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# The Effect of Focal Center and Peripheral Ad Placement, Player Involvement, and Player Experience on Recognition and Recall of Videogame Ads

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# **The effect of focal center and peripheral ad placement, player involvement, and player experience on recognition and recall of videogame ads**

By

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A thesis submitted to the graduate faculty in  
partial fulfillment of the requirements for the degree

**MASTER OF SCIENCE**

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## Abstract

Videogame sales are expected to grow exponentially as sales move in physical stores to a wide variety of digital distribution methods. It is no small wonder, therefore, that advertisers are eager to place their brands in games to appeal to users. While placing advertisements in games is not new, how brands and products are positioned within the game so that players can recognize and remember them has been a pragmatic concern of video game designers. It is theorized that people have a limited attention capacity and can only on one aspect of the game.

This study examined how game player recognition and recall of ads are affected by ad placement, level of involvement with the game, and experience with video games. Test results supported the hypothesis that moderately involved players will recall and recognize more advertisements within the focal center than those placed in the periphery of vision. However, the hypothesis that highly experienced and highly involved players would not recall or recognize focal center advertisements was only partially supported. While highly involved/highly experienced players did recognize the focal center advertisements better than those placed peripherally, they could not recall ads regardless of their location within the game.

## Chapter 1.

### Introduction and Statement of the Problem

The videogame business is one of the fastest growing entertainment industries in the world. In terms of the visuals they offer, videogames have evolved from the simple green-and-black images of Atari *Pong*® to the life-like graphics and complex design of the current generation of games. These games have become so popular that they have attracted the attention of brand name giants as a major advertising venue. For example, Coca-Cola® billboards are often found in sports videogames, and logos of various automobile parts manufacturers are usually seen stenciled onto car panels in simulated racing games. Indeed, in-game advertising spending has more than doubled from 2007 to 2011 with revenue increasing tenfold, from \$77.7 million to \$971.3 million (Wordpress.com, 2011).

These ads come in all forms. They include characters using Visa® credit cards, Sprite® “player of the game” spots, and even political advertisements. These techniques are not new to the gaming world, and their applications continue to expand. But like most communication efforts, there are ads with characteristics that cater more to specific types of audiences. This study asks: What kind of videogame player (in terms of game involvement and game experience) responds more to what type of advertisement placement (i.e., focal center or peripheral) within a game?

There is no doubt that videogames have proven to be a profitable medium for advertisers. Yi (2005) reports that these ads generate sales of up to more than \$10 billion annually, making them a prime real estate for companies looking to advertise. With

improvements in technology, videogame appeal has expanded from 13 to 30 year-old males to men and woman from the ages of 8 to 60 and anywhere in between (Wordpress.com, 2011). Typically, however, those who actively play are young males, age 18 to 34. Analysts estimate that between \$732 million and \$1.8 billion was spent on in-game advertisements in 2010 alone (Yi, 2005).

Companies have used videogames to endorse their brands and products. Some companies have even created their own games monopolized by their company mascots. For example, in the 1990s, 7-Up® and Cheetos® both produced a game with their respective mascots as the main character. Other companies make use of simple and inexpensive online games that consumers can access from the company's homepage. Even the United States Army created a first-person shooter game based on how soldiers use standard equipment and weapons. The games were created for multiple current generation systems and are distributed for free, drawing an estimated seven million players (Brown, 2006).

Unlike games created or financed by a specific company, popular mainstream games feature multiple forms of advertisements from different companies. The best example of this can be found in sports-themed games, such as the *Madden*® series, which display ads for sports products, such as shoes (e.g., Adidas® and Nike®), and sports-related paraphernalia (e.g., sports drinks and sports equipment). Some companies go to the extent of establishing an affiliation with a game or the subject of a game through advertisements (Radd, 2007). For instance, a sports drink that advertises in actual baseball games might put ads in a baseball videogame as well.

Other companies have used popular videogames to launch their own advertising campaigns. For example, Mountain Dew® held a promotional give-away for upcoming games, such as *Halo 3*®, *World of Warcraft*®, and *God of War III*®. The soft drinks manufacturer has also used the likeness of the videogames' central characters on their products.

Even the political sector is getting involved in the videogame advertising business. During the 2008 presidential campaign, an Obama presidential election ad appeared in the Xbox 360® racing game *Burnout Paradise*®. The ad was plastered on a billboard the player is sure to pass by during a race (FoxNews.com, 2008).

While videogames with real world advertisements are not new, a recent trend called “dynamic in-game advertising” has emerged that allows companies to “alter ads within game environments remotely” via broadband connection. This means that in-game advertisements can be changed or altered at a later date (Ivan, 2006). For example, a poster for a movie can be re-formatted to promote another upcoming movie once the first movie is released. This prevents in-game advertisements from becoming dated and obsolete.

A study done by NeoEdge Networks, a game advertisement network based in Mountain View, CA, showed that ads in an online game are “more effective than TV advertising” (Wauters, 2009, p. 1). While the findings of this study have been called into question because of privacy concerns with respect to participants, they demonstrate that using videogames as a forum for advertising works (Wauters, 2009). Because millions of



advertising dollars are poured into this medium, it is logical to assume that companies are in search of the most efficient way to get noticed by videogame players.

Surveys have shown that gamers respond positively to advertisements in videogames as long as they do not interfere with or hamper game play. Nielsen Media Research surveyed 1,300 personal computer gamers about in-game advertisements (Ivan, 2006) and found that 82% felt that the games were “just as enjoyable with ads as without;” 60% reported that the ads had “caught their attention, made games more realistic, and didn’t interrupt the experience” (p. 1).

Unlike other channels in which audiences passively watch or read an ad, videogame players are integral parts of the game. In fact, players get so engaged with the game that researchers wonder whether they are able to notice and recall advertising messages embedded in the games they play.

Lee and Faber (2007) set out to address this concern. They asked: Are videogame players who concentrate on the game task able to fully recognize the advertisements in the game? They looked to the tenets of selective attention and the limited capacity model for explanations. According to Kahneman (1973), people’s attention to stimuli can be divided into two aspects—selective and intensive. People engage in selective attention to prevent over stimulation or cognitive overload and assign different levels of cognitive intensity or intellectual activity to particular tasks. Hence, selectivity entails the allocation of cognitive capacity to a particular task to the disregard of others or the assignment of conscious intellectual activity to a specific task with respect to other tasks (Lang & Basil, 1998).

Selective attention is a demonstration of one's limited attention to a particular stimulus at any given point in time (Lang & Basil, 1998). Thus, a person's ability to perform activities can be assigned into one's primary capacity or spare capacity. Spare capacity is "devoted to secondary tasks and other surroundings" and cannot coincide with the primary capacity (Lee & Faber, 2007, p. 76). A person may use primary capacity to play a videogame and use the spare capacity to do other things, such as recognizing and recalling advertisements seen in the game (Lang & Basil, 1998).

A person can get involved in videogames to the point that media pundits worry about videogame addiction. People's level of involvement with a game, however, varies. For instance, a player can focus on beating a high score or completing a task; others might play the game with no such goals in mind. The *Grand Theft Auto*® series even offers people the ability to play in a large city landscape outside the scripted story and do whatever they like.

There are ads of all kinds depending on how they are positioned within a game. Advertisements that are clearly seen, obvious and overt, or advertisements that are in the player's focal center, and there are those that are not easily seen, or in the player's peripheral vision. Experiments have shown that participants responded more favorably to movie advertisements in the focal center than those within the peripheral (Lee & Faber, 2007). However, videogames are a highly interactive medium in which players have some degree of control.

Players also differ in terms of individual traits and characteristics. There are those who may be considered highly involved because they have set specific goals to achieve while playing the game. There are those, however, who play videogames just for fun.

This study primarily aims to examine the interactive effects between involvement and types of advertisement placement within a videogame. To achieve this, an experiment is proposed.

In this experiment, advertisements are positioned within a game as that they are in the player's focal center or just within their peripheral vision. An ad in the player's focal center is an ad that is at or near the center of the screen and is therefore easy for the player to see. An example of a focal center ad in some racing games are billboards with Burger King® and Coca-Cola® ads. Advertisements in the player's peripheral vision are to the side of the screen and are therefore not so easily spotted. For example, a billboard in a racing game may not be fully facing the race track, making it difficult to read.

The experiment involves asking two groups of participants to play a videogame showing both focal center and peripheral advertisements. Group A was asked achieve a specific score or goal. This group represents the "high involvement" condition of game players, or those who play to win. Group B also was asked to play the game, but was not given a specific task to accomplish. This group represents the "moderate involvement" condition of game players, or those who play without a specific goal in mind (i.e., those who play for fun). When Group A achieves its goals and after a specific amount of time has passed for Group B, both groups were asked to recognize and recall the advertisements they encountered during the game.

The first assumption of this study is that high involvement players will have better memory of the focal center than the peripheral advertisements. It is assumed that the high involvement type of gamers will be so focused on their task that they will likely fail to find or recognize the peripheral advertisements in the game. As suggested by the limited capacity theory, the more attention is paid to a single task, the less attention is allocated to other tasks (Lang & Basil, 1998). Those who are moderately involved, however, will be able to recognize and recall the ads in the peripheral vision better because their focus is not directed specifically on a task or goal.

Companies and businesses are searching for empirical evidence to determine how best to reach their target audiences in a game environment. This study will attempt to offer insights as to the type of players likely to be cognitively affected (in terms of recognition and recall) by how ads are placed within videogames. The findings may also be of use to communication strategists, especially those who design communication campaigns, in their efforts to exploit all potential avenues for the dissemination of persuasive messages.

## Chapter 2.

### Literature Review and Theoretical Framework

The videogame industry is a vibrant and thriving enterprise that pumps millions of dollars into the development and creation of games with better features (Glasser, 2010). It is estimated that companies will pay \$7.2 billion for in-game advertisements by 2016 (Batchelor, 2011). There are a wide range of videogames available these days, and they vary in terms of the level by which they display advertising messages. These advertisements can be shown in obvious parts of the game or in the focal center, for example in a race car simulator or a virtual billboard. They can also be presented using subtle or non-invasive techniques, such as by placing them in the visual periphery or a sign off to the side of the player's view.

Those who play also differ in many ways. For example, they may exhibit varying degrees of involvement with the game. Some may be more intense, seeking to complete the major object of the game or besting a high score. Others may just be moderately involved, playing the game with no real goal but to pass the time. While some are videogame experts, others may be encountering videogames for the first time.

This study aims to determine what type of advertisement placement (focal center or peripheral) works best (in terms of recognition and recall) with what type of gamer (in terms of his/her involvement with the game and experience with videogames).

Advertisements have been in videogames since Sega® decided to put Marlboro® cigarette ads in its racing games over 20 years ago (Acar, 2007). It also became customary for companies to create games with their mascot as the main character, such as

7-Up's® *Cool Spot* and Domino's® *Avoid the Noid* (Nelson, Keum & Yaros, 2004). It is surprising, therefore, that studies exploring the effects of such ads on videogame players, a rapidly expanding special audience segment, remain few and far between (Acar, 2007).

In videogames, products can be advertised in various ways to heighten a game's sense of "realism." Product placements within videogames also are seen as less intrusive than a paid advertisement inserted in TV programs and may not even be conceived as a commercial message (Nelson, Keum & Yaros, 2004). Nelson et al. (2004) support the notion that advertisements can enhance the realism of a videogame environment. Sports games, for instance, are perceived as more realistic if they show ads similar to those seen in broadcast sports events.

### **Advertising Approaches in Videogames**

Glass (2007) categorizes approaches to advertising in videogames into three major types: (1) monopolization, (2) billboarding, and (3) utilization. Monopolization happens when only a single product or brand is placed in the game. Games exclusively created by companies fall into this category (e.g., Burger King's® *Sneak King*).

Billboarding, which entails locating advertisements in "natural places" within the game's simulated environment, is the most common form of product placement and is most prevalent in sports games. Billboard ads are found in the game environment or on the sides of stadiums. Utilization is a more involved approach in which a character in the game or the player interacts with the product (Glass, 2007). A player driving a specific brand of car in a racing game is an example of utilization. Another is when a player-controlled character drinks a specific brand of soft drink.

Utilization has an advantage over the other advertising approaches due to the interactive nature of the games (Glass, 2007). Unlike movies and television where messages are ostensibly consumed passively (Lee & Faber, 2007), players have a unique involvement with videogames (Nichovich, 2005). A movie continues to play even if viewers decide to walk away from it. A videogame, on the other hand, requires players to actively participate to progress through the story or plot.

The present study uses the billboard type of ads. The placement of these billboard ads, specifically their position with respect to the gamers' focal vision, was manipulated. Billboards were placed either within the gamers' focal center (i.e., over a race track) or within their peripheral vision (i.e., off to the side such as in audience stands).

### **Involvement, Presence and Immersion**

The term "involvement" is not very well defined in the advertising world. Some see involvement as a state or process that is "grounded in motivation" (Lee & Faber 2007, p. 77). In general, game players are motivated to get the best score. Thus, this study defines game involvement as the extent to which the player focuses attention and cognitive resources primarily on playing the game. The secondary focus includes achieving or beating a high score, reaching a game-defined goal, or simply completing the game itself (Lee & Faber, 2007).

Another critical factor in game-player relations is "presence," defined psychologically as "a sensation of 'being' in an environment" (Nichovich, 2005, p. 30). A medium's ability to make an audience member or user feel as if he or she is in a

different environment enhances the audience member's sense of presence (Nichovich, 2005).

Nichovich (2005) suggests that presence in a videogame requires three factors: spatial ecology, engagement and immersion. Spatial ecology is the player's acceptance of the environment the game provides. Engagement is the player's interaction with the game's virtual environment, such as how he/she can move or interact with characters within that environment. In a sense, a game's ability to achieve a believable presence enhances the gamer's experience, and, by extension, his or her engagement with the products advertised within the game (Glass, 2007).

A third factor in the player-game relationship is immersion, or how a player is absorbed into the game. Videogames, especially the current generation games, are said to be highly immersive. One of the most popular game forms is the "first-person shooter" or FPS in which a person controls characters in the first-person perspective, or seen through the eyes of the character, as these characters are maneuvered through combat scenarios. Compared to what is called a third-person perspective game where the camera is situated behind the character, this form can give players a sense of attachment or connection through the use of perspective (Glass, 2007). Another game form is the role-playing game (RPG). Because RPGs usually require more time and effort to play, players become attached to their characters (Glass, 2007). Game characters can also be customized to better suit the player's preferences, a capability that strengthens the bond between game characters and those who control them.



Studies have suggested that the virtual or imagined interaction between players and products or brands can elicit a positive attitude about the product among those who play the games. In short, players who are fully immersed in a game may not be able to fully critique the advertisements they encounter. In a sense, immersion can “take a player’s guard down” when it comes to advertisements, making them more susceptible to the ads’ effects (Glass, 2007, p. 25). Nicovich (2007) postulates that players highly involved in a game will have positive attitudes toward the advertisements and toward the products shown in those ads.

For an advertisement to be successful, it has to generate some level of involvement among those exposed to it (Laczniak, Muehling & Grossbart, 1989). The conceptual definition of message involvement has been a subject of debate among researchers for quite some time. Some argue that message involvement has something to do with attention capacity, personal relevance, or the ability to elaborate the message. However, many agree that message involvement is a “situationally-specific and transitory state” in which an audience member reviews what the advertisement says and connects that message with his or her own needs.

Involvement can be broken into three levels: low, moderate, and high (Laczniak Muehling & Grossbart, 1989, p. 29). Tavassoli, Shultz & Fitzsimons (1995) likened these three levels of involvement with the types of people who watch World Cup soccer. In this case, high involvement viewers are avid soccer fans who watch the game intently and who strongly support a specific team. Moderate involvement viewers are those who enjoy

soccer, but do not necessarily support a specific team. Low involvement viewers are those who watch the game simply because there is nothing else of interest.

Involvement has been linked to an increase in interest. Essentially, if a person is interested in the topic of an advertisement, that person is likely to be more involved with the advertisement or the product and/or brand being advertised (Tavassoli, Shultz & Fitzsimons, 1995). Thus, a person with a high interest in soccer is likely to be highly involved in the products relating to the sport as well.

Those with low involvement on a topic or issue are not likely to expend enough cognitive capacity to understand or know more about that topic or issue (Srull & Wyer, 1989). In the case of videogames, it can be surmised that a player who is not involved with the game might not even play at all. Thus, actual videogame players are essentially those who can be characterized as having a high or moderate involvement with the game. Gamers with a high involvement will be so focused on the game that they will ignore or not properly process in-game advertisements because more resources are put into the primary than the spare tasks (Lee & Faber, 2007).

### **Limited Capacity Theory and Experience**

According to the limited capacity theory, a person cannot process or consider more than four to seven items of information at any given time (Lynch & Srull, 1982; McClung, Park & Sauer, 1985). The more involved a person is with a message, the more cognitive function is allocated toward the processing of that message as predicted by this theoretical framework (Lang & Basil, 1998; Lee & Faber, 2007). Television viewers watch not only TV shows but also the advertisements presented within those shows. In

comparison, a videogame player may be involved with the game first and with the advertisements second (Lang & Basil, 1998; Lee & Faber, 2007).

It is not surprising, therefore, that this theoretical model defines attention as “the allocation of processing resources to a message” (Lang & Basil, 1998, p. 447). Attention is considered a limited resource in a fixed pool of resources that includes mental energy, the sensory aspects of the human anatomy such as the visual and verbal systems, and the memory systems used to process messages (Lang & Basil, 1998).

The distinction between primary and secondary task has enabled researchers to measure how many activities a person can pay attention to at once. The limited capacity model suggests that people can perform two tasks by dividing their resources into two parts: primary and spare (or secondary) (Lynch & Srull, 1982). The primary task is the focal point of the person’s attention. In videogames, this may entail beating a score or completing the game’s story mode. The spare or secondary task in this context includes processing in-game advertisements (Lee & Faber, 2007). Primary tasks cannot combine with spare tasks; each is distinct in its focus (Lynch & Srull, 1982).

Lynch and Srull (1982) see two kinds of attention: selective and intensive. Selectivity refers to the “selective allocation of cognitive capacity to a particular task in preference of others” (Lee & Faber, 2007, p. 76) or the assignment of conscious intellectual activity to one specific task out of other tasks. Intensity is the “amount of cognitive capacity that is allocated to a particular task” or the amount of intellectual activity assigned to a particular task (Lee & Faber, 2007, p. 76).

Too much attention or cognitive load can cause problems in the allocation of mental resources to other areas (Lang & Basil, 1998). One's level of involvement may also be dictated by the difficulty of a task. The more difficult the task is the more cognitive resources are poured into it (Lynch & Srull, 1982). These two influences result in an inverted U curve relationship between attention and involvement as found by Tavassoli, Shultz & Fitzsimons (1995). A person assigns more resources to secondary tasks, such as mentally processing advertisements, between the low and the moderate levels of involvement. This propensity plateaus around the moderately high area and drops as involvement reaches its highest rating. At high involvement, almost all resources are pooled into the primary tasks area.

Experience in video games can mean either a person has played video games before or it can mean prior use of a specific game. People with gaming experience often have a better grasp of the mechanics involved with playing the game given that each game has its own distinct control design. People who have played a particular game before are familiar not just with the control scheme but are also able to expect what comes next in the game (Lee & Faber, 2007). In their experiment, Schneider and Cornwell (2005) found that those with previous experience recalled and recognized advertisements better than non-experienced players. However, Lee and Faber (2007) found that those with game experience had a more difficult time remembering advertisements in the peripheral vision and at focal center. They surmised that because players have prior experience and were highly involved, they had less cognitive spare capacity to process the ads.

## **Recognition and Recall**

The ease with which a person recognizes or is able to decipher an advertisement is one of the commonly used indicators of an advertisement's effectiveness (Meyers-Levy, 1991). Generally speaking, in terms of advertisements, recognition, a one-stage process, is considered a better measure than recall, which theoretically requires two stages to achieve (Lynch & Srull, 1982).

During a recognition test, an ad's claims are presented at the player's focal center to spare experimental subjects the task of retrieving information from memory. The test determines if subjects can accurately recognize the advertisements they encountered during exposure to communication stimuli (Meyers-Levy, 1991).

Recall, the ability to remember information after acquiring it (Lynch & Srull 1982), is another dependent variable in this study. Meyers-Levy (1991) states that recall can be viewed as an involuntary process. Advertisements often make claims about what benefits the product or brands offer to audiences. A person's ability to recall an advertisement is strengthened if the ad allows for relational and item-specific elaboration. In short, a person can remember an advertisement more clearly if the ad offers a claim that connects a beneficial theme of the product (e.g., personal comfort, enhanced status) to personal need (Meyers-Levy, 1991). It can be surmised that advertisements within the focal center will produce greater recall (Glass, 2007).

Free recall is a two-stage process that includes recognition. First, a person must retrieve information from memory. Second, a person must be able to recognize or distinguish an item (in this case, an ad) within a particular context (Lynch & Srull, 1982).

### **Game Players' Attitude Toward and Memory of In-Game Advertisements**

Audience members must be receptive enough for an advertisement to work. An ad that is used poorly is less likely to be remembered. Some may evaluate advertisements found in any medium as informative and entertaining, while others may see them as manipulative and annoying (Nelson, Keum & Yaros, 2004). Players respond the same way to ads in videogames (Acar, 2007), however, most have shown positive attitudes toward in-game ads (Nelson, Keum & Yaros, 2004).

One reason for this positive response may be the advertisement's ability to enhance a game's sense of realism. A product placement in a movie or television show can help make the situation look more lifelike than using a generic or made up product. Videogames take this idea a step further by allowing players to interact with the product (Nelson, Keum & Yaros, 2004). For example, driving a virtual car in a simulator game is tantamount to giving the car a virtual test drive.

Studies have shown a common link between a player's attitude toward advertisements and commercialism in general, and their opinions about in-game ads in particular (Nelson, Keum & Yaros, 2004). Not all players are on board with the idea of in-game advertisements. Those with this attitude have developed "coping tactics" to help block out the ads, including boycotting the product or brand or ignoring the ads altogether. However, these forms of coping might not be effective because most cognitive functions responsible for judgment are in the unconscious part of the mind (Lynch & Srull, 1982). People rarely "actively involve or process the majority" of the advertisements they encounter in their environments (Acar, 2007, p. 45). In fact, Nelson

et al. (2004) observed that some gamers “caught themselves being influenced” by advertisements without realizing it.

Seeing product placements in their favorite games, players may decide to educate themselves about the product or brand being promoted. Sometimes, game makers create ads about fake companies and products, usually for humor (e.g., the radio ad clips in the *Grand Theft Auto* or *Saints Row* series). Participants in Nelson et al.’s (2004) study reported that they actively sought out the products they witnessed in a game, especially after knowing that game makers themselves do not manufacture such products. Thus, the use of real life products in a game enhances realism and is not likely to take away from the game’s immersive experience.

Seeing and acknowledging a real advertisement in a game can stick out in a gamer’s mind because it is seen as out of place in the fictional world of a game. It is often said that people tend to remember inconsistencies better (Srull & Wyer, 1989). Thus, people perceived as displaying inconsistent behaviors, or acting outside the social norm, are recalled more clearly than others. This is because incongruent information requires more cognitive effort to process, leading to better recall (Srull & Wyer, 1989; Lee & Faber, 2007; Lynch & Srull, 1982).

### **Focal Center and Visual Peripheral Advertisements**

Where ads are located in the game with respect to the player’s sphere of vision is an important variable in the present study. In this experiment, two types of ads were tested based on where they were positioned as part of the game—within the player’s focal center or peripheral vision. Advertisements in the player’s focal center lie closer to the

focal visual field and are thus more obvious than other advertisements. For example, in a car race simulation, billboards along the race track and/or brand names on the race car itself are considered focal center ads. For the purpose of this experiment, advertisements that are in the center of the screen and well within a player's central field of vision are categorized as advertisements in the focal center of the player's sight.

Advertisements in the player's peripheral vision are more subdued in terms of where they appear, which is in the player's peripheral field of vision on the screen (Lee & Faber, 2007). Examples of advertisements in the peripheral vision are a movie poster on a dark hallway or a can of soda mixed with other debris on the ground. For the purpose of this experiment, advertisements that are outside the player's focal center will be categorized as advertisements in the periphery of the player's sight.

Unlike other forms of advertisements, in-game ads do not need to include intrusive elements such as lengthy texts, a technique advertisers say players typically prefer.

Past research has shown that product placements in movies were more effective in enhancing brand memory if placed prominently on the screen (Acar, 2007). This finding is perhaps more applicable in videogames whose players are more active and involved with content. Indeed, testing the efficacy of billboard ads in a racing game, Lee and Faber (2007) found that brand memory was enhanced more by advertisements shown within the player's focal area compared to ads in the peripheral area. Thus, an advertisement within the center of the player's sight is more likely to elicit greater recognition and recall.



In addition to the impact of product location, Lee and Faber (2007) found that the player's level of involvement with the game and prior game-playing experience influence brand memory. Specifically, they report that among experienced players, recognition was strong for brands that were closer to the line of sight or focal center region. However, recognition disappears with high involvement. These findings support the theory that higher involvement entails lesser attention paid to other tasks, including advertisement processing.

It is suspected that while most people do not actively involve themselves with advertisements, ads can influence people on a subconscious level. Acar (2007) contends that people respond to "subliminally-processed stimuli better than consciously-processed stimuli" (p. 47). However, unconscious processing does not necessarily lead to better recognition or recall because a person who does not actively process an ad is not likely to remember it. However, advertisements can still affect viewers by creating positive responses simply by being exposed to the ad (Acar, 2007).

People also tend to favor things they are familiar with even if they have negative thoughts about the product or brand at first encounter (Acar, 2007). Players repeatedly exposed to a game enhance their familiarity with the game and with the ads they feature. Those familiar enough can predict or anticipate events in the game so that game play will require less cognitive energy. This frees up mental resources to the spare tasks, such as the processing of in-game ads (Lee & Faber, 2007).

Based on the foregoing literature, this study proposes an interaction effect of ad placement, players' involvement with the game, and prior gaming experience on brand

memory, operationalized in the present study as the recognition and recall of products or brands advertised within a game. The following section discusses the effects of ad placement on recognition and recall. This is followed by a discussion of the interaction effects between type of ad placement and involvement. Finally, an interaction effect hypothesis between type of ad placement and gamers' experience is proposed.

### **Hypotheses**

Studies have shown that advertisements located in the player's focal visual field perform better in enhancing memory compared to those situated within the player's peripheral view (Lee & Faber, 2007). In general, advertisements in the player's focal center are more easily recalled regardless of how they are presented (Glass, 2007). Recall is the ability to remember information after acquiring it and entails a two- step process. First, the brand is retrieved from memory once it has been spotted. Second, the viewer runs a recognition check on the brand to determine if it has been encountered before (Lynch & Srull, 1982). In this study, ads at focal center are defined as those near the center of the player's focal vision. Ads peripheral visions are defined as those in the periphery of the player's vision.

According to Lynch and Srull (1982), recognition, or the task of deciphering an advertisement, is less complicated than recall and is considered a better indicator of ad quality. Thus, it is hypothesized that:

H1a: Advertisement placements in the players' focal center will be better recognized than advertisement placements in the players' peripheral vision.

H1b: Advertisement placements in the players' focal center will be better recalled than advertisement placements in the players' peripheral vision.

Involvement, as defined in this study, is the extent to which a player expends mental effort in playing the game. The literature suggests three levels of involvement: low, moderate, and high (Laczniak, Muehling & Grossbart, 1989). However, Lee and Faber (2007) argue that there is no such thing "low involvement" in the context of playing videogames because the activity demands some amount of effort. The limited capacity theory suggests that someone who is moderately involved has the greater ability to allocate cognitive resources toward the spare tasks beyond the primary task of playing the game (Lang & Basil, 1998; Lee & Faber, 2007). Such spare capacity is used to help process secondary stimuli (Lang & Basil, 1998). This experiment uses playing a videogame as the primary stimulus; processing the ads in the game's virtual environment is the secondary (or spare) task. Thus, memory is enhanced the most when the player is moderately involved with the game (Lang & Basil, 1998).

Combining this with the potential impact of focal center vs. peripheral ad placement, it can be argued that the best way to utilize in-game advertisements is to show billboards in the player's focal center to moderately involved players. Thus, the following hypothesis is posed:

H2: There will be an ad placement type (focal center vs. peripheral) x player involvement (high vs. moderate) interaction on recognition and recall. Specifically, recognition and recall will be higher in the focal center placement/moderate involvement

condition than in the peripheral visual placement/moderate involvement condition or in either of the high-involvement condition.

It was first hypothesized that experienced players who were highly involved with the game will not recognize advertisements within focal center any better than those in the peripheral vision. However, tests have shown that experienced players who were moderately involved were able to recognize advertisements with the player's focal center better than advertisements within the peripheral vision (Lee and Faber, 2007). Moreover, inexperienced players noticed advertisements within the peripheral vision better than their experienced counterparts. Lee and Faber (2007) explain that because inexperienced players have yet to figure out what is important, they are likely to pay attention to everything visual about the game. This allows them to take notice of ads the experienced players might ignore or consider unimportant. Thus, the following hypothesis is posed:

H3: There will be an ad placement (i.e. peripheral and focal center) x game experience interaction effect on recognition and recall. Specifically, recognition and recall of focal center placed ads will be greater for inexperienced players than for peripheral vision and/or experienced players.

As mentioned, in games, a person's involvement can only be moderate or high. Moderately involved players are said to have spare capacity in their cognitive processing, allowing them to recognize and recall ads better. It is surmised that non-experienced players will be able to recall ads at the peripheral vision or t focal center better because they are likely to take in the virtual surroundings as a whole (Lee & Faber, 2007). On the other hand, highly involved players will not have the spare capacity to recognize or recall

peripheral visual placed advertisements. With energies focused on the game, experienced gamers are likely to recognize and recall advertisements placed in the player's focal center. However, experienced and highly involved players will have the greatest difficulty remembering focal center advertisements (Lee & Faber, 2007). Thus, it is hypothesized that:

H4: There will be an ad placement (i.e. focal center and peripheral) x involvement x prior experience interaction effect on recognition and recall such that advertisements placed in the focal center will be recognized and remembered better than advertisements within the player's peripheral vision except in the high-involvement condition and experienced game player.

## Chapter 3

### Method

Data for this study were gathered by conducting an experiment. The purpose was to examine the interactive effect of ad placement types in videogames (focal center or peripheral) and the player's level of involvement (high or moderate) on their recognition and recall of ads embedded in the game. Specifically, it was hypothesized that the players' involvement with the game affects their ability to recognize and recall the in-game ads to which they were exposed.

The experiment was a 2 (advertising placement: peripheral vs. focal center) X 2 (involvement: high vs. moderate) x 2 (videogame experience: experience vs. non-experience) mixed factorial design. The advertising placement is operationalized as a within-subjects variable, while game involvement and game experience was analyzed as between-subjects variables.

### Procedures

A total of 114 undergraduate students at Iowa State University were recruited to participate in this study. At the recruiting stage, they were told that their participation in the study was completely voluntary. A consent form, which students were asked to sign, was distributed before conducting the experiment. The participants were not informed about the actual purpose of the study; instead, they were told they would be testing a videogame that involves racing cars. They were asked to play the game *Need for Speed: Most Wanted* using the Xbox 360 console. The game allows players to drive a vehicle in either linear race tracks as in a regular street setting or an open environment or

“sandbox,” a term used in the gaming industry that means the player has free access to the entire in-game world with little restrictions.

As they drive the vehicle, players were exposed to ads placed in the peripheral vision (i.e., outside their central vision focus). Advertisements that are placed within the player’s focal center are positioned on the center of the screen.

A wide range of products and brands were advertised. Some promoted car-related merchandise, such as car parts and car maintenance equipment. Others displayed food items and restaurants, such as soft drinks and fast food chains. Because the two dependent variables in the study were recognition and recall, real life products and brands were used (e.g., Burger King®, Axe Body Spray®, and Cingular®).

### **Independent Variable Measure and Manipulation: Involvement**

Involvement was manipulated through instructions given to the participants. The high involvement group was told to achieve specific goals. In this case, they were asked to finish a series of races, milestone events, and to defeat a “blacklisted racer,” a leading racer. Other than this, they were asked to try to finish first in the races.

Those in the moderate involvement group were told to play the game for pleasure; no goals or other forms of incentives were given to this group.

The amount of cognitive effort a participant allocated to playing the game served as a surrogate indicator of the player’s involvement with the game (Lord and Burnkrant, 1993). Although the cognitive capacity allocated to game playing cannot be directly observed, it can be indirectly assessed by measuring spare capacity using secondary task reaction measures (Basil, 1994; Land and Basil, 1998; Lord and Burnkrant, 1993). To

measure spare capacity, 16 auditory probe signals were placed randomly throughout the game. The participants were instructed to press a mouse button with their foot when they hear the signal. These signal responses were recorded to determine a participant's level of involvement. The assumption is that because cognitive resources are allotted toward the primary task, those high in involvement would not have enough spare capacity to complete the signal task and would therefore miss more responses due to slower reaction times. Lee and Faber (2007) employed the same test to determine involvement levels.

A Microsoft Xbox 360® videogame console was used to deliver the game in this experiment. A mouse was placed by the participant's feet for them to press once they heard the audio cues. Other than turning off the in-game soundtrack, no volume manipulation was done that may have overpowered the game's natural audio environment. The participants' latencies in responding to the tones were recorded, summed, and averaged to form a reaction time index. The number of no responses to auditory probe signals also was recorded.

### **Stimuli**

The videogame stimulus was a street racing arcade game called *Need for Speed: Most Wanted*. Like most sports-oriented games, it is common to find ads in racing games. *Need for Speed: Most Wanted*, however, offers an added advantage—it has linear race track and free-roam play capability, two modes of game play that help separate the two involvement groups. Racing linear tracks offers few diversions, forcing high involvement players to intently pursue the desired goal. A free-roam style of driving, on the other



hand, allows drivers to go wherever they wish. In this type of play, moderately involved players have more choices and are less controlled by the game.

The game gives players a “third-person view” in which the players’ sight is positioned behind the vehicle instead of inside the car looking out the front window (the “first-person view”). For this experiment, the game’s settings were set so that brightness levels are adequate enough to be able to see the billboards properly.

The game asks players to drive in free-roam style; that is, they could drive wherever they see fit. Within the game’s free-roam world, there are spots where players can take part in races with linear courses. The players begin playing the game near the beginning of a single player campaign to avoid first time players from being overwhelmed by the increasing difficulty.

The vehicles also were pre-made for the players’ use so they can focus on the game tasks instead of tinkering with the cars to modify their abilities. A car was made available to each participant at the start of the game, a black Lexus tuned for better handling.

### **Dependent Measures**

The dependent variables are recognition and recall of brands and products shown within the game.

Recognition, or deciphering an advertisement, was measured by asking participants to check the brands and products they recognized from a list of 14 brand names. This list includes in-game brands, brands that exist only in the game environment, and products not found in the game. Eight of these are real products and six are made up

brand names. This list of brand names are separate from that which was used to test recall and was given after the recall test to avoid cross contamination.

Unlike the recall test, the recognition part of the questionnaire involved multiple-choice items. An answer was coded as correct if the participant circled the brand or product that did appear in the game. Every circled product or brand that did not appear in the game was coded as incorrect. The participant's ability to recognize real brands or products from the fake was recorded. Simply counting the correct brands do not account for people who guessed that the bogus brand names appeared as well. To avoid this problem, a participant's ability to discriminate between actual brands and bogus brands was measured (Green and Swets, 1966). To measure recognition sensitivity ( $d'$ ), two separate values were computed for each participant: (1) the rate of hits or  $H$ , which is the proportion of brand names that actually appeared in the game the participants said they had seen, and (2) the rate of false alarms or  $F$ , the proportion of brand names they said they had seen that did not appear in the game). Each of these scores was standardized. The resulting standardized false alarm score was then subtracted from the standardized hit score (Macmillian and Creelman, 1991). A  $d'$  score of 0 means that the participant is unable to discriminate between actual and bogus brands, while a larger score reflects greater sensitivity to discriminate between the two (Macmillian and Creelman, 1991).

Recall, the ability to remember information after acquiring it (Lynch and Srull, 1982), was measured by asking participants to list any and all products and brands they encountered in the game. Two coders, who were blind to the treatments, coded the number of brand names recalled. Completely correct answers or answers with slight

misspells were coded as correct. Recall answers were coded as incorrect if they were brands or products not found in the game. If the participant did not write any answer, it was coded as incorrect. Because there were eight different brands appearing in the game, the number of correct responses ranged from zero to eight with zero meaning no brands was recognized. Scott's  $\rho(0.89)$  showed a good level of intercoder reliability.

Disagreements were reconciled after discussion among the two coders and the researcher.

In the testing area, participants were given a pre-questionnaire that also asked for their age, gender, major area of study, and game playing experience. A person's experience with games was measured by asking participants on average how many hours a week they play videogames. Time increments were measured by an hour (e.g., 0-1 hours, 2-3 hours, 4-5 hours, 6-7 hours, 8-9 hours, over 10 hours). It was assumed that a person with high videogame experience would be more accustomed to playing and thus would allocate less cognitive effort into the primary task of playing the game. As such, they also would have more resources for secondary tasks such as advertisement recognition and recall.

Participants were asked to play in a room with separate game stations and television screens. Stations were separated by blinds so that participants could not look at other stations. Participants were given a quick tutorial about how to control their car, and were given a few minutes of free play to familiarize themselves with the game and the controls before the test. Both high involvement and moderate involvement players were given 45 minutes to play.

After 45 minutes, each participant was given a post-test questionnaire that aimed to assess recognition and recall. Other questionnaire items sought to determine their attitudes toward videogame advertisements in general—whether they consider ads disruptive or whether they see them as enhancing the game’s sense of realism.

## Chapter 4

### Results

#### Involvement Manipulation

To analyze involvement data, t-tests were run to assess both reaction time and number of misses. Slower reaction time and more misses (number of no response) to auditory probe signals indicated that a participant was highly involved in the primary task of playing the game and therefore lacked the resources to perform the secondary task (Basi, 1994; Lord and Burnkrant, 1993). An analysis of reaction time showed that the manipulation of game involvement was successful. Participants in the high involvement condition had longer response times ( $M = 918.9$  milliseconds) to probe signals than those in the moderate involvement ( $M = 797.5$  milliseconds) condition,  $t(57) = 2.89$ ,  $p < .05$ . Participants in the high involvement condition ( $M = 4.75$ ) also had more misses than those in the moderate involvement ( $M = 2.29$ ) condition,  $t(58) = 3.29$ ,  $p < .01$ .

#### Hypothesis Testing

The hypotheses were examined in a 2 (product placement proximity: focal center and peripheral) x 2 (game involvement: high or moderate) x 2 (prior game playing experience: experienced player, inexperienced player). Proximity was operationalized as a within-subjects variable, while the other two variables were between subjects variables (Table 1).

Table 1. The means of recall and recognition scores

Experience <sup>a</sup>	Involvement <sup>a</sup>	Proximity <sup>b</sup>	Recall	Recognition	n
Inexperienced player	High	Focal vision	.40	1.17	28
		Peripheral vision	.11	.28	
	Moderate	Focal vision	.56	1.13	25
		Peripheral vision	.10	.39	
Experienced player	High	Focal vision	.48	1.01	24
		Peripheral vision	.19	.33	
	Moderate	Focal vision	.55	1.47	27
		Peripheral vision	.19	.17	

<sup>a</sup>Between-subjects factor

<sup>b</sup>Within-subjects factor

A repeated-measures multivariate analysis of covariance or MANCOVA was used to test the hypotheses. While hypotheses were generated for only some of the possible effects, the full model was tested for a more holistic understanding of how proximity, involvement, and prior game-playing experience influenced recall and recognition. A participant's gender was found to be a non-significant covariate,  $F(2, 100) = 1.06, p < .05$ . Among all possible effects, the MANCOVA results indicated a significant two-way interaction for proximity (type of placement) x game playing experience,  $F(2, 100) = 3.78, p < .05$ , and a significant three-way interaction for proximity x involvement x game experience,  $F(2, 100) = 3.62, p < .05$ . No other effect was significant. Separate univariate tests were conducted to determine impact on recall and recognition Table 2).

Table 2. Repeated-measures MANCOVA for recall and recognition

Hypothesized effects	df	F	Significance level
<b>Proximity</b>			
Recall	1	21.81	.001
Recognition	1	11.95	.001
<b>Proximity x involvement</b>			
Recall	1	1.77	<i>n.s.</i>
Recognition	1	4.02	.04
<b>Proximity x experience</b>			
Recall	1	2.13	<i>n.s.</i>
Recognition	1	5.18	.01
<b>Proximity x involvement x experience</b>			
Recall	1	1.59	<i>n.s.</i>
Recognition	1	4.88	.02

**H1a: Advertisement placements in the players' focal center will be better recognized than advertisement placements in the players' peripheral vision.**

As predicted in H1(a), a main effect of product placement proximity was found for recall of brands  $F(1, 108) = 21.81, p < .01$ . Brands that were placed in the focal vision ( $M = 1.67, SD = .81$ ) were recognized more than brands in the peripheral vision ( $M = .43, SD = .09$ ). Thus, H1a was supported.

**H1b: Advertisement placements in the players' focal center will be better recalled than advertisement placements in the players' peripheral vision.**

As predicted in H1(b), a main effect of product placement proximity was found for recognition,  $F(1, 108) = 11.95, p < .01$ . Brands that were placed in the focal vision ( $M = 1.71, SD = .11$ ) were recalled more than brands that were placed in the peripheral vision ( $M = .59, SD = .09$ ). H1b was therefore supported (Table 1).

**H2 predicts that there will be an ad placement type (proximity: focal vision vs. peripheral vision) x player involvement (high vs. moderate) interaction on recognition.** Specifically, recognition will be higher in the focal vision placement/moderate involvement condition than in the peripheral vision placement/moderate involvement condition.

The findings showed that there was a significant proximity x experience interaction for recognition of brand names  $F(1, 108) = 5.18, p < .05$ , and a significant three-way proximity x involvement x experience interaction for recognition,  $F(1, 108) = 4.88, p < .05$ . The results also showed that there was a two-way proximity x involvement interaction for recognition sensitivity  $F(1, 108) = 4.02, p < .05$ . As predicted in H2, in the moderate involvement condition, the findings revealed that recognition were higher for brands that were placed in the focal vision area ( $M_{\text{moderate involved/focal vision}} = 1.27, SD = .09$ ) over those that were placed in the peripheral vision area ( $M_{\text{moderate involved/peripheral vision}} = .49, SD = .09$ ),  $F(1, 108) = 5.53, p < .05$ . Thus, H2 was supported.

**H3 predicts that there will be an ad placement x game experience interaction effect on recall and recognition.** Specifically, recognition of ads that are placed in the focal vision area will be greater for inexperienced players than for experienced players.

The results showed that there was a statistically significant difference in terms of recognition of brand names placed in a focal position versus those in the peripheral vision. Specifically, a contrast test showed that recognition of brand names was greater for inexperienced game players ( $M_{\text{difference}} = 1.88, SD = .11$ ) than for experienced game



players ( $M_{\text{difference}} = .69$ ,  $SD = .10$ ),  $F(1, 108) = 18.97$ ,  $p < .01$ . However, a contrast test revealed that the difference in recall between brands placed in a focal position versus those placed in the periphery was not significantly different ( $p = .09$ ). Thus, H3 was partially supported.

**H4 predicts that there will be an ad placement (i.e. focal vision and peripheral vision) x involvement x prior experience interaction effect on recognition and recall** such that ads that are placed within a focal vision will be recognized and recalled better than those placed within the peripheral vision, except in the high involvement condition involving experienced game players.

The results showed that recognition of brand names was greater for brands that were in the focal vision over those in the peripheral vision. For highly involved inexperienced players, the means were  $M_{\text{focal vision}} = 1.29$ ,  $SD = .11$  vs.  $M_{\text{peripheral vision}} = .50$ ,  $SD = .11$ ,  $F(1,108) = 5.14$ ,  $p < .05$ . For moderately involved inexperienced players, the means were  $M_{\text{focal vision}} = 1.17$ ,  $SD = .09$  vs.  $M_{\text{peripheral vision}} = .49$ ,  $SD = .11$ ,  $F(1,113) = 4.87$ ,  $p < .05$ . The results also showed that highly involved experienced players recognized centrally placed brand names those in the peripheral vision ( $M_{\text{focal vision}} = 1.56$ ,  $SD = .10$  vs.  $M_{\text{peripheral vision}} = .51$ ,  $SD = .07$ ),  $F(1,108) = 5.17$ ,  $p < .05$ . However, the recall of brand names in the focal vision and peripheral vision were not significantly different, *n.s.* Experienced players in the high involvement condition did not recall focally placed brands any better than they did the peripherally placed brands ( $M = .77$  versus  $.87$ ),  $F(1,$

113) = .28,  $p = .09$ . Thus, H4 was thus only partially supported. No other significant interaction effects were found.

## Chapter 5

### Discussion and Conclusions

This experiment aimed to test the limited capacity model of information processing in terms of the recall and recognition of brand names featured in advertisements placed in the focal center or periphery vision of videogame players considering the players' involvement in and experience with videogames. In other words, the experiment studied if a game player's memory of advertisement brands inside the videogame's environment were affected by the advertisement's placement, a player's past experience in games, and a player's involvement in the game.

Past studies had defined advertisements in their study as explicit, easy to see, or implicit, more subdued. For this experiment we had advertisements more defined with focal center and focal peripheral. It was discovered that advertisement brands in the game's environment that were in the focal center of the player's vision were remembered better than advertisements in the player's peripheral vision. This means that advertisements are indeed more effect if displayed in a direct and clear manner. Testing showed that manipulation of advertisements in the focal center and advertisements in the peripheral visual succeeded on the experiment's participants.

The results indicate that ads positioned in the center of the player's vision were recalled and recognized better than those shown in the player's peripheral vision. This means that people's memory for advertised products is heightened by displaying ads in a direct and straight-forward manner.

A player's involvement with the game also had an impact on the recognition of advertisements in the center of the player's vision. Moderately involved players, those who were told to play the game for fun, recognized advertisements that were in their focal center better than those that appeared in their peripheral vision.

A game player's experience with videogames also had an impact on recognition. Those with limited or no experience were more likely to recognize advertisements placed in the focal center than their experienced counterparts. Originally we had thought that the limited capacity theory would predict that the more involved a person is in something the fewer resources for other tasks they have, such as paying attention to advertisements and that those with prior experience would have more spare capacity to remember advertisements in the game. Instead we found that those within the little or no prior experience group remembered advertisements better. This could mean that they had spread their attention through the entire game and not just one aspect.

Essentially, the study theorized that advertisements placed in the focal center will be remembered the most except by high involvement players with videogame experience. This is because high involvement players with game experience will have the least amount of spare cognitive resources available to process advertisements in the game's environment. The MANCOVA test results did not show a strong enough interaction for this hypothesis to be fully supported, a finding that could be due to the small proportion of participants demonstrating these two characteristics.

The results of the study also show that placing an advertisement in the most forward way (i.e., at the center of vision), elicits that highest recall and recognition.

However, factoring in involvement and experience may diminish those impacts. That is, the findings indicate that product placement may be a necessity but not a sufficient condition to enhance recognition and recall.

Experienced game players are said to be able to adapt easily to a new game and learn the basic mechanics faster. The influence of gaming experience, however, needs to be elaborated due to plausible competing explanations. Because of some developed mastery with videogames in general, players with experience can be seen as having spare capacity to notice ads and consequently remember them. But past studies have indicated that experienced players can tune out advertisements because they can quickly grasp the basics of the game, precluding the need to pay attention to all aspects of the game's environment. The current experiment's results showed that individuals with videogame experience did not remember in-game advertisements as well as those with no experience, suggesting that experience made it more difficult to remember facets of the environment that may have been deemed unimportant to complete the game. Game developers, therefore, should find ways to integrate advertisements into games that are likely to enhance memory especially among avid game players.

The study did not find sufficient evidence to support the contention that those with high involvement and with substantial experience were the least likely to remember product placements. This study found that while such players recognized focal ads better than peripheral ads, experienced and involved players had difficulty recalling ads regardless of placement.

### **Limitations**

This experiment solicited the input of only college student participants 18 to 20 years of age although available audience demographics indicate that videogames are typically played by young men between 18 to 34 years old. The general racial makeup of participants was white and Asian. While there is no literature suggesting that responses should vary by race or age, future studies can be strengthened by a more diverse pool of experimental subjects.

The experimental stimuli can be strengthened by manipulating the game to show a more pronounced focal center and focal peripheral placement. For instance, a range of billboard placements, including over roads and along the streets the players pass may have been more conspicuous and thus more accessible. More straight-forward placements and real life advertisements will further enhance the game's realism. Attempts were made to contact Electronic Arts Company in order to obtain a copy of the game with aforementioned modifications, but we were unable to reach anyone with the authority to create such a copy.

While videogames themselves are a thriving business, there is always potential for companies to utilize the gaming industry to increase the profit margin and get their brand out into the public. Placing advertisements in games is one thing, but knowing how to utilize them is another. An advertisement is worthless if no one remembers or even notices it. However, putting the advertisements right in the faces of the game players does not guarantee recall and recognition since some brands might be unknown and it is a usual practice for videogames to have false advertisements and brands making

remembering these advertisements pointless in terms of creating awareness for the brand or product.

Future studies can benefit from a more nuanced definition of game experience considering the variety of videogames in the market. Playing a fairly complicated multi-player online role playing game such as *World of Warcraft* on a computer offers a different experience from playing a first-person shooter game such as *Call of Duty* on a console. A person's experience with certain types of videogames should therefore be accounted for.

As videogames increase in popularity, fewer and fewer are likely to be categorized as inexperienced players. Although others play sparingly, others can be considered "hardcore" gamers who often put long hours into this activity. Some gamers may only be experienced in one genre of videogames or a specific title, such as the *Need for Speed* series. Future studies able to categorize participants based on their level of experience in game playing may thus offer more nuanced results. In other words, there is great benefit in treating gaming experience as an ordinal rather than a dichotomous categorical variable.

The game used as the experimental stimuli, *Need for Speed: Most Wanted*, is over five years old. Such a game can be considered already obsolete with the speed videogames are developed and marketed. Participants who had played the game before needed time to re-familiarize themselves with the game's mechanics. Thus, almost every participant needed time to adjust to the game, which may have confounded the participants' self-assessed status as experienced videogame players.

Videogames are able not only to show off brands and products, but also allow them to be “used” in virtual environments. This study examined the impact of focal vs. peripheral placements, but not utilization of the products, such as the cars featured in the game. Future studies may wish to investigate the extent to which virtual interactions with products enhances recognition and recall.

### **Conclusion**

Movies and television programs have been known to use fictional advertisements about fictional products. For instance, instead of using a Coca-Cola can in a scene, a regular can with the word “soda” across the side is shown. In videogames that involve driving a car, for example, players may hear a fictional radio program with commercials promoting fictional products. Videogames can use both false and real brands in their environment, in which case the players must distinguish which brand is real and which is not as well as using cognitive effort to remember the ads. Future investigation may choose to examine how a mix of fictional and real life advertisements affects the recall and recognition of advertised products.

Billboarding appears to be the straightest forward and effective way for videogame advertisements to be remembered, but such a tactic will not work on all forms of gamers. Game makers cannot control the involvement of a game player nor can they force the player to remember advertisements, but since videogames are an interactive medium, game makers can still have the player interact with the brand in the digital environment. For now game designers can focus on the delivery of the message and find new approaches in delivering advertisements and corporate brands to the players.



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## APPENDIX A.

### Video Game Study: Pre-test Questionnaire

**Introduction:** Thank you for participating in this study. Please answer the following questions before proceeding with the experiment. You may skip any question to which you may feel uncomfortable responding.

Your answers are very important to this study. Your time and cooperation is much appreciated.

Participant number\_\_\_\_\_

#### I. Videogame Playing Habits

1. What current generation system(s) do you have? Please check all that applies.

- Xbox 360
- Playstation 3
- Nintendo Wii
- Nintendo DS & all incarnations.
- Sony PSP & all incarnations.
- PC (Personal computer)

2. How many times a week do you play videogames? Please check the answer that best applies to you.

- 0 hours
- 1-2 hours
- 3-4 hours
- 5-6 hours
- 7-8 hours
- 9-10 hours
- Over 10 hours

3. What type of games do you usually play? Please check all that applies.

- Role playing games
- Shooters (Both first and third person)
- Action/Adventure
- Racing
- Puzzle
- Simulation
- Other

None

## II. Demographic Information

1. What is your age (in years)? \_\_\_\_\_

2. In what college does your major field of study fall? Please check all that applies.

Agriculture and Life Sciences

Business

Design

Engineering

Human Sciences

Liberal Arts and Sciences

Veterinary Medicine

3. What is your gender?

Male  Female  Transgender or Other  I do not wish to disclose

4. Which one of the following best represents your race?

White

Black or African American

Asian

Native Hawaiian or other Pacific Islander

American Indian or Alaskan native

Hispanic non-white or multiracial

I do not wish to disclose

**Thank you for your participation.**

## APPENDIX B.

### Video Game Study: Post-test Questionnaire

**Introduction:** Thank you for participating in this study. Please answer the following questions as best you can and do not jump ahead. You may skip any question to which you may feel uncomfortable responding. Your answers are very important to this study. Your time and cooperation is much appreciated.

Participant number\_\_\_\_\_

#### I. Attitudes toward the Ad Placements

Please indicate your agreement with the following statements regarding the use of advertisements in the videogame you just played. Please indicate your responses on a scale of 1 to 7 where 1=strongly disagree and 7=strongly agree.

1. I like the ads I saw in the game.

Strongly disagree 1    2    3    4    5    6    7    Strongly agree

2. The ads enhanced the game's realism.

Strongly disagree 1    2    3    4    5    6    7    Strongly agree

3. Ads are all right as long as they don't disrupt the flow of the game.

Strongly disagree 1    2    3    4    5    6    7    Strongly agree

4. I am indifferent to ads shown in videogames.

Strongly disagree 1    2    3    4    5    6    7    Strongly agree

5. The ads are disruptive most of the time.

Strongly disagree 1    2    3    4    5    6    7    Strongly agree

6. I hate the ads. They are always disruptive.

Strongly disagree 1    2    3    4    5    6    7    Strongly agree

**II.** Would you feel more positively for in-game advertisements if the result meant a drop in the price of videogames? Check your answer.

\_\_\_ Yes \_\_\_ No

**III. Memory Questions**

1. Please write down the names of the products or brands advertised in the videogame you just played.

2. Please check the products or brands you saw advertised in the game you just played.



- AutoZone
- Cingular
- Super Jumbo Lottery
- Burger King
- Edge
- Tuner
- Red Bull Energy Drink
- Axe Body Spray
- Robo's
- Solo's Pet Supplies
- Dairy Queen
- Castrol Syntech
- Diggy's Donuts
- IBM

#### IV. Demographic Information

3. What is your age (in years)? \_\_\_\_\_

4. In what college does your major field of study fall? Please check all that applies.

- Agriculture and Life Sciences
- Business
- Design
- Engineering
- Human Sciences
- Liberal Arts and Sciences
- Veterinary Medicine

5. What is your gender?

Male  Female  Transgender or Other  I do not wish to disclose

6. Which of the following best represents your race?

- White
- Black or African American
- Asian
- Native Hawaiian or other Pacific Islander
- American Indian or Alaskan native
- Hispanic non-white or multiracial
- I do not wish to disclose

**Thank you for your participation.**

**IOWA STATE UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

Institutional Review Board  
Office for Responsible  
Research Vice President for  
Research 1138 Pearson Hall  
Ames, Iowa 50111-2207  
515 294-4566  
FAX 515 294 4267

Date: 1/11/2012

To: Aaron Follett  
1035 Buchanan Hall

CC: Dr. Sela Sar  
201 Hamilton Hall

From: Office for Responsible Research

Title: The Effect of Explicit and Implicit In-Game Ad Placement, Player Involvement, and Player Experience on Recall and Recognition of Videogame Ads

IRB ID: 11-536

Approval Date: 1/10/2012 Date for Continuing Review: 1/9/2013

Submission Type: New Review Type: Expedited

The project referenced above has received approval from the Institutional Review Board (IRB) at Iowa State University according to the dates shown above. Please refer to the IRB ID number shown above in all correspondence regarding this study.

To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- Use only the approved study materials in your research, including the recruitment materials and informed consent documents that have the IRB approval stamp.
- Retain signed informed consent documents for 3 years after the close of the study, when documented consent is required.
- Obtain IRB approval prior to implementing any changes to the study by submitting a Modification Form for Non-Exempt Research or Amendment for Personnel Changes form, as necessary.
- Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences involving risks to subjects or others; and (2) any other unanticipated problems involving risks to subjects or others.
- Stop all research activity if IRB approval lapses, unless continuation is necessary to prevent harm to research participants. Research activity can resume once IRB approval is reestablished.
- Complete a new continuing review form at least three to four weeks prior to the date for continuing review as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.
- Upon completion of the project, please submit a Project Closure Form to the Office for Responsible Research, 1138 Pearson Hall, to officially close the project.

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.