important theoretical implication concerns consumers' susceptibility to advergimes and emerges from examining the moderated relationships that were investigated in this dissertation. Various consumer and content characteristics seem to specify either the persuasive impact of advergimes or consumers' abilities to recognize the commercial nature of advergimes. This is in support of the notion that improved consumer competence can empower consumers and help them cope with advergimes.

In the past, many advergime studies have focused on the coping behaviors of children. In this particular context, advergime susceptibility is often attributed to the

still underdeveloped cognitive skills (i.e., executive functioning and emotion regulation) of these young consumers (Rozendaal, Lapierre, Van Reijmersdal, & Buijzen, 2011). As expected, the findings in this dissertation support this expectation and find that age is an important moderator of the persuasive effect of advergaming—with advergaming showing a larger persuasive impact on younger consumers than on older consumers.

Interestingly, however, the results suggest that age-dependent susceptibility alone does not completely explain why some consumers are more susceptible to advergaming than others. For example, one's level of general digital skills is also found to moderate the persuasive effect of advergaming, meaning that better general digital skills are associated with a decreased persuasive effect of advergaming on consumers. All in all, these findings are in line with the persuasion knowledge model (Friestad & Wright, 1994) and suggest that people's understanding and abilities to cope with particular types of advertising develop over time—and that consumers can be empowered to autonomously cope with a persuasive message.

Implications for Practice

For advertising practitioners, several important implications can be drawn from the studies in this dissertation. These implications can be divided into three categories—implications regarding (1) the overall effectiveness of advergaming in a commercial context, (2) the limitations of advergaming as gamified advertising, and (3) opportunities for advergaming following technological development.

The results of the meta-analysis in **chapter 3** clearly emphasize the effectiveness of advergaming for driving commercial outcomes. Advergaming is not only evaluated more positively than non-gamified advertising messages, but they are generally also considered more persuasive and more effective in promoting choice behavior. Interestingly, the findings outlined in **chapter 4** suggest that young consumers are generally more susceptible to advergaming whenever they recognize their commercial intent. Moreover, because brand familiarity is found to facilitate the recognition of this commercial intent (**chapter 4**), this implies that advergaming is more effective whenever they are targeted at consumers that are already familiar with the advergaming's brand. In sum, brands are advised to use advergaming in particular when targeting existing customers—or customers who are at least somewhat familiar with the brand.

Furthermore, the meta-analysis (**chapter 3**) shows that brands in advergaming are less likely to be remembered by consumers, when compared to brands in non-gamified advertising. Note that this does not mean that people never remember brands they encountered in advergaming. The results imply that the gamification of advertising seems to hinder the encoding and storage of the gamified brand information. Based on these insights, practitioners are advised against using advergaming when they are interested in promoting brand awareness.

Finally, the results in **chapter 5** outline one of the new opportunities for gamified advertising formats when integrated into immersive technology. The study shows that HMD VR advergames allow for consumer-product interactions, which in turn are found to affect consumers' overall evaluation of the embedded brand. Concretely, this means that when brands decide to incorporate HMD VR advergames into their marketing mix, they are advised to integrate high-quality virtual versions of their products into the gameplay. This would allow consumers to genuinely interact with the products during the experience, which is believed to positively affect the overall evaluation of the brand through consumer learning.

Implications for Policy

For policy makers the most important implication stems from the unclear conceptualizations of advergaming that surfaced during the systematic review (**chapter 3**). Conceptualizing advergames as advertising, rather than as games, is especially important to avoid downplaying their inherently commercial and potentially deceptive nature.

This problem is best illustrated by examining a popular definition of advergames as found in policy reports and research papers. The World Health Organization (2012) and the European Commission, for example, use the following definition of advergames: "Internet-based or downloadable video games promoting a brand name product by featuring it as part of the game" ("Advergames [Glossary]," n.d., para. 1). A definition like this is misleading, because it does not immediately make clear that the gameplay is *part* of the persuasive message and that the full accountability for the persuasive message lays with the brand. One could even argue that this definition shifts the accountability (at least partially) away from the brand, and toward the game, when it defines advergames as 'video games promoting a particular brand, product, or marketing message'.

Notably, there are a few advertising codes that do clearly define advergames as advertising rather than as games. Take for example the Dutch Advertising Code, which defines advergaming as: "Advertising made [...] by means of a game (digital game and/or contest) in which [...] the game itself is the advertising communication." (Dutch Advertising Code Authority, 2017, p. 73). A definition like this clearly identifies the advergence as advertising without shifting the accountability away from the brand. In sum, policy makers would be advised to adopt a similar definition when defining gamified advertising.

Concluding Remarks

In the title of this dissertation, advergames are characterized as '*playful persuasion*'. A characterization many people can likely relate to, because for them advergames might seem like harmless games and a fun or *playful* way for consumers to engage with brands. But in the context of this dissertation, the title '*playful persuasion*' is meant as a euphemism for gamified advertising and means to invite the reader, whether being

a researcher, advertiser, or policy maker, to contemplate where playfulness ends and persuasion begins.

The same holds true for consumers, who in the future will be expected to require even more complex competences to remain able to distinguish commercial from non-commercial content. With the rise of HMD VR as experiential marketing platform for example, players will not only have to be able to differentiate between commercial and non-commercial content, but also between virtual and base reality, whenever they are exposed to a persuasive message. In light of these developments, it seems evident that continuous research into the workings and development of gamified advertising practices is necessary to assure that consumers will remain empowered in their digitalized societies—and remain able to make informed consumer decisions.

References

- Advergaming [Glossary]. (n.d.). In *Health Promotion and Disease Prevention Knowledge Gateway*. <https://ec.europa.eu/jrc/en/page/glossary-new-182887>
- Alcañiz, M., Guixeres, J., & Bigné, E. (2019). Virtual reality in marketing: A framework, review and research agenda. *Frontiers in Psychology*, 10, 1530. <https://doi.org/10.3389/fpsyg.2019.01530>
- Calder, B. J., Malhotra, E. C., & Schaedel, U. (2009). An experimental study of the relationship between online engagement and advertising effectiveness. *Journal of Interactive Marketing*, 23(4), 321-331. <https://doi.org/10.1016/j.intmar.2009.07.002>
- Chen, J., & Ringel, M. (2001). Can advergaming be the future of interactive advertising. Fast Forward. Available online: <http://www.kpe.com>
- Friestad, M., & Wright, P. (1994). The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research*, 21(1), 1-31. <https://doi.org/10.1086/209380>
- Gibson, F. W. (1914). *Game apparatus* (U.S. Patent No. 1,092,642). U.S. Patent and Trademark Office. <http://patft.uspto.gov/netacgi/nph-Parser?patentnumber=1092642>
- Ko, H., Cho, C.-H., & Roberts, M. S. (2005). Internet uses and gratifications: A structural equation model of interactive advertising. *Journal of Advertising*, 34(2), 57-70. <https://doi.org/10.1080/00913367.2005.10639191>
- Mallinckrodt, V., & Mizerski, D. (2007). The effects of playing an advergaming on young children's perceptions, preferences, and requests. *Journal of Advertising*, 36(2), 87-100. <https://doi.org/10.2753/JOA0091-3367360206>
- Mitchell, A. A. (1986). Theoretical and methodological issues in developing an individual level model of advertising effects. In J. C. Olson & K. Sentis (Eds.), *Advertising and Consumer Psychology* (pp. 13-42). Praeger Publishers.
- Nelson, M. J. (2016). *The Tapper videogame patent as a series of close readings*. In S. Björk, C. O'Donnell, & R. Bidarra (Eds.), *Proceedings of First International Joint Conference of the Digital Games Research Association (DiGRA) and the Foundation of Digital Games (FDG)*. Society for the Advancement of the Science of Digital Games. http://www.kmjn.org/publications/TapperPatent_DiGRA-FDG16.pdf
- Nelson, M. R. (2005). Exploring consumer response to "advergaming". In C. P. Haugtvedt, K. A. Machleit, & R. Yalch (Eds.), *Online consumer psychology: Understanding and influencing consumer behavior in the virtual world* (pp. 156-182). Routledge.
- Petty, R. D. (2019). Pain-killer: A 19th century global patent medicine and the beginnings of modern brand marketing. *Journal of Macromarketing*, 39(3), 287-303. <https://doi.org/10.1177%2F0276146719865770>
- Reeves, B., Yeykelis, L., & Cummings, J. J. (2016). The use of media in media psychology. *Media Psychology*, 19(1), 49-71. <https://doi.org/10.1080/15213269.2015.1030083>
- Rozendaal, E., Lapierre, M. A., Van Reijmersdal, E. A., & Buijzen, M. (2011). Reconsidering advertising literacy as a defense against advertising effects. *Media Psychology*, 14(4), 333-354. <https://doi.org/10.1080/15213269.2011.620540>

Dutch Advertising Code Authority. (2017). *The Dutch advertising code: With information about the working procedures of the Advertising Code Committee and the Board of Appeal*. https://www.reclamecode.nl/wp-content/uploads/2018/10/SRCNRCENboekje_oktober2017.pdf

Terlutter, R., & Capella, M. L. (2013). The gamification of advertising: Analysis and research directions of in-game advertising, advergaming, and advertising in social network games. *Journal of Advertising*, 42(2-3), 95-112. <https://doi.org/10.1080/00913367.2013.774610>

Van Berlo, Z. M. C., Van Reijmersdal, E. A., Smit, E. G., & Van der Laan, L. N. (2019). *Brands in virtual reality games: Affective processes within computer-mediated consumer experiences* [Unpublished manuscript]. Communication Science, University of Amsterdam.

World Health Organization. (2012). *A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children*. https://www.who.int/dietphysicalactivity/framework_marketing_food_to_children/en/