

Brand placements in casual mobile and web games

Master thesis

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Acknowledgments

It is a bit of a cliché, but writing this master thesis was a true learning experience. It started ten months ago. I asked myself what thesis topic interests me the most. Since I had heard from the practice of brand placements I was wondering how and under what conditions it enhanced marketing performance. Beside that, during my previous study, Digital Media Communication at the university of applied science in Utrecht, I noticed the attendance of ad blocking software and the increased adoption of advertisement avoidance strategies by consumers, which makes our job as marketers even more challenging (and thereby exciting). The practise of brand placements seems to by-pass consumer advertisement strategies, making it an interesting marketing practise for future marketers, provided that it enhances marketing performance. However, in general a student chooses a topic submitted by a (assistant) professor instead of the other way around. Nevertheless, both Prof. Dr. José Bloemer and Dr. Marcel van Birgelen indicated that they were willing to supervise my master thesis regarding brand placements in games. From that moment on, weeks of searching, learning, writing, little sleep and rewriting followed. I experienced what it is like to do academic research, to write an academic report and to execute a field experiment, during this process I realized that this was what I was missing in my previous HBO study. So despite the difficult moments I had with writing the thesis, I am very satisfied with my choice to follow a (pre) Master program and thankful for everything I learned, experienced and discovered the past two years.

To conclude, I would like to thank all the people who helped me over the years and especially while writing this thesis. I would like to thank Prof. Dr. José Bloemer for her great supervision and very helpful constructive feedback what certainly helped me to improve the quality and readability of my thesis. A big thanks to Freddy Menko, Carmen van Elderen, Milan Wolffgramm, Jennifer Leusink, Mark Schoneveld, Tom Schoneveld, Mick Verboeket, Rosalie Verkerk, Stefan Hesen, Maureen Tomassen and my family and friends for their feedback and support, helping me with improving my English writing skills and especially for the endless grammar checks. I am very grateful.



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***Abstract** – The present thesis investigates how product category congruity and placement execution congruity of in-game brand placements enhance brand recall, brand recognition, attitudes towards the brand and attitudes towards the game, while mediated by perceived intrusiveness and perceived realism. An experimental study with 103 participants following a 2 (product category congruent - product category incongruent) x 2 (placement execution congruent - placement execution incongruent) online between-subject design. The results indicate that placement execution incongruity enhances brand awareness outcomes and that product category congruent brand placements positively affect attitudes towards the brand as well as attitudes towards the game mediated by perceived intrusiveness.*

1 Introduction

In a world full of distracting stimuli, marketers are challenged to attract customers. Customers adopt a number of advertisement avoidance strategies such as zapping away from commercial breaks on television, zipping commercials from recorded programs, skipping in-app advertisements in mobile games and blocking online display advertisements or pre-roll videos with adblockers (Edwards, Li and Lee, 2005; Balasubramanian, Karrh and Patwardhan, 2006; Lee and Faber, 2007). Therefore, marketers are forced to seek for alternative advertising practices to attract customers. As a result, practices where ads become part of entertainment content have lately received attention from both practitioners and scholars.

1.1 The practice of brand placements

One of the most widely used marketing practices where advertisements blend into entertainment content is brand placement,

which is used to influence audiences through the insertion of brand elements in entertainment content (Balasubramanian, 1994; Schneider and Cornwell, 2005). One of the earliest examples is the placement of 'Jack Daniels' in the film *Mildred Pierce* (Brennan and Babin, 2004). Another famous example of brand placement is the presence of 'Reese's Pieces' in the film *E.T.: the Extra-Terrestrial* (Karrh, 1998). After these first success stories, the practice of brand placements became widely adopted in movie and television shows, resulting in a significant amount of academic literature on brand placement (Gupta and Gould, 1997; d'Astous and Chartier, 2000; Homer, 2009).

Nowadays, the entertainment industry consists of a wider range of entertainment media than only movies and television shows (Lee and Faber, 2007). A fast-growing market in the entertainment industry is gaming (Schneider and Cornwell, 2005). In 2014, the movie industry reached \$36.4 billion in revenue

(National Association of Theater Owners, 2014), whereas the gaming business already reached \$71 billion in revenue (Entertainment Software Association, 2015), making it an important driver of the entertainment industry. The magnitude of the gaming industry's revenue and the agile capabilities of designing, testing, implementing, monitoring and optimizing advertisement campaigns make games an interesting medium for marketers. For example, in games the entertainment content can be adjusted by means of updates. These games therefore offer marketers the opportunity to optimize their brand placement campaigns based on previously gathered campaign data. In contrast to brand placements in games, brand placements embedded in movie or television content cannot be optimized that simple, since a movie or television show is recorded in advance. Making it difficult to adjust the entertainment content once it is published.

Most research on brand placements in games has focused on console games and advergaming, even though 64% of the game market's revenue in 2016 was generated via mobile, tablet and casual web games whereas only 29% of the game market's revenue was generated by console games (Newzoo, 2016). Most of the casual mobile and web games contain advertisements before, in-between or after the game. As mentioned before, those types of advertising in games have the risk of being ignored and avoided by consumers (Balasubramanian et al., 2006). The practice of brand placement could potentially substitute traditional advertising in mobile, tablet and casual web

games, provided that brand placements enhance brand awareness and attitudinal outcomes.

1.2 Prior research on brand placements

The practice of brand placements has long been a topic of interest in marketing literature. The first studies concentrated on brand placements in movies and television shows. Such research has shown that on average people like brand placements, because they enhance realism, aid in character development and provide a sense of familiarity (Nelson, 2002). d'Astous and Chartier (2000) as well as Russell (2002) examined the effects of congruity on brand awareness outcomes (i.e., brand recall, brand recognition) and attitudinal outcomes (i.e., attitudes towards the brand and attitudes towards the game). The results demonstrated that incongruent brand placements in movies enhance brand awareness because incongruent stimuli generate more elaboration, but lead to lower attitudes. However, the positive effect of incongruity on brand awareness disappears when people are confronted with auditory stimuli instead of visual stimuli, since auditory stimuli are more meaningful than visual stimuli and thus already generates more elaboration despite a high degree of incongruity (Russell, 2002). In contrast to the results of d'Astous and Chartier (2000), Russell (2002) and Lehu and Bressoud (2009) found that a brand placement that is not prominent but congruent with the plot of the movie led to higher brand recall than a placement that is neither prominent nor connected. Nevertheless according to

Lehu and Bressoud, a brand placement that is prominent and congruent with the plot of the movie would lead to the highest degree of brand recall.

Although the majority of studies so far have been focused on brand placements in movies or television shows, a modest stream of academics has focused on brand placements in games (Nelson, 2002; Schneider and Cornwell, 2005; Lee and Faber, 2007; Aldas-Manzano, Marti-Parreño, Ruiz-Mafe and Scribner, 2015; Verberckmoes, Poels, Dens, Herrewijn and De Pelsmacker, 2016). For instance, Nelson (2002) conducted a longitudinal study, with a five-month time interval, to examine the short and long-term persuasiveness of brand placements in a console video game context as well as peoples attitudes towards brand placements in games. The findings demonstrated a brand recall on the short-term of 25 to 30 percent, and a brand recall of 15 percent five months later. In addition, Nelson also found that, on average, players had a positive attitude towards brand placements in games: the placements were not perceived as deceptive or as intrusive and brand placements increased the realism of the game.

In the footsteps of Nelson (2002) one wing of academics studied brand awareness outcomes of brand placements in games, in order to assess if and on what conditions brand placement campaigns are beneficial to marketers. Within this field of research, Schneider and Cornwell (2005) found a positive effect of the prominence of a placement and its effects on brand awareness outcomes, as well as a positive effect of player experience on

brand awareness outcomes. In accordance with Schneider and Cornwell, Lee and Faber (2007) studied the interaction effect between game experience and prominence and found that the degree of brand recall of inexperienced players greatly depend on the prominence of a brand placement, whereas the prominence of a brand placement does not have a huge effect on the degree experienced players recall brands. In addition, Lee and Faber (2007) also found an effect of congruity on brand awareness outcomes. When the product category of a brand placement is highly incongruent with the content of the game (product category incongruity), like pet food in a race game, the brand is better recalled than when the product category of the brand placement fits the content of the game (product category congruity). However, the effect of brand placement incongruity on brand recall disappears in fast-paced games (Vashisht and Sreejesh, 2017). In contrast, other researchers found that congruent brand placements were remembered better than incongruent brand placements. For example, Moorman, Neijens and Smit (2002) showed that congruent magazine advertisements were more recognized than incongruent advertisements, and the study of Rogers (2003) revealed that brands congruent with the content of an Internet site were more persuasive than brands that were incongruent with the Internet site content.

In contrast, a second wing of academics has focussed on attitudinal outcomes of brand placements in games. These studies have investigated under which conditions brand placements, as well as in-game advertisements (IGA),

enhance attitudinal outcomes. Lewis and Porter (2010) found that player characteristics, like gender and gaming experience, have an influence on people's attitudes towards the game and the brand. The results indicated that women appreciated brand placements in games more than men did. Furthermore, inexperienced gamers had less trouble with advertisements in games, and perceived brand placements in games as more realistic than experienced gamers did. Even the genre of the game seems to have an influence on people's attitudes towards brand placements in games. Results of the study of Lewis and Porter (2010) indicated that brand placements were perceived as more appropriate and realistic in sport and race games than in strategy and puzzle games. In addition, Ghosh (2016) found that game players with a high promotion focus had more favourable attitudes towards the brand and the game than game players with a prevention focus. According to the study of Ghosh, Providing positive game feedback to the game player could induce a higher promotion focus. Academics interested in people's attitudes towards brand placements in games (i.e., the second wing of academics) also studied the effects of congruity. For example, Verberckmoes et al. (2016) found that congruent brand placements (placement execution congruity), which refer to a fit between the execution of a brand placement and context of the game, lead to more favourable attitudes toward the brand and to more favourable attitudes towards the game. Similar to the results of Verberckmoes et al., the study of Rogers (2003) reported similar results. Furthermore,

Verberckmoes et al. (2016) found that this effect of congruity on players' attitudes is mediated by perceived intrusiveness and perceived realism. Congruent brand placements were perceived as less intrusive (i.e., interrupting and annoying) and more realistic and thus enhancing attitudes towards the brand and the game.

1.3 Differences between brand placement contexts

In essence, brand placements in games are similar to brand placements in movies or television shows, despite the fact that game content is interactive rather than unilateral. When a consumer is playing a video game he or she is actively interacting with the entertainment content, whereas watching movies or television shows is more passive. For instance, playing a game requires attention for both watching and controlling the game content, whereas consuming movie or television content only requires attention to watch the entertainment content. Thus, the attention capacity a consumer utilizes in order to experience the entertainment content differs between actively interacting and passively interacting with the entertainment content. As a consequence, based on the limited-capacity model of attention, it is likely that the way in which a consumer interacts with the entertainment content has an influence on consumers' awareness for in-game brand placements (Yang, Roskos-Ewoldsen, Dinu and Arpan, 2006). The more attention capacity is dedicated to experiencing entertainment content (people's primary task), the less spare attention capacity is available for recognizing in-game brand

placements (secondary task) (Kahneman, 1973; Lee and Faber, 2007). Due to the difference between active and passive interaction with entertainment content, it is worthwhile studying the implications on brand placements within games with respect to the limited-capacity model of attention, instead of relying blindly on results obtained from movie and television contexts.

Console games and casual mobile and web games differ as well. Console games rely, in most cases, more on advanced graphics and more complex gameplays than casual mobile and web games. Those differences in graphics and gameplay could moderate the perceivability of brand placements. For example, a gamer playing mobile or web games is exposed to less stimuli (graphics) and needs less attention capacity for playing the game (easier gameplay), which results in more available attention capacity for recognizing brand placements in casual mobile and web games than in console games. In addition, since casual mobile and web games consist of less stimuli (graphics), brand placements will automatically become more prominent in the game, which could result in higher levels of perceived obtrusiveness. Thus, because casual mobile and web games differ from console games it is likely that the effects of brand placements within casual mobile and web games differ as well. From that point of view it is worthwhile to study the practice of brand placements in a casual mobile and web game context as well.

1.4 Research question

In practice marketers strive for both brand awareness (recall and recognition) and positive attitudinal outcomes towards the game and towards the brand. Where one wing of academics recommends marketers to design incongruent brand placements to enhance brand awareness outcomes, a second wing of academics recommends the use of congruent brand placements resulting in positive attitudes. The disagreement in the literature on the topic of congruity is partly due to differences in conceptualizing congruity. In their study, Lee and Faber (2007) recommend product category incongruity, referring to a misfit between the product category and the content of the game, and Verberckmoes et al. (2016) recommend congruity in the form of a fit between the execution of the brand placement and the context of the game which in this thesis is called 'placement execution congruity'.

In an attempt to resolve the disagreement in the literature concerning (in)congruity between the brand placement and the game, this thesis makes a distinction between product category (in)congruity and placement execution (in)congruity and examine how both types of congruity affect recall, recognition, attitudes towards the game and attitudes toward the brand. As demonstrated in prior research, people's attitudes towards a brand placement are determined by how people perceive the intrusiveness and realism of a brand placement (Nelson, 2000; Lewis and Porter, 2010; Verberckmoes et al., 2016). For instance, Verberckmoes et al. (2016) demonstrated that both

perceived intrusiveness and perceived realism mediated the effect of congruity on attitudinal outcomes and thus were able to better understand the relationship between placement execution congruity and people's attitudes. Therefore, this thesis also examines the mediating effects of perceived intrusiveness and perceived realism on the relation between congruity (product category congruity and placement execution congruity) and attitudinal outcomes. Using an experimental design, which will be further elaborated on in chapter three, this thesis will consider the main effects of both types of congruity (product category congruity and placement execution congruity), the mediating effects of perceived intrusiveness and perceived realism, and the interaction effect between product category congruity and placement execution congruity (figure 7). In summation the research question of this thesis is:

RQ₁: To which degree do product category congruence and placement execution congruence affect brand recall, brand recognition, players' attitudes towards the game and players' attitudes towards the brand placed in the game?

1.5 Practical and theoretical relevance

The results of this thesis are of interest to practitioners who consider using the practice of brand placements in casual mobile and web games, as well as scholars who investigate congruity effects within the field of advertising. From a theoretical perspective, this thesis contributes to the literature on brand placement by

making a distinction between product category congruity and placement execution congruity. Both product category congruity and placement execution congruity are studied before, but in isolation from each other making it hard to predict the unique contribution of product placement congruity and placement execution congruity on brand awareness and attitudinal outcomes. Also, the unique effects of product category congruity on attitudinal outcomes, and the unique effect of placement execution congruity on brand awareness outcomes have not been studied yet. Thus in this thesis both types of congruity are discerned in order to be able to study the unique effect of both types of congruence on brand awareness and attitudinal outcomes. Furthermore, this thesis explores the impact of brand placements in casual mobile and web games, thereby assesses the generalizability of past research on brand placements in console game contexts. Because of differences in gameplay and graphics the perceivability of brand placements, and therefore the effects on brand awareness and attitudes, are likely to differ between casual mobile and web games, and console games.

For practitioners this thesis provides further insight in the effects of product category congruity and placement execution congruity on marketing performance outcomes. Answering questions like: "Should the product category of the brand match the theme and content of the game (product category congruity) in order to maintain or enhance attitudes toward the brand and the game?" and "will incongruent product category brand placements be memorized better than congruent

product category brand placements?”. This information helps practitioners to better design and optimize brand placement campaigns. In addition, the outcomes of this study might be of particular interest to game developers. Based on the results of this study, developers can better assess the impact of brand placement designs and are able to learn how to adjust the designs of brand placements in order to achieve the objectives set.

1.6 Structure of the thesis

This thesis comprises several chapters. In the second chapter the central concepts product category congruity (PCC), placement execution congruity (PEC), perceived intrusiveness as well as perceived realism will be discussed, followed by a brief summary of past research in the field of brand placements with special interest to studies investigating the effects of congruity on brand placement performance. This second chapter will end with a set of hypotheses based on theories of the limited capacity model, the associative network model and schema theory. The third chapter explicates the research design of this thesis addressing the topic of data collection, the measurement instruments used in the experiment, the confounding and control variables as well as the procedure and results of the pretest. Subsequently, chapter four discusses the results of the experiment including reliability checks and methodological assumptions. Chapter five is subjected to the discussion and conclusions of the results, followed by the final chapter discussing the limitations and implications of this thesis.

2 Theoretical background

This thesis focuses on the unique effect of product category (in)congruity (PCC) and placement execution (in)congruity (PEC) brand placements on brand awareness and attitudinal outcomes in a casual mobile and web game context. Academics within the field of brand placements extensively studied under what conditions brand placements led to high brand awareness outcomes and enhanced positive attitudes. These conditions can be roughly divided into three types: (1) player characteristics, (2) game characteristics and (3) brand placement characteristics (appendix 1). On the bases of these previous studies this chapter is meant to describe the main concepts and theories of this study followed by a set of hypotheses.

The first section of this chapter is dedicated to the decomposition of the central concept of congruity (independent variables) and introduces the concepts of perceived intrusiveness and perceived realism (mediating variables). Thereafter, in the second section, the effects of product category (in)congruity and placement execution (in)congruity on brand awareness outcomes will be discussed, followed by the first two hypotheses. In order to form the hypotheses, the theories of the limited capacity model of attention (Kahneman, 1973), associative network model (Hastie and Kumar, 1979; Srull, Lichtenstein and Rothbart, 1985; Keller, 1993) and schema theory (Sujan, 1985; Stayman, Alden and Smith, 1992) have been used. Furthermore, in the third section, the effects of product category (in)congruity and placement execution

(in)congruity on attitudinal outcomes mediated by perceived intrusiveness and perceived realism will be discussed, followed by hypotheses three to six. The fourth section construes the seventh and final hypothesis, the interaction hypothesis between product category congruity and placement execution congruity on brand awareness and attitudinal outcomes, followed by the conceptual model of this thesis.

2.1 Decomposition of congruity

The central concept of this thesis is congruity. A number of academics in cognitive psychology, consumer psychology, and advertising literature conducted research into the effects of congruity in brand placement contexts. According to Lee and Shen (2009), “[c]ognitive psychology researchers tend to use the associative network model (Hastie and Kumar, 1979), focusing on the memory effects of incongruent information whereas consumer psychology researchers tend to use the schema theory (Mandler, 1982), focusing on the attitudinal effects of incongruent information” (p. 486).

In the literature regarding congruity in brand placement contexts, the term congruity is frequently used to indicate a fit, match or harmony between a brand placement and the entertainment content it is placed in. Nevertheless, this conceptualization of congruity is rather abstract and broad. Congruity can be decomposed in a multitude of dimensions to specify which aspect of the advertisement fits the entertainment content. In a game context, one can indicate a fit between the product

category of a brand and the content of a game (product category congruity), as well as a fit between the design of a brand placement and the context of the game (placement execution congruity). And obviously, there are many more dimensions of congruity to discern.

Also in previous research the concept of congruity is conceptualized in different ways, which may have led to different results concerning the effect of congruity on brand awareness and attitudinal outcomes. For example, a number of studies regarding product category congruence have found superiority of congruent information on memory (Moorman, Neijens and Smit, 2002; Rodgers, 2003). According to those studies, when new information is encountered people tend to match it against pre-existing schemas (Lee and Faber, 2007). In contrast, other studies reported superiority of incongruent information (Hastie and Kumar, 1979; Heckler and Childers, 1992; Russell, 2002), due to its distinctiveness, novelty and prominence during the process of encoding the encountered information (Lee and Faber, 2007). Similar to previous research regarding brand placements in magazines and television shows, there is still disagreement on the effects of (in) congruity within the current literature stream on brand placements in games. Some academics found empirical results in favour of congruity (Lee and Shen, 2009), whereas others found evidence in favour of incongruity (Vashisht and Sreejesh, 2017). Therefore, also Lee and Faber (2007) stressed: “Perhaps partly due to the wide variety of ways in which congruity has been conceptualized,

previous research into congruity effects on memory has produced conflicting results” (p. 79).

In that light, a decomposition of congruity could help to determine the unique effects of a dimension of congruity brand awareness outcomes (i.e., brand recall and brand recognition) and attitudinal outcomes (i.e., attitudes towards the brand and attitudes towards the game). Based on the studies of Lee and Faber (2007), who found evidence in favour of incongruency, and Verberckmoes et al. (2016), who advocates congruity, this thesis investigates the unique effect of product category congruity (PCC) and placement execution congruity (PEC) on brand awareness and attitudinal outcomes.

2.1.1 Product category congruity

Lee and Faber (2007) state that in a context of product placement in games, congruity may best be thought of as a fit between the product category of the placed brand and the content of the game, in this thesis referred to as product category congruity (PCC), which is consistent with the term used in the hypotheses of Lee and Faber (2007). For example, in a race game one can expect to be exposed to brands of car manufacturers and gasoline suppliers, but not to a pet food brand. Therefore, a brand placement of pet food is labelled as product category incongruent with a racing game, while a brand placement of gasoline is product category congruent with the game. In addition, Lee and Faber (2007) describe four dimensions to assess product category congruity: functional, image, lifestyle and advertising congruity.

Firstly, a study concerning

event sponsorship states that functional congruity occurs when “a sponsoring product is actually used by participants during the event” (Gwinner, 1997, p. 152). An example of functional congruity is Gatorade’s sponsorship of the NFL. Besides being displayed on stadium screens, Gatorade’s sport beverage is also consumed by the NFL athletes during the games. Lee and Faber (2007) adopted the concept of functional congruity in their study concerning brand placements in games. According to the authors, “‘functional’ congruity occurs when the product category being advertised in the game is a central object used in the content of the game” (Lee and Faber, 2007, p. 79). For example, in the popular soccer game FIFA, gamers have the opportunity to use an Adidas football instead of a non-branded football. In this example, the Adidas football is functionally congruent with the game.

Secondly, Gwinner and Eaton (1999) described the concept of image congruity in a celebrity endorsement context referring to a match between spokesperson characteristics and product characteristics. This is followed by an example of Clint Eastwood, associated with the characteristics of “tough” and “rugged”, which is image congruent with the fictitious jeans brand “Unitough jeans”. In a gaming context, image congruity is referred to as the fit between the characteristics of a product category and the characteristics of a game (Lee and Faber, 2007). For example, the product category of car batteries (holding the image of “technical” and “complex”) is image incongruent with a game like Candy Crush, which can be

characterised as “sweet” and “uncomplicated”. However, the product category of car batteries is image congruent with race games. Lee and Faber (2007) explicitly mention a fit between the characteristics of a product category and the characteristics of a game, without recognizing brand-specific characteristics deviating from the image of the product category. In a study with fictitious brands, participants (playing the game) cannot hold brand specific images, because gamers are not familiar with the fictitious brands. On the contrary, when gamers are familiar with brands placed in a game, both product category and brand-specific images must be taken into account while assessing the degree of image (in)congruity.

Thirdly, according to Lee and Faber (2007), lifestyle congruity occurs when the lifestyle associated with the brand placed in the game matches the lifestyle of people who play the game. They borrowed the concept of lifestyle congruity from Nicholls, Roslow and Laskey (1994) who investigated the effectiveness of brand promotion at a sports event. According to Nicholls, Roslow and Laskey (1994), audiences at particular events vary in demographic and lifestyle characteristics. Therefore, certain events are more attractive to be sponsored than others. In a game context, for example, Barbie dolls are lifestyle congruent with games developed for six to twelve-year-old girls. However, the placement of Barbie in a shooter, developed for boys older than sixteen, would be highly lifestyle incongruent.

Fourthly, “advertising congruity occurs when the product category

of the brand seems appropriate to be advertised in the context of the game” (Lee and Faber, 2007, p. 79). Lee and Faber measured advertising congruity in a pre-test by asking students to rate if the advertisement for a product is a good fit for a specific game context on a 10-point scale (1 = strongly disagree, 10 = strongly agree). For example, in a mafia game taking place in the 1930s, a brand placement of 4K television screens will be advertising incongruent, because 4K televisions were not yet available back then. In contrast, brand placing a suit is advertising congruent.

To summarise, in this thesis product category congruity refers to a fit between the product category of the placed brand and the content of the game. The degree of product category (in)congruity can be assessed by examining functional (in)congruity, image (in)congruity, lifestyle (in)congruity and advertising (in)congruity.

2.1.2 Placement execution congruity

In the study of Verberckmoes et al. (2016) the concept of congruity is used to indicate a fit between the execution of a brand placement with the style, theme and context of the game, in this thesis referred to as placement execution congruity (PEC). Placement execution congruity occurs when the execution of a brand placement and the game match (Verberckmoes et al., 2016). For example, in the game GTA 5 a main character walks down the virtual streets of Los Angeles seeing an advertisement of Coca-Cola on a billboard. In this example the brand placement is seamlessly integrated in the

game, because the placement is presented in a way that meets the expectations of a player. In a fantasy game with a medieval theme, players do not expect to see Coca-Cola being displayed on a modern billboard, while an advertisement on leather screen with a wooden frame would be more in line with player expectations. After all, wood and leather are materials that were in medieval ages (Verberckmoes et al., 2016). In contrast to product category congruity, placement execution congruity considers the degree of fit between the brand placement and the game in terms of how well the placement is integrated in the game and if the placement suits the story and theme of the game.

There are two underlying mechanisms why placement execution congruity is important. Firstly, advertisements that interrupt the goals or experience of gamers will be perceived as intrusive, therefore triggering more negative attitudes toward the ad (Edwards, Li and Lee, 2005). Brand placements perceived as congruent do not interrupt the playing experience and do not break the immersion of the player. Therefore, congruent placements are perceived as less intrusive (Nelson, 2002). Secondly, placement execution congruent placements are coherent with the logic of the game, because they are consistent with the context of the game. Following the logic of the game context a brand placement meets the expectations of a player and therefore will be perceived as more realistic. This sense of realism contributes to the experience of playing the game.

2.2 The effect of product category congruity and placement execution congruity on brand awareness outcomes

When a person is playing a game his or her primary goal is to engage in the game. According to the theory of the limited capacity model, the person selectively attends to the stimuli relevant for playing the game in favour of less relevant stimuli (Kahneman, 1973). To determine which stimuli are relevant for playing the game and which are less relevant, a gamer makes use of cognitive schemas. According to schema theory, the memory consists of organized structures of prior knowledge labelled as schemas (Stayman, Alden and Smith, 1992). Multiple types of information can be included in schemas, like attributes and attitudes towards a certain topic. These schemas help people to evaluate information they encounter faster and easier by automatically comparing the information with existing schemas. For example, while playing a game, the player learns that candy objects increase the game score, whereas the vegetation in the background does not have any function rather than contributing to the game experience. Based on this schema, the person playing the game commits his or her attention capacity to collect candies. Encountering a brand placement of a candy brand, like M&M'S, which substitute the candy game object, is therefore congruent with the expectations of the person playing the game. More specifically, the brand placement of M&M'S is product category congruent (PCC) with the game object candies, since there is a fit between the product category of the brand and the

content of the game. In contrast, the placement of Nike is product category incongruent with the gamer's expectations. The gamer did not expect to encounter Nike in the game, since Nike, or sport brands in general, were not included in the schemas used for playing the game. Therefore, the gamer must allocate attention capacity to identify the new information and thereafter store this new information in his or her memory.

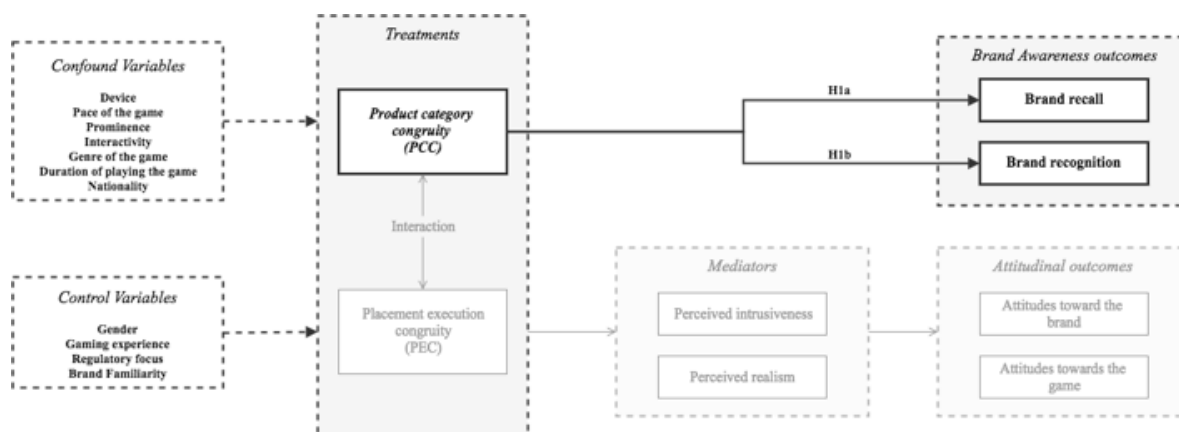
According to Garcia-Marques and Hamilton (1996), who build upon the theory of the associative network model as described by Hastie in 1980 and further specified by Srull and Wyer, storing information that is incongruent with the expectations of the gamer triggers a process whereby the gamer tries to incorporate this new information into previously acquired knowledge. In this situation, the person playing the game uses more cognitive processing power than needed for congruent or irrelevant tasks (Srull, Lichtenstein and Rothbart, 1985). As a result, in the process of storing product category incongruent information in the memory of a gamer, more links between previously acquired knowledge and the new

information are formed (Lee and Shen, 2009). Therefore, the product category incongruent (PCC) information is well embedded in the memory, which enhances the probability of being retrieved. Thus:

H₁: Brand placements with incongruent product categories will lead to (a) higher brand recall, and (b) higher brand recognition than brand placements with congruent product categories.

In addition, it is also believed that placement execution incongruency (PEC) leads to higher brand awareness outcomes than placement execution congruency, since gamers expect to encounter game objects that are consistent with the style, theme, and context of the game. Mandler (1982), one of the founders of the schema theory, argued that information congruent with people's expectations, their schemas, would not generate arousal, whereas information incongruent with expectations will provoke arousal and stimulate people's cognitive elaboration since they will try to make sense of the information they encounter. For example, if every game object is animated, tinted in bright colours,

Figure 1 – Conceptual model hypothesis 1



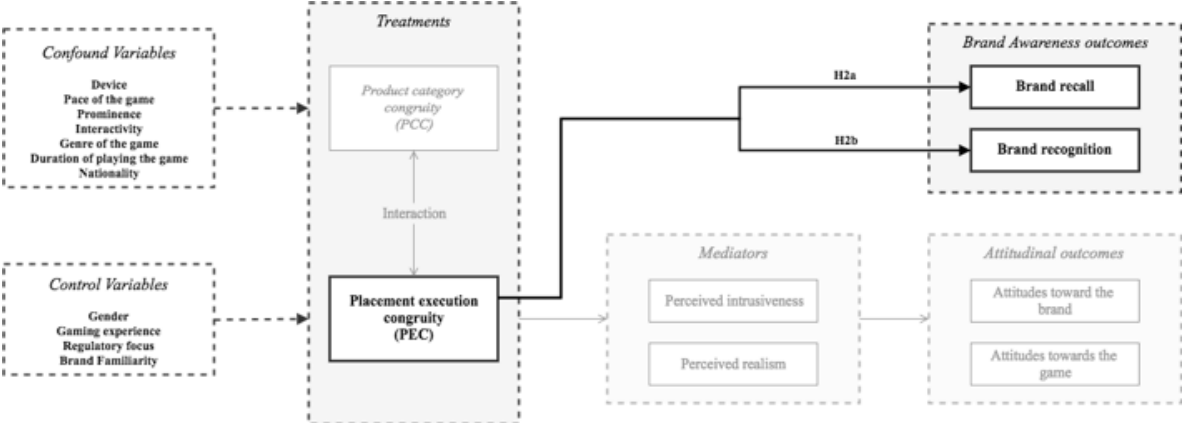
and the game only consists of visuals without the presence of text, gamers do not expect to encounter brand names in the game, because it is inconsistent with their current schema(s) of the game. Therefore, a placement execution incongruent brand placement, consisting of the brand name (textual), is incongruent with the expectations of the gamer. In contrast, a brand placement designed in the same style as other game objects (visual), labelled as placement execution congruent, does fit within the schema(s) of the gamer. Similar to the process of storing product category incongruent information, more cognitive processing power is needed to accumulate brand placements with incongruent placement executions in existing schemas, which enhances the probability of being retrieved. Therefore:

H₂: Brand placements with incongruent placement executions will lead to (a) higher brand recall, and (b) higher brand recognition than brand placements with congruent placement executions.

2.3 The effect of product category congruity and placement execution congruity on attitudinal outcomes mediated by perceived intrusiveness

Besides creating brand awareness, marketers need to create and maintain a positive player attitude toward the brand and the game. The advantage of brand placement in favour of advertisements before, in-between or after a game is that it does not interrupt the primary goal of the gamer, namely playing the game, provided that the brand placement is carefully designed. Advertisements and brand placements that do interrupt the primary goal of a gamer or hinder the immersion of a player into a game will be perceived as intrusive, which leads to negative attitudes toward the brand and the game (Edwards et al., 2005; Cauberghe and De Pelsmacker, 2010; Lewis and Porter, 2010; Verberckmoes et al., 2016). As mentioned before, the primary goal of a gamer is playing the game. According to the theory of the limited capacity model, in order to achieve this goal, a certain amount of attention capacity is dedicated to perform tasks in the game. Conforming

Figure 2 – Conceptual model hypothesis 2



schema theory, if a brand placement is incongruent with the expectations of the gamer, he or she tries to integrate this new information in existing mental schemas (Lee and Shen, 2009). This extensive processing of incongruent information interrupts the primary goal of the gamer and therefore could be perceived as intrusive. In comparison, brand placements congruent or moderately incongruent with existing schemas are easier to process and thus do not quite interrupt playing the game. According to Jennett, Cox, Cairns, Dhoparee, Epps and Tijds (2008, as cited in Verberckmoes et al., 2016, p. 873) “[i]mmersion refers to the psychological experience of being drawn into an alternative reality, being involved with all possible senses in the game, and blocking out sensory input from the outside world“. Based on this definition of immersion, if a brand placement is perceived as a ‘possible sense’ in the game, the placement will not break the immersion of the gamer.

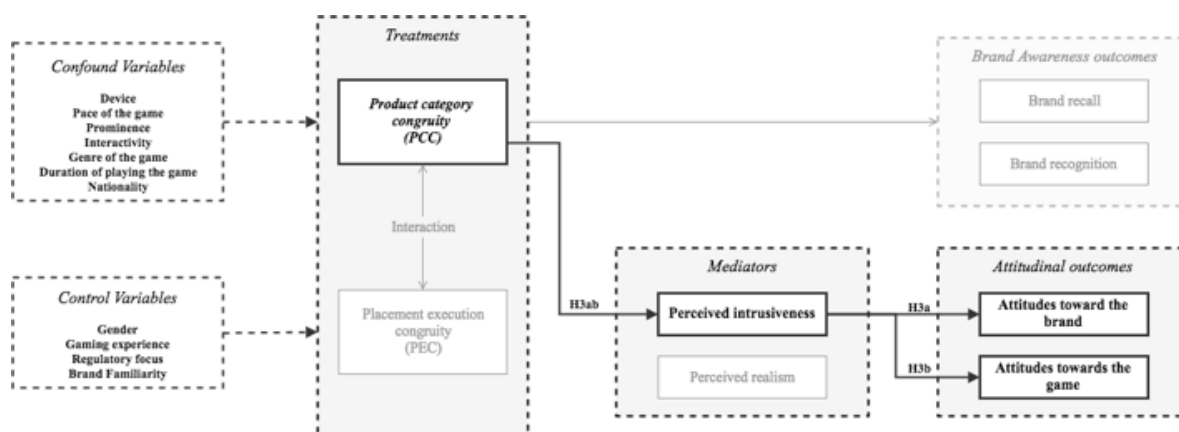
Brand placements with incongruent product categories (PCC) can distract gamers due to cognitive difficulties, for the reason that the gamer tries to accumulate the incongruent information

into existing schemas. Therefore, in potential product category incongruent brand placements could lead to negative attitudes toward the brand and to negative attitudes towards the game mediated by perceived intrusiveness.

H₃: Brand placements with incongruent product categories will lead to more negative attitudes toward (a) the brand and (b) the game than brand placements with congruent product categories while mediated by perceived intrusiveness.

Brand placements with incongruent placement executions (PEC) can also distract gamers for the same reason that product category incongruent placements do. In addition, brand placements with incongruent placement executions break the immersion of playing the game, since these placements do not fit the style, theme and/or context of the game. For the reasons that incongruent placement executions both distract from and break the immersion of playing the game, these placement execution incongruent brand placements will be perceived as intrusive and therefore lead to more negative

Figure 3 – Conceptual model hypothesis 3

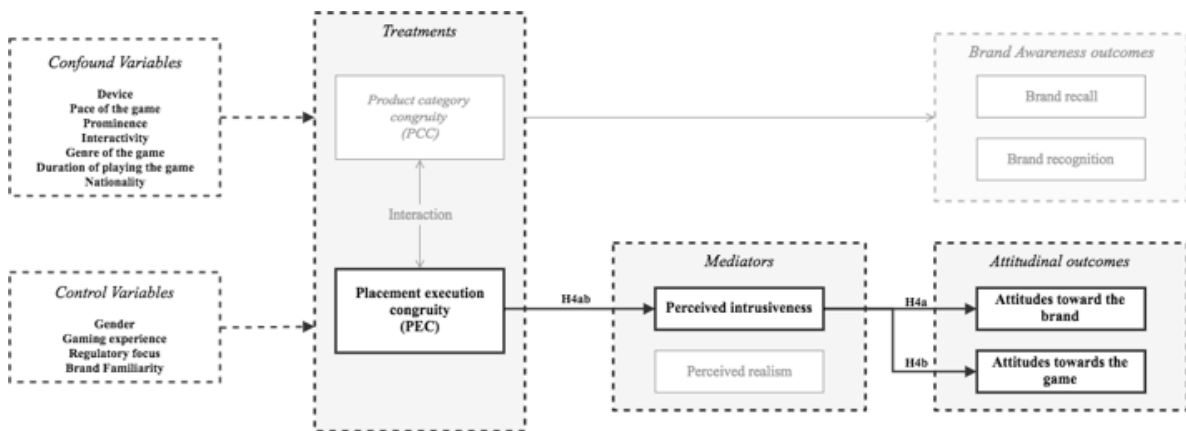


attitudes towards the brand and to more negative attitudes towards the game. Thus:

H₄: Brand placements with incongruent placement executions will lead to more negative attitudes toward (a) the brand and (b) the game than brand placements with congruent placement executions while mediated by perceived intrusiveness.

consistency in the story, theme and the feel of the game still is important. A poorly executed placement where the look and feel of the brand placement does not match with the context of the game will be perceived as less realistic and therefore lead to more negative attitudes towards the brand and the game. On the other hand, brand placements that do follow the logic

Figure 4 – Conceptual model hypothesis 4



2.4 The effect of product category congruity and placement execution congruity on attitudinal outcomes mediated by perceived realism

Another mediating factor between the effect of brand placement congruity and attitudinal outcomes is perceived realism. Verberckmoes et al. (2016) as well as Busselle and Bilandzic (2008) state that there are two types of realism. The first is external realism whereby fictional content is perceived as similar to the real world. The second is narrative realism whereby the fictional content should be consistent during the game. In the majority of casual web and mobile games a connection to the real world is limited. Nevertheless,

of the game context will lead to positive evaluations of the brand placement and the game (Bilandzic and Busselle, 2011; Verberckmoes et al., 2016).

Brand placements that are product category congruent (PCC) follow the logic of the game context. Therefore, product category congruent placements will be perceived as more realistic than product category incongruent placement. As a consequence, product category congruent placements will enhance positive attitudes towards the brand and positive attitudes towards the game while mediated by perceived realism. A moderate product category incongruity placement, like a soda brand where the gamer expects candies, is also likely to be perceived as following the logic of the game, since it

can be assimilated in the narrative reality of the game. In contrast, brand placements that are product category incongruent do not follow the logic of the game and therefore lead to negative attitudes towards the brand and the game while mediated by perceived realism. Thus, the following hypothesis is formed:

H_5 : Brand placements with incongruent product categories will lead to more negative attitudes toward (a) the brand and (b) the game than brand placements with congruent product categories while mediated by perceived realism.

Brand placements with congruent placement executions (PEC), that is when

the brand placement execution matches with the style, theme and context of the game, will be perceived as highly realistic, because the placement is carefully designed and in line with the logic of the game. On the contrary, brand placements with incongruent placement executions will be perceived as highly unrealistic. Therefore:

H_6 : Brand placements with incongruent placement executions will lead to more negative attitudes toward (a) the brand and (b) the game than brand placements with congruent placement executions while mediated by perceived realism.

Figure 5 – Conceptual model hypothesis 5

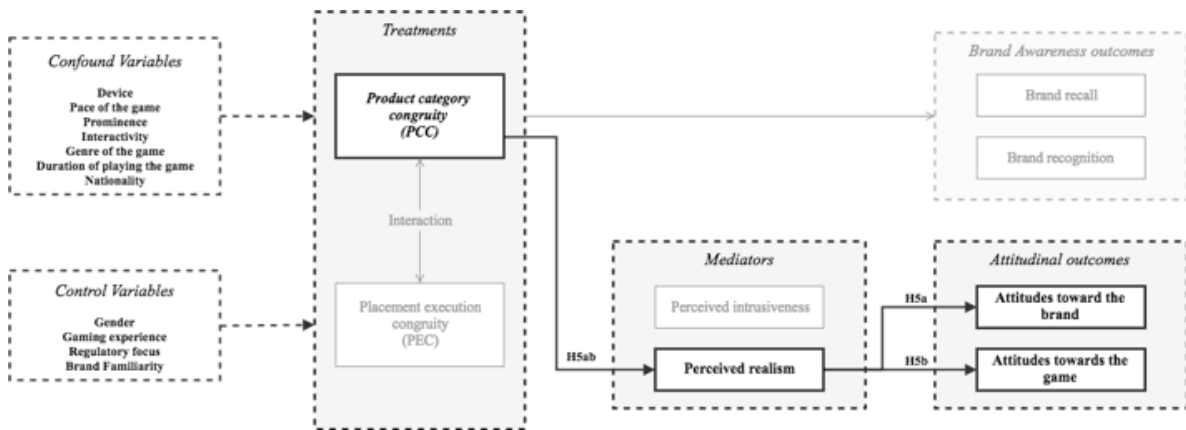
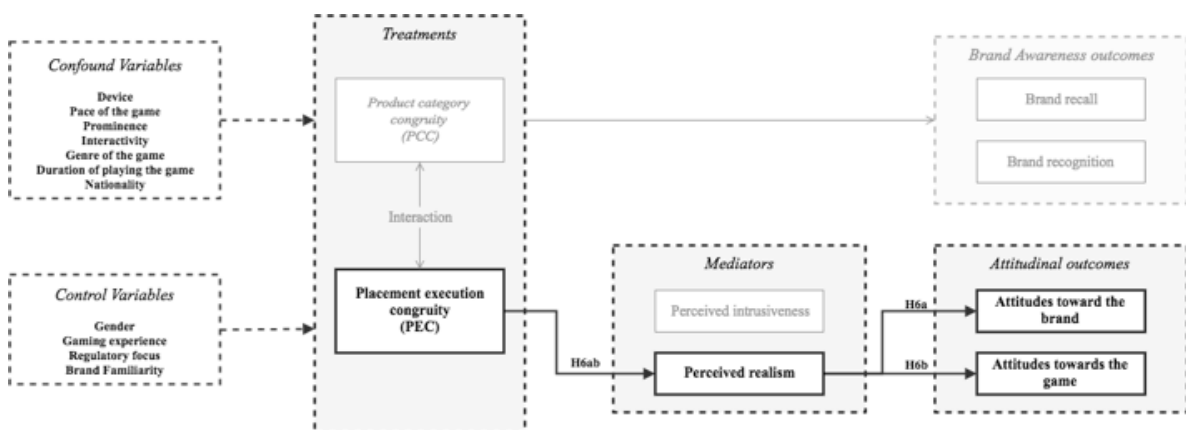


Figure 6 – Conceptual model hypothesis 6



2.5 The interaction effect of product category congruity and placement execution congruity on brand awareness and attitudinal outcomes

In practice, marketers want to enhance brand awareness outcomes, as well as positive attitudinal outcomes towards the game and towards the brand. In order to achieve the best overall performance score, consisting of brand awareness and attitudinal outcomes, practitioners should combine both forms of (in)congruity. In order to enhance brand awareness outcomes marketers should make use of incongruent brand placements. Both product category incongruity (PCC) and placement execution incongruity (PEC) are expected to enhance recall and recognition. Nevertheless, based on the logic and empirical evidence of Lee and Faber's study (2007) product category incongruent placements (PCC) are hypothesized to enhance brand awareness outcomes the most, since storing information that is incongruent with prior expectations (schemas) results in more links between previous acquired knowledge and therefore enhances the probability of being retrieved from memory. In addition, according to the study of Verberckmoes et al. (2016), incongruent placement executions lead to perceived unrealism as well as perceived intrusiveness and therefore negatively affect attitudes towards the brand and attitudes towards the game. Therefore, it is hypothesized that a combination of product category incongruity (PCC) and placement execution congruity (PEC) will lead to the best overall performance score in terms of brand recall,

brand recognition, attitudes towards the brand and attitudes towards the game.

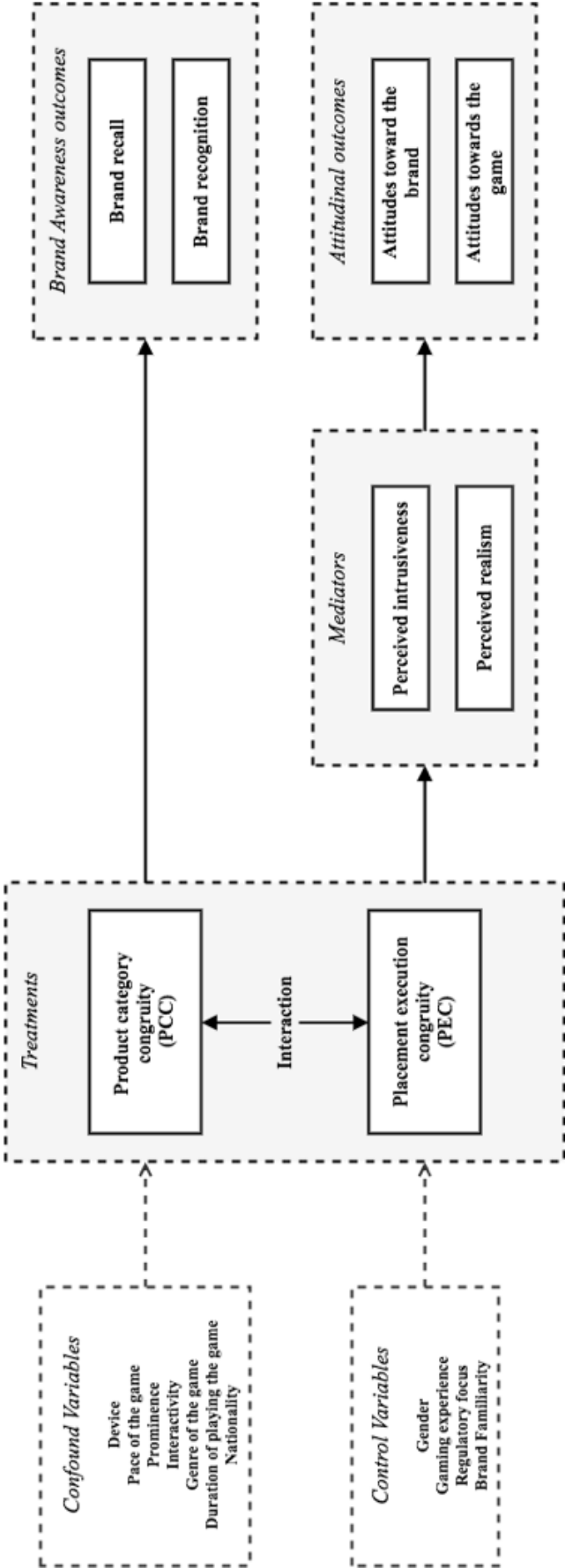
H₇: Brand placements with incongruent product categories and congruent placement executions lead to the best overall performance score.

3 Method

3.1 Research design

To test the hypotheses, a 2 (product category congruity) \times 2 (placement execution congruity) online between-subject experiment will be conducted, which makes a total of four experimental manipulated versions (table 1 and appendix 5). There are two product category conditions (PCC): two manipulations are product category incongruent (versions: 1 and 3) and two manipulations are product category congruent (versions: 2 and 4); as well as two placement execution conditions (PEC): two manipulations are placement execution incongruent (versions: 1 and 2) and the remaining two manipulations are placement execution congruent (versions: 3 and 4). The experiment starts with assigning participants to one of the four experimental groups, which are linked to a manipulated version of a web-based game. All four manipulated brand placements are functional congruent with the game in order to control for the prominence of the brand placement. After participants are finished playing the game, they will be redirected to a post-test in the form of an online survey in order to measure brand recall, brand recognition, their attitudes towards the brand, their attitudes towards the game, perceived intrusiveness and perceived realism.

Figure 7 – The conceptual model of the thesis



The open source game ‘Jolly Jumper’, retrieved from GitHub, will be used for this experiment. Jolly Jumper is a typical casual mobile and web game characterised by its simple gameplay, two-dimensional animated design and low system requirements. The game is chosen for practicality, distribution and generalizability reasons. Firstly, the source code is written in the HTML, CSS and JavaScript web-programming languages and the sprites are represented by images with a PNG extension. This makes it possible to modify the game with moderate Photoshop and web-programming skills. Secondly, the game files can be integrated in an online environment, which simplifies the distribution. The online distribution of the experiment makes it possible to process a sufficient number of participants with limited resources. Thirdly, the game is easy to play and suitable for both sexes, all ages and each educational level.

In the game, participants have to manoeuvre a monkey across dangling platforms in order to collect candies. The more candies collected, the better the score. However, falling coconuts and the danger of tumbling from a platform complicate the game. The game ends when the monkey loses three lives (indicated by heart icons) or when the monkey falls. In the original game, fruits are used

instead of candies. Whereas in this study the fruits are substituted for candies in order to better align brand placements with the game. The diamonds used as special objects to gain extra points in the original game have been replaced by the four brand placement manipulations. In order to ensure that every participant encounters brand placements, the interval between displaying brand placements has been increased (from 15 seconds to 5 seconds). Unfortunately, the game responds to keyboard input and is not optimized for touch devices. Therefore, the online platform advises participants to use a computer device and refuses access to mobile users thereby controls this thesis automatically for the type of device.

The experiment consists of four manipulated game versions (appendix 5). In all versions a type of brand placement is integrated as a game object. Therefore, all brand placements are functional congruent with the game. In 50% of the experimental conditions, brand placements are congruent with the design of the game (placement execution congruity). In these conditions brand placements are represented by animated products (visual). In the other half, the brand placements consist of logos (textual) instead of animated products (placement execution incongruity). The incongruent brand

Table 1

Version	PEC		PCC			
	0	1	0	1		
1	X		X		Logo Nike	Appendix 5.1
2	X			X	Logo M&M’S	Appendix 5.2
3		X	X		Nike ball	Appendix 5.3
4		X		X	M&M’S candy	Appendix 5.4

0 = Highly incongruent and 1 = congruent

PEC = Placement execution congruity

PCC = Product category congruity

placement consists of the logo of Nike and the congruent brand placement represents the logo of M&M'S. This experiment makes use of real brands instead of fictitious brands for the reason that it is impossible to develop recognizable fake brands within a 40×40 pixel canvas. Therefore this study statistically controls for brand familiarity.

3.2 Data collection

Participants will be recruited randomly via social media. The participants will be asked if they want to participate in a study that investigates online games. In order to prevent biases, the invitation and the online platform will not mention the use of brand placements. The invitation consists of a short introduction, explanation of the procedure, an indication of the duration, an URL linked to the online platform and the ability to win a bol.com gift card. At the end of the survey, participants will be asked if they would like to receive the results of the study and if they want to win a gift card. The results participants could receive will consist of the outcomes of the study and the managerial implications. During the experiment, at all times participants were allowed and able to withdraw from the experiment.

Since both Qualtrics and Google Forms do not allow researchers to embed interactive content other than YouTube videos into their surveys a custom experimental platform is created to distribute and execute the online experiment. Participants were referred to <http://www.danielschneiders.com/thesis/>, a domain registered and managed by the author of this thesis. When a participant enters the

URL he or she will be advised to use a desktop or laptop device. Thereafter, the platform tested if the participant was able to use the arrow key inputs (keyCode 37 and 39) required for playing the game. When the participant passed the keyboard test, he or she was assigned to one of the four experimental conditions. After playing the game for three minutes, the participants received a message that they will be automatically redirected to the survey section of the experiment. The platform registered the experimental version of the game and redirected the participant to the right survey version. For privacy purposes, only essential data of participants were monitored in order to prevent biased results from technical failures. These participant data is not (directly) linked to the survey data in order to respect anonymity of the respondents.

3.3 Measurement instruments

After respondents have been exposed to one of the manipulated game versions a survey was utilized to measure all the variables embodied in the conceptual model (Figure 7). In the first section of the survey, participants were asked to fill in their age (1 = 'under 18 years', 2 = '18-35 years', 3 = '36-49 years', 4 = '50+ years') and gender (dichotomous). Since the survey was in Dutch, the nationality of respondents was treated as a confounding variable. The age groups of the first question are consistent with the segments used in the report of the Entertainment Software Association (2015). In order to control for gaming experience with casual mobile and web games, participants had to report when they played a casual game for

the last time (1 = 'less than one year ago', 2 = 'one to two years ago', 3 = 'two to five years ago', 4 = 'more than five years ago', 5 = 'never played a casual game before'). Thereafter, the survey asked about how frequently participants played casual games (1 = 'daily', 2 = 'once a week', 3 = 'once a month', 4 = 'once a year', 5 = 'never') and how long respondents played casual mobile and web games (1 = 'for more than an hour', 2 = 'half an hour', 3 = 'couple of minutes, 4 = 'has not played casual web games before'). Verberckmoes et al. (2016) used similar measures in their study towards IGA in MMORPGs. In order to use gaming experience in the analyses, the questions regarding gaming experience were merged into one variable (Appendix 3).

Thereafter, the attitudes toward the game were measured with ten items on a seven-point semantic scale based on Muehling and Laczniak (1988). This same scale was used to measure attitudes towards the brand. The first seven items were measured by asking: "the game 'Jolly Jumper' is: (1) Not Attractive/Attractive, (2) Bad/Good, (3) Unpleasant/Pleasant, (4) Unappealing/Appealing, (5) Dull/Dynamic, (6) Depressing/Refreshing, and (7) Not Enjoyable/Enjoyable" (Cronbach's alpha = .93). The last three items were measured by asking: "My attitude toward the game 'Jolly Jumper' is: (8) Bad/Good, (9) Unfavourable/Favourable, (10) Negative/Positive" (Cronbach's alpha = .93).

Directly after measuring attitudes towards the game, respondents were asked to recall the brand(s) they encountered during their three-minute game time.

A correct recall or a slightly misspelled answer received a score of one. Wrong and empty inputs have been coded as zero. In order to prevent that respondents adjusted their answers on the recall question by using the 'go back' option within the survey, the recall question was asked before the section about regulatory focus. This should prevent that participants alter their answer at the brand recall question when they see the name of the brand in the selection list of the brand recognition question.

The questions regarding regulatory focus are borrowed from Ghosh (2016) (CR = .76 and AVE = .75). The original measurement scale on regulatory focus consists of 16 questions. In favour of the respondents, six questions from the original 16 questions were used in the survey. To measure promotion focus the questions: (1) "You have to take risks if you want to avoid failing in this game", (2) "Taking risks is essential for success in this game" and (3) "To achieve something in this game, you need to be optimistic" were used. Prevention was measured by (1) "To achieve something in this game, one must be cautious", (2) "To avoid failure in this game, one has to be careful" and (3) "In order to achieve something you need to be realistic in this game".

After measuring regulatory focus, participants were asked to indicate from a list of ten brands which brands they encountered during the game. The participants had been informed that not all brands appeared in the game. In line with Lee and Faber (2007), the measure of brand recognition consisted of two indicators: (1) correct hits (if the participant was able

to recognize the brand placed in the game) and (2) false alarms (the number of brands chosen by the respondent, which did not appear in the game).

Subsequently, questions regarding the brand displayed in the game version were asked. Starting by measuring brand familiarity on three seven point scales by asking: (1) “Regarding the brand [brand name displayed in the game] I am, unfamiliar/familiar”, (2) “Regarding the brand [brand name displayed in the game] I am, inexperienced/experienced” and (3) “Regarding the brand [brand name displayed in the game] I am, not knowledgeable/knowledgeable”. Thereafter, as said before, attitudes towards the brand were measured by the same scale as attitudes towards the game. At first the respondent received the question: “The presence of the brand [brand displayed in the game] in the game ‘Jolly Jumper’ is...” (1) Not Attractive/Attractive, (2) Bad/Good, (3) Unpleasant/Pleasant, (4) Unappealing/Appealing, (5) Dull/Dynamic, (6) Depressing/ Refreshing, and (7) Not Enjoyable/Enjoyable”. Second, “My attitude towards the brand [brand displayed in the game] after playing the game ‘Jolly Jumper’ is...” (8) Bad/Good, (9) Unfavourable/Favourable, (10) Negative/Positive”.

In order to measure the mediating variable perceived intrusiveness, seven questions based on a seven-point scale (strongly agree to strongly disagree) is used, as proposed by Edwards, Li and Lee (2005). (1) “When I saw the brand, I thought it was distracting”, (2) “When I saw the brand, I thought it was disturbing”, (3) “When I saw the brand, I thought it

was forced”, (4) “When I saw the brand, I thought it was interfering”, (5) “When I saw the brand, I thought it was intrusive” and (6) “When I saw the brand, I thought it was invasive”. Since in Dutch the terms obtrusive and intrusive are equal, the original question “When I saw the brand, I thought it was obtrusive” was not presented in the survey. Two additional questions were added: (7) “When I saw the brand, I thought it was irritating” and (8) “When I saw the brand, I thought it was confusing”. Verberckmoes et al (2016) also used similar questions to measure perceived intrusiveness and reported an AVE of .67 and a CR of .94.

The variable perceived realism was measured by three questions (Poels, Janssens, and Herrewijn, 2013): (1) brands placed in the game makes the games more realistic; (2) A game environment can appear more realistic because of the integration of brands; and (3) Real brands contribute more to the realism of a game than fictitious brands. The measure reported in their study an AVE of .58 and a CR of .80.

The survey ended with the question “Which city are you currently in” in order to be able to match the survey data with the database data in case of errors. Followed by the questions if the respondents are interested to win a bol.com gift card and if they want to receive the results of the study. If a respondent answered with “yes” on one of the previous questions they had to fill in their email address. In the last question of the survey respondents had the opportunity to add some notes regarding the study.

3.4 Confounding variables

In contrast to the control variables, which were measured using a survey, the confounding variables in this study are covered in the game manipulations. Devices used for participating, pace of the game, prominence of the placement, interactivity of the placement and genre of the game were held constant across all four manipulations.

Firstly, participants were only allowed to participate if they used a device with arrow keys, otherwise they were not able to play the game. As a result, the variable devices is set fixed to devices with arrow keys like laptops and desktops. Secondly, the pace of the game was similar in each manipulated game version. The number of coconuts falling, the degree of gravity on all objects, the number of lives (three lives each game), the speed of the character and the time interval of displaying brand placements (five seconds) were equal across all manipulated versions. Thirdly, all brand placements have been displayed as a 40 × 40px game object. The first two brand placement manipulations (Logo Nike and Logo M&M'S) consisted of brand names in the same font as presented on the packaging of the brands' products (textual). In addition, a white font outline is used in order to make contrast with the background of the game. The third and fourth manipulations (Nike ball and M&M'S candy) were designed to mimic the product of the brand (visual). The number of placements a respondent encountered was somewhere between one and seven (random number) game objects

per five seconds. This random number of one to seven game objects is held constant across all four game versions. Fourthly, all brand placements functioned as interactive game objects. The value of each placement is fixed to five points and is similar across all four manipulations. Besides adding to the score, none of the placement objects had an additional feature, like increasing the number of lives or adjusting the pace of the game. And lastly, since all manipulated versions were used in the same game, the genre of the game was fixed to a two-dimensional casual mobile and online web game.

3.5 Pretest

A pretest was developed to determine the time respondents had to play the game, and to determine which manipulations were the most suitable for this thesis experiment. The pretest consisted of three stages. At first respondents were introduced to the pretest and were confronted with a keyboard test to measure if they were able to use the arrow keys on their keyboards essential for playing the game. On average, excluding one extreme outlier, respondents spend six seconds completing the keyboard test and none of the respondents withdrew from the pretest at the keyboard test page, indicating that the keyboard test was suitable to be used in the final experiment.

After the keyboard test, respondents were redirected to the second part of the pretest, the flash test. The flash test consisted of twelve brands (four product category congruent brands, four moderate product category incongruent brands and four product category incongruent brands)

and three types of brand placements (per brand one placement execution congruent placement, one moderate placement execution incongruent placement and one placement execution incongruent placement). In this second section of the pretest respondents were confronted with a picture of one of the 36 manipulations and had to answer which brand they recognized in the picture by selecting one of the two buttons under the picture. The results of the flash tests, supported by notes of respondents, made clear that the moderate placement execution incongruent placements were not suitable to be tested in this thesis. Respondents had trouble recognizing the black and white product placements (moderate placement execution incongruent placements).

The third section of the pretest, the survey section, was meant to determine which manipulations were suitable to be presented in the experiment. Respondents answered questions about brand familiarity, perceived placement execution congruity and perceived product category congruity. As expected, M&M'S was perceived as the most product category congruent brand with the game Jolly Jumper ($M=4.92$). In contrast, Unox ($M=2.79$), Calve ($M=2.81$) and Nike ($M=2.93$) were indicated as product category incongruent brands. All three product category incongruent brands differed significantly on product category congruity from M&M'S ($t > 4.05$, $p < .001$, $df = 32$) and, as supposed to be, the three product category incongruent brands also reported similar brand familiarity scores as M&M'S (Calve: $M=6.29$ $t=-.81$, $p=.42$; Unox: $M=5.88$ $t=.28$, $p=.78$; Nike:

$M=5.88$ $t=.28$, $p=.78$; M&M'S: $M=6.00$). In addition, all four brands reported statistical significance between the incongruent placement execution version and the congruent placement execution version. M&M'S, Calve and Nike all reported a $p < .001$ and therefore were suitable to be used in the final experiment of this thesis. In the end, the brand M&M'S was chosen as the product category congruent manipulation and Nike as the product category incongruent brand, since they both met all the manipulation criteria, and both their placement execution congruent versions (the Nike ball and the M&M'S candy) were designed as round shaped objects in multiple colours thereby controlling for differences in prominence based on shape and colour.

4 Results

4.1 Reliability checks

The measurement scales used in this thesis were derived from previous research where the scales reported decent to very good reliability scores ranging between a Cronbach's alpha of .76 and .964. Analyses showed that the scales used in this thesis also met the criteria of a Cronbach's $\alpha > .70$ as suggested by Hair, Black, Babin, and Anderson (2014). The measurement scale of gaming experience with the initial three items reported a Cronbach's α of .622, were a measurement scale with two items (EXP03 excluded) resulted in a Cronbach's α of .704. As a result, the item EXP03 was excluded from the compound variable EXP_rev representing gaming experience. Further analyses also suggested to delete REA03 from the scale measuring perceived realism. The

original three items combined reported a Cronbach's α of .876 were the deletion of REA03 would have resulted in a Cronbach's α of .952. Since a Cronbach's α of .876 already indicates a good internal consistency of the measure, there has been chosen to keep REA03 within the analysis. The reliability scores of all measurement scales used in this thesis are presented in Appendix 3.

4.2 Methodological assumptions

In order to test the hypothesis, a number of assumptions must be met before running the multivariate analysis of covariance (MANCOVA) and the PROCESS analysis. Firstly, the dependent variables brand recall, brand recognition, attitudes towards the brand and attitudes towards the game must be metric, as well as the mediating variables perceived intrusiveness, perceived realism and the control variables (covariates). Actually, the dependent variables brand recall and brand recognition were dichotomous, but like dummy variables they were suitable to be used as a semi-metric variables (Field, 2014). The same applies for the control variable gender. In contrast to the dependent variables, mediating variables and control variables had the independent variables to be categorical instead of metric. In conclusion, all variables were suitable to be used in the analysis, based on their measurement level.

Secondly, all variables must be normally distributed. All variables met this assumption except from the variables brand familiarity and age. Brand familiarity reported one extreme outlier, causing the deletion of the case from the analysis.

Unfortunately the control variable Age had to be excluded from the analysis, because of extreme heterogeneous group sizes. 83.5% of the whole sample consisted of people between 18 and 35 year old compared to 1.9% of people younger than 18 years old, 10.7% of people between 36 and 49 years old and 3.9% of people older than 50. Therefore, in none of the analyses is controlled for age.

Thirdly, the covariates must correlate with the dependent variables otherwise the covariates were not allowed to be included in the analyses. Regarding the first two hypotheses, only the covariate brand familiarity reported a more or less significant correlation with brand recall ($r = .222, p < .050$) and brand recognition ($r = .189, p = .065$). The variables gender, regulatory focus and gaming experience did not correlate with brand recall or brand recognition. Nevertheless, regulatory focus ($r = .207, p = .053$) and brand familiarity ($r = .349, p < .001$) did correlate with the dependent variable attitudes towards the game, whereas gender ($r = .191, p = .074$) and brand familiarity ($r = .471, p < .001$) correlated with the dependent variable attitudes towards the brand. Gaming experience did not correlate with any of the dependent variables and therefore was not used as a covariate in the analyses.

Fourthly, the covariates are not allowed to be independent from the independent variable groups (Field, 2014). To test this fourth assumption, an ANOVA analyses with covariates as dependent variables was executed. As intended, none of the covariates reported a significant difference between the product placement

incongruent en the product placement congruent groups. Also, no statistical significance was found between the product category incongruent groups and the product category congruent groups on the covariates. Therefore, all covariates were suitable to be used in the analyses.

Fifthly, All regression slopes must be homogeneous. Scatter plots between the covariate (x-axis) and the dependent variable (y-axis), subdivided by the independent variable groups (markers) with calculated regression lines, indicated that all regression slopes complied with the assumption of homogeneous regression lines. The last assumption, homogeneity in variance, was also met in most cases, were Levene's test reported a non-significant F-value. In two cases Levene's test noted a significant effect ($p < .001$), but since both group sizes were equal (both $N=51$) this was not considered as problematic (Field, 2014).

4.3 Hypotheses testing

MANCOVA was used to test the first and second hypotheses regarding brand awareness outcomes. In order to test the first hypothesis (H_1), a model with product category congruity (PCC) as independent variable, brand recall and brand recognition as dependent variables and brand familiarity as covariate was executed using IBM SPSS (figure 1). Hypothesis 1a, that product category incongruent brands lead to higher brand recall, was rejected. There was no significant evidence that product category incongruity leads to higher brand recall ($F=.532$, $p=.468$, $\eta_p^2 = .005$, $B=.053$) while statistically controlled for brand familiarity (BFA) and placement

execution congruity (PEC). There is not controlled for gender, regulatory focus and gaming experience, since these variables did not correlate with the dependent variable brand recall (§2, assumption 3). In addition, there was also no evidence that product category incongruent brands lead to higher brand recognition when controlling for brand familiarity and placement execution congruity, rejecting hypothesis 1b ($F=1.050$, $p=.308$, $\eta_p^2 = .011$, $B=.070$). Again, there is not controlled for gender, regulatory focus and gaming experience, since these variables did also not correlate with the dependent variable brand recognition (§2, assumption 3). As a result, like the two ANCOVAs, also the full MANCOVA model of the first hypothesis was not significant ($F=.593$, $p=.555$, Wilks' $\Lambda = .988$, $\eta_p^2 = .012$). Based on the results of this thesis, product category congruity does not have a significant influence on brand awareness outcomes.

The second hypothesis (H_2) was tested the same as the first hypothesis, but with placement execution congruity (PEC) as independent variable. The first part of the MANCOVA model of hypothesis 2, an ANCOVA testing hypothesis 2a, revealed a significant effect between placement execution incongruent placements and brand recall ($F=11.045$, $p < .010$, $\eta_p^2 = .101$, $B=.235$) while controlled for brand familiarity and product category congruity but not controlled for gender, regulatory focus and gaming experience (§2, assumption 3). There was also significant evidence found for hypothesis 2b which states that placement execution incongruity leads to higher brand recognition while controlled for brand familiarity and product category

congruity but not for gender, regulatory focus and gaming experience ($F=6.989$, $p < .010$, $\eta^2_p = .067$, $B=.176$). Consequently, also the full MANCOVA model reported significant evidence that placement execution incongruity leads to higher brand awareness outcomes ($F=5.673$, $p=.555$, Wilks' $\Lambda = .895$, $\eta^2_p = .105$) while controlled for brand familiarity and product category congruence.

To test hypotheses three to six the PROCESS macro for SPSS was used. The PROCESS macro allowed to analyse the direct and mediating effect of the independent variables product category congruity (PCC) and placement execution congruity (PEC) on the dependent variables attitudes towards the brand (ATB) and attitudes towards the game (ATG), while mediated by perceived intrusiveness (INT) and perceived realism (REA) and being controlled for brand familiarity (BFA), gender (GEN) and regulatory focus (RF). As the analysis indicates, there is significant evidence in favour of hypothesis 3a (figure 3) that product category incongruent brand placements lead to lower attitudes towards the brand while fully mediated by perceived intrusiveness and controlled by placement execution congruence, brand familiarity and gender ($b= .277$). However, there is not controlled for regulatory focus and gaming experience, since these variables did not correlate with the dependent variable attitudes towards the brand (§2, assumption 3). Product category incongruity leads to higher perceived intrusiveness ($t= -2.655$, $p < .010$, $b= -.763$) and higher perceived intrusiveness leads to lower attitudes towards the brand ($t=$

-4.644 , $p < .001$, $b= -.363$). The mean score of the product category incongruent brand Nike on attitudes towards the brand is $M = 3.143$ on a 7-point scale, which is 6.1% less than the attitude towards the brand score of the product category congruent brand M&M'S. Despite hypothesis 3b, where product category incongruent brand placements lead to lower attitudes towards the brand while fully mediated by perceived intrusiveness and controlled by placement execution congruence, brand familiarity and gender, must be rejected. Although, there is a significant direct effect between product category congruity and attitudes towards the brand ($t= 1.849$, $p < .050$, $b= .421$) while controlled for placement execution congruity, brand familiarity and regulatory focus but not for gender and gaming experience. The mean score of the product category incongruent brand Nike on attitudes towards the brand is 6.4% lower than the mean score of the congruent brand M&M'S.

Unfortunately, there was no evidence to accept hypotheses 4a and 4b (figure 4), since placement execution incongruity does not lead to higher perceived intrusiveness ($t= -1.130$, $p= .131$, $b= -.325$) and there was no direct effect of placement execution congruity to attitudes towards the brand ($t= -1.252$, $p= .107$, $b= -.285$), nor was there an effect to attitudes towards the game ($t= .208$, $p= .418$, $b= .047$). In fact, the results showed a non-significant positive effect instead of a hypothesized negative effect of placement execution incongruity on attitudes towards the brand. Displaying the logo of a brand (placement execution incongruity) resulted in 2.1% higher attitudes towards

the brand score. Although as expected, placement execution incongruity resulted in 3.5% lower attitudes towards the game score than placement execution congruent placements.

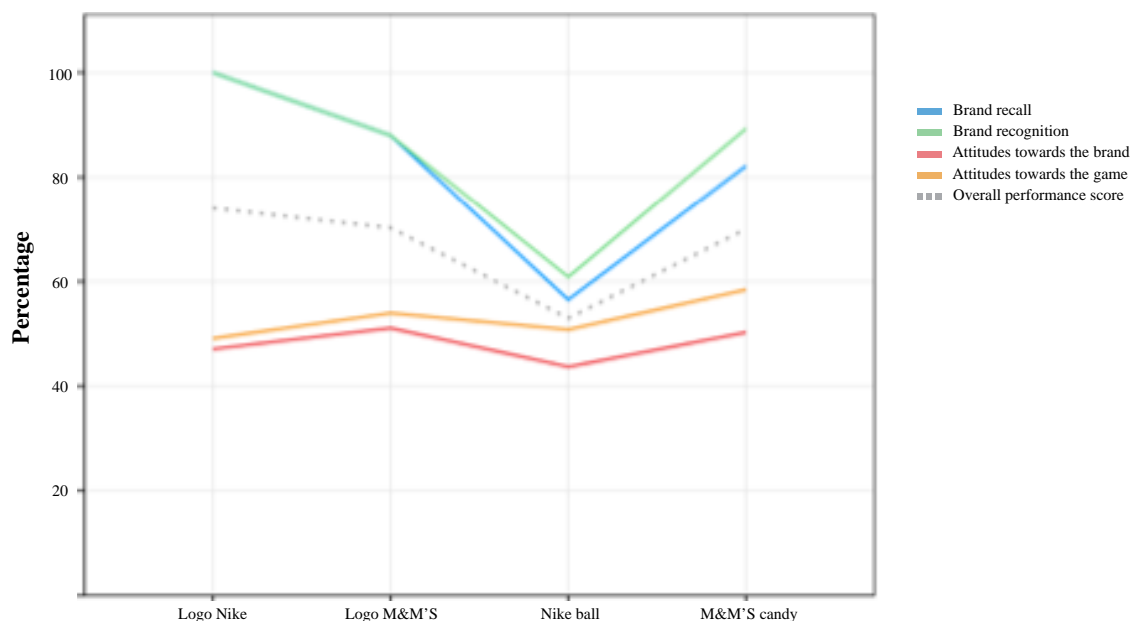
In contrast to perceived intrusiveness, perceived realism does not mediate the effect of placement execution congruity on attitudes towards the brand ($t = -.170$, $p = .433$, $b = -.054$) and attitudes towards the game ($t = -.341$, $p = .367$, $b = -.111$), as predicted in hypotheses 5a and 5b. However, there are significant direct effects found between product category congruity and attitudes towards the brand ($t = 1.821$, $p < .050$, $b = .414$) and attitudes towards the game ($t = 1.849$, $p < .050$, $b = .421$).

Furthermore, also hypotheses 6a and 6b are not statistically significant. Placement execution incongruity does not lead to higher perceived realism ($t = -.257$, $p = .399$, $b = -.081$). In addition, there is also no significant direct effect found between placement execution congruity

and attitudes towards the brand ($t = -1.252$, $p = .107$, $b = -.285$). As well as that placement execution incongruity does not lead to higher perceived realism ($t = -.071$, $p = .472$, $b = -.023$). In addition, there is also no significant direct effect found between placement execution congruity and attitudes towards the game ($t = .208$, $p = .418$, $b = .047$).

At last, hypothesis seven states that brand placements with congruent placement executions (PEC) and incongruent product categories (PCC) lead to the best overall performance consisting of: (a) high brand recall (figure 8, blue line), (b) high brand recognition (figure 8, green line), (c) positive attitudes toward the brand (figure 8, red line), and (d) positive attitudes towards the game (figure 8, orange line). In fact, the combination of placement execution congruence and product category incongruence, like placing Nike soccer ball in the game Jolly Jumper, turned out to have to most negative influence on overall performance

Figure 8 – Overall performance score of the manipulated versions



(figure 8, the grey dotted line). An ANOVA with post-hoc test confirmed that the Nike ball is significantly worse ($M=52.974$, $p < .001$) than the other combinations of placement execution congruity (PEC) and product category congruity (PCC) (Logo Nike: $M=74.052$; Logo M&M'S: $M=70.260$; M&M'S Candy: $M=70.028$). Between the other three combinations there is no combination significantly better than the others. However, the first and second hypotheses suggest placement execution incongruent placements in order to enhance brand recall and brand recognition, where the third, fourth, fifth and sixth hypotheses suggest to make use of product category congruent brands to enhance attitudes towards the brand and the game. Therefore, the best brand placement in casual mobile and web games, based on the results of this thesis, is a combination of product category congruity and placement execution incongruity.

5 Discussion and conclusions

In order to anticipate on consumers adapting advertisement avoidance strategies, marketers are forced to seek for alternative advertising practices to attract customers. The practice of brand placements in games is a promising alternative relative to traditional advertising practices such as ads before, after or in-between entertainment content. A rich literature on brand placements in entertainment content has examined multiple variables and their effects on brand awareness and attitudinal outcomes. An important, and frequently used, concept is the utilization or avoidance of congruity within brand

placement contexts. Conflicting results of congruity on brand awareness outcomes and attitudinal outcomes makes it difficult to determine the unique effects of brand placement congruity on important advertisement performance outcomes. The reason for these conflicting results could be due to the wide variety of ways in which congruity is conceptualized (Lee and Faber, 2007). Therefore, this thesis explored the unique effects of product category congruity (PCC) and placement execution congruity (PEC) on brand awareness outcomes (i.e., brand recall and brand recognition) and attitudinal outcomes (i.e., attitudes towards the brand and attitudes towards the game).

5.1 Brand awareness outcomes

The results of this thesis demonstrate that placement execution incongruity (PEC) has a positive influence on brand awareness outcomes. In other words, the design of a brand placement significantly influences the degree of brand recall and brand recognition. Designing brand placements that do not perfectly fit the content of the game leads to a higher degree of gamers who after playing the game are able to recall the brand and/or recognizing the brand when they are confronted with it (e.g., in stores or other advertisement campaigns). In all probability the novelty, distinctiveness and prominence of the placement execution incongruent brand placements (Lee and Faber, 2007), as well as the arousal that the incongruent brand placement triggers (Mandler, 1982), stimulate people to allocate more cognitive processing power to make sense of the encountered information. This enhances

the probability of recalling and/or recognizing the brand later on. Practitioners thus benefit from placement execution incongruent brand placements when their objective is to maximize brand awareness.

Despite that the study of Lee and Faber (2007) found that product category incongruent brands enhance brand awareness outcomes, this thesis did not find significant evidence that product category incongruity (PCC) leads to higher brand recall and/or higher brand awareness. Thus, based on the results of this thesis, practitioners which goal it is to maximize brand awareness will probably not benefit from the use of product category incongruity. A possible explanation for the non-significance of product category congruity on brand awareness outcomes is the speed of the game Jolly Jumper. Vashisht and Sreejesh (2017) found that the positive effect of product category incongruity on brand awareness outcomes diminishes when the speed of the game is high. Actively interacting with a fast paced game demands more attention capacity than interacting with slow paced games, resulting in less available spare capacity for processing in-game brand placements. As a consequence, gamers do not think and find out the reasons behind placing an incongruent brand in the game and thus there will not be an increase in a gamer's cognitive elaboration (Vashisht and Sreejesh, 2017). However, the results demonstrated that, even though the pace of the game in both the product category congruent manipulations as well as in the placement execution congruent manipulations were held constant, placement execution incongruity did have

a positive significant effect on brand awareness outcomes. In all likelihood, people's motivation to process placement execution incongruent brand placement is higher than their motivation to think and find out the reasons behind product category incongruent brand placements, since understanding the role of a game object, like a placement execution incongruent placement, is rather a primary task needed for experiencing the entertainment content than a secondary task (i.e., thinking and finding out why a brand is presented in the game). Thus, based on the results of this thesis, practitioners which goal it is to maximize brand awareness will probably not benefit from the use of product category incongruity when the pace of the game is high.

5.2 Attitudinal outcomes

The results of this thesis also confirm that product category congruity (PCC) has a positive effect on attitudinal outcomes. A brand placement of a product category that matches the content of the game significantly influences people's attitudes towards the brand as well as people's attitudes towards the game. The effect of product category congruity on people's attitudes towards the game (ATG) was mediated by perceived intrusiveness. Product category congruent brand placements leads to less perceived intrusiveness, which thereby enhances people's attitudes towards the game. Presumably, brand placements of brands that fit with the game do not distract people from playing the game (their primary task) and therefore will be perceived as less intrusive (Edwards, Li and Lee, 2005),

leading to more favourable attitudes towards the game (Verberckmoes et al., 2016). However, perceived realism did not mediate the effect of product category congruity on attitudes towards the game. It was expected that product category congruent placements followed the logic of the game context and thus led to higher perceived realism. One possible explanation for the non-significance of product category congruity on perceived realism is that brand placements in a game, like Jolly Jumper, do not make the game more realistic. Lewis and Porter (2010) studied the perceived appropriateness and perceived realism of brand placements in games per genre and found that brand placements in role-playing/adventure and strategy/puzzle games are the least appropriate and realistic. Of all the genres investigated by Lewis and Porter (2010), Jolly Jumper can best be described as a strategy/puzzle game. Therefore, it is likely that brand placements in Jolly Jumper do not make the game more realistic. This explains why there is no significant effect found between product category congruity and perceived realism.

It was also expected that the effect of product category congruity (PCC) on people's attitudes towards the brand (ATB) would be mediated by perceived intrusiveness and by perceived realism. Although, the effect was not mediated by perceived intrusiveness neither by perceived realism there is a positive significant direct effect found between product category congruent brand placements and people's attitudes towards the brand. Maybe, gamers like product category congruent brand placements because it

fits the context of the game, regardless of how realistic a brand placement in a game like Jolly Jumper is. Based on the effects found in this thesis, practitioners (i.e., brand managers or game developers) with the objective to maximize attitudinal outcomes should match brand/product categories with the content of the game and vice versa.

It was also hypothesized that placement execution congruity (PEC) should enhance attitudinal outcomes, but the results of this thesis cannot confirm that placement execution congruity actually affect people's attitudes towards the brand nor people's attitudes towards the game. Although Verberckmoes et al. (2016) did find significance evidence that placement execution congruity positively affects attitudes towards the brand as well as attitudes towards the game while mediated by both perceived intrusiveness and perceived realism. A possible explanation for the non significant effects found in this thesis, which is contrary to the study of Verberckmoes et al. (2016), is that gamers playing casual mobile and web gamers are more focused on the gameplay of the game (i.e., manoeuvring the character) than at the graphics (i.e., the created world in the game). In other words, gamers will not be (fully) immersed in the world of the casual mobile and web game. Therefore, placement execution incongruity cannot break the immersion of gamers due to high perceived intrusiveness or low perceived realism. As well as that placement execution congruity cannot enhance the immersion of gamers due to low perceived intrusiveness and high perceived realism. Since being immersed

in the game is not a gamer's primary goal while playing casual mobile and web games.

5.3 Overall brand placement performance

Moreover, this thesis looked into the interaction effect between product category congruity and placement execution congruity in order to find out which combination is most optimal concerning the overall performance of a brand placement campaign (i.e., brand recall, brand recognition, attitudes towards the brand and attitudes towards the game). Unfortunately, there is no best combination. However, there is one combination that can be labelled as the worst. The combination of product category incongruity and placement execution congruity scored significantly worse on overall performance than the other three combinations. A possible explanation for the quite large drop in the "Nike ball" manipulation is that due to the placement execution congruence the placement did not generate enough arousal to stimulate one's cognitive elaboration because the brand placement matches the expectations of the gamer. Whereas the product category incongruity causes that people cannot retrieve the brand name Nike from their memory while thinking about the game Jolly Jumper. For example, even when someone did not consciously notice the M&M'S within the game, they could come up with the brand after playing the game by following the logic of the game context. While thinking about the game, a link between the node 'Jolly Jumper' and the node 'candy' is plausible. Conse-

quently, a node between 'candy' and the brand 'M&M'S' makes recalling M&M'S more likely than recalling a brand like Nike. The other three combinations did not differ significantly from each other on overall brand placement performance. The combination of product category incongruence and placement execution incongruence enhances brand awareness outcomes, but scores low on attitudinal outcomes. In contrast, the combination of product category congruence and placement execution congruence enhances attitudes and neglects brand awareness outcomes. However, based on the significant results of hypotheses 1a, 1b, 3a, 3b, 5a and 5b, the best possible combination would be a brand placement that is product category congruent and placement execution incongruent. Nevertheless, an ideal combination of product category congruity and placement execution congruity is an illusion, so practitioners must make trade-offs between brand awareness and attitudinal outcomes.

6 Managerial implications

This thesis has practical implications for both marketers as well as for game developers. Practitioners could benefit from the use of brand placements that are congruent with the game the brand is placed in, provided that the brand is placed in a good manner. The results of this thesis demonstrate that product category congruent brand placements lead to higher brand attitudes than product category incongruent brand placements, without a significant loss of brand awareness performance. Thus for brand managers, placing a brand in a game that

matches with the product category of your brand will enhance brand attitudes. For example, a sportswear company like Adidas that places its brand in a popular sports game like FIFA. However, brand managers could also try to find a match between their brand and a scene, level or game object in a game. For instance, the product category of a brand like Red Bull is not related to the survival/adventure game genre, but it perfectly fits with a game object like a potion within a survival/adventure game that boosts the energy level of the game character. Nevertheless, based on the results of this thesis's pretest, it is advisable to test if gamers perceive the brand as product category congruent with the game instead of assuming that a brand is product category congruent with a game. Initially, M&M'S, Tic Tac and Milka were used in this thesis's pretest as product category congruent brands. However, the results of the pretest demonstrated that, although it was expected that Tic Tac and Milka were perceived as product category congruent, in the end both brands were perceived as moderate incongruent instead of congruent. Thus, the advice to brand managers is to pretest the perceived product congruity of a brand placement before publishing it in a game.

Also, game developers benefit from a good fit between the game and the brand, since a product category congruent brand placement leads to less perceived intrusiveness and thereby more positive attitudes towards the game. To make sure that there is a fit between the game and the brand, managers and game developers should cooperate. For example, game developers who are willing to place

brands in their games could provide a list of game elements that are suitable to be replaced by brand placements and their function within the game, as well as a prototype of the game (or game visuals) by which a brand manager could pretest if the brand is perceived as product category congruent with the game. On the other hand, brand managers could provide a description of the brand and its products to the game developer, as well as the results of a pretest indicating the suitability of the brand within the game.

Practitioners could also benefit from the use of placement execution incongruent brand placements. An incongruent placement execution is likely to result in higher brand awareness outcomes, because of its novelty, distinctiveness and prominence. Thus, brand managers who want to enhance brand awareness should utilize placement execution incongruent brand placements. For instance, in a puzzle game with exclusively round objects, like the game bubble shooter, using other shapes (e.g., triangles, rectangles or hexagons) should make the brand placement more outstanding. Other examples are the use of colours that deviate from the colours used in the game, using another art-style or the use of materials that are uncommon in the created game world.

However, while developing placement execution incongruent brand placements one should pay attention to the treat of being perceived as intrusive or unrealistic. And in addition, as the results of this thesis's pretest have demonstrated, some executions are harder to recognize than others. Therefore, it is desirable to pretest brand placement executions. However, in

order to pretest the perceived placement execution congruity, its perceived intrusiveness, its perceived realism and its recognisability in a good manner, brand placement versions must be developed in advance and tailored to the game content. Although game developers do not directly benefit from placement execution incongruent brand placements, since it only enhances brand awareness, they do not have to be ill affected towards placement execution incongruity, since a proper use of placement execution incongruity does not have a significant negative affect on attitudes towards the game.

In conclusion, game developers and brand managers have common interest in a fit between the brand and the game on a product category congruity level and a misfit with regard to placement execution congruity. Thus, cooperation of both parties and a thorough pretest of the brand placement campaign will result in satisfying results concerning brand awareness outcomes, attitudes towards the brand and attitudes towards the game.

7 Limitations and future research

Although the results of this thesis have potential implications for academics, several limitations exist. This thesis investigated the effects of two types of congruity on brand placement performances in casual mobile and web games. The game used in this study (Jolly Jumper) is a very easy and simplistic game and therefore not representative for all casual mobile and web games, let alone games in general. In contrast, Lee and Faber (2007) used an online race game to represent

online games. Nevertheless, both the study of Lee and Faber as well as this thesis investigated the effect of congruity on brand placement performance in an online game context but came to different conclusions. Probably the differences between the study of Lee and Faber (2007) and this thesis are caused by differences in game and brand placement characteristics (e.g., pace of the game, brand placement prominence and genre of the game). Thus, in order to generalize the findings of this thesis, further research has to replicate this study across other types of casual mobile and online games which vary on player, game and brand placement characteristics (appendix 1).

In addition, as noted in the discussion and conclusion section, the speed of the game and the genre of the game have probably led to non-significant results, despite the fact that the speed of the game and the genre of the game were used as confounding variables. However, a confounding variable assures that across manipulated versions, the condition is equal, but it does not statistically control for the effect that the speed of the game or the genre could have on the dependent variables. Therefore, future research should try to incorporate speed of the game and genre as control variable instead of using it as confounding variables. In addition, the absence of immersion could have led to non-significant results as well. Therefore, the inclusion of the variable immersion is an interesting direction for future research, especially in casual mobile and web games where a lack of immersion is imaginable and in research concerning placement execution congruity.

Further, the game used in the present thesis was only available for devices with a keyboard. Besides that, the way in which people interact with the interface of the game (e.g., touch, keyboard or controller) could influence their gaming experience and therefore their attitudes, is it advisable for future research to use games that are compatible with touch devices, since touch devices are more common than pc's and laptops these days. As a consequence, more than 60% of the people who were willing to participate in the experiment were not able to complete the experiment, since they used a mobile device. Therefore, future research should consider touch compatibility.

Also, the data sampling method used in this thesis resulted in an extreme homogenous age group with 83.5% of the sample being between 18 and 35 years old and in all likelihood mainly students. This large student population is probably caused by the sampling distribution used in this thesis. As a consequence it was not possible to use age as a control variable. So, besides considering touch compatibility, future research should also take a look into the sampling distribution they want to utilize in order to prevent homogeneity. For instance, future research could cooperate with platforms that offer games to a wide audience, like sites as funnygames.nl or zyngagames.com.

Taking into account all potential factors that could influence the results, is a difficult issue in experimental research. In order to assure the reliability of the experiment, seven confounding variables were utilized. The confounding variables were hold constant across all manipulated

versions. Therefore, the analyses could not be biased due to differences between the manipulated versions. Because of the online distribution, participants were able to play the game in their natural habitat, which increases the external validity of the experiment. Nevertheless, since participants played the game in a natural environment, the results could be distorted by environmental factors like screen sizes, noise or distracting notifications. Future research should, when using an online distribution, try to control environmental factors like distraction and screen performance or make use of a laboratory experiment in order to control for environmental factors. In order to assure the internal validity of the experiment, a pretest was executed to test if the manipulated versions were suitable to be used in the experiment. However, the pretest could be slightly biased due to its extensiveness. The pretest consisted of three stages with a list of approximately 100 questions and took on average 22 minutes to complete. In order to prevent biased (pre)test results, a less extensive pretest is advisable for future research.

In addition, this thesis utilized real brands as stimuli, since it was impossible to develop fictitious brands within a 40 x 40 pixel canvas that have the potential to be recognized. In order to prevent bias due to prior brand knowledge and experience with the brand, all analyses are controlled by brand familiarity. Analyses demonstrated that, as expected, brand familiarity had an effect on brand recall, brand recognition, attitudes towards the brand and attitudes towards the game. Thus, it is advisable to future research to make use

of fictitious brands. However, when it is not possible to use fictitious brands, future research should at least control for brand familiarity.

In all likelihood, technology and consumer strategies to bypass advertising will continue to exist in the nearby future. Whereby the field of research regarding brand placements remains important. Despite the large amount of studies regarding brand placements, there is still a lot to discover. Although a multitude of studies have shown that brand placements enhance marketing performance, there is little know about the effectiveness of brand placements as compared to advertisements before, after or in-between game content. So it would be interesting to investigate the effectiveness of brand placement campaigns on marketing performance in comparison to other advertising practices.

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Appendix

Appendix 1 – Prior literature

Condition	Study	Results
1. Player characteristics		
Gender	Redondo (2012), Lewis and Porter (2010);	Women seem to appreciate brand placements in games more than men do.
Gaming experience	Lewis and Porter (2010), Schneider and Cornwell (2005), Lee and Faber (2007);	Inexperienced gamers have less trouble with ads in games and seem to perceive brand placements as more realistic than experienced gamers. In addition, experienced gamers show greater recall and recognition than inexperienced gamers.
Flow state	Schneider and Cornwell (2005);	When a player achieves flow, they are so involved in playing the game that irrelevant thoughts and perceptions are screened out. Schneider and Cornwell did not found support for their hypotheses that flow state enhances recall and recognition.
2. Game characteristics		
Game feedback	Ghosh (2016);	Winning a game or losing a game and receiving positive feedback induce more promotion focus. This higher promotion focus leads to more favourable attitudes towards the brand and the game.
Pace of the game	Vashisht and Sreejesh (2017);	Slow-paced advergames result in higher players' attitudes towards the brand than fast-paced games. For the reasons that fast-paced games require more attention capacity to perform the primary task of playing the game, less spare capacity will be left to process in-game brand placements.
Genre	Lewis and Porter (2010);	87,6% of the respondents agreed that advertisements in sport games are realistic or appropriate and 81,4% agreed for racing/driving games. In contrast, only around 25% reported that advertisement in fighting, role-playing/adventure and action/first-person shooter was realistic or appropriate. And 6,2% of the respondents appointed strategy/puzzle games
3. Brand placement characteristics		
Prominence / Proximity	Schneider and Cornwell (2005), Lee and Faber (2007), Cauberghe and De Pelsmacker (2010), Chang, Yan, Zhang and Luo (2010);	The more prominent a brand is placed within a game the better the recall and recognition of a brand will be. Furthermore, the more prominent a placement the higher players' attitudes toward the brand.
Product category involvement	Cauberghe and De Pelsmacker (2010);	When people process information more intensively, in the case of high product involvement, they rely more on negative thoughts about marketers' goals to persuade consumers, which leads to more negative attitudes towards the brand.

Appendix 2 – Survey questions in Dutch

		Survey questions	From	Variable type
<i>(A) Onderzoek naar games</i>				
AGE01	1	Wat is uw leeftijd? [1] 17 jaar of jonger [2] 18-35 jaar [3] 36-49 jaar [4] 50 jaar of ouder	Entertainment Software Association (2015)	Control variable 'Age'
GEN01	2	Wat is uw geslacht? [1] Man [2] Vrouw	-	Control variable 'Gender'
<i>(B) Uw Game ervaring</i>				
EXP01	3	Wanneer heeft u voor het laatst een game gespeeld die vergelijkbaar is met de game 'Jolly Jumper' uit dit onderzoek? [1] Minder dan 1 jaar geleden [2] 1 tot 2 jaar geleden [3] 2 tot 5 jaar geleden [4] Meer dan 5 jaar geleden [5] Nooit eerder een vergelijkbaar spel gespeeld	Verberckmoes et al. (2016)	Control variable 'Gaming experience'
EXP02	4	Hoe vaak speelt u games vergelijkbaar met de game 'Jolly Jumper' uit dit onderzoek? [1] Dagelijks [2] Minstens één keer per week [3] Minstens één keer per maand [4] Minder dan één keer per jaar [5] Nooit eerder een vergelijkbaar spel gespeeld	Verberckmoes et al. (2016)	Control variable 'Gaming experience'
EXP03	5	Hoe lang speelt u gemiddeld een game vergelijkbaar met de game 'Jolly Jumper' uit dit onderzoek? [1] Meer dan een uur [2] Ongeveer een half uur [3] Een aantal minuten [4] Nooit eerder een vergelijkbaar spel gespeeld	Verberckmoes et al. (2016)	Control variable 'Gaming experience'
<i>(C) Uw mening over de game</i>				
ATG01	6	De game 'Jolly Jumper' is...	Muehling and	Dependent variable
ATG07		(a) aantrekkelijk. (b) goed. (c) plezierig. (d) aangenaam. (e) opwindend. (f) verfrissend. (g) leuk. [1] Helemaal mee oneens [7] Helemaal mee eens	Laczniak (1988)	'Attitudes toward the game'
ATG08	7	Mijn houding ten opzichte van de game 'Jolly Jumper' is...	Muehling and	Dependent variable
ATG10		(a) goed. (b) gunstig. (c) positief. [1] Helemaal mee oneens [7] Helemaal mee eens	Laczniak (1988)	'Attitudes toward the game'

<i>(D) Welk(e) merk(en) heeft u waargenomen (Recall)</i>				
RCL01	8	Welk(e) merk(en) heeft u waargenomen tijdens het spelen van de game 'Jolly Jumper'? [Open question]	Lee and Faber (2007)	Dependent variable 'Brand recall'
<i>(E) Game strategie</i>				
PRO01	9	Je moet risico nemen in de game 'Jolly Jumper' om te voorkomen dat je faalt. [1] Helemaal mee oneens [7] Helemaal mee eens	Ghosh (2016)	Control variable 'Regulatory focus (promotion)'
PRO02	10	Risico nemen is essentieel om succes te hebben in de game 'Jolly Jumper'. [1] Helemaal mee oneens [7] Helemaal mee eens	Ghosh (2016)	Control variable 'Regulatory focus (promotion)'
PRO03	11	Om te presteren in de game 'Jolly Jumper' moet je optimistisch zijn. [1] Helemaal mee oneens [7] Helemaal mee eens	Ghosh (2016)	Control variable 'Regulatory focus (promotion)'
PRE01	12	Om te presteren in de game 'Jolly Jumper' moet je behoedzaam zijn. [1] Helemaal mee oneens [7] Helemaal mee eens	Ghosh (2016)	Control variable 'Regulatory focus (prevention)'
PRE02	13	Om fouten te voorkomen in de game 'Jolly Jumper' moet je voorzichtig zijn. [1] Helemaal mee oneens [7] Helemaal mee eens	Ghosh (2016)	Control variable 'Regulatory focus (prevention)'
PRE03	14	Om te presteren in de game 'Jolly Jumper' moet je realistisch zijn. [1] Helemaal mee oneens [7] Helemaal mee eens	Ghosh (2016)	Control variable 'Regulatory focus (prevention)'
<i>(F) Welk(e) merk(en) heeft u herkend (Recognition)</i>				
RCO01	15	Welk(e) merk(en) heeft u herkend tijdens het spelen van de game 'Jolly Jumper'? List with 10 brands. One brand was actually displayed. [Nikon, Unox, M&M'S, Adidas, Mentos, Nike, LEGO, Calve, Fanta, TicTac, Geen enkel merk is voorgekomen in de game]	Lee and Faber (2007)	Dependent variable 'Brand recognition'
<i>(G) Merken in Jolly Jumper (1/2)</i>				
BFA01	16	Met het merk [brand] ben ik... [1] helemaal niet bekend [7] heel erg bekend		Control variable 'Brand familiarity'
BFA02	17	Met het merk [brand] heb ik... [1] helemaal geen ervaring mee [7] erg veel ervaring mee		Control variable 'Brand familiarity'

BFA03	18	Van het merk [brand] weet ik... [1] heel weinig af. [7] heel veel af.		Control variable 'Brand familiarity'
ATB01	19	De aanwezigheid van het merk [brand] in de game 'Jolly Jumper' is...	Muehling and Laczniak (1988)	Dependent variable 'Attitudes toward brand placement'
ATB07		(a) aantrekkelijk. (b) goed. (c) plezierig. (d) aangenaam. (e) opwindend. (f) verfrissend. (g) leuk. [1] Helemaal mee oneens [7] Helemaal mee eens		
ATB08	20	Mijn houding ten opzichte van het merk [brand] na het spelen van de game 'Jolly Jumper' is ...	Muehling and Laczniak (1988)	Dependent variable 'Attitudes toward brand placement'
ATB10		(a) goed. (b) gunstig. (c) positief. [1] Helemaal mee oneens [7] Helemaal mee eens		
<hr/> <i>(H) Merken in Jolly Jumper (2/2)</i> <hr/>				
INT01	21	Toen ik het merk [brand] zag, vond ik het... (a) afleidend. (b) storend. (c) dwingend. (d) verhinderend. (e) opdringerig. (f) indringend. (g) irritant. (h) verwarrend. [1] Helemaal mee oneens [7] Helemaal mee eens	Edwards, Li and Lee (2013)	Mediating variable 'Perceived intrusiveness'
INT08				
REA01	22	De plaatsing van het merk [brand] maakt de game 'Jolly Jumper' realistischer. [1] Helemaal mee oneens [7] Helemaal mee eens	Poels, Janssens and Herrewijn (2013)	Mediating variable 'Perceived realism'
REA02	23	Een game zoals 'Jolly Jumper' wordt realistischer door het toevoegen van merken. [1] Helemaal mee oneens [7] Helemaal mee eens	Poels, Janssens and Herrewijn (2013)	Mediating variable 'Perceived realism'
REA03	24	Het plaatsen van echte merken maakt een game als 'Jolly Jumper' realistischer dan het plaatsen van fictieve merken. [1] Helemaal mee oneens [7] Helemaal mee eens	Poels, Janssens and Herrewijn (2013)	Mediating variable 'Perceived realism'
<hr/> <i>(I) U bent aan het einde gekomen van het onderzoek!</i> <hr/>				
CIT01	25	In welke (woon)plaats bevindt u zich momenteel? [Open question]		

CAD01	26	Wilt u kans maken op de cadeaukaart? [1] Ja [2]Nee
RES01	27	Wilt u de resultaten van het onderzoek ontvangen? [1] Ja [2]Nee
EMA01	28	Wat is uw email adres? <i>Indien u 'Ja' heeft geantwoord op één van de vorige vragen.</i> [Open question with email pattern validation]
NOT01	29	Heeft u nog opmerkingen met betrekking tot het onderzoek? [Open question]

Appendix 3 – Reliability of measurement scales

	Included	Excluded	CR reported ¹	CR calculated ²
Gaming Experience	EXP01, EXP02	EXP03	-	.704
Attitudes towards the game	ATG01, ATG02, ATG03, ATG04, ATG05, ATG06, ATG07, ATG08, ATG09, ATG010	-	.964	.952
*Regulatory focus	PRO01, PRO02, PRO03, PRE01, PRE02, PRE03	-	.76	.723
Brand familiarity	BFA01, BFA02, BFA03	-	-	.707
Attitudes towards the brand	ATB01, ATB02, ATB03, ATB04, ATB05, ATB06, ATB07, ATB08, ATB09, ATB010	-	.964	.953
Perceived intrusiveness	INT01, INT02, INT03, INT04, INT05, INT06, INT07, INT08	-	.940	.924
*Perceived realism	REA01, REA02, REA03	-	.951	.876

CR¹ = The Cronbach's alpha reported in prior studies were the measurement scale is borrowed from

CR² = The calculated Cronbach's alpha of the measurement scale used in this thesis

* = The original scale consisted of more items than used in this thesis

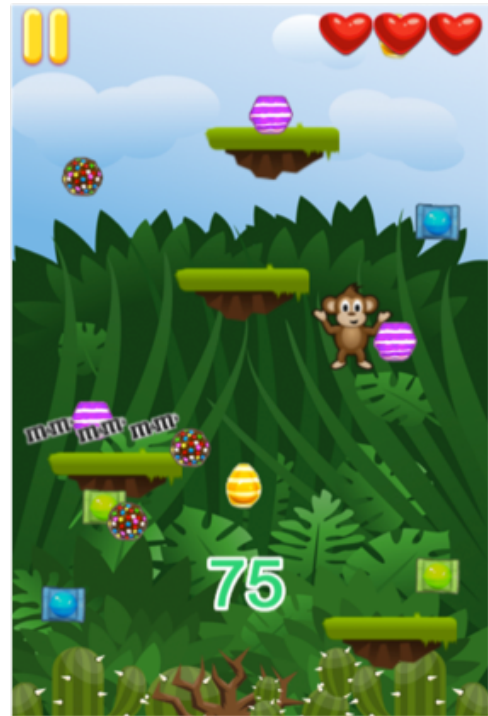
Appendix 4 – Results all (M)ANCOVA (H₁-H₆)

Hypothesis	Path	B	Value	Partial eta ²
<i>Brand awareness analyses</i>				
1a	PCC → Recall	.053	F= .532	.005
1b	PCC → Recognition	.070	F= 1.050	.011
2a	PEC → Recall	.235	F= 11.045 **	.101
2b	PEC → Recognition	.176	F= 6.989 **	.067
<i>Attitudinal analyses mediated by perceived intrusiveness</i>				
3a	PCC → Intrusiveness → Attitudes brand	.277		
	PCC → Intrusiveness	-.763	t= -2.655 **	
	Intrusiveness → Attitudes brand	-.363	t= -4.644 ***	
	PCC → Attitudes brand	.414	t= 1.821 *	
3b	PCC → Intrusiveness → Attitudes game	.058		
	PCC → Intrusiveness	-.763	t= -2.655 **	
	Intrusiveness → Attitudes game	-.071	t= - .805	
	PCC → Attitudes game	.421	t= 1.849 *	
4a	PEC → Intrusiveness → Attitudes brand	.118		
	PEC → Intrusiveness	-.325	t= -1.130	
	Intrusiveness → Attitudes brand	-.363	t= -4.644 ***	
	PEC → Attitudes brand	-.285	t= -1.252	
4b	PEC → Intrusiveness → Attitudes game	.023		
	PEC → Intrusiveness	-.318	t= -1.129	
	Intrusiveness → Attitudes game	-.071	t= - .805	
	PEC → Attitudes game	.047	t= .208	
<i>Attitudinal analyses mediated by perceived realism</i>				
5a	PCC → Realism → Attitudes brand	-.023		
	PCC → Realism	-.054	t= - .170	
	Realism → Attitudes brand	.434	t= 6.753 ***	
	PCC → Attitudes brand	.414	t= 1.821 *	
5b	PCC → Realism → Attitudes game	-.018		
	PCC → Realism	-.111	t= - .341	
	Realism → Attitudes game	.161	t= 2.113 *	
	PCC → Attitudes game	.421	t= 1.849 *	
6a	PEC → Realism → Attitudes brand	-.035		
	PEC → Realism	-.081	t= - .257	
	Realism → Attitudes brand	.434	t= 6.753 ***	
	PEC → Attitudes brand	-.285	t= -1.252	
6b	PEC → Realism → Attitudes game	-.004		
	PEC → Realism	-.023	t= - .071	
	Realism → Attitudes game	.161	t= 2.113 *	
	PEC → Attitudes game	.047	t= .208	
<p>* = p < .050 ** = p < .010 *** = p < .001</p>				

Appendix 5 – All manipulations of the game Jolly Jumper



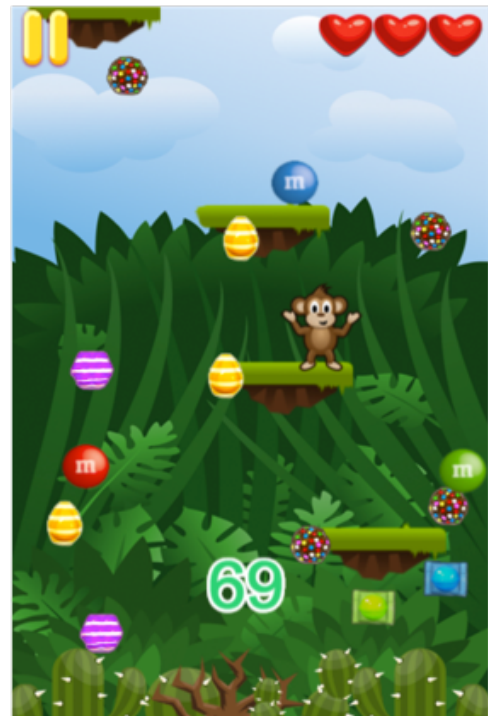
1



2

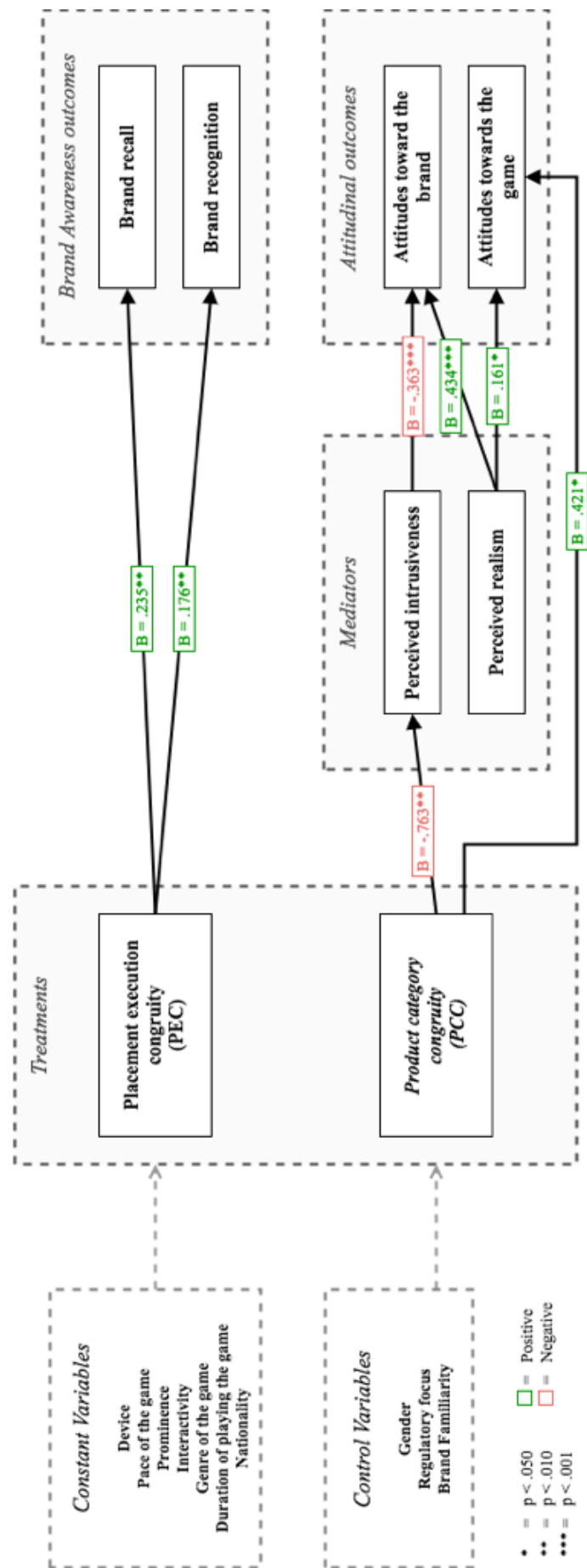


3

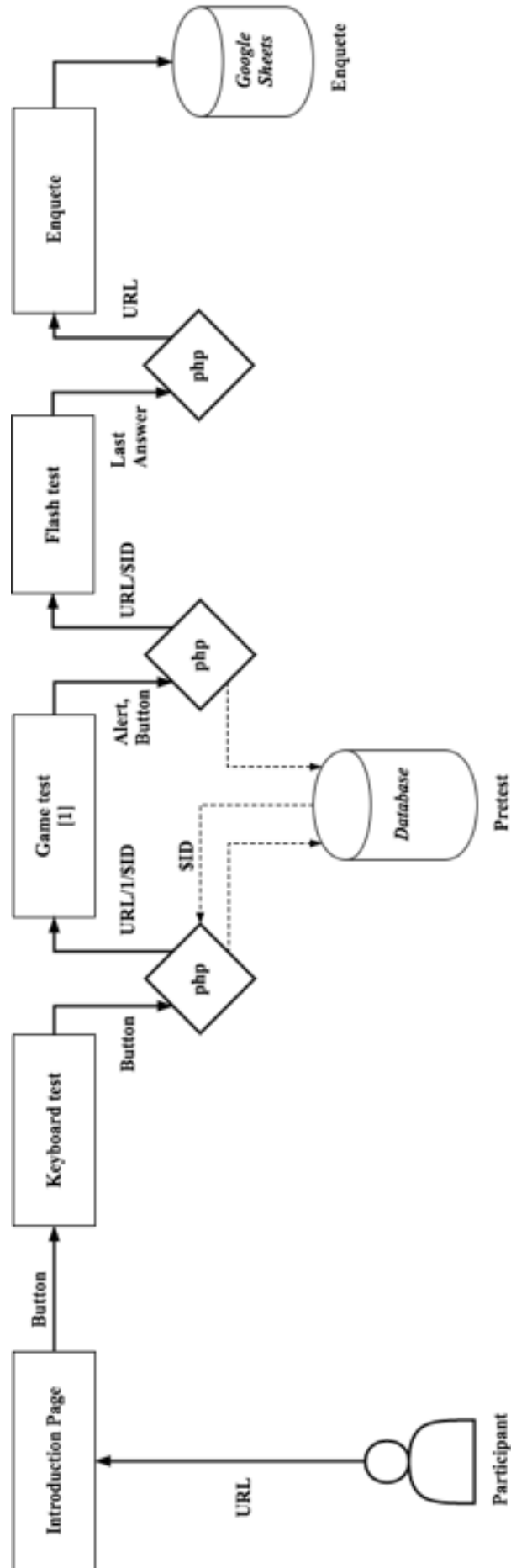


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Appendix 6 – Conceptual model with all significant effects



Appendix 7 – Process flow of the pretest platform



Appendix 8 – Process flow of the field experiment platform

