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Evaluating Game-Brand Congruity and Flow on Brand Personality by Using Gamifying Learning

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ABSTRACT
This study investigated the effects of game-brand congruity and flow in racing advergames to explore the influence of embedded brands. Data from a pre- and post-test experiment were collected from total 200 of college students. They played the racing advergames between two measures. The results revealed that game-brand congruity and flow impacted brand personality in games. The embedded brands that were congruent with the content of the game negatively influenced brand personality, whereas the embedded brands that were incongruent with the content of the game positively influenced brand personality. Gamers who exhibited high flow in the advergame gave positive feedback on brand personality; gamers who exhibited low flow in the advergame gave negative feedback on brand personality.
Keywords: brand personality, flow, game-brand congruity, game-based learning

INTRODUCTION

Gamers of video games may absorb and convey tremendous numbers of potential brand messages, leading to a stronger relationship between game attitudes and brand messages. For example, gamers may remember brands in racing games because these games often involve car crashes into brand billboards or brand banners across players' cars (Schneider and Cornwell, 2005). The strategy of advergame (also known as brand placements *in a game*) has been widely adopted to deliver brand messages to gamers in the game industry because gamers commonly engage in anthropomorphic reasoning about brands (Wise, Bolls, Kim, Venkataraman, and Meyer, 2008). This Output in advergames is large enough to be noticed in the current world economic system.

Many scholars have explored how advergames affect gamers' brand attitudes, brand recognition, and brand recall (Cauberghe & Pelsmacker, 2010; Hernandez & Chapa, 2010; Schneider and Cornwell, 2005). Advergames elicit more positive attitudes on the part of

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State of the literature

- The embedded brands that were congruent with the content of the game negatively influenced gamers' perception of brand personality, whereas the incongruently embedded brands positively influenced.
- Gamers who exhibited low flow in the advergame gave negative feedback on brand personality, by contrast, gamers who exhibited high flow gave positive feedback.
- As performing increasingly worse while playing the game, gamers may shift their negative emotions to the congruently embedded brand; consequently, those with low flow may perceive a negative impact on brand personality in advergames.

Contribution of this paper to the literature

- By testing and controlling degrees of flow and game-product congruity, one may see how they influence the effectiveness of gamifying learning on brand personality.
- Conducting the research for an international comparison can contribute to the growing literature of advergames in various international contexts and affect different parts of the world.
- The game companies can take this study's findings to be solid evidence to persuade advertisers and to obtain new financial sources; and advertisers can understand the benefits of their investment by placing their brands into games.

gamers toward the game and toward brands and hold more favorable behavioral intentions for brands (van Reijmersdal, Jansz, Peters, & Noort, 2010). Although a stronger positive relationship has been found between game attitudes and brand attitudes (Tran & Strutton, 2013; Wise, *et al*., 2008), the evaluation of advergames and brand information is still imprecise. A concept of brand personality can conveys systemic and accurate gamer information to explore the synthesized effects of advertisement based on the effects of other perspectives, (Aaker, 1997). To explicitly understand gamer behaviors, it is essential to investigate the effects of advergames on brand personality.

An effect of game-brand congruity is associated with the contexts of entertainment and brand placement. The automobile manufacturer BMW positions itself as sophisticated and exciting by linking the storylines and character of James Bond to the brand in the series of movies based on the character. Audiences' attitudes toward brand image are constructed by the congruity of delivered brand information; a cohesive brand image, which aligns congruity between brand information and their attitude, can be learned and remembered more brand information easily (Keller, 1993). Based on the idea of the brand image involved in the notion of brand personality (Aaker, 1996; Aaker, 1997), brand personality should also be used to establish perceptual congruity. Findings from previous studies of brand placement vary in congruity between the content of the medium and brands being promoted in the medium, for instance, a congruent brand placement in the plot of a television program has a positive influence toward brand attitudes (Russell, 2002). A positive relationship between gamers' attitudes toward an advergame and gamers' attitudes toward a brand will maintain congruity between video games and brands (Wise, *et al*., 2008). In contrast, embedded brands are best

placed in an incongruent video game setting (Lee & Faber, 2007). According to the above assertions, either congruent or incongruent brand placement in a medium may have a positive effect on brand personality transference. This study examined whether brand personality will shift as a result of playing advergames when brands are congruent or incongruent with the primary content of the video games.

Advergames provide an exclusive environment in which gamers pay full attention and thoroughly absorb information without interruption. Although gamers screen out distractions and concentrate when playing video games, a state of flow is induced. Flow is defined as a state of deep absorption in an activity wherein individuals can achieve intrinsically enjoyable conditions and lose self-awareness (Csikszentmihalyi, 1990). The concept of flow has been employed to explain the effects of video games. Flow is helpful to gamers, yielding access to their brand recall and brand recognition tasks, and influences the quality of brand memory. (Bhatnagar & Wan, 2011; Schneider & Cornwell, 2005). Thus, brand messages placed in games may incite brand personality for gamers when they flow. This study will explore the role of flow and its impact on brand personality and game-brand congruity in advergames and not solely whether gamers remember brands. Although these studies explore the impacts of flow on psychology and pathology, understanding the relationship between flow and brand personality in advergames is still a relatively nascent field.

The purpose of this research is to enhance the knowledge of advergames' effects on MacDonald and BMW personality. Specifically, the study will investigate the influences of advergames on brand personality, explore the influence of game–brand congruity on brand personality in advergames, and discuss the interaction between flow and game-brand congruity on MacDonald and BMW personality in advergames.

CONCEPTUAL BACKGROUND

Brand Personality and Advergames

Brand personality is based on the brand-as-person perspective, which is part of the field of brand equity (Aaker, 1996). By conveying the symbolic meaning of the brand to individual, they have a meaning that represents an ideal (Sung and Kim, 2010). This symbolic meaning provides individual with an opportunity to publicly express their identity and type of lifestyle. Coca-Cola fans perceive themselves as more real and honest, Pepsi fans think of themselves as younger, and Dr. Pepper fans perceive themselves as more nonconformist and fan (Aaker, 1997). The strategy of brand personality can influence personal perceptions more than other positioning strategies because brand personality provides differentiation, particularly in categories in which brands have reached functional parity and/or when symbolic consumption motivations affect market behavior (Burke, 1994).

Game-based learning is an effective strategy to acquire knowledge (Chung & Hsaio, 2015). Advergames can provide a good learning process for gamers to develop the portrayal of the brand in their imagination. Approximately 30% of racing gamers can name brands

immediately after the game, and national brands (e.g., Exxon, Pepsi, and Mobil) have higher levels of recall compared with local brands (e.g., UW-Madison, Mad-Dog, and Music Online) (Nelson, 2002). Racing-car gamer's exhibit increased rugged attitudes toward the brand personality because these gamers drive avatar cars in dirt-road environments, evoking the gamers to perceive the trait of being rugged (Jin, 2010). Thus, the effects of advergames on brand personality are predictable.

The entertainment of playing video games can cause gamers' eyes to interact with embedded brands (Vauberhe & Pelsmacker, 2010). Thus, advergames have several strengths. First, when gamers pay full attention to the entertainment process, they may have more positive attitudes toward brands, more easily accept advertising, and remember the brands (Lee & Faber, 2007). Second, gamers can easily download advergames from different media, such as websites and e-mail, in the digital age (Cauberghe & Pelsmacker, 2010). Third, advergames can be played on multiple platforms anytime and anywhere. For example, gamers can play advergames on a computer, a portable console, or a mobile telephone in the office, at home, or at a fitness center, when they are watching television, lying in bed, or exercising.

Brand personality is of central interest in the context of advergames; however, brand personality is under-researched and under-discussed. For the past decade, most studies have explored the effects of advergames on brand memory (Cauberghe & Pelsmacker, 2010; Hernandez & Chapa, 2010; Lee & Faber, 2007; Nelson, 2002; Nelson, *et al*., 2006; Schneider & Cornwell, 2005; Wise, *et al*., 2008). The results from previous research on the effects of advergames on brand recall and brand recognition can be extrapolated to how gamers notice or remember embedded brands in advergames. The structural methods have been used to explore areas of news media, sports sponsorships, and cultures (Braunstein & Ross, 2010; Sung & kim, 2010). Jin (2010) only took a ruggedness of five dimensions of brand personality to verify the effect on the racing advergame and suggested further investigation of the effects of the interaction between external circumstance factors and gamer's psychological factors on the brand personality. In order to understand the interactivity of the medium and gamers, this study will applied the five dimensions of brand personality to investigate the effects of advergames on brand personality. This study hypothesizes the following:

Hypothesis 1: Gamers will perceive an upgrade in brand personality after playing the racing advergames.

Brand Personality and Game-Brand Congruity in Advergames

Brand scholars have used the concept of cognitive psychology to develop brand knowledge and explore the relationship between personal behavior and congruity. Congruent meaning with existing brand associations should be more acceptable and understandable to individual (Keller, 1998). *National Geographic* may easily extend its brand name to travel clothing, travel shoes, or binoculars, whereas *Money Magazine* may have made a poor decision in launching brands allowing its name to be sued in these same category areas (Batra, *et al*., 2010). The previous literature has noted that preexisting brand association (schema) for

individual influences the strengths or weaknesses of new brand information by congruity or incongruity between two objects: advertisements versus brands, sponsoring brands versus sports events, or brands versus brand placement. In short, brand personality is a component of brand association (Aaker, 1996; Keller, 1993), and it should also be used to establish perceptual congruity. Thus, brands that are promoted in games are perceived to be congruent with the primary content of the games and may play a crucial role in influencing individual processing of brand personality.

Because of the salience of brand personality, it can be easily be shared between a brand self and an object (Keller, 1993), the perceived congruity in the brand personality can be established by stimulus of brand extension and sponsorship. Perceived sponsorship congruity increases with greater consonance between the brand and the sponsor (Cornwell & Roy, 1999; Musnte & Milne, 1999). The process of image transfer can be generated by strengthening the match between a sports event and a sponsor (Gwinner & Eaton, 1999). Stronger congruity in sports sponsorship can create a far stronger outcome in image transfer (Aaker & Joachimsthaler, 2000). Strong links in brand personality between the Ryder Cup (a golf tournament) and the IBM brand can reinforce the impact of the sponsorship in the fans minds (Dean, Smith, & Adam, 2003). For brand extension, the elaboration of congruity can be perceived to possess stronger brand personality fit (Lau & Phau, 2007).

However, the congruent effect of brand personality in advergames has led to a lack of empirical support in the literature that examined the congruity between the advergame context and the brand category of the brand being embedded, unlike the extensive empirical research on congruity effects. Two relevant empirical studies found that for the effects of incongruity and brand placement in online games on brand memory (Lee & Faber, 2007) as well as the enjoyment of advergames and brand attitudes, thematic congruity has an impact (Wise, *et al*., 2008). Although the results of these studies are dichotomous, the effectiveness of congruity and incongruity applied to brand knowledge in advergames is undoubted. However, whether advergames can develop a link between brand personality and congruity has yet to be investigated. In one study (Lee and Faber, 2007), gamers' intuitive feelings were still unknown despite the fact that the results revealed that gamers were able to remember and recall brand names due to the effect of incongruity in advergames. Their recognition of a brand name does not mean that they like the brand and will purchase brands or services from the brand. For a novel brand in which a company may take several years to achieve gamer recognition and retention, advergaming is a good strategy for penetration; however, famous brands, already own enormous brand awareness and may want to continue to influence gamers' feelings toward their brands. Thus, game-brand incongruity between brand personality and advergames will improve gamers' intuitive feelings toward a brand. A hypothesis is proposed:

Hypothesis 2: Compared with game-brand congruity, gamers will report a greater increase in perceived brand personality after playing the racing advergame with game-brand incongruity.

Game-Brand Congruity and Flow Experience on Brand Personality in Games

Video games have concrete goals, provide chances for action to fit gamer capabilities, offer clear information or feedback on performance, screen out distractions, and make concentration possible. Although, the digital media have the capability to induce positive individual mental reactions (flow) on brand knowledge (brand awareness and brand attitudes) in interactive environments (Nelson et al., 2006; Wang, Lee, Mantz, & Hung, 2015), the effect of flow statue is to divide into two opposing extremes. Flow negatively affects gamers' brand memory at a 10% level of significance (Schneider & Cornwell, 2005). The statue of game involvement (i.e., flow) effectively intervenes between brand awareness and game-brand congruity (Lee & Faber, 2007). These studies confirmed a relationship between brand awareness and flow in advergames.

Moreover, flow is verified to positively associate with the effect of perceived persuasion on real brands in advergames. The effects of perceived persuasion refer to how gamers' feelings about brands shift after enjoying video games (Nelson, *et al.,* 2006). Gamers' feelings toward brands are related to the concept of brand personality. It created a rough outline to explore the relationship between advergames and brand personality. Their study led to an initial understanding of brand personality and showed that gamers could positively change their feelings about brands through flow in advergames. Regarding the types of feelings about brands that gamers have when they reach flow, however, their study cannot offer precise results. Therefore, this study expects to deeply understand how flows moderate the impact of game-brand congruity on brand personality in advergames. The hypothesis follows:

Hypothesis 3: There will be a game-brand congruity X flow experience interaction on brand personality. Gamers with high flow will report a greater increase in perceived brand personality after playing the racing advergame with game-brand incongruity.

METHOD

This study examined the impact of advergames on gamers' sense of brand personality. A 2 (Advergame: before play versus after play) X 2 (game-brand congruity: congruity versus incongruity) X 3 (flow: high, medium and low) mixed factorial experimental design was conducted. The dependent variable was brand personality, and the independent variables were flow and game-brand congruity.

Participants

The overall purpose of this research was to uncover the extent to which advergames influence gamers' sense of brand personality. Because men comprise most gamers who use racing-car games, a total of 200 male college students in the northwestern United State who had ever played video games participated in the experiment. The respondents were recruited through posters and interviews. The study was conducted in a campus computer laboratory and a campus cybercafe in which college students often play video games. Of the sample, 95

were assigned to the McDonald's group and the other 105 were assigned to the BMW group. The participants were broken down into three groups in terms of the time they spent playing the advergame each week: 30.2% spent 0-5 hours, 47.5% spent 6-10 hours, and 22.3% spent more than 11 hours.

Procedure

The research method necessitated a pre- and post-test design to maximize the causality of the results and avoid any bias produced in a one-session experimental design (Hernandez and Chapa, 2010). The pre-survey was conducted in front of desktop or laptop computers. All participants were informed of their rights. They were asked to rate the brand personalities of five brands (Apple, BMW, KFC, Levi's, and McDonald's); however, Apple, KFC, and Levi's were placed in the advergames to misdirect the participants and were not included in the post-survey. The post-survey included only references to McDonald's and BMW, and participants were each assigned to one of two groups: one with embedded McDonald's advertisements and the other with BMW advertisements. After reading instructions on how to play the racing-car game, participants used keyboards to play for 5-10 minutes depending on their desire to continue playing after the minimum 5 minutes. After the gaming experience, participants completed the post-survey to rate brand personality with regard to BMW and McDonald's, their flow experience, and time spent playing the video games per week. At the end of the survey, participants were thanked for their support and received their payment for the experiment.

Stimuli

A new racing-car game with three-dimensional graphics and sound was simply designed without complicated settings. The main goal of the game was to drive a car and complete laps on a track. Two brands (McDonald's and BMW), which represented different degrees of congruity with the racing-car game and different levels of brand involvement, were different placed in the two versions of the game. To maximize the effects of the advergame, the brands were placed in the central and peripheral parts of the game, such as the welcome screen; the start of the game; and the hood, roof, and doors of the car. It was expected that the placement of the brands would be exposed when gamers entered and started the game or when they drifted and crashed.

Brand Personality

Brand personality as dependent variable was assessed by asking participants to rate how they felt about the assigned brand. Aaker (1997) developed the five dimensions of brand personality (sincerity, excitement, competence, sophistication, and ruggedness) in 15 facets that encompassed 42 items. Participants rated the score on a five-point Likert-type scale ranging from not at all descriptive (1) to extremely descriptive (5). For example, for sincerity, the brand was identified by responses of down-to-earth and family-oriented (Cronbach's α=.92).

Game-Brand Congruity

Lee and Faber (2007) indicated that automobile-related brands are highly congruent with racing-car games, whereas food brands are highly incongruent with racing-car games. Because the brand image of BMW is directly related to the content of the racing-car game than the brand image of McDonald's, this study opted to use two brands as independent variable to represent game-brand congruity and incongruity.

Flow

Flow as a independent variable was measured according to the eight items on the flow scale (Novak, Hoffman, and Yung, 2000) that are used most frequently in gamer research. Flow is a status that entails a seamless sequence of responses, pure enjoyment, a loss of self-consciousness, and a sustained sense of self-reinforcement (Hoffman and Novak, 1996). The questionnaire on flow was derived from Novak et al.'s (2000) three key bases of flow: skill, telepresence, and time distortion. Respondents were asked to rate a set of statements on a five-point Likert-type scale from strongly disagree (1) to strongly agree (5). For example, I am extremely skilled at playing video games (Cronbach's a=.72).

Data Analysis

Data were assessed for frequencies and percentages on each item. Sets of paired-samples *t*-tests, independent *t*-tests, and Two-way ANOVA analyses were employed to evaluate the different designs.

RESULTS

In this study, McDonald's and BMW were separately arranged and placed into two versions of the racing-car game to examine the changes in the perceptions of brand personality. The embedded brand results of the paired ttests for the McDonald's brand personality in the embedded McDonald's advergame, t =-2.73, p<.05, supported the assertion; the BMW brand personality was found to be non-significant in the embedded BMW advergame, t =0.12, p=909. The results of the t-tests also revealed that for sincerity, t=-2.60, p<.05, excitement, t=-2.24, p<.05, sophistication, t= -3.20, p<.05, and ruggedness, t=-2.71, p<.05, greater changes were reported for the McDonald's brand personality after playing the advergame; however, there were no significant differences in the competence of brand personality in the embedded McDonald's advergame and on the BMW brand personality in the embedded BMW advergame (**Table 1**). In brief, Hypotheses 1 was supported partially.

This study conducted independent t tests to examine the effects of game-brand congruity (McDonald's versus BMW) on brand personality in the racing-car game. The results of the t tests indicated that there was a significant effect of game-brand congruity on brand personality in the racing-car game, t= -1.98, p < .05. Brand personality changed when the brand category was incongruent with the racing-car game (McDonald's), and the change was greater than the change when the brand category was congruent (BMW). It also found a significant difference

Table 1. Analysis of McDonald and BMW brand personality (Paired t-test)

Variable		Pre-test mean	Post-test mean	Pre-Post mean	t value	p value
Brand personality	McDonald	2.98	3.16	-.18	-2.73	.008*
	BMW	3.42	3.41	.01	0.12	.909
Sincerity	McDonald	3.06	3.26	-.20	-2.60	.011*
	BMW	2.91	2.98	-.07	0.84	.404
Excitement	McDonald	3.09	3.28	-.19	-2.24	.027*
	BMW	3.68	3.68	-.00	-0.12	.990
Competence	McDonald	3.46	3.49	-.03	-0.49	.625
	BMW	3.91	3.81	.10	1.09	.280
Sophistication	McDonald	2.67	2.92	-.25	-3.20	.002*
	BMW	3.69	3.60	.09	1.07	.287
Ruggedness	McDonald	2.63	2.87	-.24	-2.71	.008*
	BMW	2.94	3.02	-.08	-0.74	.287

*$p < .05$; $N_{McDonald} = 95$; $N_{BMW} = 107$.

Table 2. Analysis of congruity and brand personality (Independent t-test)

Variable	N	Pre-Post mean	t value	p value
Brand personality			-1.98	.049*
McDonald	95	-0.18		
BMW	105	0.01		
Sincerity			-1.13	.260
McDonald	95	-0.20		
BMW	105	-0.07		
Excitement			-1.71	.089
McDonald	95	-0.18		
BMW	105	-0.00		
Competence			-1.13	.258
McDonald	95	-0.04		
BMW	105	0.10		
Sophistication			-3.00	.003*
McDonald	95	-0.26		
BMW	105	0.09		
Ruggedness			-1.25	.212
McDonald	95	-0.24		
BMW	105	-0.07		

*$p < .05$.

in the sophistication between congruity and incongruity, $t = -3.00$, $p < .05$. The sophistication score of the incongruent brand (McDonald's) was significantly greater than that of the congruent brand (BMW). Thus, Hypothesis 2 was accepted (**Table 2**).

Two-way ANOVA results showed a significant two-way interaction between flow and game-brand congruity on brand personality, $F = 4.11$, $p < .05$, sincerity, $F=6.66$, $p<.05$,

Table 3. Analysis of congruity, flow, and brand personality (Two-way ANOVA)

Variable EXPERIENCE		*df*	*F* value	*p* value
Congruity X Flow on Brand Personality		2	4.11	.018*
	Sincerity	2	6.66	.002*
	Excitement	2	1.34	.265
	Competence	2	3.16	.045*
	Sophistication	2	1.28	.279
	Ruggedness	2	3.00	.052

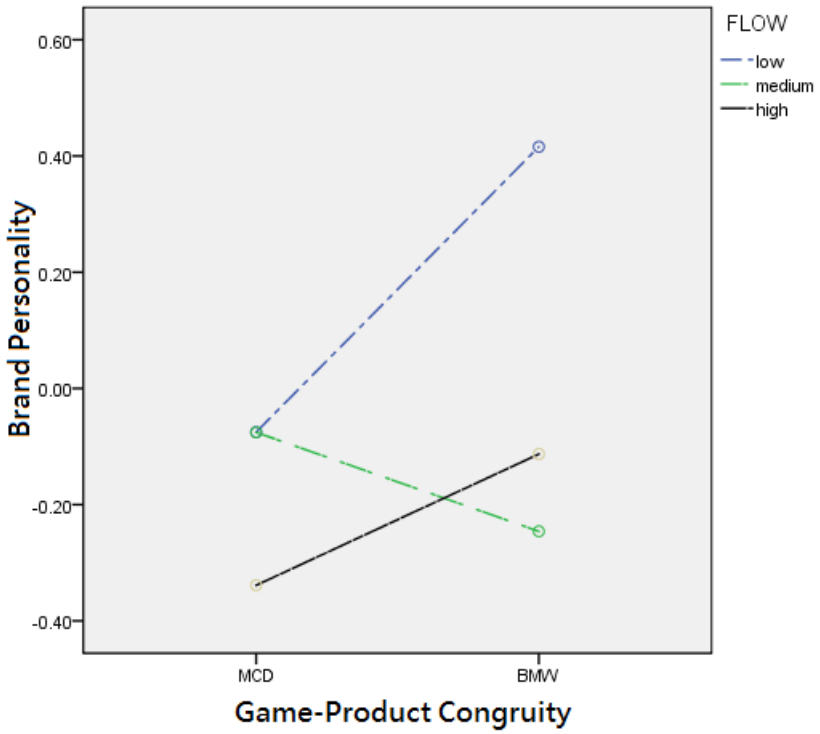

Figure 1. Interaction among game-brand congruity and flow on brand personality

competence, F=3.16, p<.05, ruggedness, F=3.00, p<.05. Incongruent brand (McDonald's)($M_{pre-post}$=-0.34) reported highly negative range score in the high flow condition than others in the medium and low flow conditions. In contrast, congruent brand (BMW) ($M_{pre-post}$=0.45) reported highly positive range score in the low flow condition than others in the medium and high flow conditions. There was also no significant interaction of game-brand congruity and flow on excitement, sophistication and ruggedness of brand personality (**Table 3** and **Figure 1**). Thus, Hypothesis 3 is supported.

DISCUSSION

Advergames can deliver embedded brand messages to change the perception of gamers. This study examined the changes in McDonald's and BMW's brand personality in an

advergame after participants played a racing-car game. The embedded brands differentiated the effects of brand personality in the racing-car advergame. The results revealed that the advergame delivered positive differences on McDonald's brand personality after playing, whereas the same advergame showed no differences on the BMW brand personality. This finding not only replicates Jin's findings that a racing-car advergame can successfully carry positive rugged brand perceptions by embedded brands in the game but also suggests that the characters in racing-car games may lead gamers to increase their perceptions of MacDonald's of sincere, excited, sophisticated and rugged brand personality (2010).

This study found that the embedded brands that were congruent with the game content negatively influenced brand personality, whereas the embedded brands that were incongruent with the content of the game positively influenced brand personality. This finding is consistent with the study in which the effects of game-brand incongruity have greater influence (Lee & Faber, 2007), and it is inconsistent with the study in which the effects of game-brand congruity have greater influence (Wise et al., 2008). The reason for this inconsistency may be that game-brand incongruity is odd for gamers and subsequently leads to greater attention to the embedded brands, facilitating the changes to brand personality. That is, McDonald's (game-brand incongruity) has a greater and more positive influence on brand personality in the racing-car game. However, BMW (game-brand congruity) does not meet the expectation of a positive influence on its brand personality in the racing-car game. It is possible that underperformance of gamers may to lead negative feelings toward BMW. For example, a gamer who drives a BMW car and repeatedly crashes in the game may become angry while playing the game and blame the BMW brand. In contrast, this result seems compatible with Cauberghe and Pelsmacker's study (2010), in which an advergame led to negative brand attitudes due to repeated playing. It is important that an embedded brand in an advergame be appropriate. In overexposure, gamers may generate negative feedback on brand personality.

The study revealed that the interaction of flow on brand personality after playing an advergame was polarized. Although gamers with high flow in the MacDonald game gave positive feedback on brand personality, gamers with low flow in the BMW game gave negative feedback. This result is consistent with the research in which the telepresence of one aspect of flow is positively related to gamers' feelings toward real brands in an advergame (Nelson, *et al.,* 2006) and in which the game-involvement condition (flow) has a positive impact on brand recall in advergames (Lee & Faber, 2007). This result is inconsistent with those of the study showing negatively significant impacts between flow and brand recognition (Schneider & Cornwell, 2005).It has been argued that flow and brand personality interact in advergames. Because veteran gamers have an easier time entering into a state of flow than novice gamers (Schneider & Cornwell, 2005) and can pay closer attention than novice gamers, noticing the embedded brands in the game when in a state of flow (Lee & Faber, 2007), flow appears to positively influence perceived brand personality. Gamers with low flow, however, have less brand knowledge than gamers with high flow due to lacking playing skill in advergames, thereby rendering them unable to enter states of high flow. For example, low-flow gamers will

see the embedded brand in the game when crashing. When performing increasingly worse while playing the game, gamers may shift their negative emotions to the embedded brand; consequently, those with low flow may perceive a negative impact on brand personality in advergames.

Managerial Implications

The study revealed that the content of embedded brands that was incongruent with the content of the racing-car advergame positively influenced sophisticated brand personality, whereas the content of embedded brands that was congruent with the content of the advergame negatively impacted sophisticated brand personality. Advertisers must choose incongruent brands to place in advergames to evoke gamers' attention when using a strategy of game-brand incongruity, such as McDonald's versus a racing-car game.

In contrast, advertisers must discern whether gamers will revolt in an advergame before adopting a strategy of game-brand congruity. A bad advergame may ruin advertisers' sophistication of brand personality. For example, gamers gave negative feedback on sophistication of brand personality due to experiencing difficulty in the racing-car game in the experiment. Thus, there is a challenge for advertisers to design an entertaining advergame that can transfer positive gamer feelings and upgrade brand personality.

Moreover, Advertisers must take the effects of flow on brand personality in advergames seriously. This study found that gamers with high flow gave positive feedback on brand personality, whereas gamers with low flow gave negative feedback on brand personality. This outcome suggests that advertisers must tread carefully when adopting advergames to promote their brands. A good advergame can carry their brand personalities well because gamers fully enjoy the game. In contrast, gamers who experience difficulty in an advergame can devastate their brand personality because gamers leave the game with unpleasant emotions.

Veteran gamers enter flow more easily than novice gamers. To reach gamers who have entered flow, advertisers must develop various advergames that fit targeted gamers' skill levels (Schneider & Cornwell, 2005). For example, gamers targeted by first-person shooter-type (FPS) video games should be perfectly fitted to enter flow in *Halo* or *Call of Duty*. Advertisers can place their brands in these games and expect to enhance their brand personality. Conversely, *Rock Band* is a bad choice to promote a brand for first-person shooter-type gamers because they may be annoyed at having to figure out how to play the guitar in the game and degrade their brand personality in advance. The results complement previous findings that gamers with high flow positively influence brand attitudes (Lee & Faber, 2007; Nelson et al., 2006). These findings also suggest that gamers with low flow are impacted negatively in terms of brand personality as a result of the racing-car advergame. This study enriches the body of knowledge on brand personality by investigating the effects of flow in advergames. Thus, advertisers should segment their target gamers and embed their brands in adaptive advergames before making promotion decisions.

LIMITATIONS AND FUTURE RESEARCH

Although this study offered valuable insights into the effects of advergames on brand personality, it has several limitations that create opportunities for future research. First, this study indicates the effects of a racing-car advergame on brand personality. However, the results from the racing-car game may not be able to be inferred across different types of games or different media. For example, placing brands in mass multiplayer online role-playing games (MMORPGs) may have different impacts on brand personality than placing brands in the racing-car game. The effects of advergames on brand personality may be different from the effects of brand placement in movies, television, or books. Future research should explore the effectiveness of different media or advergame types. Future research should also explore the benefits of advertising through combinations of media on brand personality due to the execution of multiple marketing strategies of advertising, sponsorship, or brand placement that may provide greater synergies than a single strategy. The potential of the above marketing strategies for brand personality clearly needs further exploration.

Additionally, gamers spent approximately 10 minutes playing the racing-car game in the study. However, the effects of advergames on brands could be anticipated because gamers often repeatedly play the same game until they lose interest (Schneider & Cornwell, 2005). It would be interesting to understand how gamers change brand personality under different levels of game repetition in future research. Does brand personality only continue degrading when gamers play more often? In what types of situations can brand personality be upgraded? Future research must clarify the effects of repeatedly playing an advergame on brand personality.

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