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# Measuring player perceptions of advertising in online games

Ben Lewis

*Louisiana State University and Agricultural and Mechanical College*, [blewis9@lsu.edu](mailto:blewis9@lsu.edu)

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MEASURING PLAYER PERCEPTIONS OF  
ADVERTISING IN ONLINE GAMES

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
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in

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by  
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## **ABSTRACT**

An experiment with 100 participants aged 18-24 was conducted to measure the effects of advertising in an online role-playing computer game on perceived interactivity and other aspects of gameplay experience. Results from a post-test questionnaire revealed insight into players' attitudes toward advertising in video game environments, and reflected varying levels of advertising awareness and recall, message recognition, and factors in purchasing habits.

Results suggested that while advertising in online games can sometimes trigger high advertising awareness rates, it can also reduce a game's perceived sense of realism and genuinely annoy players if not appropriately coordinated with the game environment. Whereas previous research has suggested that players usually accept in-game advertising when placed relevantly, this study shows the opposite can occur when advertisers make little or no effort to contextualize their ads within the game world. Results revealed negative attitudes toward in-game advertising from participants who played a version of the game featuring ads, yet females and non-gamers were more accepting of in-game advertising and more often perceived it as "interactive" than did males and avid gamers. Practical implications and suggestions for further research are discussed.

## CHAPTER 1 INTRODUCTION

Recent research has documented the migration of males aged 18-34 from watching television to playing console and computer games during leisure time (Takahashi, 2000; Donaton, 2003; Cover, 2004; Chaney, Lin, & Chaney, 2004; Reynolds, 2004; Stanley, 2004; Activision, 2005; di Cesare, 2005). Over the past 13 years, Nielsen Media Research has found a gradual decline in television viewing habits among men aged 18-34, who make up approximately 12% of the total television audience and account for around \$4.3 billion in targeted network and cable advertising (Reynolds, 2004). While some may express difficulty accepting the notion “that video games have spawned a technology of substantial importance” (Castronova, 2005, p. 264), advertisers have now begun to pay increasing attention to the game industry in their attempts to reach the elusive 18 to 34-year-old male demographic. As gaming audiences widen over coming years, advertisers who cater primarily or exclusively to this key demographic would be remiss to ignore the immense appeal video games hold with America’s population.

The purpose of this study is to measure the perceptions of advertising in an online video game environment by drawing comparisons between reactions to advertising from a test group playing an ad-supported online role-playing game, and a control group playing the same game without advertising present. The research seeks to observe the role of perceived interactivity in gameplay and measure advertising awareness, unaided recall, message recognition, brand interest, and intent to purchase among groups. Results may help researchers of the effects of interactive media and video games on consumers to develop a better understanding of how games can be used effectively for communication purposes, and provide game publishers, developers, and advertisers with a firsthand look at the factors involved in successful in-game advertising.

The video game industry has recently eclipsed box office revenue figures and captivates audiences of all demographics worldwide. Consultancy firm Yankee Group estimates there are 132 million gamers over the age of 13 in the United States alone (Ramirez, 2006), and in-game ad placement firm Double Fusion estimated the market at \$30 billion at the start of 2005 (Brinn, 2005). IGA Partners claims that computer and console games already represent a \$28 billion worldwide entertainment medium (*Global ad network eyeballs gamers*, 2005), having generated 30 billion eyeball hours in 2002 alone (IGA Partners, 2004). Some analysts anticipate the international video game market will be worth up to \$55.6 billion by 2008 (Nicovich, 2005), while DFC Intelligence pegged the industry at a modest \$44 billion by 2011 (Graft, 2006b).

Advertisers, agencies, game developers, and media publishers are constantly seeking new developments in research on advertising in video games, with projected in-game ad spending expected to rise significantly in the near future. As additional revenue from advertisers lowers the overhead costs of producing games, individual unit prices may drop as well (Brown, 1999; Nelson, Keum, & Yaros, 2004; Campbell, 2006; Campbell & Graft, 2006), prompting higher unit sales and potentially higher numbers of eyeballs for advertisers. Consumers stand to benefit from research on the effects of in-game advertising as well, as consistent revenue streams to publishers from advertisers could potentially induce a drop in game prices, and more effective placement of advertising in games could lead to more immersive gaming experiences.

### Video Games as New Media?

Computer and video games have only recently been examined extensively in the academic world, with 2001 marking the first year that “scholars and academics take computer games seriously, as a cultural field whose value is hard to overestimate” (Aarseth, 2001, ¶ 2). Cover (2004) called for the recognition of video games as a collective new medium, based on the

juxtaposition of text and play: “interactivity as play allows participation in the process of the game as text” (p. 175). Cover also noted the game industry’s ability to compete with the dominance of television and film, and observed similarities between playing a game and encountering narratives in other forms of media, such as reading a novel. Nelson (2002) identified the video game as a unique medium based on player interactivity, sensory immersion, and levels of vividness and involvement higher than those of film.

Others have rejected the notion of placing video games in the realm of “new media.” Newman (2002) suggested that (presumably single-player) video games are in fact not “interactive,” due to their highly structured and segmented presentations of experience. Perhaps massively multiplayer online games (MMOGs) and virtual worlds, which require certain social and financial skills to advance, would more closely fit Newman’s definition of interactive media. While Aarseth deemed video games “a phenomenon of greater cultural importance than, say movies, or perhaps even sports” (2001, ¶ 3), he discounted the classification of the game as a new medium, calling for an independent academic structure altogether. Whether regarded as new interactive media or deserving of a separate, distinct area of study, video games represent a multi-billion dollar industry with an alarmingly underdeveloped academic presence. The somewhat recent advent of “advergaming” and in-game advertising research should serve as an impetus for further serious studies in all relevant aspects of online gaming: interactivity, sociology, visual media, economy, semiotics, marketing, education, and so forth.

Aside from their appeal to key demographic users, video games may offer advertisers distinct advantages over traditional marketing through the very nature of the medium. Advertising in games can demand a consumer’s attention longer than traditional advertising can, and often at a lower cost; advertisers can also easily collect customer data (names, addresses, buying



preferences and history) through tracking technology built into game networks (Ferrazzi, Chen, & Li, 2003). Further, packaging a sales message in an interactive entertainment medium can allow advertisers to “not only project an image about its products but also to engage in dialogue with its consumers” (Ferrazzi, Chen, & Li, 2003, p. 21) by allowing players to continuously interact with brands they can relate to. Jay Cohen of game publishing giant Ubisoft explained it best: “Say they were driving your brand of car for ten minutes. The length and quality of that impression is extremely powerful. That consumer can close his eyes afterwards and know where all the controls are. That is much better than any TV spot” (Campbell, 2006, ¶ 2).

### Modern Gaming Audiences

According to Nielsen Entertainment, American men now spend more money on games than they do on music (*Global ad network eyeballs gamers*, 2005) and often invest more time in games than in other entertainment media, with most players spending an average of 30 hours playing one game in its entirety (Nelson, 2002). Males aged 18-34 now spend 12.5 hours each week playing video games, compared to 9.8 hours watching television each week (Kim, 2006). According to the Interactive Digital Software Association, those aged 18-34 also purchased 50% of all video games, consoles and accessories sold in 2000 (Reynolds, 2004), and the Electronic Software Association reported that 69% of all game players are adults (Electronic Software Association, 2006). In 2006, the average age of the game player was 33, and the average age of the game purchaser was 40 (Electronic Software Association, 2006). Another source suggested that “more than 50 percent of the players are 35 or older and, while males still dominate, females are increasingly active, particularly online” (Sennott, 2005, p. E2).

Indeed, the female gaming demographic has increased heavily in recent years to 43% of the total online gaming population (Castronova, 2005), though mostly in playing casual games

online, including puzzle and card games such as *Bejeweled*, *Zuma*, and variations of *Solitaire* and *Mahjong*. According to an Information Solutions Group survey of 2,191 players of casual games developed by popular game company PopCap Games, 76% of casual gamers are female – 71% of which are aged 40 or older (Dobson, 2006b). Further, casual game players “view the playing of casual games as a more important leisure time activity than watching television, reading, or spending time with family and friends” (Dobson, 2006b, ¶ 3). The console gaming market, however, remains largely male-dominated.

According to in-game advertising firm Massive Incorporated, the number of console gamers playing online has doubled every year and should grow faster with the widespread adoption of next-generation, online-ready consoles, including Microsoft’s Xbox 360 and Sony’s PlayStation 3 systems (Stanley, 2004). In 2006, 44% of frequent game players reported actively playing games online, up from 31% of game players in 2002. These steadily increasing figures strengthen the customer base for dynamic in-game ads served online by firms such as Massive Incorporated, Double Fusion, and IGA Worldwide.

In 2006, countless individuals around the world now earn primary incomes through their activities in computer games and virtual worlds (Castronova, 2005; Rodgers, 2005; Stone, 2005; Takahashi, 2005; Craig, 2006; Hemp, 2006), high schools and universities commission video game developers to help educate students through interactive simulations (Castronova, 2005), and corporations use custom-made games as engaging employee training tools (Castronova, 2005). As increasing numbers of people from all walks of life devote more of their time to playing games and experiencing simulated worlds, academic research in the field will no doubt gain momentum and social significance. This study serves to contribute to the nascent body of knowledge of effective advertising in video games – specifically online role-playing games.

## CHAPTER 2 LITERATURE REVIEW

### Recent Data on In-Game Advertising

Just as advertisers began incorporating the Internet into their marketing mix in the late 1990s (Bush, Bush, & Harris, 1998), advertisers and agencies have turned to in-game marketing as a crucial facet of their modern communications objectives. Interactive marketing firm Avenue A | Razorfish provided several recommendations and guidelines for advertisers looking to reach the gaming audience in its 2005 online media outlook, including suggestions for product integration, streamed ads, mobile phone gaming, and static advertisements (Avenue A | Razorfish, 2005). In January 2006, San Francisco media agency Engage In-Game Advertising announced it would be working with video game advertising networks to deliver in-game promotion opportunities to advertisers. Engage's first campaign involved placing Subway restaurant ads into the first-person shooter game *Counter-Strike*, resulting in 31,000 unique impressions in key markets over three weeks (Gibson, 2006). In May 2006, Engage joined with San Francisco's Greystripe mobile in-game ad network to produce a branded game for SpeeDee Oil Change & Tune-Up, which offered consumers free play and a five-dollar discount on their next oil change (Sanders, 2006).

While spending on in-game advertising is currently modest, several consultancies and researchers estimate spending to skyrocket in the near future. According to a 2005 U.S. Association of National Advertisers survey, 9% of companies surveyed had advertised in video games over the past year, while 13% said they planned to in the near future (Sennott, 2005). In-game ad spending jumped from \$10 million in 2003 (Stanley, 2004) to nearly \$200 million in 2004 (Hershman, 2005) and continues to grow. The Yankee Group estimated the market will reach between \$800 million (Oser, 2005a) and \$900 million by 2009 (Oser, 2005b), and game industry research firm DFC Intelligence predicted a jump to \$1 billion by 2008 (Hershman,

2005). IDC estimated *total* U.S. revenue from online gaming (not limited to advertising) will increase nearly 50% annually over coming years (Becker, 2002), while Jupiter Media Metrix projected U.S. revenue from online gaming to reach \$2.55 billion in 2006 with advertising revenue accounting for around 30% of the market (Becker, 2002).

While some researchers classify in-game advertising as “stealth marketing” (Kaikati & Kaikati, 2004), most in-game ads instead fit the appearance of real-world outdoor advertising placed in virtual, interactive settings. Whereas stealth marketing relies on word-of-mouth promotion, traditional in-game advertising is almost always displayed prominently for players to observe and consume at their own pace.

#### Traditional Advergaming Practices

Two prominent forms of video game advertising exist today. Traditional “advergaming” involves designing an entire game around brand or product promotion (usually PC-based and played online), while in-game advertising involves the placement of real-world marketing into preexisting console and computer games, commonly in the form of billboards, posters, and sponsor signage in sports and racing games (Schwarz, 2005). For example, an automotive company might engage in *advergaming* by commissioning a developer to create an interactive game in which players compete for high scores online by racing computerized versions of that company’s cars on its Web site. Alternately, the same company could utilize *in-game advertising* by inserting their own digitized billboards into a virtual racetrack environment in a game available for purchase in retail stores. While some sources may refer to in-game ads as “advergaming” interchangeably (Graft, 2006a), this research establishes a clear distinction between the two formats and focuses primarily on effects of in-game advertising alone, as advergaming traditionally offer only one unique marketing message at a time.

Several companies have found a powerful and effective means of promotion within advergaming, including Jeep (Ferazzi, Chen, & Li, 2003), Kimberly-Clark (*And now, a game from our sponsor*, 2005), Procter & Gamble (Fattah & Paul, 2002), and Disney (McCarthy, 2005). In a more recent and widely publicized example, in 2006 Burger King announced a partnership with Microsoft to begin selling three branded games for the Xbox and Xbox 360 consoles starring the fast food restaurant's "King" mascot. The games are sold separately at Burger King restaurants for \$3.99 with the purchase of a value meal, and include versions for both consoles on the same disc (Miller, 2006).

Some advertisers utilize "adverworlds" – entire online communities built around brands where players create digital identities called avatars and interact with others in an environment filled with branded material. High-profile examples of adverworlds include Coca-Cola's *Coke Studios*, which boasts over eight million registered users, and Disney's *Virtual Magic Kingdom*, which offers a multiplayer community based on Disney's popular theme park attractions (Schwarz, 2006). The main benefit to advertisers lies in increased levels of brand engagement, which traditional advertising rarely provides (Schwarz, 2006). On average, players spend five to seven minutes on an advergaming site, offering 14 times the amount of exposure time spent watching a television commercial (Fattah & Paul, 2002).

According to Yankee Group, American firms spent \$79 million on advergaming in 2003 (Wegert, 2005) and \$90 million in 2004, compared with \$20 million on in-game advertising and product placements in 2004 (*And now, a game from our sponsor*, 2005). While this revenue gap may close in coming years, more advanced and expensive traditional advergaming is certainly on the rise. PC advergaming is expected to reach \$774 million by the end of 2006 (Fattah & Paul, 2002), while Forrester Research predicted advergaming would grow into a \$1 billion business by

the end of 2005 (McCarthy, 2005). The Wall Street Transcript has even predicted that advergaming revenues will reach \$4 billion by the end of 2008, although this figure may also include in-game advertising revenue (Graft, 2006a). Further, DFC Intelligence suggested that the bulk of video game advertising revenues are not made with advertising in traditional console games, but on popular “casual gaming” Web sites such as RealArcade and MSN Games, due to the tens of millions of players who frequent casual game sites (DFC Intelligence, 2006).

### In-Game Advertising Networks

2004 marked the first standout year for in-game advertising. Since then, several firms including Massive Incorporated, IGA Worldwide, Double Fusion, and Adscape Media (formerly BiDamic) have revealed their own dynamic in-game advertising networks, each claiming to offer the “first” or “leading” examples of such technology.

Massive Incorporated works with game developers to build advertising spaces into games, which are later sold to advertisers and updated by swapping texture images over the Internet (Svensson, 2005a). Through Massive Incorporated’s dynamic system, media planners can manage the timing and targeting of ad insertions, assess creative material in real time, and automatically optimize campaign elements (Rodgers, 2004). Nielsen Interactive Entertainment provides measurement and credibility for Massive’s advertising network, focusing primarily on exposure and product/brand awareness (Rodgers, 2004). Through these data metrics, marketers can check exposure time and impression rates for individual players through real-time audit reports (Stanley, 2004). Because its network allows for constant cycling of ads during online play, Massive only serves advertising in games connected to the Internet and online gaming services, such as Microsoft’s Xbox Live. Massive claims that 80% of gamers surveyed have responded positively to the ads served by their network, and that research has shown 30-40%

brand recall for ads that appear on billboards, vending machines, cars and skateboards in games using their network (Woodson, 2005).

In May 2006, Microsoft announced its acquisition of Massive Incorporated for a price in the range of \$200 and \$400 million, effectively expanding Massive's network to titles available on Microsoft's Xbox Live and MSN Games services (Shields, 2006). While the full implications of this purchase have yet to be seen, the precedent has been set for other media conglomerates – most likely Rupert Murdoch's News Corporation – to buy out remaining in-game ad networks in the near future.

With Microsoft's acquisition of Massive Incorporated, in-game ad firm Double Fusion currently stands as the largest independent in-game advertising network. Double Fusion was reportedly the first firm to allow game developers to leave spaces for later placement of video, animation, music and actual 3-D products (such as a 3-D can of Coke that can be picked up in the game) as advertisements in games, as opposed to the ordinary static ads initially used by competitors (Brinn, 2005). In October 2005, Nielsen and Double Fusion released the results of a joint study that showed “in-game campaigns yielded a 60% improvement in awareness for a new product,” as well as 3-D ad insertions producing “nearly twice the recall of static billboards in-game” (Svensson, 2005b, ¶ 1). In May 2006, Double Fusion acquired Detroit media agency Eiko Media to aid the firm in developing “contextual advertising opportunities, both dynamic and integrated, which maximize the appropriate advertising revenues” (Double Fusion, 2006, ¶ 2).

IGA Worldwide also uses dynamic ads and real-time advertising in games, but was the first firm to implement a specific code of ethics in advertising in games, i.e. prohibiting “alcohol or cigarettes or other Adult products to be displayed in anything below Mature-rated games” (Vitka, 2005, ¶ 2). IGA has also offered courses in effective online in-game advertising to media

agencies and strategists, in order to educate the industry in getting the most out of their in-game advertising dollars (Wegert, 2005). IGA specializes in integrating advertising into game plots, ideally allowing for stronger long-term brand association.

In July of 2006, IGA Worldwide and Interpret LLC announced their joint creation of the first independent rating system designed to measure the value of in-game advertisements, using Interpret's "Gameasure" valuation technology (Dobson, 2006a). The system provides metrics such as demographics, reach, frequency, duration of play, and depth of engagement for IGA Worldwide's entire game roster, effectively making IGA "the first in-game advertising company to deliver the industry recognized standards established for measurement" (Dobson, 2006a, ¶ 6). In September of 2006, Double Fusion similarly announced its partnership with Interpret to use the Gameasure system to "validate the audience reach and composition of its games portfolio" (Dobson, 2006c, ¶ 2). As such technologies continue to advance and in-game market tracking becomes more streamlined, countless advertisers are sure to flock to the medium of video games in coming years.

### Brands in Virtual Worlds

Not all in-game advertising is placed by prominent companies with brands to promote. In virtual worlds (a genre separate from computer games) such as *Second Life* and *There*, players can design their own products and promote them within the game through interactive billboards. *Second Life*, the Internet's fastest-growing virtual world, boasts a marketplace economy where items can be bought and sold with in-game currency known as Linden dollars, which can then be exchanged online for real money (Stone, 2005). Among a population of over 885,000 users, *Second Life*'s "residents" collectively exchanged the equivalent of \$5 million in January 2006 alone within the virtual world (Craig, 2006). Many of *Second Life*'s inhabitants earn their



primary income from dealings in the virtual world; Anshe Chung, a woman from Germany, reportedly earned \$150,000 in real-world cash by buying, developing, and selling virtual land in *Second Life* (Takahashi, 2005).

In a thriving marketplace where users can create literally anything and sell to anyone, advertising fittingly appears almost everywhere within the virtual world. In response, one resident developed *Second Life*'s first advertising network, the "MetaAdverse," through which publishers present advertising space, which is then appraised and offered for rent to advertisers at a cost-per 15-second impression rate (Walsh, 2005). According to the creator of the MetaAdverse, around 60% of the *Second Life* population has seen his ads, and some advertisers reported sales increases up to 160% while the ads were running (Rodgers, 2005).

While most of the 10 million user-created items currently for sale in *Second Life* are created and promoted by the virtual world's rapidly growing female population (Takahashi, 2005), Wells Fargo was the first advertiser to launch its own mini-adverworld within *Second Life*, known as "Stagecoach Island." The project, reportedly aimed at promoting financial responsibility among players aged 18 to 24, includes a system of private virtual islands branded as a complete Wells Fargo environment. This was the first agreement of its kind between a major advertiser and *Second Life* developer Linden Lab (Terdiman, 2005); since the placement, Linden Lab's vice president of marketing had expressed interest in additional deals, mentioning the idea of using avatars (characters that represent players in virtual worlds) as walking advertisements themselves (Woodson, 2005).

Since early 2004, several major advertisers have begun to experiment with virtual world marketing, including Coca-Cola, McDonald's, Intel, Aeropostale, and DaimlerChrysler (Book, 2004). In the virtual world *There*, Levi Strauss sold virtual versions of their new jean styles at a

premium to other generic jeans worn by other avatars; Nike also sold speed-enhancing virtual shoes to those users willing to pay (Hemp, 2006).

2006 marked the first major influx of advertiser-backed brand presence in *Second Life*. In June of 2006, popular clothing retailer American Apparel launched the first virtual version of a real-world retail store in *Second Life*, where visitors can purchase virtual clothes for their avatars, and with the click a button, buy the real-world version of the same outfit from American Apparel's Web site at a 10% discount (Huang, 2006). In September 2006, Adidas opened a virtual shoe store on an island in *Second Life* to promote the company's "bouncy" new a3 Microride shoe (Wallace, 2006). The virtual shoe, which sells for about \$0.20 in *Second Life*, playfully reinforces the campaign's message by allowing residents' avatars to jump higher when worn (Wallace, 2006). As of October 2006, virtual world technology company Millions of Us has launched creative events to bring several corporations into the *Second Life* universe, including the first virtual press conference for Sun Microsystems, the simultaneous real/virtual world launch of Toyota's Scion xB automobile, and the introduction of Leo Burnett as the first real-world advertising agency represented in *Second Life* (Millions of Us, 2006).

#### Factors in Using In-Game Advertising Effectively

Recent academic studies on effects of advertising in online games have been encouraging, yet sparse. Chaney, Lin, and Chaney (2004) strategically placed billboards featuring fictional products in a first-person shooter computer game and invited 42 participants to compete in "deathmatches" for 15 minutes at a time while being exposed to the ads. The researchers recorded each session to measure individual exposure to ads, and to observe conversation among players during the matches. Results showed that participants would recall passing billboards, but many could not recall the names of the products or brands after the session was over. The players

did, however, recall the in-game billboards at a rate better than those in real-life sporting events, potentially because “gamers view only one billboard at a time as they pass through various ‘rooms’ and the information for each product has some chance of being assimilated” (Chaney et al., 2004, p. 66), whereas ads in real-life sports are usually presented simultaneously and are therefore competing for attention at the same time. The researchers also attributed this moderate effect to the game’s high requirement of concentration and the advertisements’ minimal impact on enhancement of game experience, strengthening the argument that in-game advertising must attribute strongly to, not detract from, a game’s level of immersion and realism.

A large-scale study conducted by Nielsen Entertainment and Activision has shown “67 percent of gamers believe in-game advertising makes games more realistic and 40 percent of male gamers say in-game ads influence their purchasing decisions” (Wegert, 2005, ¶ 8). Further, “the study revealed that the vast majority of gamers who recalled a product in a game felt it fit the game they were playing” (Activision, 2005, ¶ 4). The study was conducted among 1,350 male participants aged 13 to 44 with gaming backgrounds. Each participant was randomly assigned to one of nine cells, with the four test cells featuring the games *MTX Motortrax*, *Tony Hawk’s Underground 2*, *Need for Speed Underground 2*, and *NHL 2K6*. Each game featured varying levels of in-game advertising, while the two control groups played the same games featuring no advertising whatsoever. Three additional groups of participants watched television programming that included either conventional television commercials, product placements, or no advertising (Activision, 2005). While the study’s findings suggested an encouraging acceptance of in-game advertising, it must be noted that the games played in the experiments fall primarily into the sports and racing categories – game genres in which advertising already makes the most sense, considering their settings’ resemblance to real-world environments (Nelson,

2002; di Cesare, 2005). These results may support the relevancy of video game marketing to major advertisers, yet the field of online game advertising research remains young.

Several studies (Nelson, 2002; Book, 2004; Chaney, Lin, & Chaney, 2004; Nelson et al., 2004; Activision, 2005; Vitka, 2005; Woodson, 2005) have found that players generally accept in-game advertising when placed relevantly in games, especially when a game's sense of realism is undisturbed or improved. For example, advertising signage in sports and racing games often translates well to players, whereas advertising in fantasy games may appear unnatural and intrusive (Nelson, 2002).

Seamless integration is a crucial factor in successful in-game advertising. If a marketing message interrupts immersion or makes the experience appear less realistic, then the advertiser has failed (Nelson et al., 2004; di Cesare, 2005). Integrating a product directly into a game's main storyline runs the risk of player backlash if the placement seems artificial in any way, yet research shows this approach may be the most effective method of in-game advertising when contextually positioned (Nelson, 2002; Activision, 2005; Avenue A | Razorfish, 2005; Campbell, 2005). Nelson (2002) also found superior brand recall when brands were "a major part of game-play or when they were local or new brands, atypical of brands found in games, or relevant to the consumer" (p. 80). Regardless of the apparent contextual match between product and game, however, the core play experience must never be hindered.

#### Perceived Interactivity as Framework

Ha and James (1998) cited "playfulness" as the first of five dimensions of interactivity: "mass media content is play for the audience, not just information...the playfulness dimension of interactivity is within oneself rather than with another person" (p. 462). Several theories from social and consumer psychology, human-computer interaction, and mass communication have

suggested that virtual game environments help to facilitate more engaging interaction between consumers and advertising stimuli, due to heightened levels of immersion and presence (Nelson, 2002; Grigorovici & Constantin, 2004; Kaikati & Kaikati, 2004; Bucy, 2004b). Further, Wu (2005) suggested that “a theory of interactivity is incomplete without considering both actual and perceived interactivity” (p. 55), and proposed that perceived interactivity mediates effects of actual interactivity on consumer attitudes. As such, this study approaches player perceptions of in-game advertising with the concept of perceived interactivity as its main framework.

Stromer-Galley (2004) sorted popular approaches to interactivity into two distinct phenomena: interactivity-as-process (concentrating on human interaction) and interactivity-as-product (concentrating on user interactions with technology). She argued that measuring interactivity-as-product can reveal “the effects such features might have on cognitive processing, including information acquisition, memory and recall, user attention, and so on” (2004, p. 392). Stromer-Galley suggested that interactivity between people and computers is a concept separate from face-to-face “interactivity,” which she described as a process of communication rather than one of technology. Merging these two phenomena can only lead to confusion when attempting to measure interactivity (Stromer-Galley, 2004); thus, given the nature of the medium under scrutiny (video games), this study approaches interactivity from the perspective of Stromer-Galley’s interactivity-as-product model when observing players’ reactions to in-game advertising. Thus, “interactivity” in this study is defined as a player’s perceived interaction with in-game advertisements themselves (if any), not passively observing the advertisements in an arguably interactive game environment.

While some examples of in-game advertising could be considered truly interactive in the human-to-computer sense – for example, interactive billboards in *Second Life* allow players to

instantly purchase and use items directly from the billboard, or offer to teleport players to a vendor's local store – most in-game signage is static and operates independently of user interaction, despite its placement within an “interactive” medium. For the purposes of this study, observing the aspect of perceived interactivity in an online game environment seems most relevant in finding the key to effective in-game advertising.

Nicovich (2005) suggested that higher levels of involvement in video games lead to higher levels of perceived presence; it can therefore be assumed that high levels of perceived interactivity will lead to higher recall levels and stronger product and brand recognition. Nicovich suggested that video games and other forms of computer-mediated communication (CMC) offer an ideal environment for advertisers to engage consumers: “Since the nature of entertainment is predominately a positive experience, that is, one the participant has sought out for reasons of enjoyment, it is therefore posited that under the appropriate CMC conditions a sense of presence will engender stronger more positive evaluations of any encountered advertising” (2005, p. 40).

#### Varied Interpretations of Interactivity

Researchers have struggled to agree on a universal definition of interactivity in the context of computer-mediated communication for over 20 years. Today, several divided classifications seek to explain interactivity from nearly every possible perspective. Jensen (1998) classified collective interpretations of interactivity into three principles: as prototype, as criteria, or as a continuum. The researcher further categorized concepts of interactivity as one-dimensional, two-dimensional, three-dimensional, four-dimensional, or n-dimensional concepts, and offered a definition of interactivity as “a measure of a media's potential ability to let the user exert an influence on the content and/or form of the mediated communication” (Jensen, 1998, p. 201).

McMillan (2005) identified three facets of digital interactivity: human-to-human, human-to-computer, and human-to-content. Examples of each type include instant messaging and e-mail (human-to-human), navigational tools and search tools (human-to-computer), and tools that facilitate personalized content, such as creating customized home pages (human-to-content) (McMillan, 2005). While these models were admittedly “intended to be illustrative, not an exhaustive list of different ‘types’ of interactivity” (McMillan, 2005, p. 1), they do represent a straightforward approach to interactivity between users and technology.

Tremayne (2005) concluded that two interpretations of interactivity currently dominate the academic sphere: the functional and the perceptual models. Researchers will continue to develop conflicting definitions of interactivity by rarely examining both variants of interactivity in concert, according to Tremayne. He called for more experimental studies to measure both concepts for the sake of a universal definition: “If functional interactivity and perceptual interactivity are unique concepts, it is important to determine how and when the two are causally related and how and when they are not” (Tremayne, 2005, p. 67).

Others designate interactivity as consumer-based in nature: Newhagen (2004) proposed that interactivity is purely “an information-based process that takes place within the individual” (p. 395), and Schumann, Artis, and Rivera (2001) suggested “it is the consumer’s choice to interact, thus interactivity is a characteristic of the consumer, and not a characteristic of the medium. The medium simply serves to facilitate the interaction” (p. 19). Kiouisis (2002) hybridized these concepts, suggesting that “interactivity is both a media and psychological factor that varies across communication technologies, communication contexts, and people’s perceptions” (p. 355). The researcher reviewed numerous prominent descriptions of interactivity grounded in technological involvement, new media characteristics, interpersonal communication, linear vs.

non-linear communication flow, individual perception, time flexibility, and Web site responsiveness. Based on this review, he compiled a list of common elements among previous assessments and offered a tentative definition of interactivity as “the degree to which a communication technology can create a mediated environment in which participants can communicate (one-to-one, one-to-many, and many-to-many), both synchronously and asynchronously, and participate in reciprocal message exchanges (third-order dependency)” (Kiousis, 2002, p. 372).

Not all researchers agree that interactivity should be defined as a perceptual variable. Sundar (2004) proposed that interactivity is “an attribute of the technology and not that of the user” (p. 385), and discounted the use of perceptual interactivity as a manipulation check, as such use “does not necessarily make it a mediator of interactivity effects” (p. 386). The researcher called for a theoretical categorization based on three outcome measures (behavioral, attitudinal, and cognitive), which would result in theories rooted in technology, rather than psychology. Here, Sundar was careful to make distinctions between measuring user attitudes in interactive settings and approaching interactivity as a perceptual variable: “the correlation between perceived interactivity and other self-reported variables is a reflection of the users in the sample rather than the technologies they are asked to evaluate. It’s simply self-fulfilling” (Sundar, 2004, p. 386).

Alternatively, Bucy (2004a) suggested that “interactivity is best (though not exclusively) understood as a perceptual variable that involves communication mediated by technology,” and that “any networked medium or communication setting perceived as interactive becomes so to the user” (p. 379). McMillan (2002) introduced a four-part framework of computer-mediated cyber-interactivity and conducted a study to test its applicability, finding that a perception-based model predicted consumer attitude more accurately than a feature-based model. In the study, 31



undergraduate students were assigned to review and rate various health-related Web sites based on their perceptions of interactivity among the sites. Ratings were coded on a seven-point scale and tied to two dimensions of interactivity: direction of communication and level of receiver control. Among other findings, results showed that untrained coders rated the Web sites “fairly high on key interactivity dimensions even though the websites have relatively few interactive features” (McMillan, 2002, p. 282), which suggests those with unrefined concepts of interactivity may attribute higher levels of interactivity to items with little or no definable interactive features.

It must be noted that interactivity is not always associated with encouraging outcomes. Bucy (2004b) experimented with 74 undergraduate participants observing various online news sites, finding that “although interactive conditions were rated significantly more participatory, involving, and immediate than noninteractive conditions, interactive tasks also generated significantly more confusion, disorientation, and frustration” (p. 65) than low-level tasks. Heeter (2000) suggested that greater interactivity does not necessarily make for improved experiences, as overly complex interface design requires more singular interactions and takes more time to achieve a sought goal than a more streamlined interface. With these concepts in mind, in-game advertisers should work with developers to keep ad interfaces simple and streamlined if their players will be interacting directly with the ads, rather than merely seeing them in the game environment. Thus, it could be hypothesized that consumer attitudes toward advertisers will become more negative if users perceive in-game advertising as a hindrance to their navigation through the game.

Liu and Shrum (2002) proposed a three-dimensional definition of interactivity based on active control, two-way communication, and synchronicity. The researchers explained how combinations of these three dimensions of interactivity could create different experiences for

users; for example, “Interactivity creates cognitively involving experiences through active control and two-way communication,” while “two-way, synchronized communication is potentially more engaging than one-way, unsynchronized communication” (Liu & Shrum, 2002, p. 60). In relating these dimensions to Internet user behavior, the researchers suggested that interactivity is not always the best approach for marketers due to unforeseeable personal and situational factors. Further, interactivity should not be considered the “next big thing” in advertising until it has been clearly defined: “the rush to implement interactivity features into a marketing situation must be tempered, or at least mediated, by consideration and understanding of precisely what interactivity is, what it can do well, and, just as important, what it cannot do” (Liu & Shrum, 2002, p. 63).

#### Implications of Web Advertising Research

Recent research in traditional Web advertising lends itself to the topic of video game-based ads, as both formats often rely on Internet connectivity to deliver messages to consumers. Brackett and Carr (2001) conducted a study in which 506 students were given a survey eliciting their attitudes toward advertising in each of five media through five-point Likert scales. Results showed that while a student sample interpreted Web advertising as irritating, annoying, or even insulting to their intelligence, the same sample predicted that Web advertising will overtake television advertising as “the most valuable source of information for the future” (Brackett & Carr, 2001, p. 23). Swain (2005) called for extensive research on perceived interactivity in Internet advertising as a powerful tool for media professionals and students seeking future employment as cutting-edge advertising practitioners.

McMillan and Hwang (2002) focused on perception over process or function as a research approach in Web-based advertising. An experiment was conducted in which 126 subjects were

randomly assigned to review one of two Web sites containing high or low levels of interactivity. Participants reviewed a site for 15 minutes before taking a survey containing seven-point Likert scales to determine levels of perceived interactivity. Results study prompted the researchers to suggest “advertisers who want to develop interactive marketing communication messages must share some of that control with consumers, who expect to engage with the Web rather than simply be exposed to it” (McMillan and Hwang, 2002, p. 39). The researchers noted that advertising researchers in particular should approach perceived interactivity as a primary focus because it can provide insight on consumers’ behavior and why they respond to specific marketing messages.

In an effort to find out why people avoid advertising online, Cho and Cheon (2004) conducted an online survey of 266 undergraduate students to examine four latent constructs: perceived goal impediment, perceived ad clutter, prior negative experiences, and ad avoidance. Results showed that “past negative experience, indicated by overall dissatisfaction and perceived lack of utility and incentive, causes people to avoid the source of the negative experience, that is, Internet ad avoidance” (Cho & Cheon, 2004, p. 93). The researchers concluded that perceived ad clutter leads people to avoid advertising messages on the Internet; thus, advertisers would also be advised to address ad clutter in games, as several clustered marketing messages in one area could likely reduce the overall effectiveness of in-game advertising (Cho & Cheon, 2004).

Chen, Griffith, and Shen (2005) conducted an experiment with 100 undergraduate students to observe the effects of varying degrees of Web site interactivity on consumer product evaluations and resulting purchase intentions. The researchers manipulated interactive features by providing three levels of interactivity (high/medium/low) at an e-commerce apparel site. Using a four-item, seven-point Likert scale to measure perceptions of interactivity, the researchers found a

significantly higher level of perceived interactivity in the highest level of interactivity on the site compared to the medium and low levels, and that through increased interactivity, “a consumer develops greater trust and understanding of the business and its products. Further, it was demonstrated that trust transferred perceived interactivity’s influence not only onto online behavior intention, but also onto offline purchase intention at a brand-specific business level” (Chen et al., 2005, p. 39). These findings bolster the case for in-game advertising, where games can provide a more engrossing interactive experience than other media.

McMillan et al. (2003) examined involvement and perceived interactivity among 311 participant reviews of four hotel Web sites, finding positive attitudes associated with sites utilizing Web-specific features, such as online reservations and virtual tours. These findings hold implications in the gaming world by suggesting that enhanced involvement and engagement in immersive technology can boost consumer acceptance.

Sicilia, Ruiz, and Munuera (2005) conducted an experiment in which 213 undergraduate students were randomly assigned to navigate one of two versions of a mockup Web site (one interactive, one non-interactive) for five minutes. Participants then took a survey designed to measure product knowledge, navigation experience, need for cognition, information processing, flow state intensity, and attitude toward Web ads through Likert scales and elicitation. Results showed that, among Web sites of varying levels of interactivity, “the interactive Web site leads to more information processing, higher favorability toward the product and the Web site, and greater flow state intensity” (Sicilia, Ruiz, and Munuera, 2005, p. 31). In a broader implication for online advertising, the researchers continued: “marketers need to account for other consumers’ benefits of such experience apart from that of attitudes” (Sicilia, Ruiz, and Munuera, 2005, p. 41). In the context of in-game ads, advertisers should focus on delivering a noticeable

benefit to players while ensuring in-game advertising remains contextual. Considering that players have already spent their money (in some cases, up to \$59.99) on a retail game containing advertising, some sense of benefit to the player should exist to avoid consumer backlash against publishers and developers for including advertising in fully-priced titles.

### Animated vs. Static Advertising

Research comparing consumer attitudes toward animated and non-animated advertising holds particular relevance to in-game advertising, especially in games that present both static and video-based ads to users. In an experiment focusing on Internet advertising, Li and Bukovac (1999) found that animated banner ads resulted in quicker response and better recall rates than non-animated ads. Li, Daugherty, and Biocca (2002) found that multisensory online experiences, expressed in the study as 3-D online advertising, are “capable of enhancing presence and, to varying degrees, ultimately influencing the product knowledge, brand attitude, and purchase intention of consumers” (p. 43). Li et al. (2003) effectively echoed these findings by supporting the proposition that “3-D product visualization is capable of influencing brand attitude and purchase intention for geometric and mechanical products within e-commerce environments” (p. 395).

Sundar (2004) suggested that researchers should attempt to predict combined effects of interactivity and other variables related to technology, including degrees of animation and modality, on user attitudes toward interactivity. Further, an experiment with 47 participants exposed to animated ads suggested that animation speed is “a psychologically significant variable” in the realm of online advertising (Sundar & Kalyanaraman, 2004, p. 7). Thus, it can be hypothesized that animated video ads in a computer game, regardless of animation speed, should promote higher advertising awareness and message recognition rates than non-moving ads.

Sundar and Kim (2005) experimented with interactive online ads to test whether interacting with advertisements enhances their persuasive appeal. 48 participants were exposed to 12 Web sites containing stimulus ads on each page that represented different combinations of values of interactivity, animation, and shape. After being exposed to each site for no longer than 90 seconds, participants filled out a survey to measure user attitudes toward the ads and their featured products. Results showed that higher levels of interactivity were positively associated with advertising and product/brand attitudes, thereby strengthening the case for perceived interactivity in furthering online video game marketing effectiveness.

### Hypotheses and Research Questions

Based on a review of the literature, this study seeks to investigate the following three hypotheses:

**H1. Participants in the test group playing online with advertisements will show significantly higher levels of acceptance of in-game advertising as unobtrusive additions to the game environment than those in the control group.**

Researchers have found player responses to in-game advertising to be largely positive (Nelson, 2002; Book, 2004; Chaney, Lin & Chaney, 2004; Nelson et al., 2004; Activision, 2005; Vitka, 2005; Woodson, 2005). Those players who respond negatively to in-game advertising are often opposed to advertising in general (Nelson et al., 2004). Although previous studies have examined player acceptance of advertising in racing games (Nelson, 2002) and virtual worlds (Book, 2004), reactions to advertisements in massively multiplayer role-playing games (MMORPGs) have yet to be assessed in-depth. Nicovich (2005) found that a modified single-player role-playing environment can be conducive to effective in-game advertising placement, but only when that environment is presented in a way that allows presence to be realistically

engaged. Nelson (2002) called for further research in examining attitudes toward product/brand placements in game genres where advertisements do not normally appear, such as fantasy game settings. Understanding the most effective balance of advertising content and effect on perceived realism is crucial to both advertisers investing in video game advertising, and researchers examining the potential for communications within video games (Nelson, 2002; Nelson et al., 2004; Activision, 2005; Woodson, 2005).

**H2. Video-based advertisements will trigger higher advertising awareness and message recognition rates than static in-game billboards.**

Animation in online advertising has been found to trigger higher recall and faster response rates than static ads (Li & Bukovac, 1999), and multisensory online advertising can enhance attitudes toward brands among consumers (Li, Daugherty, & Biocca, 2002; Li et al., 2003). Thus, it can be hypothesized that in-game advertising featuring video and audio characteristics should produce at least slightly higher advertising awareness and message recognition rates than static ads presented in the same game environment.

**H3. Participants in the test group will show higher levels of perceived interactivity toward advertising in an online role-playing game environment than those in the control group.**

As Sundar (2004) suggested, effects of interactivity may be predicted when observing advertising containing technologically relevant variables, such as animation and modality. Animation in advertising can also work together with interactivity to influence the persuasion process (Sundar & Kim, 2005). As the dynamic ads shown in the test group sessions contain more aesthetically appealing characteristics often associated with interactive advertising online (video, audio, bright colors, household names and slogans, and so forth), one may predict that the test group will exhibit higher levels of perceived interactivity than the control group.

This study also explores the following research questions related to topics left unresolved by the studies cited in the literature review:

**RQ 1.** Which game genres are most conducive to in-game advertising according to players?

**RQ 2.** Does gender, age, race, socioeconomic status, or previous gaming experience reflect any differences in reactions to in-game advertising?

**RQ 3.** Does in-game advertising influence a player's perception of ease of navigation through the game?

**RQ 4.** Does in-game advertising influence product/brand interest among players?

**RQ 5.** Does in-game advertising influence message recognition among players?

**RQ 6.** Does in-game advertising influence intent to purchase among players?

**RQ 7.** Does in-game advertising influence unaided recall among players?

**RQ 8.** Does in-game advertising influence advertising awareness among players?

**RQ 9.** Do players perceive in-game advertising as contextual (adding realism and immersion to the game environment)?



## CHAPTER 3 METHOD

### Experiment

While researchers have previously used netnographies (Nelson et al., 2004) to observe players' attitudes toward in-game advertising, or the Web sphere model (Schneider & Foot, 2004) to analyze relations between content and users over time, the experiment-questionnaire method best served this study by allowing the researcher to observe player-advertising interaction firsthand (see Nelson, 2002; Chaney et al., 2004; Nelson et al, 2004; Nicovich, 2005; Activision, 2005). An experiment was conducted using a convenience sample of 100 undergraduate students aged 18-24, recruited from a mass communication introductory course at Louisiana State University. Each participant played the massively multiplayer online role-playing game (MMORPG) *Anarchy Online* on a supplied PC gaming setup for 30 minutes. Participants were placed in one of two groups: the test group played online with other participants in the room as teammates in an advertising-supported version of the game, while the control group played an advertising-free version of the game with all other conditions the same. The gaming sessions took place over a period of seven days.

*Anarchy Online* is an online, science-fiction role-playing game set around 30,000 years in the future. Funcom, the developer of *Anarchy Online*, currently offers a free client program supported by in-game advertisements delivered and maintained by Massive Incorporated's advertising network. These ads are displayed as billboards and video screens in the game, and cycle frequently as players move through each area to guarantee several impressions for each brand placed in the game. This game was ideal for the experiment as it contained more frequent and varied advertising than other games supported by Massive's network at the time of the study, including *Splinter Cell: Chaos Theory*, *S.W.A.T. 4*, and *Rainbow Six: Lockdown*.

During the week of the experiment sessions, ads for seven organizations and brands appeared in the game: both static and video ads for the U.S. Army, Air Force, and Navy, as well as static ads for Subway sandwich restaurants, Castrol Syntec motor oil, Under Armour athletic apparel, and later (after 39 participants had taken the survey), Garnier Fructis hair styling products. Questions were added later to the post-experiment survey in an attempt to measure effectiveness of the Garnier Fructis ads with the remaining 11 participants in the test group, and to test message recognition among other hair styling product advertising within the control group. Out of the video-based ads, U.S. Army clips were shown much more frequently than those for the Air Force and Navy, with Navy ads being shown the most sparingly.

Non-traditionally branded ads were also cycled briefly on the billboards, including a promotion for Funcom's upcoming computer game *Dreamfall*, and a billboard for Gridstream Productions, a non-profit site dedicated to broadcasting music into *Anarchy Online* as in-game entertainment for players. Such ads were not accounted for in the study, as they did not fit the standard model of in-game advertising paid for by international brands, nor did they stay on-screen as long as major branded in-game ads.

All billboards in the control group sessions were replaced by static ads for Dreadloch Arms & Gear, a fictional weapon supply store in the *Anarchy Online* world. Only players with paid accounts normally see these particular billboards in the game. No advertisements featuring video or audio were present in the control group's version of the game.

Upon arrival at the experiment site, participants were randomly assigned to one of four computers and briefly instructed on how to play the game. Participants wore headphones for a more immersive experience, but were allowed to vocally communicate with teammates if they had become separated from their group in the game. For the purposes of this experiment, players

were placed into teams of three or four and instructed to make their way through different parts of virtual cities via teleport stations, and were invited to explore particular areas for five to 10 minutes at a time. This approach adequately mimicked usual gameplay, as typical players must travel through these cities to buy items, meet up with other teammates, rent in-game apartments, and pass through to their destinations where they will carry out required quests. Participants were exposed to numerous ads along the paths from city to city, and were also free to play the game as they saw fit during exploration periods.

Some players seemed to focus primarily on finding activities in the game, such as shopping or swimming, while others walked up to billboards and actively watched video screens rather than staying with their teammates. Participants in the test group sometimes asked why advertising was present in the game; in these cases, the researcher simply reminded the participant(s) that the basic version of the game was free to play. Players would also often lose their bearings in large areas of the game after wandering away from their team to explore the game world; in such cases, the researcher guided players to their destinations using the provided in-game map and compass, and suggested that players might consider staying with their group if they were concerned about getting lost.

### Post-Test Questionnaire

After the 30-minute game session, participants answered a computer-based questionnaire online to measure advertising awareness and unaided ad recall, approval or rejection of in-game advertisements and product placement in other media, potential contribution of in-game ads to a game's sense of realism, appropriateness of advertising in specific games genres, common demographic and prior gaming experience information, and more (see Appendix B for full

questionnaire). All participants were debriefed after completing their survey, and were free to leave afterward.

Following models used in previous studies (McMillan and Hwang, 2002; Nelson, 2002; Nelson et al, 2004; Sundar and Kim, 2005), the questionnaire used Likert scales and open-ended questions to measure unaided recall, advertising awareness, and message recognition. Following questions about participants' perceptions of the game and their previous gaming experience, unaided recall questions were asked about each product category presented in the game, such as "When you think of athletic apparel, what brand name comes to mind?", followed by claimed advertising awareness items, such as "I have recently seen advertising in video games for the following types of athletic apparel: (Click all that apply)". Message recognition was assessed by asking "Which of these offers the following message in its advertising?", sometimes containing messages from competing brands not present in the game to measure effectiveness of those messages found in-game. Interest and intent to purchase were also measured in following questions. To assess attitudes toward advertising across various media, participants were asked to rate their level of agreement with statements such as "Advertising/product placement in TV shows is annoying/obtrusive to me" on a five-point scale, with 1 = "Strongly Agree" and 5 = "Strongly Disagree."

Similar to Nelson's (2002) questioning to test for acceptance of in-game advertising ("Do you think product placement impaired or helped the game experience?"), the survey measured different levels of approval or rejection of in-game advertising by asking participants to rate their level of agreement with statements such as "Advertising/product placement in video games is annoying/obtrusive to me," "Advertising should never be present in video games," "Advertising in video games makes the games seem more realistic and immersive," and "Advertising in video

games is acceptable when the products/brands shown are real.” Some items were reverse-coded in the results because of their phrasing in the survey; in these cases, higher mean scores reflected more unfavorable attitudes.

Players’ perceived levels of interactivity with in-game ads were measured by asking them to rate their level of agreement with the statement “Advertisements in video games are highly interactive,” and potential for such advertising to alter participants’ buying habits in the near future was gauged by level of agreement with statements such as “I would welcome advertising in video games if the retail price dropped by \$20 because of advertising included in the game.” Finally, standard demographic information was collected and participants were thanked for their contribution to the study.

## CHAPTER 4 RESULTS

The sample (N = 100) of undergraduate students was composed of 48 (48%) males and 52 (52%) females, which allowed for a wide scope of responses from players with little or no gaming experience, to those who play video games daily. Of the total sample, 25 (25%) respondents were aged 18; 48 (48%) were aged 19; 17 (17%) were aged 20; seven (7%) were aged 21; two (2%) were aged 22; none (0%) were aged 23, and one (1%) was aged 24 or older.

Of the 100 respondents, 78 (78%) identified themselves as Caucasian, 12 (12%) were African American, six (6%) were Asian American, one (1%) was Native American, one (1%) was Hispanic, and two (2%) identified themselves as Middle Eastern and Mediterranean, respectively. 66 (66%) respondents were college freshmen, 27 (27%) were sophomores, five (5%) were juniors, two (2%) were seniors, and none were graduate students.

Reported household incomes ranged from less than \$10,000 a year to over \$100,000 a year. Of those reporting income, 36 (39.1%) reported a yearly household income of less than \$10,000; six (6.5%) reported \$10,000-19,999; two (2.2%) reported \$20,000-29,999; five (5.4%) reported \$30,000-49,999; 12 (13%) reported \$50,000-69,999; six (6.5%) reported \$70,000-99,999; and 25 (27.2%) reported \$100,000 or higher. Eight respondents did not report yearly household income.

Of the 100 respondents, 16 (16%) reported that they had been playing video games for less than one year, eight (8%) had been playing for one to two years, 14 (14%) had been playing for three to five years, 13 (13%) had been playing for six to eight years, and 49 (49%) had been playing for nine years or more.

Next, 26 (26%) reported playing video games once a year or less, 29 (29%) reported playing once a month or less, 19 (19%) reported playing once a week or less, 14 (14%) reported playing three to five times a week, and 12 (12%) reported playing every day.

Further, 44 (44%) reported playing video games zero hours each week, 35 (35%) reported playing one to five hours each week, four (4%) reported playing six to 10 hours each week, six (6%) reported playing 11 to 15 hours each week, six (6%) reported playing 16 to 20 hours each week, one (1%) reported playing 21 to 25 hours each week, and four (4%) reported playing 25 hours or more each week.

A majority of the respondents (51%) rated the game’s ease of navigation as “excellent” or “good,” while 38 (38%) rated the game’s interactivity as “fair” and 45 (45%) rated the overall gameplay as “fair” (see Table 4.1).

**Table 4.1**  
**Frequencies for Participant Evaluation of Game Experience**

How would you rate this game?	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Very Poor</u>
Overall Gameplay	3	29	45	17	6
Ease of Navigation	20	31	29	12	8
Interactivity	8	33	38	17	4
N = 100					

When asked to rate their level of agreement with the statement “I enjoyed interacting with other players in the game during the session,” 13 (13%) strongly agreed, 41 (41%) agreed, 31 (31%) were neutral, 13 (13%) disagreed, and two (2%) strongly disagreed. When asked to rate their level of agreement with the statement “Playing with others made the game more interactive and immersive to me,” 19 (19%) strongly agreed, 59 (59%) agreed, nine (9%) were neutral, 12 (12%) disagreed, and one (1%) strongly disagreed.

When asked to respond to the statement “Advertising in general is annoying/obtrusive to me,” five (5%) respondents strongly agreed, 24 (24%) agreed, 40 (40%) were neutral, 28 (28%) disagreed, and three (3%) strongly disagreed. When asked to respond to the statement “Advertising/product placement in movies is annoying/obtrusive to me,” four (4%) respondents

strongly agreed, eight (8%) agreed, 26 (26%) were neutral, 48 (48%) disagreed, and 14 (14%) strongly disagreed. When asked to respond to the statement “Advertising/product placement in TV shows is annoying/obtrusive to me,” five (5%) respondents strongly agreed, 12 (12%) agreed, 25 (25%) were neutral, 44 (44%) disagreed, and 14 (14%) strongly disagreed. Finally, when asked to respond to the statement “Advertising/product placement in video games is annoying/obtrusive to me,” 10 (10%) respondents strongly agreed, 13 (13%) agreed, 33 (33%) were neutral, 31 (31%) disagreed, and 13 (13%) strongly disagreed.

### Results of Hypothesis Testing

The first hypothesis, which states that participants in the test group playing online with advertisements will show higher levels of acceptance of in-game advertising as unobtrusive additions to the game environment than those in the control group, was not supported. Results of a one-way analysis of variance (ANOVA) revealed that the test group found in-game advertising significantly more annoying or obtrusive ( $M = 2.92$ ,  $SD = 1.24$ ) than the control group ( $M = 3.56$ ,  $SD = .95$ ,  $F(1, 98) = 8.36$ ,  $p = .005$ ).

Further, the test group agreed significantly more with the statement that advertising should never be present in games ( $M = 3.1$ ,  $SD = 1.07$ ) than the control group ( $M = 3.72$ ,  $SD = .76$ ,  $F(1, 98) = 11.14$ ,  $p = .001$ ). The test group agreed significantly less with the statement that advertising in games makes the games seem more realistic and immersive ( $M = 2.84$ ,  $SD = 1.24$ ) than the control group ( $M = 2.34$ ,  $SD = .772$ ,  $F(1, 98) = 5.89$ ,  $p = .017$ ). The test group agreed significantly less with the statement that advertising in video games is acceptable when the products/brands shown are real ( $M = 2.92$ ,  $SD = 1.12$ ) than the control group ( $M = 2.48$ ,  $SD = .68$ ,  $F(1, 98) = 5.64$ ,  $p = .02$ ). The test group agreed significantly less that they would welcome advertising in video games if the retail price dropped by \$20 because of advertising included in



the game ( $M = 2.1$ ,  $SD = .86$ ) than the control group ( $M = 1.72$ ,  $SD = .9$ ,  $F(1, 98) = 4.62$ ,  $p = .034$ ). Finally, the test group agreed significantly more that they would pay more for an advertising-free version of a video game that they were interested in ( $M = 3.42$ ,  $SD = 1.33$ ) than the control group ( $M = 4.1$ ,  $SD = .79$ ,  $F(1, 98) = 9.71$ ,  $p = .002$ ) (see Table 4.2).

**Table 4.2**  
**Differences Between Experiment Groups in Reactions to Advertising**

	<b>Test Group</b>	<b>Control Group</b>		
	<u>Mean (SD)</u>	<u>Mean (SD)</u>	<u>F value (df)</u>	<u>Sig.</u>
Ads in TV Annoying	3.26 (1.14)	3.76 (.87)	6.08 (1, 98)	.015
Ads in Games Annoying	2.92 (1.24)	3.56 (.95)	8.363 (1, 98)	.005
Ads Never in Games	3.1 (1.07)	3.72 (.76)	11.135 (1, 98)	.001
Ads in Games Realistic	2.84 (1.24)	2.34 (.772)	5.893 (1, 98)	.017
Ads Acceptable if Real	2.92 (1.12)	2.48 (.68)	5.636 (1, 98)	.020
Welcome Ads if \$20 off	2.1 (.86)	1.72 (.9)	4.62 (1, 98)	.034
Pay More For No Ads	3.42 (1.33)	4.1 (.79)	9.709 (1, 98)	.002

N = 100, 1 = Strongly Agree, 5 = Strongly Disagree

ANOVA results revealed no significant difference in reactions to advertising in general or advertising in movies between the groups, yet the test group found advertising in TV shows significantly more annoying or obtrusive ( $M = 3.26$ ,  $SD = 1.14$ ) than the control group ( $M = 3.76$ ,  $SD = .87$ ,  $F(1, 98) = 6.08$ ,  $p = .015$ ). Results revealed no significant difference between groups in reactions to the statements “Advertising in video games is acceptable when the products/brands shown are fake,” or “I would welcome any amount of advertising in video games if the games were available for free.”

The second hypothesis, which states that video-based advertisements will trigger higher advertising awareness and message recognition rates than static in-game billboards, was not

supported. This hypothesis assumes that video-based ads would be the most frequently recalled and recognized of all ads shown-in game, and therefore should reflect the most significant differences between the test group and control group. However, results of a one-way analysis of variance (ANOVA) found no significant difference in advertising awareness of video-based ads among the groups. Video-based ads included those for the Army ( $F(1, 98) = 0, p = 1.00$ ), Navy ( $F(1, 98) = .23, p = .63$ ), and Air Force ( $F(1, 98) = .27, p = .61$ ).

Out of the participants in the test group, only 10 (20%) accurately recognized the message seen in Army ads, 11 (22%) recognized the message in Navy ads, and five (10%) recognized the message in one of the Air Force advertisements. Comparatively, 19 (38%) accurately recognized the message in static Castrol Syntec advertisements, and 22 (44%) recognized the message in static Subway advertisements.

The third hypothesis, which states that participants in the test group will show higher levels of perceived interactivity toward advertising in an online role-playing game environment than those in the control group, was not supported. A one-way analysis of variance (ANOVA) found no significant difference in perception of in-game ads as interactive at the .05 level between the test group and control group; however, results revealed that female participants found in-game advertising far more interactive ( $M = 2.71, SD = .89$ ) than male participants ( $M = 3.13, SD = .841, F(1, 98) = 5.66, p = .019$ ). A one-way analysis of variance (ANOVA) also found a significant difference in perception of in-game ads as interactive between non-gamers (those who play video games zero hours per week) and avid gamers (those who play video games for 11 hours or more per week). Tukey's HSD procedure for post-hoc testing revealed that non-gamers perceived in-game advertising as far more interactive ( $M = 2.73, SD = .86$ ) than did avid gamers ( $M = 3.44, SD = 1.03, F(2, 97) = 3.93, p = .023$ ).

## Results of Research Question Testing

The first research question asks which genres are most conducive to in-game advertising according to players. Among those in the test group who responded to the statement “Advertising is realistic or appropriate when placed in the following game genre(s): (Click all that apply),” 42 (85.7%) chose sports, 41 (83.7%) chose racing/driving, 11 (22.4%) chose fighting, nine (18.4%) chose role-playing/adventure, eight (16.3%) chose action/ first-person shooter, one (2%) chose strategy/puzzle, and one (2%) replied with “all.” Among those who responded in the control group, 41 (85.4%) chose sports, 36 (75%) chose racing/driving, 15 (31.3%) chose role-playing/adventure, 13 (27.1%) chose fighting, 13 (27.1%) chose action/first-person shooter, three (6.2%) chose strategy/puzzle, and one (2.1%) replied with “none.”

The second research question asks if gender, age, race, socioeconomic status, or previous gaming experience will reflect any differences in reactions to advertising. While one-way analyses of variance yielded no significant results among different ages, ethnicities, or income levels, significant differences were found between male and female participants in reactions to advertising (see Table 4.3).

Results revealed that females approved far more of advertising in movies ( $M = 3.88$ ,  $SD = .758$ ) than males ( $M = 3.33$ ,  $SD = 1.06$ ,  $F(1, 98) = 9.07$ ,  $p = .003$ ). Females were far more approving of advertising in television shows ( $M = 3.83$ ,  $SD = .857$ ) than males ( $M = 3.17$ ,  $SD = 1.18$ ,  $F(1, 98) = 11.10$ ,  $p = .001$ ). More females disagreed with the statement that advertising in games is annoying or obtrusive ( $M = 3.48$ ,  $SD = 1.0$ ) than did males ( $M = 2.98$ ,  $SD = 1.25$ ,  $F(1, 98) = 4.97$ ,  $p = .028$ ). More females believed that in-game advertising makes video games seem more realistic and immersive ( $M = 2.27$ ,  $SD = .87$ ) than males ( $M = 2.94$ ,  $SD = 1.14$ ,  $F(1, 98) = 11.03$ ,  $p = .001$ ). More males believed that in-game advertising is acceptable when the products

advertised are fictional ( $M = 3.02$ ,  $SD = 1.02$ ) than did females ( $M = 3.42$ ,  $SD = .83$ ,  $F(1, 98) = 4.73$ ,  $p = .032$ ); conversely, more females believed that in-game advertising is acceptable when the products advertised actually exist ( $M = 2.46$ ,  $SD = .78$ ) than did males ( $M = 2.96$ ,  $SD = 1.05$ ,  $F(1, 98) = 7.29$ ,  $p = .008$ ).

**Table 4.3**  
**Differences Between Genders in Reactions to Advertising**

	<b>Females</b>	<b>Males</b>		
	<u>Mean (SD)</u>	<u>Mean (SD)</u>	<u>F value (df)</u>	<u>Sig.</u>
Ads in Movies Annoying	3.88 (.758)	3.33 (1.06)	9.069 (1, 98)	.003
Ads in TV Annoying	3.83 (.857)	3.17 (1.18)	11.095 (1, 98)	.001
Ads in Games Annoying	3.48 (1.0)	2.98 (1.25)	4.965 (1, 98)	.028
Ads in Games Realistic	2.27 (.87)	2.94 (1.14)	11.029 (1, 98)	.001
Ads Acceptable if Fake	3.42 (.83)	3.02 (1.02)	4.730 (1, 98)	.032
Ads Acceptable if Real	2.46 (.78)	2.96 (1.05)	7.288 (1, 98)	.008

N = 100, 1 = Strongly Agree, 5 = Strongly Disagree

Perhaps most telling were the reactions to advertising between genders in the test group as compared to those between genders in the control group. Both males and females in the test group agreed more often than those in the control group that advertising in video games is annoying or obtrusive (see Table 4.4), while males in the test group agreed far more often than females that advertising should never be present in games (see Table 4.5). Seven males in the test group answered “Strongly Agree” to the statement “Advertising/product placement in video games is annoying/obtrusive to me,” compared to one male in the control group. Conversely, only two females in the test group strongly agreed with the statement, compared to none in the control group. Similar numbers were observed in the “Agree” column of Table 4.5 when comparing gender-specific responses.

**Table 4.4**  
**Frequencies for Level of Annoyance of In-Game Advertising Between Genders and Groups**

Advertising/product placement in video games is annoying/obtrusive to me.	<u>Strongly Agree</u>	<u>Agree</u>	<u>Neutral</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
Males (Test Group)	7	5	5	5	2
Males (Control Group)	1	3	9	9	3
Females (Test Group)	2	3	11	7	3
Females (Control Group)	0	2	8	10	5

N = 100

**Table 4.5**  
**Frequencies for Acceptance of Presence of In-Game Ads Between Genders and Groups**

Advertising should never be present in video games.	<u>Strongly Agree</u>	<u>Agree</u>	<u>Neutral</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
Males (Test Group)	3	8	5	7	1
Males (Control Group)	1	1	7	15	1
Females (Test Group)	2	0	12	10	2
Females (Control Group)	1	0	6	14	4

N = 100

A one-way analysis of variance (ANOVA) revealed significant differences in reactions to advertising between non-gamers (those who reported playing video games zero hours per week) and avid gamers (those who reported playing video games for 11 hours or more per week) (see Table 4.6).

Non-gamers found advertising in general less annoying or obtrusive ( $M = 3.18, SD = .83$ ) than avid gamers ( $M = 2.44, SD = 1.03, F(1,59) = 8.2, p = .006$ ). Non-gamers found advertising in movies less annoying or obtrusive ( $M = 3.91, SD = .63$ ) than avid gamers ( $M = 2.8, SD = .93, F(1,59) = 30.64, p = .000$ ). Non-gamers found advertising in television shows less annoying or obtrusive ( $M = 3.75, SD = .86$ ) than avid gamers ( $M = 2.81, SD = 1.05, F(1,59) = 12.71, p = .001$ ). Non-gamers found advertising in video games less annoying or obtrusive ( $M = 3.44, SD = .99$ ) than avid gamers ( $M = 2.38, SD = 1.26, F(1,59) = 11.91, p = .001$ ).

**Table 4.6**  
**Differences Between Levels of Previous Gaming Experience in Reactions to Advertising**

	<b>Non-gamers</b>	<b>Avid gamers</b>		
	<u>Mean (SD)</u>	<u>Mean (SD)</u>	<u>F value (df)</u>	<u>Sig.</u>
Ads in General Annoying	3.18 (.83)	2.44 (1.03)	8.204 (1,59)	.006
Ads in Movies Annoying	3.91 (.63)	2.75 (.93)	30.637 (1,59)	.000
Ads in TV Annoying	3.75 (.86)	2.81 (1.05)	12.705 (1,59)	.001
Ads in Games Annoying	3.44 (.99)	2.38 (1.26)	11.912 (1,59)	.001
Ads Never in Games	3.6 (.84)	2.81 (1.11)	8.77 (1,59)	.004
Ads in Games Realistic	2.4 (.89)	3.5 (1.12)	15.377 (1,59)	.000
Ads Acceptable if Fake	2.63 (1.15)	3.42 (.81)	9.08 (1,59)	.004
Ads Acceptable if Real	2.51 (.76)	3.56 (1.09)	17.827 (1,59)	.000

1 = Strongly Agree, 5 = Strongly Disagree

Non-gamers agreed less with the statement that ads should never be present in video games ( $M = 3.6, SD = .84$ ) than avid gamers ( $M = 2.81, SD = 1.11, F(1,59) = 8.77, p = .004$ ). Non-gamers agreed more with the statement that advertising in video games makes the games seem realistic ( $M = 2.4, SD = .89$ ) than avid gamers ( $M = 3.5, SD = 1.12, F(1,59) = 15.38, p = .000$ ). Avid gamers agreed more that in-game advertising is acceptable when the products advertised are fictional ( $M = 2.63, SD = 1.15$ ) than did non-gamers ( $M = 3.42, SD = .81, F(1,59) = 9.08, p = .004$ ); conversely, non-gamers agreed more that in-game advertising is acceptable when the products advertised actually exist ( $M = 2.51, SD = .76$ ) than did avid gamers ( $M = 3.56, SD = 1.09, F(1,59) = 17.83, p = .000$ ).

The third research question asks if in-game advertising influences a player's perception of navigation through the game. Results of a one-way analysis of variance (ANOVA) found that participants who did not see in-game ads rated the game's ease of navigation much more

positively ( $M = 2.2$ ,  $SD = .95$ ) than those who saw in-game ads ( $M = 2.94$ ,  $SD = 1.27$ ,  $F(1, 98) = 10.923$ ,  $p = .001$ ).

The fourth, fifth, and sixth research questions ask if in-game advertising influences product/brand interest, message recognition, and intent to purchase among players. Results of a one-way analysis of variance (ANOVA) revealed no significant differences in measured product/brand interest, advertising message recognition, or intent to purchase between those who played the game with ads present and those who played without ads.

The seventh research question asks if in-game advertising influences unaided recall among players. Open responses to unaided recall questions were coded with numbers representing the most popular answers for each item. Some notable differences were found in results of unaided recall and advertising awareness testing.

When asked “When you think of athletic apparel, what brand name comes to mind?”, 10 (20%) respondents from the test group named Under Armour, 34 (68%) named Nike, two (4%) named Adidas, and four (8%) named other brands. In the control group, three (6%) respondents named Under Armour, 40 (80%) named Nike, three (6%) named Adidas, and four (8%) named other brands.

When asked “When you think of American military recruiting, what name comes to mind?”, 28 (56%) respondents from the test group named the Army, 13 (26%) named the Navy, two (4%) named the Marines, and seven (14%) named others. In the control group, 30 (60%) respondents named the Army, three (6%) named the Navy, eight (16%) named the Marines, and nine (18%) named others.

When asked “When you think of motor oil, what brand name comes to mind?”, 15 (30%) respondents from the test group named Castrol, 11 (22%) named Pennzoil, four (8%) named

Mobil One, two (4%) named Valvoline, 14 (28%) named other brands, and four (8%) did not provide a name. In the control group, nine (18%) named Castrol, 15 (30%) named Pennzoil, five (10%) named Mobil One, one (2%) named Valvoline, 14 (28%) named other brands, and six (12%) did not provide a name.

When asked “When you think of fast food restaurants, what name comes to mind?”, three (6%) respondents from the test group named Subway, 36 (72%) named McDonald’s, four (8%) named Burger King, one (2%) named Taco Bell, and six (12%) named other brands. In the control group, one (2%) named Subway, 36 (72%) named McDonald’s, none (0%) named Burger King, three (6%) named Taco Bell, and 10 (20%) named other brands.

Because Garnier Fructis ads appeared in the game after the experiment had started, only 11 respondents in the test group were given the item measuring unaided recall on hair styling products, and one did not provide an answer. Of those in the test group who answered the question “When you think of hair styling products, what brand name comes to mind?”, three (30%) named Garnier Fructis, two (20%) named Tresemmé, two (20%) named Pantene, one (10%) named Paul Mitchell, and two (20%) named other brands. In the control group, two (4%) named Garnier Fructis, one (2%) named Tresemmé, five (10%) named Pantene, nine (18%) named Paul Mitchell, 29 (58%) named other brands, and four (8%) did not provide an answer.

The eighth research question asks if in-game advertising influences claimed advertising awareness among players. Results of a one-way analysis of variance (ANOVA) found significant differences in advertising awareness levels between the test group and control group for only three brands: Under Armour, Marines, and Subway. More participants in the test group recalled seeing in-game Under Armour ads ( $M = .62, SD = .49$ ) than did the control group ( $M = .26, SD = .44, F(1, 98) = 14.84, p = .000$ ). Fewer participants in the in the test group recalled seeing in-



game Marines ads ( $M = .1, SD = .3$ ), than did the control group ( $M = .34, SD = .48, F(1, 98) = 8.98, p = .003$ ). More players in the test group recalled seeing in-game Subway ads ( $M = .6, SD = .5$ ) than did the control group ( $M = .16, SD = .37, F(1, 98) = 25.34, p = .000$ ) (see Table 4.7).

**Table 4.7**  
**Differences In Advertising Awareness Levels Between Groups**

	<b>Test Group</b>	<b>Control Group</b>		
	<u>Mean (SD)</u>	<u>Mean (SD)</u>	<u>F value (df)</u>	<u>Sig.</u>
Reported seeing Under Armor ads in-game	.62 (.49)	.26 (.44)	14.837 (1, 98)	.000
Reported seeing Marines ads in-game	.1 (.3)	.34 (.48)	8.977 (1, 98)	.003
Reported seeing Subway ads in-game	.6 (.5)	.16 (.37)	25.338 (1, 98)	.000

N = 100

Frequencies of advertising awareness items among participants from the test group revealed high awareness levels for Under Armour (62%) and Subway (60%), with results varying for the other brands represented in-game (see Table 4.8). Ads for Marines were not present in the game at the time of the experiment.

**Table 4.8**  
**Frequencies for Advertising Awareness Levels Between Groups**

I have recently seen advertising in video games for the following...	<u>Test Group</u>	<u>Control Group</u>
Under Armour	31 (62%)	13 (26%)
US Army	25 (50%)	25 (50%)
Navy	10 (20%)	12 (24%)
Air Force	10 (20%)	8 (16%)
Castrol Syntec	15 (30%)	9 (18%)
Subway	30 (60%)	8 (16%)
Garnier Fructis	5 (10%)	6 (12%)

N = 100

Finally, the ninth research question asks if players perceive in-game advertising as contextual – that is, adding realism and immersion to the game environment. ANOVA results showed that

the test group agreed significantly less with the statement that in-game advertising makes the game seem more realistic and immersive ( $M = 2.84$ ,  $SD = 1.24$ ) than those in the control group ( $M = 2.34$ ,  $SD = .772$ ,  $F(1, 98) = 5.89$ ,  $p = .017$ ). Thus, players in the test group perceived in-game advertising as less contextual than players in the control group.

## CHAPTER 5 DISCUSSION

Corporate advertisers, media publishers, game developers, and ad agencies still have much to learn about the relatively nascent world of in-game advertising. Advertisers have found their captive audience of males aged 18-34, and they are reachable in a medium arguably more engrossing than television, radio, or movies could ever aspire to – yet matching relevant brand messages with contextual game environments remains a challenge. This research sought to test the effects of advertising in an online role-playing game, in the hopes that all parties involved with in-game advertising might become better informed of the advantages and downfalls of incorporating ads into video games.

This study found that while advertising placement in online video games can sometimes trigger high advertising awareness, it can also reduce a game's perceived sense of realism and genuinely annoy players if not appropriately coordinated with the game environment. Whereas previous research (Nelson, 2002; Book, 2004; Chaney, Lin, & Chaney, 2004; Nelson et al., 2004; Activision, 2005) has shown that players can accept in-game advertising when placed relevantly, the current study suggests the opposite can occur when advertisers make little or no effort to contextualize their ads within the game world.

### Conclusions

Why, then, did the advertising in this study seem to turn off so many players? Simply put, most of the ads did not match their environment. A significant number of players in the test group perceived in-game advertising as less contextual than those in the control group, with reasonable cause. One could argue that current-day advertising placed in a science fiction-themed game based 30,000 years in the future cannot possibly boost the game's sense of realism. Such is the case with *Anarchy Online*: a virtual role-playing adventure grounded entirely in the

distant future, yet inundated with marketing efforts of the 21st century – unless players pay a monthly fee for the ad-free version.

Only two brands (Under Armour and Subway) enjoyed substantial awareness rates in this study. Interestingly, these two ads contained no period-specific material in their presentation; only Under Armour's logo was shown, and, in Subway's case, two abstract characters and a brief message ("Fresh Toasted") were displayed. Both ads used simple, eye-catching design, and likely appeared more convincing than other billboards in the game's futuristic setting, assuming that players could believe that both brands would still exist in 30,000 years. Other ads, such as those for the Navy and Air Force, depicted examples of present-day people and technology, thus compromising their credibility in a futuristic setting. These observations offer further indication that in-game advertising must enhance a game's sense of realism to be truly effective.

Contextual in-game advertising begins with matching appropriate brands and products to the game worlds. Just as a McDonald's billboard has no place in *World of Warcraft*, certain products should not be advertised where they don't normally belong in reality. Rather than trying to monetize gameplay by placing irrelevant ads in several games, in-game ad firms should work more closely with agencies and demographics services to deliver what players are truly interested in seeing. For example, in a massively-multiplayer online game such as *Anarchy Online*, tech-savvy gamers may be far more interested in ads offering player-exclusive discounts on electronics at Best Buy or NewEgg.com than hairstyling products offering the same message seen in television campaigns. By making such advertisements truly interactive to players by adding a clickable interface to offer more information or open the product's site in a browser once the game client closes, advertisers could build further engagement with their audience and players may perceive a substantial benefit in the advertising.

The hypothesis assuming that video-based ads would trigger higher advertising awareness than static ads was unsupported; this may be explained in a number of ways. First, if the Army intended to generate increased recognition and recruiting through their “Boostup.org” video ads in *Anarchy Online*, perhaps the ads should have been more clearly branded. At the end of each Army-branded video ad, only a small, pixelated Army logo appeared in the lower right-hand corner of the billboard. Conversely, these ads may be effective in driving young people to Boostup.org, a site sponsored by the Army focused on motivating high school students to stay in school. Navy and Air Force video ads, however, were shown sparingly in each game session compared to the Army ads, which could explain their low awareness rates. Players may also have been too anxious to explore their environments to pay undivided attention to these video ads long enough to identify the advertisers in question. These results suggest that video-based ads will not achieve higher awareness rates than static ads if they cannot quickly convey a message to someone entirely focused on their purpose in the game. Thus, it would benefit advertisers to spend more on higher frequencies of static in-game ad displays – especially ads featuring a message that relates to the specific area or mission a player is involved in, when possible – rather than allocating portions of their budget for video-based ads.

No significant differences were found in levels of perceived interactivity with in-game advertisement across the two groups of participants. Results suggest that even when players perceived the game environment itself as interactive, they did not perceive the advertisements as interactive. If advertisers want players to become involved and engaged in their brands, simply placing non-interactive advertisements in “interactive” environments isn’t enough. Results showed that females and inexperienced game players, however, did perceive in-game ads as more interactive than did males and avid gamers in both groups. These findings suggest that

individuals who devote a substantial amount of their time to playing video games (11 hours or more per week) are almost exclusively male, and are particularly media-savvy and technologically inclined; that is, they have more refined definitions of “interactivity” in mind than non-gamers, and are more adept at identifying varying levels of interactivity among various media than non-gamers. The same results suggest that certain advertisers may discover significantly more positive reactions to marketing in female-oriented online games and virtual worlds, such as *Second Life*, as long as the advertised material corresponds with the needs of the product’s target audience.

It must be noted that Massive Incorporated and Funcom announced in July of 2006 their placement of a new “interactive advertisement technology” in *Anarchy Online*, the first of which allowed players to click billboards to see detailed models of Toyota’s Yaris automobile (Radd, 2006). These interactive in-game billboards differ greatly from the passive ads observed in this study, and may mark the beginning of a new era of player engagement with advertising in massively multiplayer online games. Had this technology been present in *Anarchy Online* during the time the experiment was conducted, the study’s results on perceived interactivity would have likely been far different.

Not surprisingly, most participants in this study agreed that in-game ads are most appropriate in racing and sports games. These results are consistent with previous research (Nelson, 2002; Nelson et al., 2004) suggesting that in-game advertising fits best with modern-day environments where advertising already exists in reality. It should be noted that a substantial percentage of participants in the control group (31.3%) believed that advertising in role-playing games can be considered appropriate and realistic. These results, coupled with Nicovich’s (2005) findings, suggest that advertising can be executed effectively within the role-playing game genre if the

material “makes sense” within the game environment – for example, in games that are based in settings closer to our own present, rather than pure fantasy worlds or period-specific environments (medieval settings, futuristic worlds, battlefields in outer space, etc.).

The researcher was somewhat surprised to find participants in the test group had rated the game’s ease of navigation significantly lower than those in the control group. When players perceive a game environment as unusually difficult to navigate due to the presence of overbearing advertising, the immersive experience has inarguably been compromised. Again, advertisers must be sure not to interrupt a player’s sense of immersion in the game at all costs in order to effectively deliver a marketing message. Considering an ANOVA test significance of .001 on this item, it can be assumed that the advertising present in *Anarchy Online* did indeed adversely affect some players’ perceptions of navigation in the game. Developers and advertisers must work together to avoid unfavorable consequences such as these, through non-offensive presentation and cautious ad placement.

In summary, this study has shown that players may indeed become frustrated and annoyed by out-of-context advertising placed in video games, to the point of negatively affecting players’ overall opinions of advertising in other media. The case can be made that players cannot justify their complaints if the games in question are free to play, though this is not an ideal model for bringing in paying customers. Although this study did reveal that participants who played the game with ads present were most likely to pay more than regular retail prices for advertising-free versions of games they were interested in, the companies behind in-game advertising would be remiss to simply annoy their customers into spending more. In-game advertising networks must work harder to match relevant advertising with appropriate game settings to ensure positive results on all sides.

## Limitations and Strengths

Because participants were recruited from a large undergraduate class without random sampling, the results of this study may not be generalized to all video game players aged 18-24. Yet, the research should serve as an informative basis for future studies on advertising in video games, as in-game advertisers frequently spend to reach this very demographic.

Upon re-evaluation, the researcher found that some items in the post-experiment survey may have been worded too vaguely to draw convincing conclusions, such as items 14 through 18 (“I have recently seen advertising in video games for the following...”). While respondents would have ideally listed the ads they had just seen in *Anarchy Online*, they may have also listed other brands seen in other unrelated video games over recent months. This possibility prevents the researcher from understanding whether some players believed they saw ads in *Anarchy Online* that were not actually in the game, or if they had simply seen them elsewhere.

Also, because Massive Incorporated could not divulge specific in-game advertising cycle dates and times, it was impossible for the researcher to predict when particular ads would leave the current cycle, or when new ads would appear during testing. Fortunately, all brands represented in advertising at the start of the study remained until the test group’s final game session; however, ads for Garnier Fructis hair styling products entered the ad cycle after 39 participants had already completed their sessions, rendering the item virtually incomparable to player reactions to the other brands represented in-game.

It should be noted that the sample size ( $N = 100$ ) compares favorably to previous game research such as Nelson’s (2002) study ( $N = 16$ ) and Chaney et al. (2004) ( $N = 42$ ). A predetermined play time of 30 minutes also presumably allowed for more conclusive results than previous studies; Nelson (2002) and Chaney et al. (2004) both implemented play times of 15



minutes, Activision (2005) allowed a minimum of 20 minutes for play time, and Nelson et al. (2004) allowed exposure to racing games for only three minutes.

### Future Research

The processes and technologies behind in-game advertising have advanced at an alarming rate. Since the inception of this study, brick-and-mortar clothing retailers and ad agencies have set up shop in virtual worlds, in-game ad networks have introduced interactive billboards to multiplayer game environments, and acquisitions worth hundreds of millions of dollars have been inked with framework providers. With the advent of next-generation game consoles and a steadily increasing worldwide gaming population, the opportunities for further research in this space are endless.

Aarseth described the video game business as “a billion dollar industry with almost no basic research” (2001, ¶ 9); it is the responsibility of academics from virtually all fields to fill this existing void of study. In the interest of examining the comparative effectiveness of in-game advertising, future research should expose participants to advertising in video games and traditional advertising vehicles (magazines, television, Internet) in the same study, and compare recall rates and response attitudes between the various media. Activision and Nielsen Entertainment took a step in this direction by including three cells focused on television advertising (Activision, 2005), yet further experiments should be conducted to compare recall and attitudes toward advertising in all media with those toward in-game ads to help pinpoint potential areas of intrinsic opportunity in games that other media cannot provide.

Interestingly, players in the test group found advertising in television shows significantly more annoying and obtrusive than those in the control group. These results suggest that players’ negative attitudes toward the advertising in *Anarchy Online* influenced their opinions, albeit

possibly temporarily, about advertising in other media. Nelson et al. (2004) found that those players who respond negatively to in-game advertising are often opposed to advertising in general, yet the results of this study revealed no significant difference in reactions to advertising in general or advertising in movies between the two groups. This exception may suggest that gamers mentally associate product placement in television shows more closely with advertising in games than with product placement in movies. Further research should address perceived similarities between advertising in games and other media, and the potential for cross-platform promotions to reinforce marketing messages in target markets.

Further studies are needed to measure the effectiveness of static ads versus animated ads specifically found in games. Researchers could test for recall of non-moving ads against that of video-based ads within the same game environment, in order to measure efficiency of each format and discover potential advantages and weaknesses inherent in both. Sundar and Kim (2005) found valid differences in perceived interactivity and effectiveness between static and animated ads in Internet advertising, and the current study compared a small number of video and static ads – yet more attention should be paid to such differences in games. Similar research should examine the use of in-game video-based ads utilizing sound compared to traditionally silent in-game advertising.

Future research should manipulate interactivity at the human-to-computer level by comparing reactions to static in-game ads with advertising that users can truly interact with. As seen with Chen et al. (2005), greater levels of interactivity may encourage stronger consumer trust and understanding of brands and their messages. A large-scale, independent study of such ads in online games and virtual worlds should provide the next step in understanding effective in-game advertising for advertisers, publishers, developers, and academics. Other studies should approach

in-game advertising based on updated definitions of audience engagement, involvement, and presence in advertising situations to aid in building an understanding of consumer behavior and attitudes toward brands and products in games.

Advertising in virtual worlds should also receive increased academic attention, particularly regarding the examination of perceived and intended interaction between users and ads, and effects of social trends on virtual purchasing habits. With user subscription rates and virtual economies skyrocketing as word spreads of the creative and lucrative possibilities available in virtual worlds such as *Second Life* and *Habbo Hotel*, researchers should also actively observe and participate in these worlds as they grow from within. Internal advertising networks have already been devised by the residents of these worlds; it will be interesting to watch for further involvement of real-world advertisers and the impact of their presence on an inherently fantasy-based setting.

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## APPENDIX A

### ORAL CONSENT FORM

“Thank you for coming to this study. The study will take approximately 45 minutes and is broken into two parts. First, you’ll be playing a computer game called *Anarchy Online* with three other people for 30 minutes; after the game session, you’ll spend about 10 to 15 minutes taking a computer-based survey. Your survey results will remain anonymous and cannot be traced back to you in any way. And remember, you must be at least 18 years of age to participate in the study.

“*Anarchy Online* is an exclusively online role-playing game, which means you may see hundreds of other players like yourselves running around the game during the session. The game is set 30,000 years in the future and this basic version is completely free to play. If the game’s content is a problem for you, you have the right to withdraw now or stop playing at any time. You will be briefed on how to play the game before the session starts. You will then play a multiplayer session with three other players until the 30 minutes is up. I will be able to assist you if you need help with a certain aspect of playing the game. If you have any questions after the study is completed, please feel free to contact me at my office in 210 Hodges Hall, or call the office at (225) 578-3912, or e-mail me at [blewis9@lsu.edu](mailto:blewis9@lsu.edu). Do you understand the terms of this study? If you need anything explained further, please let me know now. Otherwise, we will begin the session.”

**APPENDIX B**  
**POST-EXPERIMENT QUESTIONNAIRE\***

\* Questions accompanied by an asterisk required an answer before participants could proceed to the next page. Also, Garnier Fructis advertisements appeared in the game after 39 participants had completed the survey; to attempt to measure the effectiveness of these ads, questions 8, 13, 18, 28, 29, 36, and 43 were added to the survey for the remaining sessions.

## Part I: Gameplay Experience

Thank you for taking this survey. Your responses are 100% anonymous and cannot be traced back to you in any way. Please answer each question openly and honestly.

The following questions will measure your video game experience. Choose the answer that best represents your experiences.

\* 1. How would you rate this game?

Overall gameplay:

Excellent  
Good  
Fair  
Poor  
Very poor

Ease of navigation:

Excellent  
Good  
Fair  
Poor  
Very poor

Interactivity:

Excellent  
Good  
Fair  
Poor  
Very poor

\* 2. I enjoyed interacting with other players in the game during the session.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 3. Playing with others made the game more interactive and immersive to me.

Strongly agree

Agree  
Neutral  
Disagree  
Strongly disagree

\* 4. How long have you been playing video games?

Less than one year  
1-2 years  
3-5 years  
6-8 years  
9 years or more

\* 5. How often do you play video games?

Once a year or less  
Once a month or less  
Once a week or less  
3-5 times a week  
Every day

\* 6. How many hours do you spend per week playing video games?

0 hours  
1-5 hours  
6-10 hours  
11-15 hours  
16-20 hours  
21-25 hours  
25+ hours

7. What is your favorite video game genre?

Sports  
Fighting  
Racing/driving  
Role-playing/adventure  
Action/first-person shooter  
Strategy/puzzle  
Other (please specify)

\* 8. Please check the box to continue.

Continue with the survey

**Next >>**

## Part II: Product Information

The following questions will ask about specific product preferences and opinions. Please type all answers that come to mind.

9. When you think of athletic apparel, what brand name comes to mind?

---

10. When you think of American military recruiting, what name comes to mind?

---

11. When you think of motor oil, what brand name comes to mind?

---

12. When you think of fast food restaurants, what name comes to mind?

---

13. When you think of hair styling products, what brand name comes to mind?

---

**Next >>**

14. I have recently seen advertising in video games for the following types of athletic apparel: (Click all that apply)

- Champion
- Adidas
- Nike
- Under Armour
- InSport

15. I have recently seen advertising in video games for the following military divisions: (Click all that apply)

- US Army
- Air Force
- Marines
- Navy
- Coast Guard

16. I have recently seen advertising in video games for the following types of motor oil: (Click all that apply)

- Quaker State
- Castrol Syntec
- Valvoline
- Mobil One
- Pennzoil

17. I have recently seen advertising in video games for the following types of fast food restaurants: (Click all that apply)

- Taco Bell
- Subway
- Burger King
- Quizno's
- Blimpie

18. I have recently seen advertising in video games for the following types of hair styling products: (Click all that apply)

- L'Oréal
- Bed Head
- American Crew
- L.A. Looks
- Garnier Fructis

**Next >>**



19. Which of these offers the following message in its advertising?

"Accelerate your life."

Air Force  
Coast Guard  
Navy  
Marines  
US Army

**Next >>**

20. Which of these offers the following message in its advertising?

"Give them a boost. BoostUp.org"

US Army

Air Force

Marines

Navy

Coast Guard

**Next >>**

21. Which of these offers the following message in its advertising?

"Try a real joystick."

Air Force  
Navy  
US Army  
Coast Guard  
Marines

**Next >>**

22. Which of these offers the following message in its advertising?

"Don't just play video games, inspire them."

US Army

Navy

Air Force

Marines

Coast Guard

**Next >>**

23. Which of these offers the following message in its advertising?

"Not just oil."

- Pennzoil
- Mobil One
- Valvoline
- Quaker State
- Castrol Syntec

**Next >>**

24. Which of these offers the following message in its advertising?

"Unlock the power."

- Pennzoil
- Valvoline
- Quaker State
- Mobil One
- Castrol Syntec

**Next >>**

25. Which of these offers the following message in its advertising?

"The oil that's changing oil."

- Pennzoil
- Mobil One
- Castrol Syntec
- Valvoline
- Quaker State

**Next >>**

26. Which of these offers the following message in its advertising?

"Fresh toasted"

- Blimpie
- Burger King
- Taco Bell
- Quizno's
- Subway

**Next >>**



27. Which of these offers the following message in its advertising?

"Mmmm... toasty!"

Subway  
Burger King  
Quizno's  
Blimpie  
Taco Bell

**Next >>**

28. Which of the following offers the following message in its advertising?

"Because you're worth it."

L.A. Looks  
American Crew  
Bed Head  
Garnier Fructis  
L'Oréal

**Next >>**

29. Which of these offers the following message in its advertising?

"Set your site on strength"

Garnier Fructis  
L'Oréal  
L.A. Looks  
American Crew  
Bed Head

**Next >>**

\* 30. How interested are you in Under Armour athletic apparel?

Very interested  
Interested  
Somewhat interested  
Not at all interested

\* 31. How interested are you in the US Army?

Very interested  
Interested  
Somewhat interested  
Not at all interested

\* 32. How interested are you in the Navy?

Very interested  
Interested  
Somewhat interested  
Not at all interested

\* 33. How interested are you in the Air Force?

Very interested  
Interested  
Somewhat interested  
Not at all interested

\* 34. How interested are you in Castrol Syntec motor oil?

Very interested  
Interested  
Somewhat interested  
Not at all interested

\* 35. How interested are you in Subway restaurants?

Very interested  
Interested  
Somewhat interested  
Not at all interested

\* 36. How interested are you in Garnier Fructis hair styling products?

Very interested  
Interested

Somewhat interested  
Not at all interested

**Next >>**

\* 37. How likely are you to purchase an Under Armour product in the near future?

Very likely  
Somewhat likely  
Neutral  
Unlikely  
Very unlikely

\* 38. How likely are you to actively seek out more information about the US Army?

Very likely  
Somewhat likely  
Neutral  
Unlikely  
Very unlikely

\* 39. How likely are you to actively seek out more information about the Navy?

Very likely  
Somewhat likely  
Neutral  
Unlikely  
Very unlikely

\* 40. How likely are you to actively seek out information about the Air Force?

Very likely  
Somewhat likely  
Neutral  
Unlikely  
Very unlikely

\* 41. How likely are you to purchase Castrol Syntec motor oil in the near future?

Very likely  
Somewhat likely  
Neutral  
Unlikely  
Very unlikely

\* 42. How likely are you to eat at a Subway restaurant in the near future?

Very likely  
Somewhat likely  
Neutral  
Unlikely

Very unlikely

\* 43. How likely are you to purchase a Garnier Fructis hair styling product in the near future?

Very likely

Somewhat likely

Neutral

Unlikely

Very unlikely

**Next >>**

### **Part III: Advertising Position**

The following will ask about your personal position on advertising. Please choose the best answer that reflects your viewpoint.

\* 44. Advertising in general is annoying/obtrusive to me.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 45. Advertising/product placement in movies is annoying/obtrusive to me.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 46. Advertising/product placement in TV shows is annoying/obtrusive to me.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 47. Advertising/product placement in video games is annoying/obtrusive to me.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

**Next >>**



\* 48. Advertising should never be present in video games.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 49. Advertising in video games makes the games seem more realistic and immersive.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 50. Advertising in video games is acceptable when the products/brands shown are fake.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 51. Advertising in video games is acceptable when the products/brands shown are real.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 52. Advertisements in video games are highly interactive.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

53. Advertising is realistic or appropriate when placed in the following game genre(s): (Click all that apply)

Sports  
Fighting  
Racing/driving

Role-playing/adventure  
Action/first-person shooter  
Strategy/puzzle  
Other (please specify)

\* 54. I would welcome advertising in video games if the retail price dropped by \$10 because of advertising included in the game.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 55. I would welcome advertising in video games if the retail price dropped by \$20 because of advertising included in the game.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 56. I would pay more for an advertising-free version of a video game that I was interested in.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

\* 57. I would welcome any amount of advertising in video games if the games were available for free.

Strongly agree  
Agree  
Neutral  
Disagree  
Strongly disagree

**Next >>**

**Part IV: Tell Us About Yourself**

\* 58. Gender:

Male  
Female

\* 59. Age:

18  
19  
20  
21  
22  
23  
24+

\* 60. Current college education level:

Freshman  
Sophomore  
Junior  
Senior  
Graduate student

\* 61. Please indicate the category that best describes your ethnic background:

Caucasian/white  
African-American  
Asian-American  
Native American  
Hispanic  
Other (please specify)

\* 62. What is your undergraduate college major? (Please fill in details)

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63. What is your current yearly household income?

<\$10,000  
\$10,000-19,999  
\$20,000-29,999  
\$30,000-49,999  
\$50,000-69,000  
\$70,000-99,999

\$100,000+

\* 64. Group: (Ask Ben if you're not sure which group you're in)

A  
B

**Thanks!**

Thank you for participating in this study. If you have any questions, please call Ben Lewis at (225)578-3912, or e-mail me at [blewis9@lsu.edu](mailto:blewis9@lsu.edu).

It is CRUCIAL that you do not tell anyone else about the contents of this study until it is completed! You will receive an e-mail from [blewis9@lsu.edu](mailto:blewis9@lsu.edu) when all participants have taken part in the study. Thanks again.

## VITA

Ben Lewis was born in Baton Rouge, Louisiana, on December 17, 1981. He earned his Bachelor of Arts in mass communication from the Manship School of Mass Communication at Louisiana State University in 2003, with a concentration in electronic media.

Before beginning his graduate studies in mass communication with a focus on advertising at the Manship School in 2004, Ben worked as an entertainment journalist for four years, writing for Louisiana-based hardware and software review Web sites *GameVortex* and *PSIllustrated*, and freelancing for Los Angeles-based game industry news publication *GameWEEK*. His summer 2005 media internship at Door Number 3, an acclaimed advertising and branding agency in Austin, Texas, furthered his passion for creative media production and resourceful marketing.

Ben's research interests include interactive media, virtual worlds and their economies, viral marketing trends, and creative innovations in advertising. He is currently the head of marketing and sales for Yatec, a Baton Rouge-based video game development company.