Designing Effective Advergame for Purchase Intention: A View of Game Design and Psychological State

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Abstract-Advergame has increasingly been used for a new marketing campaign. This study defines a new research model with a relationship structure of advergame design and individual psychological state as antecedents for advergame attitude, brand attitude, and purchase intention, based on the hierarchy of effects theory. An empirical study for online survey collects 522 consumers who have recent experience of advergame. The results found that game-brand fit, perceived interactivity, and involvement are the key drivers of advergame attitude. Further, advergame attitude and brand attitude were found to be two important mediators of purchase intention. Implications for marketers and scholars are further discussed.

Keywords-Advergame; advergame design; advergame attitude; brand attitude; purchase intention.

I. INTRODUCTION

Advergame is a particular form of branded entertainment that the brands, along with related messages, logos, and trademarked characters, are included in a game, and such promotional tools are usually accessed via the parent companies or brand websites [27]. Advergame has increasingly become one of the most promising areas of Internet advertising in recent years [33]. Many companies have tried advergame as part of their marketing strategies, such as Coca-Cola, Toyota, Michelin, and McDonald.

Most studies have focused on the issues related to advertising effectiveness, such as brand/product recognition or attitude [11] and advergame design [6][14]. However, an important role of advergame in marketing is persuasive purchase behavior, which remains relatively under-explored and this is one gap in the literature that the current work aims to address. Moreover, researchers noted that advertising is generally seen as a means of communicating persuasively with consumers [26] and that if it is successful, it will ultimately result in consumers purchasing the focal branded items. It is imperative to examine the issue of purchase intention in relation to advergame to assess marketing effectiveness.

Lavidge and Steiner [19] proposed the hierarchy of effects theory for predicting advertising effectiveness, and its basic premise is that advertising moves people up a series of steps toward an actual purchase behavior. These steps can be further classified as three functions related to a classic psychological model, that is, cognitive, affective, and conative [1]. Many studies on Internet advertising have proposed a similar stage-based structure based on this theory, that is, belief, attitude, and behavior, to examine different forms of advertising effectiveness, such as brand loyalty and sale promotion [2]. Many studies have extended this structure with attitude in terms of defining two components, media attitude and brand/produce attitude [33]. Accordingly, this theory and its extension provide an overarching theoretical basis to better understand the relationship structure of how advergame influences players' purchase decisions.

However, the hierarchy of effects theory fails to stipulate what a consumer's cognitive beliefs would affect attitude toward brands/products or subsequent purchase intention. Many studies have argued consumer's beliefs as important concerns for using advertising media from an expanded perspective, generally comprising both rational and emotional. The rational belief indicates a design of game for how a brand is placed in the advertising media [37] as the emotional belief shows a psychological state for how a player is motivated with a game context [32].

For advergame design, researchers noted the importance of placing particular forms of brand communication in advertising media for building attitude toward brand, that is, game-brand fit [3]. Furthermore, perceived interactivity is important for the quality of website design as it plays a key role in enabling players to have better communication, self-control of experience, and response to websites [31][34]. Accordingly, we consider game-brand fit and perceived interactivity for this issue. For individual psychological state, prior studies have noted that two psychological states, involvement and escapism, that consumers find, when processing advertising messages, can impact affective state (e.g., brand attitude) [32]. Grounding on the arguments, this study proposes a relationship structure for predicting

purchase intention, including four components, belief structure, advergame attitude, brand attitude, and purchase intention.

Moreover, this study considers two control variables, gender and prior experience, to control extraneous sources of variance and to maximize explanatory power. Mehta [26] argued that advertising effectiveness for purchase behavior should allow for gender difference. A person's game experience may influence the link for attitude to purchase intention [11][17]. The following shows the rest of the content. In Section 2, a literature review with hypothesis development for the research model is presented. In Section 3, the related works include scale definition, sampling design, and measurement model. In Section 4: using PLS tool conducts hypothesis testing for estimating path and determination coefficients. In Section 5, the findings are presented with the discussions for the reasons behind them. In Section 6, conclusions are discussed with practical and academic implications.

II. LITERATURE AND HYPOTHESIS

Based on the above discussion, Figure 1 provides a pictorial depiction of this research model. The proposed model is consistent with the basic logic of the hierarchy of effects theory, cognitive, affective, and conative, when often applied in the advertising. Relevant literature and hypotheses are discussed below.
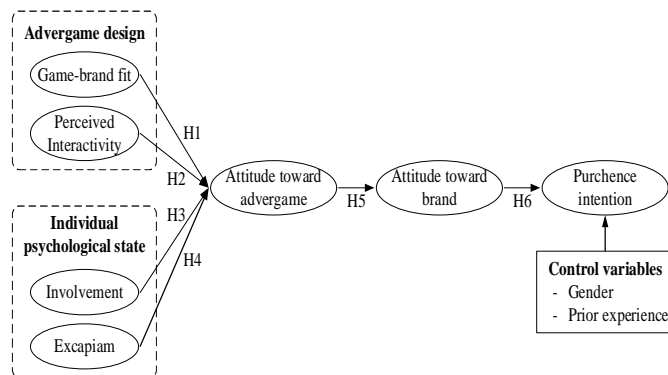

Fig. 1. Research Model

A. Game-Brand Fit and Advergame Attitude

Researchers have argued that while playing an online advergame, players would assess whether the nature of the game matches the brand, which tries to relate features of the game to the presence of a brand logo, trademark, product, or spokesperson [27]. A good game-brand fit should generally induce more positive affective responses, such as favorability toward advergame [3]. Gross [11] explored the influence of game-branded product congruity on brand memory and attitude toward branded items placement in games, and reported that this has a significant effect on both brand memory and attitude toward the game. Wise et al. [39]

contended that the thematic connection between an advergame and the brand it represents directly affects consumer's information processing, and thus has implications for their attitude toward advergame. Based on this, it is hypothesized:

Hypothesis 1: Game-brand fit positively affects attitude toward advergame.

B. Perceived Interactivity and Advergame Attitude

Perceived interactivity is an important determinant for game design as it plays a key role in enabling players to have better communication, self-control, and response with game [35]. Several studies on advertising conducted an experiment by manipulating the design of various interactive levels to customers in order to understand their differences [10]. The results indicated that perceived interactivity is a strong predictor of attitude toward advertising. For website design, researchers attempted to identify the relationship between perceived interactivity and attitude toward the website [20], and they found that perceived interactivity is highly correlated with attitude toward the website. Hence, it is hypothesized:

Hypothesis 2: Interactivity positively affects attitude toward advergame.

C. Involvement and Advergame Attitude

Involvement typically amounts to a positive subjective experience/state of an individual toward online activities [32]. When consumer's involvement comes to forming positive attitude toward online advertising, it has a direct impact on attitude toward online advertising [38]. Further studies classified prior empirical studies for finding relationships between involvement and affective responses and user attitude toward IS adoption is affected by the level of involvement [24]. Santosa et al. [32] designed an online information-seeking activity to examine the relationship between personal involvement and user satisfaction and showed that involvement positively affects satisfaction level with this activity. Accordingly, it is hypothesized:

Hypothesis 3: Involvement positively affects attitude toward advergame.

D. Escapism and Advergame Attitude

Youn and Lee [40] applied a uses-and-gratifications approach to examine the motivations of playing advergame for college students. Open-ended questions were used to collect a list of motivations for playing advergame online. After completing the frequency analysis, the results showed that escapism is one of the major motivations for playing such games. They also found a strong positive relationship between escapism and attitude toward advergame. Hernandez [12] examined the factors contributing to positive attitude toward advergame among students in Mexico. She also argued that a high level of escapism has a positive relationship with attitude toward advergame, as seen in prior studies. Hence, it is hypothesized:

Hypothesis 4: Escapism positively affects attitude toward advergame.

E. Advergame Attitude and Brand Attitude

Researchers on advertising value have demonstrated consistent relationships between attitude toward advertisement and attitude toward brand in both traditional and online advertising [2][8]. Mackenzie et al. [22] also reported that attitude toward advertising is a causal mediating variable in the process through which an advertisement influences attitude toward brand and purchase intention. Wise et al. [39] showed stronger support for the effect of attitude toward advergame on attitude toward brand in a condition of a high thematic connection. Hence, it is hypothesized:

Hypothesis 5: Attitude toward advergame positively affects attitude toward brand.

F. Brand Attitude and Purchase Intention

According to the hierarchy of effects theory, cognitive belief precedes affective response (e.g., attitude), which in turn precedes conative behavior (e.g., purchase intention) [36]. Attitude is a predisposition to react favorably or unfavorably toward a particular object [22]. Intention is people's prediction about their own behavior, and is influenced by attitude [28]. Several studies have identified attitude toward brand as an important determinant of purchase intention in the traditional advertising [5][23] and Internet advertising [15][16]. Hence it is hypothesized:

Hypothesis 6: Attitude toward brand positively affects purchase intention.

III. RESEARCH DESIGN

This part is for defining data collection procedure, including scale design, sampling design, and scale validation.

A. Instrumentation

The instrument used to gather data was a five-part questionnaire. The first part uses a nominal scale and the others use a 7-point Likert scale.

1) Basic information: We collected basic information about the characteristics of the respondents, including gender, age, education, occupation, types of advergame, number of advergame played before, and frequency of playing advergame.

2) Antecedents of attitude toward advergame: We examined four antecedents of attitude toward advergame. The three items for measuring game-brand fit were adapted from the instruments developed by [13][27]. The three items for measuring perceived interactivity were adapted from the instruments developed by [21][34]. The three items for measuring involvement were adapted from the instruments developed by [32]. The three items for measuring escapism were adapted from those developed by [12][25].

3) Attitude toward advergame: The three items for measuring attitude toward advergame were adapted from the instruments developed by Hernandez [11][12].

4) Attitude toward brand: The three items for measuring attitude toward brand were adapted from the instruments developed by [3].

5) Purchase intention: The three items for measuring purchase intention were adapted from the instruments developed by [18].

B. Sample Design

This study primarily explores consumer's purchase intention in terms of the promotional approach of advergame. It would be better to define the qualified respondents in this setting. They were asked to reflect on a recent playing experience of advergame (within the past three months). This manipulation would assure that all respondents are in a consistent manner to recall their experience across all constructs. This manipulation could avoid a bias in the data collection process. Prior research has proposed a similar approach online shopping context [24]. An online survey was placed in online communities to seek players of advergame as potential respondents. Online survey is not also consistent with the context of online game, but also geographically unlimited [7].

A wide variety of data sources was included for survey, allowing the responses to be more representative of the population. Public notices about the survey were posted on a number of bulletin board systems and forums. A reward system was also provided for the respondents. At least 30 participants were drawn from the response sample, with a reward of 5 US dollars being paid to each of them.

C. Scale Validation

A pretest was conducted for the scale with practitioners to guarantee acceptable initial reliability and validity. Afterwards, online survey was performed for the above procedure. A total of 453 responses were received with a certain level of experience in playing advergame. After 108 invalid responses with incomplete information were deleted, the final sample size was 345. Common method variance (CMV) was examined with Harman's single factor test [30]. We included all items for analysis to determine whether the majority of variance could be accounted for by one general factor, that is, more than 50% variance accounted for. As no single factor accounted for the bulk of covariance (less than 50% variance accounted for), meaning there was no CMV.

D. Measurement Model

This study employed structural equation modeling (SEM) with PLS software to test this proposed model. SEM-PLS allows latent variables to be modeled as either formative or reflective constructs, and places minimal demands on sample size and residual distribution [4]. First, a measurement model was built for scale validation and then a structural model was developed for path analysis.

First, reliability is assessed by the criterion: Cronbach's α larger than 0.7 [4]. Convergent validity is assessed by three criteria: (1) item loading (λ) larger than 0.70, (2) composite construct reliability larger than 0.80, and (3) average variance extracted (AVE) larger than 0.50 [9]. Next, discriminant validity is assessed using the criterion: the square root of AVE for each construct larger than its correlations with all other constructs [9]. All constructs are satisfactory with the criteria of convergent and discriminant validity.

IV. HYPOTHESIS TESTING

Using SEM-PLS tool conducts hypothesis testing. We present the following testing results. First, there is a requirement to estimate path coefficients and statistical significance for this model. Next, determination coefficient (R^2) is computed for endogenous variables to indicate their predictive power. Determination coefficient found in the analysis is similar to the procedure of multiple regression analysis. SEM-PLS does not provide significance tests or interval estimations and a bootstrapping procedure is used with generating 1000 subsamples to estimate path coefficients and their significance. Figure 2 presents the results of the structural model.

For game design aspect, game-brand fit has a positive impact on attitude toward advergame at 0.05 level (β=0.25), supporting Hypothesis 1. Perceived interactivity is a significant predictor of attitude toward advergame at 0.05 level (β=0.23), supporting Hypothesis 2. For psychological state aspect, involvement is important in affecting attitude toward advergame at 0.05 level (β=0.22), while escapism is not significant for its influence (β=-0.05). Hypothesis 3 is supported but Hypothesis 4 is not. Further, the two aspects jointly explain 55% of variance in attitude toward advergame. Next, attitude toward advergame was found to be a notable predictor of attitude toward brand at 0.01 level (β=0.52), supporting Hypothesis 5 with explaining 46% of variance. In turn, attitude toward brand is an important precursor of purchase intention at 0.01 level (β=0.47), supporting Hypothesis 6 with explaining 42% of variance. Finally, regarding the two specified control variables, gender and prior experience are not significantly associated with purchase intention (β=0.01 and 0.01).

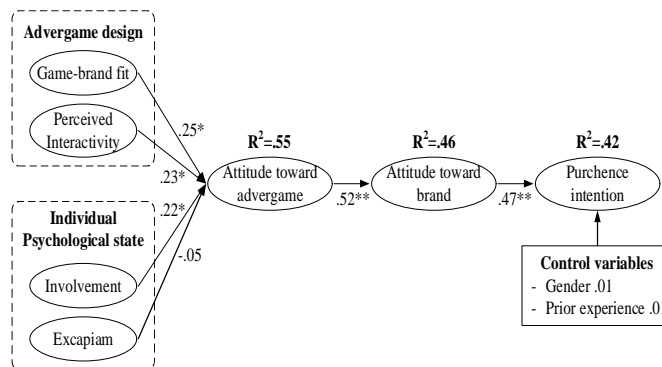Fig. 2. Structural Model
Value on path: Standardized coefficients,
R^2 : Coefficient of determination, **: p<0.01, *: p<0.05

V. FINDINGS AND DISCUSSIONS

The findings are indicated in Table 1. First, we discuss the possible reasons behind these findings for practice. Next, their importance and contribution could be indicated in literature. In particular, the possible similarities with literature are also discussed.

TABLE I. HYPOTHETICAL TESTING

Hypothetical Links	Results
Game-brand fit->Avergame attitude	Support
Perceived interactivity->Avergame attitude	Support
Involvement->Avergame attitude	Support
Escapism->Avergame attitude	No support
Avergame attitude->Brand attitude	Support
Brand attitude->Purchase intention	Support

A. Influence of Advergame Design

Game-brand fit and perceived interactivity indicate the importance in the design of the advergame. Advergame design is rather different from other games in terms of their main purpose and motivation. Advergame is usually initiated by a brand owner, which uses gaming technology to deliver embedded advertising messages to the audience. It attempts to convey brand images and ideas behind a game-playing situation. Thus, when people are playing advergame, they first assess the extent to which brand and game seem to be well matched. If they perceive that brand-game fit is good, they will have positive affective responses [27].

Next, game is in its nature an interactive activity between game and players. Appropriate interactivity as a self-control mechanism can enhance marketing campaigns in an online context [31]. The findings are similar to prior studies in traditional advertising, which indicates that perceived interactivity will influence consumer's attitude toward commercial messages and online advertising [10]. Accordingly, advergame attitude could be positively impacted by game-brand fit and perceived interactivity.

B. Influence of Psychological State

When involvement is important for consumer's attitude, this indicates that different people perceive the same

advergame differently, and hence respond to it with different affective states. In terms of high- and low-involvement, high-involvement subjects usually believe that the communicated message affects their cognition and attitude, while low-involvement ones do not believe that the communicated message has any important, meaningful, or personally relevant effects. Marketers should place greater emphasis on the issue of involvement to improve player attitudes toward advergame. The role of involvement that we found in this study is consistent with the findings of some prior studies [38].

In contrast, escapism shows an insignificant impact on consumer's attitude and this finding should be quite interesting to marketers. Hernandez [12] concluded that online games allow a player to escape into an alternative reality that may not be stable in all contexts. Advergame neither causes people to put off things they should do, nor makes them get away from their responsibilities. This may be because most people understand that procrastination will only lead to the tasks at hand to be completed later than would be otherwise possible. Playing advergame is thus unlikely to make players feel like that they are in another world, or keep them in a flow state for a long time.

C. Influence of Advergame and Brand Attitude

Advergame attitude is useful in evaluating advertising value and is a key precursor of brand attitude when playing an advergame. Advergame attitude is important for advertising value and needs to be carefully nurtured from major concerns of players when playing advergame. For example, when players do not have enough or any affective response to brand, an advergame can be an important medium for them to connect with brand. Marketers must work to make players feel that an advergame is good, likable, and refreshing, and thus lead to them have positive attitude toward brand. The findings are consistent with previous studies, highlighting the fact for an important antecedent for positive brand attitude [22].

Further, brand attitude should be considered as an important affective criterion for consumers when developing an effective advergame mechanism. Branded entertainment mechanisms are highly penetrable with regard to their target audiences, thus enabling them to accept and understand brand advertising, such as advergame. In turn, this would be further reflected in purchase behavior. Marketers should work on attracting players to stay or feel enjoyment with advergame to have their brand seen favorably by the players, and thus increase consumer buying behavior. The findings are consistent with previous studies on traditional advertising [16].

D. Influence of Control Variables

Gender and prior experience are not correlated with purchase intention. One ultimate goal of advertising is to persuade the audience to buy branded items. Advertising may be targeted to sex-specific groups, although shoppers are not limited to one gender. Next, consumers have different degrees of playing experience, which may greatly depend on individual traits (e.g., interests, preferences, and needs), even though advergame is becoming more popular and can easily be found online. Accordingly, neither type of purchases is associated with player's prior game-playing experience.

VI. CONCLUSIONS AND SUGGESTIONS

This part shows the research findings for their practical and academic implications as well as the research limitations.

A. Practical Implications

In terms of game-brand fit, marketers must better understand brand since each brand has its story, essence, idealized community, and paradox and then achieve effective communication with game developers to ensure that brands and game features have similar images. For perceived interactivity, marketers and game developers should ensure that advergame is enabled by two-way and synchronous communications as this can then increase positive advergame attitude. Regarding psychological state, marketers need to ensure that advergame reflects personal involvement, that is, what consumers perceive to be important and means a lot to them. Moreover, it may be more effective to target an advergame to consumers of a specific background or age, so that it can be made more relevant to them. Such practices will increase the level of personal involvement, and thus improve positive advergame attitude.

B. Academic Implications

To the best of our knowledge, few previous studies have investigated consumer's purchase intentions in relation to advergame value. This study has successfully extended the hierarchy of effects theory, as well as provided a better way of exploring advergame value. This particular approach focuses on two aspects, advergame design and psychological state, for driving advergame attitude, brand attitude, and purchase intention.

C. Research Limitations

First, there is a wide range of brands, and each brand has a lot of its own advergame. Moreover, in terms of the fields of applications, advergame can be used by marketers with various branded products and services. However, this study did not focus on any specific brand (e.g., McDonald, Nissan), any specific field (e.g., food, car), and any specific appeals (e.g., humor vs. fear). Hence, these concerns may have affected the generalization of the results and have made it hard to identify different routes to attitudinal change. Next, according to basic demographic information, the majority of respondents are students. However, research has shown that students are the chief players of advergame and are mostly trained to value rationalism, and as a result, may reject an emotional appeal more than other populations. Thus, this group is highly representative of the target population.

D. *Future research*

Further research can be extended to include content design for an entertainment purpose to increase flow state of consumers. Next, a concern of cross-cultural differences may be included to understand consumer behavior. Further, personal IT skills is an important determinant for consumers to be willing to involve in this game playing since it is created by an IT-based form.

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