



Advergames and the effects of game-product congruity

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ABSTRACT

Electronic games transcend demographic boundaries and are a prevalent cultural phenomenon. Marketers see potential of this immersive venue as a way to reach a highly receptive audience with brand messages. Designing games around a brand – advergames – has become a common marketing practice. However, few empirical studies have tested the effectiveness of this communication strategy in delivering the brand message. This paper serves to fill some research gaps and explores the influence of game-product congruity on brand memory and attitudes toward the game. A product-congruent advergaming is compared to a product-incongruent advergaming using a stimulus brand for a low-involvement product category. The findings indicate that highly congruent games lead to superior memory for the sponsoring brand. However, benefits of these positive memory effects may be negated by the negative attitudes players have toward the highly thematic game for a low-involvement product. Implications are discussed.

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1. Introduction

Although once considered a hobby of teenage boys, gaming has become a major source of entertainment for a demographically diverse audience; over half of Americans in all age groups play video games (Deloitte, 2008; NPD Group, 2009). Kids and moms alike interact with Nintendo Wii, micro-manage their avatar in Second Life, and download online games through their mobile device or computer. Of course, the pervasiveness of gaming has attracted the attention of marketers. Gaming provides an interactive platform to communicate with target audiences in a manner unattainable through traditional media (AdWeek Media, 2009). Marketers have therefore tapped into the phenomena and are creating advergaming hoping target audiences will find value in the entertaining message and choose to interact with the brand.

Advergaming are a specific type of online game where the brand itself is embedded in game-play. Product placements appeared in video games as early as the 1980s (Entertainment Software Association [ESA], 2009). But advergaming are an evolved form of product placement where the game is designed around the brand, rather than the brand placed in the game. Advergaming and in-game advertising (IGA) present distinctly different environments, and may not be equivalent in effectiveness (Winkler & Buckner, 2006), though research is still in its infancy.

Continued investment in gaming strategies underscores the importance of research. According to a recent eMarketer report, IGA spending is expected to reach \$650 million by 2012, with

\$350 million specifically invested in advergaming (Campanelli, 2008). However, these games are still far from a proven communication strategy (Fattah & Paul, 2002). This paper contributes to recent work (Peters, Leshner, Bolls, & Wise, 2009) by examining how congruity between the brand and content of the game impacts implicit and explicit memory for the sponsoring brand and attitude toward the game. In addition, this research can spark interest for future research to include product involvement as a moderator variable.

2. Literature review

2.1. Advergaming versus in-game advertising

As suggested by Winkler and Buckner (2006), we can differentiate advergaming from other forms of in-game advertising. With IGA, marketers buy product placement space within an existing game. Multiple brands are present and usually static in the background of the main action (e.g. buying a billboard in a car-racing game) similar to product placement in TV shows or movies (Yang, Roskos-Ewoldsen, Dinu, & Arpan, 2006). On the other hand, advergaming are custom-online games designed specifically for a brand (AdWeek Media, 2009). The brand is often central to game-play and the game is the brand message (Chen & Ringel, 2001). Advergaming are placed on the brand website as part of a larger marketing strategy and are free to play. The conceptual distinction is clear. Cognitive resources needed to play advergaming versus IGA are also likely different such that some IGA games require high levels of involvement (Grigorovici & Constantin, 2004) and attention to play (Lee & Faber, 2007) compared to most advergaming (Winkler &

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Buckner, 2006). This can have important implications on information processing which we will further address.

2.2. Game-product congruity

One production feature likely to influence the success of advergames is the relevance of the game to the brand (Wise, Bolls, Kim, Venkataraman, & Meyer, 2008). For example, the content of some advergames appears to not fit well with the advertised product (Ford bowling) while others integrate the product with content that reinforces brand propositions, or conveys experiences about the product (Ford street racing). Lee and Faber (2007) coin this relationship as game-product congruity and define it as “the extent to which the product category of the embedded brand is related to the content of the game” (p. 79). They further explicated different dimensions of congruity.

This present study therefore considers Lee and Faber's (2007) four-dimensional view of congruity: functional, lifestyle, image, and advertising (p. 79). Respectively, it is assessed as the extent to which (1) the brand is perceived to be a central object used in the content of the game (2) the lifestyle associated with the content of the game matches the lifestyle associated with the product or brand (3) the brand image is perceived to contribute to the theme of the game and (4) the product category of the brand seems appropriate to be associated with the theme of the game. Congruity directly affects consumers' processing of information and has implications for memory (Lee & Faber, 2007; Peters et al., 2009) and attitudes (Wise et al., 2008).

2.3. The effects of brand placements on memory

When consumers play games, do they even pay attention to, or remember the brands advertised, or are they just focusing on game-play? Increased brand recognition and awareness is one of the goals of product placement in games (ESA, 2009). Paying attention to or noticing the embedded brands serves as a prerequisite to any positive communication effects that could result.

Most IGA research gauges awareness of the brand using explicit memory measures (Chaney, Lin, & Chaney, 2004; Lee & Faber, 2007; Mackay, Ewing, Newton, & Windisch, 2009; Nelson, 2002). Explicit memory requires conscious recollection of recently presented information, and is measured by tests such as recall and recognition (Shapiro & Krishnan, 2001). For example, in an exploratory study Nelson (2002) tested immediate and delayed free recall of branded billboards in a car-racing game. Results showed gamers can recall about 25–30% of all the brands in the game immediately after game-play and 10–15% after a five-month delay. Another study found that participants in a first-person shooter game remembered seeing billboards in the game, but half could not recall any specific products or brands advertised (Chaney et al., 2004).

Other researchers argue explicit memory measures undervalue effectiveness of game advertising. Instead, implicit memory may better gauge the influence of brand placements by detecting non-conscious memory that occurs when people are not fully attending to the ad (Peters et al., 2009; Yang et al., 2006). Using a word-fragment completion task Yang et al. (2006) found participants show higher levels of implicit memory for brands than explicit memory (recognition). Findings suggest both explicit and implicit memory need to be assessed.

A variety of individual-level variables may facilitate and/or inhibit memory effects including brand familiarity and relevance (Nelson, 2002), pre-existing brand attitudes (Mackay et al., 2009), game arousal and immersion (Grigorovici & Constantin, 2004), prior game-playing experience, product placement proximity, and congruity (Lee & Faber, 2007), among others. An underlying concern

is if game players possess the cognitive resources necessary to attend to brands embedded in a fast-paced game (Grigorovici & Constantin, 2004; Lee & Faber, 2007). These researchers found that active engagement and immersion in game-play requires high levels of involvement and negatively influences explicit brand memory. Though, concerns over limited processing capacity may diminish in the context of advergames. Indeed, research by Winkler and Buckner (2006) reveals overall high levels of brand recall for advergames compared to IGA.

2.4. Unraveling the impact of congruity on memory

As mentioned, congruity may be one important production feature that impacts the effectiveness of advergames. Literature examining the effects of congruity on memory produces two conflicting viewpoints. Some researchers argue that placing advertisements in a congruent context facilitates processing by readily conforming to existing brand expectations, or brand schemas (Moorman, Neijens, & Smit, 2002; Shamdasani, Stanaland, & Tan, 2001). A schema is a complex stored framework of cognitive knowledge that holds information about a concept, including its attributes and relations among attributes (Fiske & Taylor, 1991). These researchers claim congruent information is better remembered than incongruent because people can easily assimilate the information into the schema.

Other researchers contend that when incongruent information is novel and prominent it captures greater attention during the encoding process and leads to superior recall. Lee and Faber (2007) found support for this viewpoint and provide the most comprehensive study to date on the impact of congruity between brands and game content on memory. They test nine different brands embedded in a car-racing game and find that highly incongruent brands are better recalled (pet food brands) than highly congruent brands (gasoline). Although Nelson (2002) did not test for congruity effects, she discovered novel brands (those not typically advertised in games) fared best in short term and long-term recall. Overall, participants attend to and more deeply process brands that seem novel and do not to match the surrounding context.

Evidence suggests that congruent brands may be less easily recalled in the context of console games and other media, but the aforementioned IGA literature examines player's memory for advertisements that are merely static in the background of the action. In contrast, a majority (71%) of advergames integrates the product as a major part of game-play (Lee & Youn, 2008). Notably, Lee and Faber (2007) examine differences in placement proximity (focal or peripheral to game action). They do find that focal placement leads to better brand recall than peripheral placement, but the ads are still nonetheless background stimuli. What happens when brand information is the main action of the game, as with advergames with high game-product congruity? Based on these findings, it is reasonable to posit that actively interacting with the brand or product during game-play will lead to higher explicit memory for the ad than if it was only presented in the static background of the main action.

Initial research suggests advergames may lead to superior memory effects compared to in-game advertising (Winkler & Buckner, 2006). Advergame characteristics facilitate this effect; for example, most feature one brand and are simple and straightforward to play. Gamers may not become as engrossed in-game-play, affording sufficient mental capacity to elaborate cognitively on the game and the brand. Games that strengthen this pairing (high congruity) should result in superior memory effects though the association and activation of related schemas.

Anderson's (1983) spreading activation theory of human memory helps explain how this knowledge is represented and pro-

cessed in memory. Information is represented in terms of nodes (also thought of as schemas) and associated pathways between nodes. Stimuli in the game activate the brand node, and that activation spreads to surrounding nodes through links that are most strongly related to it. If links between nodes are not well used (e.g. associating Marbles with Oreo cookies) consumers find it more difficult to remember the pairing. If links connecting the nodes are frequently used (e.g. Oreo cookies and milk), association with and activation of the nodes becomes easier. Advergame features which increase the mental connection between game content and the sponsoring brand (maintain high congruity) should increase associative priming, or facilitation in access to information when associated items are presented (Anderson, 1995). Thus, the thematically congruent game will better activate the brand node and semantically associated information, and be easily encoded and retrieved from memory.

H1. The advergame with high game-product congruity will result in higher implicit memory relative to the advergame with low game-product congruity.

H2. The advergame with high game-product congruity will result in higher explicit memory relative to the advergame with low game-product congruity.

2.5. Role of prior game-playing experience

Prior game-playing experience may moderate the effectiveness of advertising on brand memory, especially with high-involvement games that require great attention to play (Lee & Faber, 2007; Schneider & Cornwell, 2005). For instance, Schneider and Cornwell (2005) found inexperienced players show low levels of brand memory compared to experienced players when playing a car-racing game. Yet, recent advergame research suggests prior game-playing experience does not moderate the relationship of congruity on memory (Peters et al., 2009).

RQ 1: Does game experience affect memory for advergames?

2.6. Influence of congruity on attitudes

Another important indicator of effectiveness is gamers' attitudes toward product placements in games. Attitude toward the game is important to consider since research shows these attitudes can transfer to the brand (Wise et al., 2008). A main objective of advertising is to persuade, and it is important to explore if and how game advertising generates positive attitudes. Nelson (2002) and later Nelson, Keum, and Yaros (2004) found gamers report fairly positive attitudes toward in-game advertising, and some believe ads enhance game realism. Though, gamers were not satisfied with all brand placements, especially those that interrupted gameplay. Game genre is also an important factor. In a survey of college students ($N = 437$), sports (71.2%) and racing (70.6%) games were reported as the most appropriate genres for game-product placements, and puzzles (45.8%) as inappropriate (Sung & De Gregorio, 2008). Though in a content analysis of advergames Lee and Youn (2008) revealed arcade (29%) and puzzle (25%) were the most prevalent genres.

Research indicates response to advertising appeals also varies as a function of the type of product promoted. For example, it is generally supported that product involvement varies across products such that cookies are low-involvement products while cars are high-involvement (Zaichkowsky, 1985). With high-involvement products, consumers give careful thought to brand attributes and critically evaluate whether the product meets their needs.

Low-involvement products require less thought and elaboration; the purchase is unimportant and the risks are minimal. Most academic research uses high-involvement products as stimulus ads. For example Wise et al. (2008) used Orbit, a travel company, as a stimulus brand. What are the effects if the brand is a low-involvement purchase product?

To better understand the conditions under which congruity will elicit positive attitudes, we turn to the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1984, 1986). This cognitive model posits that persuasion can occur via two routes – central and peripheral. When a consumer is motivated and able to process a message (high-involvement), attitude is influenced by the argument quality of the ad; when motivation or ability to process is reduced (low-involvement), attitude is influenced by peripheral cues in the ad (e.g. pleasing graphics, music).

According to the ELM, consumers' attitudes toward a low-involvement product will be mainly influenced by peripheral cues; making the game fun and enjoyable will be more important than matching the game content with the brand. If the game and brand are closely integrated for a low-involvement product, consumers may only perceive the game as an ad. According to Friestad and Wright's Persuasion Knowledge Model (1994), when consumers recognize a message as a persuasive communication attempt they engage in mental counter-arguing to resist persuasion. Becoming aware of a deliberate brand placement (selling attempt) negatively affects attitudes (Van Reijmersdal, 2009). Lee and Youn (2008) proposed product involvement is an important factor for advergame effectiveness but no empirical research to date explicitly considers this variable. Thus, considering a low-involvement product:

H3. The advergame with high game-product congruity will result in lower game attitude ratings relative to the game with low game-product congruity.

3. Methodology

3.1. Participants and setting

Undergraduate students from the University of Minnesota were recruited to participate in an online gaming study held in computer labs on campus. The sampling frame excluded students declared as advertising and marketing-related majors. This strategy reduced concerns of a bias sample but introduced additional constraints in recruiting.

Students in a freshman seminar class were first invited to participate. Sixteen participants from the class completed the study and were compensated with extra credit. Next, students from an introductory statistics class were invited to participate. While these students were not motivated by extra credit, 15 students nonetheless volunteered. Lastly, 16 students living in an on-campus dorm were recruited with the incentive of pizza. Overall, 47 students participated. All respondents are between the ages of 18–21, with a mean age of 19 years ($SD = 1$). Males ($n = 23$) and females ($n = 24$) are equally represented.

3.2. Materials

Two Oreo cookie advergames were selected for the current research; (1) *Race for the Stuff* (Fig. 1), and (2) *Marble Shooter* (Fig. 2). The former represents high game-product congruity, while the latter low game-product congruity. Both games were professionally designed by Skyworks Interactive – the self-proclaimed pioneers of the advergaming concept. While an Oreo advergame may appear childish, a Quantcast ratings report (2009) confirmed the appropriateness; over 80% of website visitors are 18 years or



Fig. 1. Race for the Stuff.

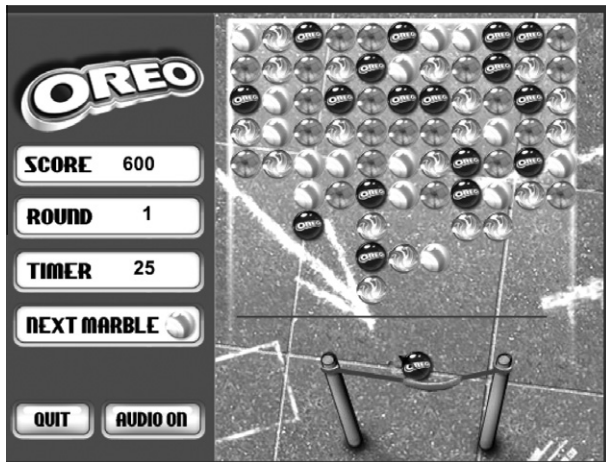


Fig. 2. Marble Shooter.

older. Also, cookies are an appropriate product because (1) it is a low-involvement product (2) the food produce category comprises a majority (52%) of all products promoted in advergaming (Lee & Youn, 2008).

A pretest with 12 undergraduate students further confirmed the appropriate selection of stimuli. Students played both stimulus games one time. They assessed each game along four dimensions of congruity using 7-point semantic-differential scales: the extent to which (1) the brand is perceived to be a central object used in the content of the game (2) the lifestyle associated with the content of the game matches the lifestyle associated with the product or brand (3) the brand image is perceived to contribute to the theme of the game and (4) the product category of the brand seems appropriate to be associated with the theme of the game. The scales were collapsed to form a mean congruity index (Cronbach $\alpha = .749$). This pretest confirmed that *Race for the Stuff* (high congruity, $M = 6.0$, $SD = .46$) and *Marble Shooter* (low congruity, $M = 1.56$, $SD = .37$) are significantly different $F(1, 23) = 684.35$, $p < .001$.

3.2.1. High congruent: Race for the Stuff

In this action game, the player competes against three other opponents to collect as many verb icons – twist, lick, dunk – scattered throughout the playing field. Upon collecting the icons, players deposit them in the giant Oreo cookie in the center of the field.

The object of the game is to collect and deposit more twist, lick, or dunk icons than opponents. Throughout the game, an Oreo mascot cheers on players from the sidelines (Fig. 1).

3.2.2. Low congruent: Marble Shooter

A playground serves as the backdrop of this strategy game. The game objective is to eliminate marbles before they reach the red line by shooting marbles with their matching components. It may best be described as a reincarnation of Tetris (Fig. 2).

3.3. Procedures

Upon arrival to the computer lab, participants were given a packet and asked to take a seat at an open PC computer, which randomly assigned them to one of two treatment groups. The packet informed them of their rights and gave instructions on tasks to be performed. After indicating consent to participate, they oriented themselves to the computer and read the game instructions. To maintain consistency in exposure, participants were instructed to play the game only one time (about 3–5 min). After game-play, participants closed the navigator window. They completed a questionnaire regarding their attitude toward the game and prior game-playing experience. Next, in the word-fragment completion task, participants were instructed to fill in the missing letters to form a word. No other instructions were given. Finally, participants completed a number of demographic indicators and provided their email address for a subsequent questionnaire sent 7 days after initial testing.

4. Measures

4.1. Brand memory

Implicit memory was measured using a word-fragment completion task; this is a common method used to assess priming and perceptual processing of information (Rajaram & Roediger, 1993). Word fragments were constructed by randomly deleting 40–50% of the letters in the words. Most fragments had only one solution, though some had two. Participants were asked to complete the word puzzles with the first solution that comes to mind (e.g. O_ _O; solution: “Oreo”). Chosen words included: *Oreo*, *Nabisco*, *dunk*, *twist*, *lick*, and *milk*. *Oreo* and *Nabisco* were present in both stimulus games and will serve as the primary comparison of memory effects. *Dunk*, *twist*, and *lick* were present during game-play in the congruent game but not in the incongruent game. *Milk* was not

present in either game. This additional word-fragment measured if congruity facilitated spread of activation of brand cognitions, also known as associative priming where the brand prime (*Oreo*) is semantically related to a non-presented test word (*milk*).

To measure more long-term memory, participants were sent an email with a link to a questionnaire 7 days after initial testing. First, free recall was assessed by asking: “what brand do you remember sponsoring the game?” To examine the extent of memory trace using recognition-based measures, participants were then asked to correctly select the product category of the sponsored brand from a list of products (*soda, candy, cookies, and chips*). This strategy was implemented due in part to findings from Nelson (2002) and Winkler and Buckner (2006) where participants could better remember the general category of products advertised rather than the actual brands. Next, participants identified the sponsoring brand out of a list of other cookie brands (*Chips Ahoy, Keebler Fudge Shoppe, and Nutty Bar*) and company from a list of cookie companies (*Keebler, Pepperidge Farm, Nabisco, and Little Debbie*).

4.2. Attitude toward the game

Attitude toward the game was measured immediately after game-play. Past research shows attitude toward a game influences brand attitudes (Wise et al., 2008). To measure enjoyment evoked by playing the game, a standard set of measures were employed that have been proven reliable and valid by past research (Yoon, Bolls, & Lang, 1998). Six sets of bipolar adjectives were placed on 7-point semantic-differential scales and collapsed to form a mean index: appealing/unappealing, pleasant/unpleasant, dynamic/dull, attractive/unattractive, enjoyable/not enjoyable, and refreshing/depressing (Cronbach $\alpha = .84$).

4.3. Individual-level factors

Prior game-playing experience was operationalized as any experience with online, computer- or console-based video games. Participants were asked, on average, how often they engaged in gaming activities. The response set included “at least every day,” “about every other day,” “about once a week,” “about once a month” and “rarely or never.”

5. Results

5.1. Implicit memory

H1 proposes that high game-product congruity will result in higher implicit memory than low game-product congruity. Considering all the word-fragments, the high-congruent group correctly completed more ($M = 5.13, SD = 1.2$) than the low-congruent group ($M = 2.50, SD = 1.3$), and the difference is statistically significant ($t(45) = 7.25, p < .01$). Though, this was expected due to uneven words exposure between the two games.

Both conditions were fairly equally exposed to the words *Oreo* and *Nabisco* during game-play. For the low-congruent game, 87% of participants correctly identified *Oreo*, and 74% correctly identified *Nabisco*. The high-congruent group appears superior, as an astonishing 100% correctly filled in both *Oreo* and *Nabisco* word-fragments. Memory differences are not significant for *Oreo* ($\chi^2(1, N = 47) = 3.344, p = .067$), but they are for *Nabisco* ($\chi^2(1, N = 47) = 7.17, p < .05$).

Next, the word-fragment for the associative prime *milk* was investigated; neither condition saw the word during the research study. This additional word-fragment sought to measure if congruity facilitated spread of activation. *Oreo* brand message strategies

prominently involve associations of milk. If participants readily access the *Oreo* schema in memory, the priming of *Oreo* should activate the *Oreo* node and spread to the associated milk node. Results indicate a statistically significant difference of implicit memory for milk between conditions ($\chi^2(1, N = 47) = 13.290, p < .001$). In total, the high-congruent group correctly accessed the milk association in memory (79%) more than the low-congruent (26%) (Fig. 3).

Thus, H1 is supported. Results indicate high-congruent games result in superior implicit memory effects and reinforce brand attributes through mechanisms of priming and activating related brand schema in gamers' associated memory network.

5.2. Explicit memory

H2 proposed high game-product congruity will result in higher explicit memory relative to low game-product congruity. Both recognition and recall were measured 1 week after initial game-play. A total of 42 respondents (out of 47) completed the follow-up memory assessment. Participants in both conditions vividly remembered game features. When asked what they recalled about the game most respondents reported very fine details, including the number of different colored balls, and the verbs *twist, lick, and dunk*.

Next, free recall was assessed. When asked what brand sponsored the game, 47% of participants unexpectedly reported Nabisco (while 53% reported *Oreo*). The sought-after response was *Oreo*; however Nabisco cannot technically be considered wrong – the Company did sponsor the game.

All (100%) participants who played the high-congruent game correctly identified cookies as the product category and *Oreo* as the sponsoring brand, while most (95%) identified Nabisco as the sponsoring company. For the low-congruent, most (95%) participants correctly identified cookies as the product category, and Nabisco as the sponsoring company (95%); yet fewer (80%) identified *Oreo* as the sponsoring brand. Results show there is a statistically significant difference between game-product congruity and brand recognition of *Oreo* ($\chi^2(1, N = 47) = 4.683, p < .05$). Thus, H2 is supported; high game-product congruity resulted in higher explicit brand memory relative to the advergame with low game-product congruity.

RQ1 further inquired if game experience influenced memory for advergames. An independent-samples *t*-test revealed no signifi-

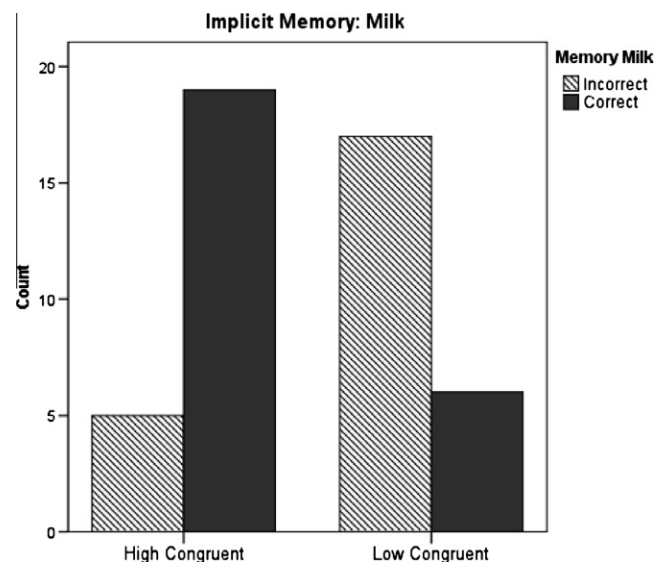


Fig. 3. Implicit memory.

cant difference in memory for experienced ($M = 3.6$) versus inexperienced ($M = 3.9$) gamers ($t(45) = .592, p < .05$). This supports previous research that advergaming may not require high-involvement to play since prior game experience does not appear to influence memory measures (Peters et al., 2009; Winkler & Buckner, 2006).

5.3. Attitude toward the game

H3 posited high game-product congruity will result in lower game attitude ratings than low game-product congruity for low-involvement product advergaming. The mean attitudes toward advergaming with high ($M = 3.85, SD = 1.0$) versus low ($M = 4.46, SD = .99$) product congruity differed significantly ($t(45) = 2.04, p = .047$). Thus, H3 is confirmed. Overall, participants appeared to like the incongruent game more than the congruent game.

6. Discussion

This study explored the effects of game-product congruity on brand memory and game attitudes for a low-involvement product. Overall the results indicate advergaming is an effective vehicle for driving brand awareness. Both treatment conditions show superior memory effects compared to explicit memory levels reported in IGA research. Through recognition tests, a majority (91%) of all participants (irrespective of condition) remembered that Oreo sponsored the game 1 week after game-play. Even low game-product congruity advergaming leaves a lasting impression on gamers. Notwithstanding, there may be an advantage in closely associating the content of the advergaming and brand. Results of H2 demonstrated that advergaming with high game-product congruity led to superior explicit memory relative to low game-product congruity. Though, closely associating the brand and game also comes with a cost: results of H3 indicated that participants had more negative attitudes toward the congruent game compared to the incongruent.

Implicit memory measures also revealed significant differences between the two conditions. Results of H1 demonstrated the activation of related brand associations as a function of priming. The congruent game effectively activated the Oreo node in memory and the stimuli – *twist*, *lick*, and *dunk* – primed related brand thoughts, including the association of milk. This conditioning and priming led to increased remembrance for the sponsoring brand. As hypothesized, the incongruent game resulted in lower implicit priming effects; a majority of participants were aware that Oreo and Nabisco sponsored the game, but the game itself did not prime or effectively activate the brand schemas. This is evident by comparing the extent to which each condition completed the word-stem *milk* (73% versus 30%). Overall, congruent games may be best suited for reinforcing, or perhaps establishing brand associations.

The findings also indicate that prior game-playing experience is not related to advergaming brand memory. Both experienced and novice gamers show equivalent brand memory, which is in line with previous advergaming research (Peters et al., 2009; Winkler & Buckner, 2006) and may indicate advergaming does not require high levels of involvement. Though involvement was not specifically measured in this research, and suggests an area for further inquiry.

There is a distinct difference in attitude toward the two stimulus games. As hypothesized, high game-product congruity for a low-involvement product leads consumers to negatively evaluate the game. Nelson (2002) discovered participants are most receptive to advertising in-games if the brand is passively located in the background. In *Race for the Stuff*, the brand is an active and central part of the game; participants readily enacted their cognitive defenses and responded critically when evaluating the game because it was perceived as an ad for Oreo. Comments from partici-

pants explaining game objectives help solidify this attitude: “You would run around collecting statements about how awesome Oreos are.” Consumers acknowledge Oreo is attempting to persuade. This may have led them to dislike the game, but they elaborated cognitively on Oreo and its associations in memory.

Similarly, participants in the low-congruent condition may have enjoyed playing *Marble Shooter* because the brand was passive in their game experience and not central to game-play. Notably, game familiarity may also account for higher game ratings. When asked to describe the game, participants often referred to it as “similar to Tetris.” The comfort of knowing how to play the game may also account for the higher game attitude scores with the low-congruent condition.

Overall, the research findings do present an interesting dilemma. While congruent games for low-involvement brands may result in superior memory effects, marketers may run the risk of not providing entertaining value to the players. Consumers are very quick to notice when an ad is trying to persuade. On the flip-side, consumers may enjoy playing incongruent games for low-involvement products, but have inferior memory for the brand that sponsored the game. It appears game-product congruity is a delicate balancing act concerning attitudes and memory.

7. Limitations and future research

Although the results provide intriguing findings, several limitations and caveats do warrant discussion. Foremost, the composition and size of the research sample reduce generalizability. Strides taken to ensure adequate sample size led to three separate recruiting strategies and nonetheless only resulted in 47 volunteers. Also, while college students are a primary target market, they are not representative of all online gamers. Future research could pursue self-reported advergaming players online, but researchers using this strategy have also reported sample selection issues (Wise et al., 2008).

This study explored new territory by considering the effects of product involvement on game-product congruity. Though only a low-involvement product is tested, and more research is needed to confirm and expand the present study's findings. These tentative results are therefore presented with caveats with hopes to spark interest, and consideration for future research to examine product involvement as a moderator variable.

Some might argue the results of the study cannot be generalized to other advergaming. This is a plausible concern that exists with most game advertising research. Every game presents a distinctly different environment in terms of game pace and other features. Strides were taken, however, to select stimuli that were similar to other advergaming commonly used by marketers. Nonetheless, this limitation points for the need of future researchers to consider how other game features may impact attitude and memory.

Limitations also exist with respect to the results reflected through memory measures. First, while participants were sent a follow-up email 7 days after game-play, an uncontrollable (though anticipated) delay in response occurred: about 69% took the memory test 7 days, 25% took it 8–9 days, and the remaining 6% of participants completed it between 10 and 15 days after initial game-play. Despite this, research should continue to investigate the potential long-term effects of advergaming exposure.

Antecedents of ad attitude should also be measured. For example, consumers who are negative about advertising in general also tend to be negative about advertising in-games (Nelson et al., 2004). It will be valuable to investigate if audiences who dislike advertising in general will have more negative attitudes toward congruent games that reinforce brand propositions in a not-so-sneaky manner. The use of semantic-differential scales in the pres-

ent study hinders the ability to contribute the results of negative/positive game attitudes toward any one specific variable. Researchers should consider including more open-ended response methods to probe *why* players liked/disliked the games to confirm the ratings are attributed to congruity rather than other game features, including game pace and other uncontrollable variables that may confound the results. Overall, there is much research that needs to occur before advergames can be considered a proven marketing strategy.

8. Conclusion

This paper explored the influence of game-product congruity on brand memory and attitudes toward the game using a stimulus brand for a low-involvement product category. The findings indicate that thematically congruent advergames result in stronger memory relative to thematically incongruent games. Overall, advergames appear to be an appropriate vehicle for establishing brand awareness. However, advertisers must be cautious in designing the content of advergames, and ensure the type of game is suitable for their target audience. This research discovered that players tend to dislike games where the low-involvement product is reinforcing brand propositions by maintaining high game-product congruity.

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References

- AdWeek Media (2009). Game on! The action-packed world of videogame advertising. Custom report for Adweek, Brandweek, and Mediaweek. Retrieved Dec. 10, 2009 from <<http://www.adweek.com/aw/photos/stylus/43082-1020VideoGames-lo-res.pdf>>.
- Anderson, J. R. (1983). A spreading activation theory of memory. *Journal of Verbal Learning and Verbal Behavior*, 22(3), 261–295.
- Anderson, J. R. (1995). *Learning and memory*. New York: Wiley.
- Campanelli, M. (2008). eMarketer: In-game advertising spending expected to reach \$650 million in 2012. Retrieved February 14, 2010 from <<http://www.emarketingandcommerce.com>>.
- Chaney, I. M., Lin, K. H., & Chaney, J. (2004). The effect of billboards within the gaming environment. *Journal of Interactive Advertising*, 5(1), 37–45.
- Chen, J., & Ringel, M. (2001). Can advergaming be the future of interactive advertising? Retrieved February 22, 2009 from <<http://www.kpe.com>>.
- Deloitte (2008). Get in the game: Using advertising to reach and keep the diverse audience of gamers. Retrieved February 15, 2010 from <[http://www.deloitte.com/assets/Dcom-Canada/Local%20Assets/Documents/us_tmt_Get_in_the_Game_071108\(1\).pdf](http://www.deloitte.com/assets/Dcom-Canada/Local%20Assets/Documents/us_tmt_Get_in_the_Game_071108(1).pdf)>.
- Entertainment Software Association (2009). Essential facts about the computer and video game industry: 2009 sales demographic and usage data. Retrieved December 10, 2009 from <http://www.theesa.com/facts/pdfs/ESA_EF_2009.pdf>.
- Fattah, H., & Paul, P. (2002). Gaming gets serious. *American Demographics*, 24(5), 38–44.
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2nd ed.). New York: McGraw Hill.
- Friestad, M., & Wright, P. (1994). The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research*, 21(1), 1–31.
- Grigorovici, D. M., & Constantin, C. D. (2004). Experiencing interactive advertising beyond rich media: Impacts of ad type and presence on brand effectiveness in 3D gaming immersive virtual environments. *Journal of Interactive Advertising*, 5(1), 31–53.
- Lee, M., & Faber, R. J. (2007). Effects of product placement in on-line games on brand memory: A perspective of the limited-capacity model of attention. *Journal of Advertising*, 36(4), 75–90.
- Lee, M., & Youn, S. (2008). Leading national advertisers' use of advergames. *Journal of Current Issues and Research in Advertising*, 30(2), 1–13.
- Mackay, T., Ewing, M., Newton, F., & Windisch, L. (2009). The effect of product placement in computer games on brand attitude and recall. *International Journal of Advertising*, 28(3), 423–438.
- Moorman, M., Neijens, P. C., & Smit, E. G. (2002). The effects of magazine-induced psychological responses and thematic congruence on memory and attitude toward the ad in a real-life setting. *Journal of Advertising*, 31(4), 27–40.
- Nelson, M. R. (2002). Recall of brand placements in computer/video games. *Journal of Advertising Research*, 42(2), 80–92.
- Nelson, M. R., Keum, H., & Yaros, R. A. (2004). Advertainment or adcreep: Game players' attitudes toward advertising and product placements in computer games. *Journal of Interactive Advertising*, 5(1), 3–21.
- NPD Group (2009). More Americans play video games than go out to the movies. Retrieved February 12, 2010 from <http://www.npd.com/press/releases/press_090520.html>.
- Peters, S., Leshner, G., Bolls, P., & Wise, K. (2009). The effects of advergames on game players' processing of embedded brands. In *Conference papers – international communication Association*.
- Petty, R. E., & Cacioppo, J. T. (1984). The elaboration likelihood model of persuasion. *Advances in Consumer Research*, 11, 673–675.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag.
- Quantcast (2009). Nabiscoworld.com audience profile. Retrieved March 22, 2009 from <<http://www.quantcast.com/nabiscoworld.com>>.
- Rajaram, S., & Roediger, H. L. (1993). Direct comparison of four implicit memory tests. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19, 765–776.
- Van Reijmersdal, E. (2009). Brand placement prominence: Good for memory! Bad for attitudes? *Journal of Advertising Research*, 49(2), 151–153.
- Schneider, L. P., & Cornwell, T. B. (2005). Cashing in on crashes via brand placement in computer games: The effects of experience and flow on memory. *International Journal of Advertising*, 24(3), 321–343.
- Shamdasani, P. N., Stanaland, A. J. S., & Tan, J. (2001). Location, location, location: Insights for advertising placement on the web. *Journal of Advertising Research*, 41(4), 7–21.
- Shapiro, S., & Krishnan, S. (2001). Memory-based measures for assessing advertising effects: A comparison of explicit and implicit memory effects. *Journal of Advertising*, 30(1), 1–14.
- Sung, Y., & De Gregorio, F. (2008). New brand worlds: College student consumer attitudes toward brand placement in films, television shows, songs, and video games. *Journal of Promotion Management*, 14, 85–101.
- Winkler, T., & Buckner, K. (2006). Receptiveness of gamers to embedded brand messages in advergames: Attitude toward product placement. *Journal of Interactive Advertising*, 7(1), 37–46.
- Wise, K., Bolls, P., Kim, H., Venkataraman, A., & Meyer, R. (2008). Enjoyment of advergames and brand attitudes: The impact of thematic relevance. *Journal of Interactive Advertising*, 9(1), 27–36.
- Yang, M., Roskos-Ewoldsen, D. R., Dinu, L., & Arpan, L. M. (2006). The effectiveness of “In-Game” advertising: Comparing college student's explicit and implicit memory for brand names. *Journal of Advertising*, 35(4), 143–152.
- Yoon, K., Bolls, P. D., & Lang, A. (1998). The effects of arousal on liking and believability of commercials. *Journal of Marketing Communications*, 4(2), 101–114.
- Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, 12(3), 341–352.