

Exploring in-game advertising in first person shooters

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### **Abstract**

In-game advertising is a rapidly developing advertising channel. The game Metal Gear Solid 4 contains product placements from Apple, Sony, Regain and others. Many in-game advertisements are placed without solid backup of academic research. An advertisement implemented in the right way can lead to an increase in sales and brand reputation. This research contributes to the field of in-game advertising by looking for different ways to incorporate advertisements in a First Person Shooter (FPS), testing how effective they are and if they deteriorate the game experience. A short level incorporating various types of in-game advertising was built for the FPS game Half Life 2. The participants in this study were asked to play the level and answer a questionnaire regarding brand recall, intrusiveness and general comments.

**Keywords:** In-game advertising, First Person Shooters, brand recall, intrusiveness, realism

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## 1. Introduction

### 1.1 Introduction

The gaming industry has developed rapidly the last decennia. In 1961 a group of MIT students programmed Spacewar! on the DEC PDP-1 computer. It was seen as one of the first influential computer games. In 1972 Atari brought one of the most famous games ever on the market, PONG. In 1985 Nintendo launched its Nintendo Entertainment System bundled with Super Mario Bros. The video game industry flourished and consoles and personal computers were more developed.

Today we are in the seventh generation of video game consoles. Arcades are no longer popular and PC gaming has declined significantly. The leaders of the video game console market are Nintendo with its Wii, Sony with Playstation3 and Microsoft with their Xbox360. All consoles can be connected to the internet allowing features like online gaming, automatic updates and social networking.

A study revealed that 97% of teenagers (12-17) play computer, web, portable, or console games (PEW, 2008). The Electronic Software Association (ESA) states that 65% of American households play computer or video games. Consumers are watching less television and are spending more time online playing video games. This means that there is a huge potential advertising channel in computer and video games.

Early forms of in-game advertising are the Zool (1992) game which contains Chupa Chups lollipops and FIFA 1994 which shows an Adidas billboard. Games of today have more and more advertising. Metal Gear Solid 4(2008, PS3) contains product placements from Apple, Sony, Regain and others.



### 1.2 Research question

More game developers choose to include some advertising in their games in order to compensate for today's huge development costs. Advertisers see it as an advertising channel to reach a big target market. Consumers will have more and more advertising in their games for which they paid a premium. How effective are these in-game advertisements? How can they be implemented without deteriorating the gaming experience? Do different gaming genres require a different approach? These are questions that have to be answered in order to develop this advertising channel. So far there has been little academic research regarding this subject. A popular video game genre is the so called First Person Shooters (FPS). Only the last years advertisements in FPS games have begun to appear. This genre of video games provides many possible forms of in-game advertising which haven't been properly explored and researched in academia.

This study tries to contribute to this field by answering the following research question:

*How can in-game advertising be used in first person shooter video games without deteriorating the gaming experience and increasing the effectiveness of the advertisement?*

The goal of this research is to find out how advertising can be applied to first person shooter video games.

In order to answer the research question, several sub questions about in-game advertising have to be answered

- **Which types of advertising can be used in first person shooters?**

First this research will find out which types of in-game advertising are possible within first person shooters by looking at advertising done in movies, games and combining them. This literature study forms the basis for the hypotheses and needs to be done in order to answer the research question. The most common form of advertising are billboards; these can already be found in video games and First Person Shooters. The interactive environment of this video game genre is expected to provide new possibilities and ways of advertising, especially in the current generation of video games, because of technological progression.

- **Which types of advertisements are most effective in a first person shooter?**

In order to determine in which type of in-game advertisement to invest, it must be known what kind of advertisements are effective and thus worth putting in the game or not.

- **Which types of advertisements are intrusive in the game-play process?**

Advertisements that annoy the gamer and are intrusive may lead to bad publicity, negative brand associations for the ad and the publisher and eventually can lead to a loss in sales.

Therefore we must know which types are more intrusive than others and what the attitude of the gamer is towards the forms of advertising in their video game.

When these questions are answered our understanding of the possibilities of in-game advertising in first person shooters will be enlarged. Areas for future research can be identified and game developers and marketers will have more literature to decide about in game advertising.

### 1.3 Contribution

#### 1.3.1 Academic Relevance

The overall value of the worldwide product placement market, including the barter/exposure value of non-paid placements, will increase 18.4% compounded annually to \$13.96 billion in 2010 (PQ Media, August 2006). It is therefore not a surprise that the concept of product placement is daily discussed, applied and reported in the world of professional marketers (Russell and Stern, 2006; O' Loughlin, 2006; Levin, 2006; Karrh et al. 2003;).

Video games will bring opportunities to the advertisement world and they will be used without much academic literature to backup the positioning of ads. There have not been many studies on the effectiveness of advertising in games. Only one study was found which focused on first person shooters (Chaney et al., 2004), but it only focused on fictional billboards in a fantasy world and in a multiplayer setting. A study about recall of brand placements in Computer/Video games (Nelson, 2002) suggested that these experiments may have a different outcome in another game genre than the racing genre. The study suggested that the race game simulates the real world and that's why the product placements are accepted. In a different genre like fantasy or First Person Shooter which don't simulate the real world the acceptance might be lower.

The Yankee Group, Forrester, Citi, IDC and SIG predict the in-game advertising market is estimated to be worth \$1.2 billion by 2010. Before its true growth potential can be assessed, however, more research will be necessary to prove the effectiveness and value of the sector (IAB, 2007).

### 1.3.2 Managerial Relevance

Video gaming is now one of the most popular leisure activities for adults (aged 18-34) (IGA, 2009). Fifty percent of the adults 18+ have a videogame console and 97 percent of teenagers (aged 12-17) play computer, web, portable, or console games (PWE, 2008). The game market is very big and eating up TV time from consumers. Marketers might want to know if spending their budget on in-game ads is an effective way of reaching their primary target market. They also want to know what the advertisement opportunities are in-game and how consumers respond to them. The game developers might consider in-game advertising as possible revenue channel. They are interested to see how they can incorporate advertisements without deteriorating the gaming experience and stepping on consumer toes. Nowadays the costs of producing a next-gen game can be tens of millions. Therefore game developers might want to generate another channel of income to ensure continuity of the development process and to keep the price of the game level. Independent small game developers, who don't have the budget to release and market a game, might want to consider generating revenue solely by in-game advertisements. The reason why this research focuses on a First Person Shooter is that this genre is popular. There are many FPS titles released each year. A FPS uses a 3D Engine to render a virtual world. Other game genres also make use of similar 3D engines (like tactical shooters or stealth games) so they might find this research useful as well.

### 1.4 Research Design

This research is designed as an exploratory study, because there is a time constraint. It is both qualitative and quantitative in nature. In short, this research intends to study in-game advertising in First Person Shooters, which types of advertisement can be implemented in a First Person Shooter environment, how effective and how intrusive are they. The types of advertising will be determined by a literature study. The effectiveness will be determined by an experiment

in which a group of people play a FPS level that contains different forms of advertising and a questionnaire afterwards. This questionnaire will also be used to determine the intrusiveness of the advertisements.

### 1.5 Thesis Structure

The structure of this thesis can be broken down into three main parts. The first part consists of a general introduction concerning what will be researched as well as the theoretical foundations of the thesis. In Chapter 2, all relevant literature concerning in-game advertising will be discussed. First of all the subject of product placements will be explained. Then, the literature will focus on the gaming industry, especially its market value and growth. And finally, relevant marketing theory is discussed to understand the principles behind advertising.

To continue, the second part is about the methodological aspect of the thesis. In this section, a conceptual framework is constructed based on the research questions and literature review. Moreover, the methodology of this research is explained. This section will also elaborate on the questionnaire and sample selection.

Finally, the last part of this thesis will consist of the presentation of results, discussion of the results, limitations and future research and conclusion.

## 2. Theoretical Background

### 2.1 Product placements

Because the lack of academic papers on in-game advertising relevant theoretical background can be retrieved by exploring papers regarding product placements in TV/movies. Blasubramanian's (1994) defined product placement as a "paid product message aimed at influencing movie (or television) audiences via the planned and unobtrusive entry of a branded product, into a movie (or television program)". Karrh (1998) defined product placement as "inclusion of commercial products or services in any form in television or film productions in return for some sort of payment from the advertiser".

Product placement became popular when Reese's Pieces candy was placed in the film "E.T.". The sales of Reese's Pieces increased by 65% in the three months after "E.T." was released (Reed 1989). Marketers in the 90's were looking for alternative advertisement options as television viewers started to avoid ads by zapping (Olney, Holbrook, and Batra 1991). Pokrywczynski and Griffin (1994) reported a somewhat stronger recall when a fast-food restaurants' logo was reinforced in the audio script than when the sentence naming the restaurant was extracted and replaced with silence. Nebenzahl and Secunda (1993); Gupta and Gould (1997) found generally favorable attitudes towards product placements with ethically charged products (e.g., alcohol, cigarettes, guns) perceived as less acceptable than others. There are three types of product placements in form of presentation (Gupta and Lord, 2008):

1. Audio: a brand or product is being mentioned by an actor
2. Video: a brand or product is being shown or used on screen
3. Audio/Video: showing a brand and at the same time mentioning a brand related message in audio form

Another important factor in product placements is the level of prominence. Prominent placements are highly visible placements that are close to the action. Subtle placements are those in which the brand is not shown prominently, often in the background. Product placements offer marketers a way to show their brand in a natural environment (Turcotte, 1995). Problems include the lack of control over the brand's appearance and the difficulty to measure the effectiveness of a placement. Most academic studies use memory based tests to test the effectiveness of product

placements. This seems appropriate because increased brand awareness is often one of the goals of a product placement.

Whalen (2006) argues that there are three categories of in-game product placements. “instrumental” Product placements are placements where the player interacts with the branded product and simulates its use through their on-screen avatar, “diegetic” brands appear as simulations of real-world ads, for example billboards in a city level, and “archetypal” brands appear as regular game features (power-ups, bonus tokens, save points) that are imbued with a brand label. A study (Nelson, 2002) exploring the effectiveness of product placements in a racing game found that game players were able to recall 25-30% of the brands directly after playing. Five months later players were still able to recall about 10-15% of the brands. The attitudes of the game players towards product placements were generally positive. They didn’t find the practice deceptive and they find that brands can enhance game-realism. A problem of placing advertisements and products in games has been that they had to be incorporated during the development process. This meant lengthy negotiation times and the difficulty of changing or measuring the incorporated ad. Because of the evolution of the internet, consoles and games it is nowadays possible to incorporate dynamic advertisements in games. Ads can now be dynamic, measured and updated (IAB, 2007).

It was found (Nelson, 2002) that when a brand is a major part of gameplay and the consumer is actively involved, short term recall is enhanced. According to Roehm and Haugtvedt (1999), interactive environments are effective because they allow consumers to be actively involved in the persuasion process. When a brand is relevant to the game player short- and long-term recall are demonstrated. Nelson (2002) further argues that novelty of a brand has impact on the brand recall. Novel or distinctive brands are remembered more than others but future research should control this. Advantages of product placement in games over film are (Nelson, 2002):

1. Increased involvement (Games are active, Movies are passive)
2. Microtargeting ability
3. Longer shelf life (On average Movies are much shorter than video games)
4. Brands can be targeted better

Chaney et al. (2004) did research on the effects of billboards in the gaming environment. They let participants (n=42) play a 15 minute game of Quake. Quake is a first person shooter released in 1996. They set up a multiplayer map with three fictional billboards and did a survey after the game. After the gaming session half the gamers could not recall any of the products or brands. One quarter could remember one or two and only one person could recall all the information. They also found no relation between game experience and brand recall. Grigorovici and Constantin (2004) also found no effect of the video game experience on recall for brands placed in a game.

Product placements, in which actors use products on screen to promote these products, have received little research attention. A study examined the effects of cigarette use in movies on various attitudes toward smoking and toward the actor using the product. Participants (N = 120) viewed a 20-min clip of Die Hard; half of them viewing a clip in which the lead character smoked, and the other half viewing a clip in which the lead character did not smoke. Nonsmokers who were low in need for cognition and who saw the lead character smoking reported more favorable attitudes about smoking. In addition smokers who saw the character smoking rated him as more appealing, while nonsmokers' ratings of the character were not affected by his smoking (Gibson, 2000).

Grigorovici and Constantin (2004) found a complex relationship among the type of placement (billboard versus the actual object), the players' immersion in the game, how arousing the game was, and brand recall. For example, participants tended to recall brands when they were placed on a billboard but not when they were actually present in the game world, except when the brand was an automobile. Likewise, higher levels of immersion in the game interfered with players' recall for brands placed in the game.

The research on implicit memory suggests that in earlier brand placement studies, although the audience members could not directly recall or recognize brand names to which they had been exposed, the brand names may still have influenced familiarity with and preference for the brands (Yang, Roskos-Ewoldsen, and Roskos-Ewoldsen, 2004). Advertising effects might influence conscious as well as nonconscious memory processes (Krishnan and Chakravarti, 1999).

## 2.2 Game Industry & Research

There are many different definitions of a video game. Allwords (2009) defines it as a style of game existing as and controlled by software, usually run by a video game console or a computer, and played on a video terminal or television screen. Controlled by a paddle, joystick, mouse, cursor keys or a combination of any of these input devices. Merriam-Webster dictionary (1973) defines it as an electronic game played by means of images on a video screen and often emphasizing fast action. And the Oxford dictionary (2009) defines it as a game played by electronically manipulating images produced by a computer program.

Some video games are written especially for brands, they are sometimes called Advergames. For example Pepsi released Pepsiman (1999), a game for the Playstation to advertise Pepsi Cola. US Army's America's Army is a successful free game created to recruit new people for the army. Games like Tony Hawk Skateboarding (2003) or Shaun White Snowboarding (2008) feature a great variety of product placements and advertisements. In Shaun White Snowboarding the player can customize his character with cloths and equipment from various brands. On the virtual track down the hill one might snowboard past banners from Philips and Nivea.

First Person Shooter games are played from the viewpoint of the characters eyes. The main elements of a FPS are shooting and combat. The player has to find his way through a certain amount of maps while making sure he doesn't get killed. Famous examples of FPS games are Doom and Half-Life. PEW (2008) reports that 47% of American teenagers report playing games in this genre. Often a FPS contains a single and multiplayer mode. In a single player mode only one person is expected to play through the game. The selling point of a single player game is that they often contain larger and interesting storylines and realistic non-player characters and opponents (Wikipedia, 2007). In a multiplayer mode more than one person can play in the same environment at the same time (Wikipedia, 2007). A multiplayer mode provides human opponents or partners and a form of social communication. During the past decade there has been a shift from mostly single player oriented video games to video games in which the multiplayer mode is equally important or sometimes dominating. Deathmatch is a multiplayer game mode. The goal is to frag (i.e. kill) as many opponents as possible until a condition is met (often a frag limit).



J. Jansz and M. Tanis (2004) did a survey in order to gather information about whom the players of online first person shooters are and why they played FPS video games. The results confirmed the stereotype FPS gamer as presented in the media. It's played by young men (about 18 years old) who spend 2.6 hours per day on gaming. Gamers that play in (semi) professional clans score high on the motives with respect to competition and challenge. The study also showed that the gamers do not play in isolation, 80% of the respondents were member of a clan and the social interaction motive was the strongest predictor of the time actually spend on gaming.



Figure 1: Wolfenstein 3D

In 1992, ID Software released Wolfenstein3D, which was the video game that put first person shooters on the map. Its textured 3D graphics, high quality sound and unique playing style for that time were revolutionary. A year later they released Doom, another FPS that was even more advanced and introduced a multiplayer mode by which gamers could play against each other via a phone line or local area network. Through the years ID Software has continued to revolutionize the FPS genre with the Quake and Doom series. Each version of the game having even better graphics and gameplay. Another notable title in FPS history is GoldenEye 007 based on the movie released at the same time (1997). It was the first FPS title on a game console that was really successful. The game had a more strategic component by rewarding the player for not getting detected by enemies and using ammunition wisely. With innovative game modes and balanced weapons the split screen multiplayer mode was a great success. Half-Life, one of the most popular FPS games ever was released a year later, it featured even better graphics and a story-based single player. With the release of Halo on the Xbox FPS really established itself on game consoles. In 2004 Valve released Half-Life 2; it continued the story of the first title and introduced life like physics to the FPS environment. First Person Shooters

continue to push hardware innovation and get more realistic every time (A. Barners, 2007, J. Dunder, 2009).

Good computer and video games are learning machines (Gee, 2003). Since games are often challenging, but do-able, they are often also pleasantly frustrating, which is a very motivating state for human beings. Games allow players to be producers and not just consumers. In computer and video games, players engage in action at a distance, much like remotely manipulating a robot, but in a far more fine-grained fashion. Cognitive research suggests that such fine-grained action at a distance actually causes humans to feel as if their bodies and minds have stretched into a new space (Clark, 2003), a highly motivating state. Books and movies, for all their virtues, cannot do this. The more a player can manipulate a game character and make decisions that have impact on the character, the more the player invests in the character and the game at a deep level. This investment appears to be the deepest foundation of a player's motivation in sticking with and eventually mastering a game.

Research on exposure to television and movie violence suggests that playing violent video games will increase aggressive behavior. A meta-analytic review of the video-game research literature reveals that violent video games increase aggressive behavior in children and young adults. Experimental and non-experimental studies with males and females in laboratory and field settings support this conclusion. Analyses also reveal that exposure to violent video games increases physiological arousal and aggression-related thoughts and feelings. Playing violent video games also decreases pro-social behavior (C. A. Anderson and B. J. Bushman, 2001).

The Electronic Software Association released some game-industry facts (ESA, 2009):

1. From 2003 to 2006, the entertainment software industry's annual growth rate exceeded 17 percent. Over the same period, the entire U.S. economy grew at a less than four percent rate.
2. According to data compiled by the NPD Group, a global market research company, and released by the ESA in January 2008, computer and video game companies posted records sales in 2007. The industry sold 267.8 million units, leading to an astounding \$9.5 billion in revenue. Of these sales:
3. Game console software sales totaled \$6.6 billion with 153.9 million units sold;
4. Computer games sales were \$910.7 million with 36.4 million units sold; and,

5. There was a record \$2.0 billion in portable software sales with 77.5 million units sold.
6. On average, nine games were sold every second of every day of 2007;
7. Halo 3, the best-selling title of 2007, took in more revenue in its first day of sales than the biggest opening weekend ever for a movie ("Spider-Man 3") and the final "Harry Potter" book's first day sales; and,
8. The entertainment software industry sold over 13.4 million portable game units in 2007, easily trumping the much-hyped Apple iPhone, which sold just four million units.
9. The average gamer is 35 years old and has been playing for 13 years.
10. Forty percent of all players are women and women over 18 years of age are one of the industry's fastest growing demographics. Today, adult women represent a greater portion of the game-playing population (33 percent) than boys age 17 or younger (18 percent).
11. Twenty-six percent of game players are over the age of 50, an increase from nine percent in 1999. This figure is sure to rise in coming years with nursing homes and senior centers across the nation now incorporating video games into their activities.
12. Thirty-eight percent of homes in America have a video game console.
13. Fifty-six percent of online game players are male and 44 percent are female. Thirty-six percent of heads of households report they play games on wireless devices such as a cell phone or PDA, up from 20% in 2002.

NeoEdge (2009), an in-game advertising company, find in their preliminary results an increase in brand awareness of 500% and a 50% increase in positive brand perception. They placed pre, mid and post advertisements in a casual online game (webgame) targeted at females between 25-54 years of age. The Nielsen Company (2009) did research on gaming and found:

1. More sophisticated consoles such as the PlayStation 3 and Xbox 360 attract the more engaged console users, who are less likely to be watching television in Prime Time than users of other consoles.
2. The PlayStation 2, while still leading all other consoles in total minutes of usage, continues to have the highest downward trending rate of usage. Trending data suggests by the end of 2009, the PlayStation 2 will no longer be the most used console in the United States.

3. Females 25 years of age and older make up the largest block of PC game players accounting for 46.2 percent of all players and 54.6 percent of all game play minutes in December 2008.
4. The most played games on the PC are card games from Microsoft, with the most played game being Solitaire with over 17 million players for the month of December 2008 as shown in Figure 2.

Males 25-54	
Title	Unique Players
Solitaire	3,102,619
FreeCell	2,056,857
Hearts	1,192,649
Pinball	886,687
Minesweeper	786,304
Great Escapes Solitaire	679,020
World of Warcraft	675,713
Chessmaster Challenge	340,840
Zuma Deluxe	207,387
Half-Life 2	170,968

Figure 2: Unique players per game (US)

In 2006 Electronic Arts included dynamic in-game advertising in their Battlefield 2142 title. A printed disclaimer provided with the game states the game will be monitoring "advertising data" to determine what ads are serviced to individual players. This led to a lot of bad publicity for the game. Some people thought that the game included spyware and players were being monitored. EA responded by saying that they only use the IP address to serve ads based on location and that they monitor the impressions of the advertisement (1up.com, 2006). According to VGChartz a recently released (February, 2009) FPS called Killzone2 sold 1.52 million copies in just over 2 months. It's a console exclusive which means it was only released for the Playstation3. It has both a single and multiplayer mode. Valve released their sales figures of Half-Life 2 in December 2008 (Shacknews, 2008):

1. Half-Life 2 (Valve) / 2004 - 6.5 Million
  2. Half-Life 2: Episode One (PC, Valve) / 2006 - 1.4 Million
  3. The Orange Box (Valve) / 2007 - 3 Million
- (Half-Life 2 HL2: Episode One, HL2: Episode Two, Portal, Team Fortress 2)

Graphical examples of in-game advertising in video games are shown in Figures 3, 4, 5 and 6.  
*Burnout Paradise* (Race Game, billboards):



Figure 3: Burnout Paradise: Billboards



Figure 4: Burnout Paradise: Obama

*Metal Gear Solid 4* (Stealth Action Video Game, *int.al* interactive product placements):



Figure 5: Metal Gear Solid 4: iPod



Figure 6: Metal Gear Solid: Playboy

*Half-Life 2*, *Counter Strike: Source* (First Person Shooter, billboards)



Figure 8: Metal Gear Solid 4: Sony Ericsson



Figure 7: Counter-Strike: HL2

### 2.3 Marketing Background

Lavidge and Steiner (1961) argue that advertising may be thought of as a force which must move people up a series of steps. They identified the following steps:

1. Near the bottom of the steps stand potential purchasers who are completely *unaware of the existence* of the product or service in question.
2. Closer to purchasing, but still a long way from the cash register, are those who are merely *aware of its existence*.
3. Up a step are prospects who *know what the product has to offer*.
4. Still closer to purchasing are those who have favorable attitudes toward the product—those who *like the product*.
5. Those whose favorable attitudes have developed to the point of *preference* over all other possibilities are up still another step.
6. Even closer to purchasing are consumers who couple preference with a desire to buy and the *conviction* that the purchase would be wise.
7. Finally, of course, is the step which translates this attitude into actual *purchase*.

A brand can be defined as a name, term, sign, symbol, or design, or combination of them which is intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competitors (Kotler, 1991). These components are called brand identities and together they form the brand. Brand knowledge is defined in terms of two components, brand awareness and brand image (Keller, 1993). Brand awareness relates to brand recall and recognition performance by consumers. Brand image relates to the set of associations linked to the brand that consumers hold in memory. Raising brand awareness will increase the likelihood that the brand will be part of the consideration set (Baker et al; 1986). These are the brands that receive serious consideration of purchase. Within the consideration set brand awareness also plays a role. Research has shown that consumers adopt a decision rule to buy only familiar, well established brands (Jacoby, Syzabillo and Busato-Schach, 1977). Two key dimensions distinguish brand awareness—depth and breadth. Depth of brand awareness refers to how easily customers can recall or recognize the brand. Breadth refers to the range of purchase

and consumption situations where the brand comes to mind. A highly salient brand is one with both depth and breadth of brand awareness (Keller, 2001).

Building a strong brand with great equity has many advantages like greater customer loyalty and less vulnerability to competitors marketing activities. Keller (2001) build a model for brand building called the customer-based brand equity (CBBE) model. It maps out what brand equity is and how it should be build, measured and managed, as can be seen in Figure 9. The first step is building brand identity and awareness. Customers first need to know who the brand is. The second step is creating brand meaning. Customers need to know what the brand stands for by creating brand associations. The third step is about brand response and what customers think about the brand. This brand response needs to be positive for a customer to move to the fourth step. The fourth step is about the relationship between the brand and the customer. This step is about building intense, active customer loyalty.

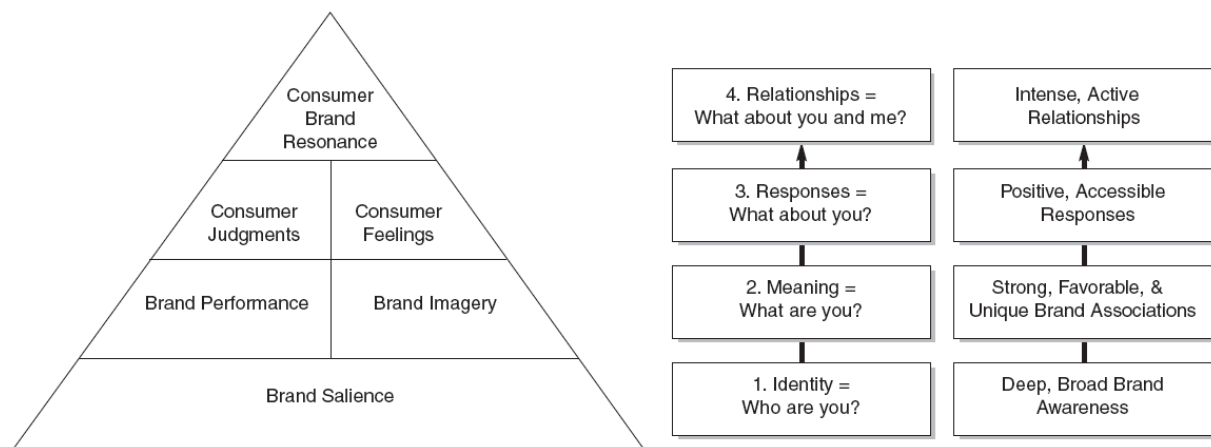


Figure 9: CBBE Pyramid, (Keller, 2001)



Pickton & Broderick (2005) show in their Integrated Marketing Communication wheel the place of product placements and advertising in the marketing mix, as can be seen in Figure 10.

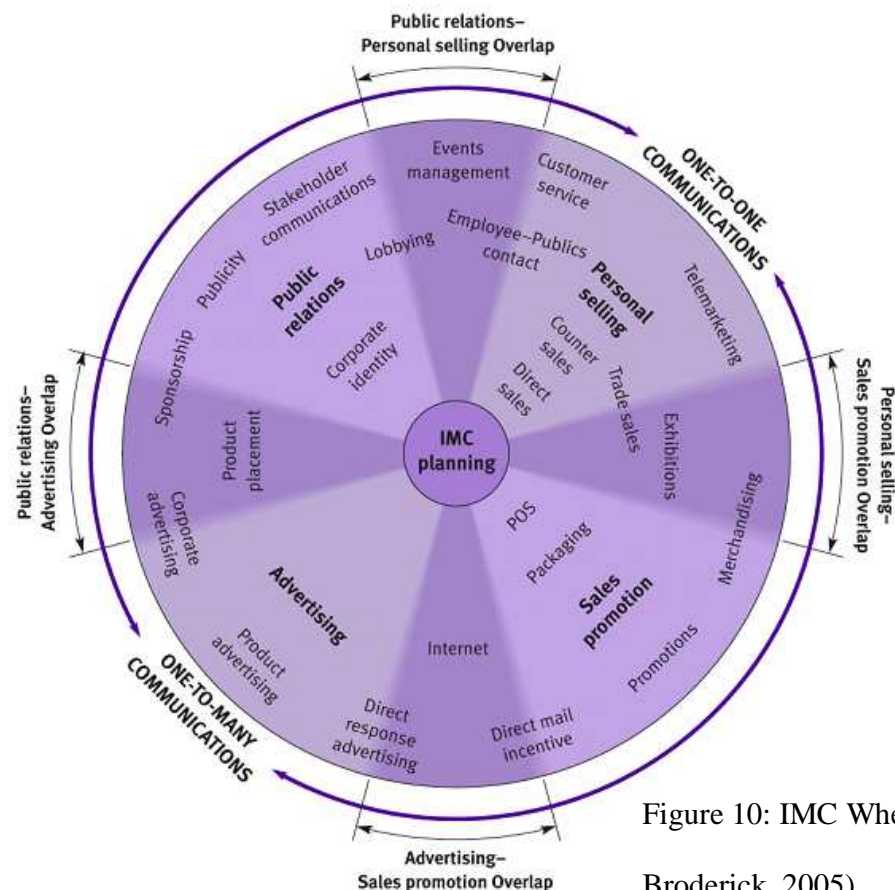


Figure 10: IMC Wheel, (Pickton & Broderick ,2005)

The elaboration likelihood model is a model of how attitudes are formed and changed (Petty & Cacioppo, 1986). It states there are two routes to persuasion, the central and peripheral route. When a person has high motivation and the ability to process an advertisement he goes through the central route which leads to cognitive structure change. The peripheral route is taken when a person has no/low motivation or ability to process, this leads to no cognitive structure change which is less stable and makes the person vulnerable to counter arguments. It can even lead to no effects at all. An extension of the ELM model is the Dual Mediation Hypothesis as shown in Figure 11. It states that the Peripheral and Central route are intertwined rather than



substitutes. Affective reactions to an advertisement can influence the propensity to accept message content/brand claims.

### Dual Mediation Hypothesis

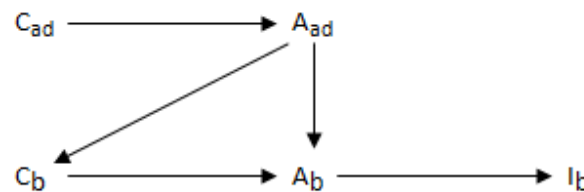


Figure 11: Dual Mediation Hypothesis

A study by Bardzell et al. (2008) lead to the following insights in in-game advertising.

1. More recent ads are more readily remembered.
2. Highly visible placement compensates for low brand knowledge.
3. Brand knowledge compensates for low ad visibility.
4. Engagement and brand recognition are positively linked.
5. Context-appropriate ads build positive brand associations.

The ESA (2005) found that 17.9% of regular video game players consider the celebrities involved in the games as one of the main reasons for playing them.

People are quite poor at understanding and remembering information they have received out of context or too long before they can make use of it (Glenberg and Robertson, 1999).

Undergraduates expressed their attitudes about a product after being exposed to a magazine ad under conditions of either high or low product involvement. The ad contained either strong or weak arguments for the product and featured either prominent sports celebrities or average citizens as endorsers. The manipulation of argument quality had a greater impact on attitudes under high than low involvement, but the manipulation of product endorser had a greater impact under low than high involvement (Petty, 1983). It was found that a two sided non-refutational message in an advertisement is more effective than a two sided refutational and one sided message. In a one sided message only the positive effects are being mentioned and in a two sided message also some disadvantages are mentioned. When there's an attempt to dilute these

disadvantages it's refutational (Kamins, 1987). Pham (1992) finds that the level of excitement induced by watching a soccer game has a negative effect on recall of billboards.

Yang et al. (2006) argue that not only explicit memory tests should be done to measure in-game advertising effectiveness but also implicit memory tests (e.g. word completion), they did a study. The results indicated that college students had low levels of explicit memory (recognition test) for the brands, but they showed implicit memory (word-fragment test) for the brand names placed in the video games. The study confirms that game players process brand placements and their implicit memory is influenced by these placements. They also suggest that future research on in-game advertising can focus on other dimensions advertising besides billboards.

In a survey of U.S. consumers, Bauer and Greyser (1968) identify as the main reasons people criticize advertising the annoyance or irritation it causes, which is believed to lead to a general reduction in advertising effectiveness (Aaker and Bruzzone, 1985). However, research also indicates that consumers' criticisms of advertising are generally directed at the tactics advertisers employ that make the experience of processing advertising negative, rather than at the institution of advertising itself (Bauer and Greyser, 1968). Forced exposure to advertising often interrupts a viewer's normal viewing process. Although intrusive advertisements may enhance recall, they also may result in negative attitude formation (Ha, 1996) or avoidance of the ads altogether (Abernethy, 1991). Thus, an important theoretical and practical issue for in-game advertising is how to minimize the negative perceptions and take advantage of the positive beneficial effects. Content that talks down to consumers, is overly exaggerated, or makes confusing statements has been identified as irritating to consumers (Bauer and Greyser 1968). Advertisements that excessively stimulate consumers' senses can also elicit feelings of irritation. Consumers can become overwhelmed if the ads are too long, too loud, or too big (Aaker and Bruzzone 1985; Bauer and Greyser 1968). Consumers may also feel over stimulated when viewing many ads in a short time or seeing a single ad too frequently (Bauer and Greyser, 1968). The likely result is a retreat away from the source of irritation, or ad avoidance. Ha (1996) defines intrusiveness as the interruption of editorial content. Because the first objective of advertising is to get noticed, by definition, advertisements seek to interrupt editorial content. By interfering with the goals of consumers, advertising effectively limits the number of actions that consumers can take to attain their goals. Consumers must reevaluate their goals to include

advertising (acquiesce), or negative reactions are likely to result in the avoidance of advertising in some way. Aaker and Bruzzone (1985) suggest that negative reactions to advertisements occur to the degree that they cause impatience. According to Ducoffe (1995), advertising value is best understood as an overall representation of the worth of advertising to consumers. He found that ad value is positively correlated with the informativeness and entertainment value of an ad and that both information and entertainment value are essential for communication exchanges between advertisers and consumers

#### 2.4 Types of in-game advertising for First Person Shooters

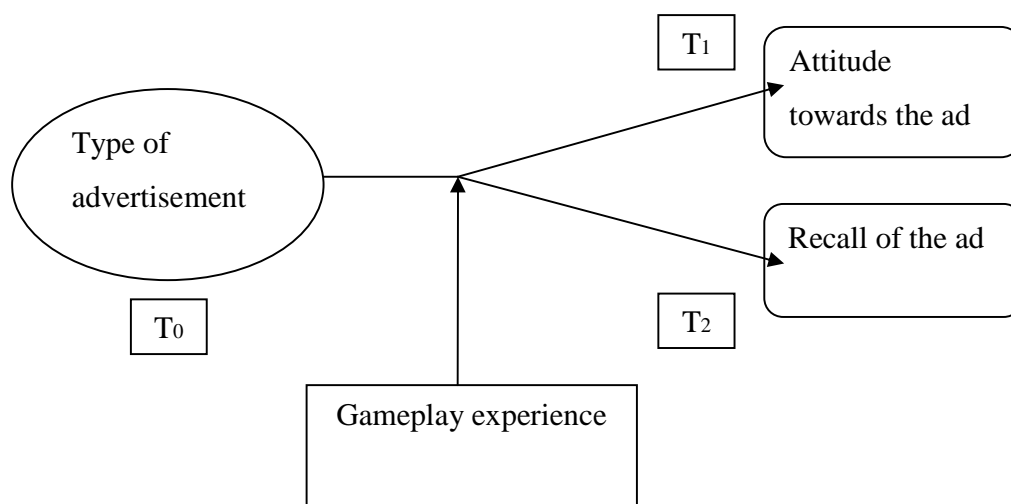
Based on the literature found in this chapter we can distinguish the following types of possible in-game advertising.

1. Prominent billboard (Visual)
2. Subtle billboard (Visual)
3. Prominent interactive placement (gamer must use the object) (Visual & Audio/Visual)
4. Subtle interactive placement (gamer can use the object) (Visual)
5. Prominent product placement (Visual & Audio/Visual)
6. Subtle product placement (Visual)
7. Scripted message (Audio)
8. Archetypes (Visual & Audio/Visual)

### 3. Hypotheses

#### 3.1 Conceptual Framework

There are many areas regarding in-game advertising that need to be identified and researched. This research will only look at first person shooters in order to keep focus. To visualize the research question and give a clear overview of which variables are involved and how they are interlinked, the research idea of this thesis can be visualized in a Conceptual Framework seen below.



There are four main variables that can be distinguished in this framework. The **Independent Variable** *Type of advertisement*, the **Moderating Variable** *Gameplay experience*, the **Direct Variable** *Attitude towards the ad* and the **Direct Variable** *Recall of the ad*. The meaning of these variables will be explained next.

First, the independent variable *Type of advertisement* stands for all the possible forms of advertising possible in a First Person Shooter. There are many forms of advertising possible in a FPS environment and a company has to choose wisely in which advertisement to invest. On the other hand game developers have to be smart regarding to which advertisement to implement in the environment.

Secondly, *Gameplay experience* is the moderating variable in this framework. It entails the actual experience of the game player playing the game. This variable influences the dependent variables based on time playing the game.

The third variable *Attitude towards the ad* is one of the dependable variables in this framework. It entails how intrusive the gamer the type of advertising finds. Previous research (Nelson, 2002) found that gamers do not find advertising intrusive in situation where in real life you would also find advertising.

Finally, the dependent variable *Recall of the ad* is about the effectiveness of the advertisement. High levels of brand recall demonstrate increased brand depth and would make a viable implementation of in-game advertising. When recall is low the advertisement is not so effective and this should be taking in consideration by marketers.

Now the framework will be explained more elaborately. At  $T_0$  the game developers in collaboration with the marketing agency will choose to implement a certain type of in-game advertising into the FPS environment. This will influence  $T_1$ , which indicates the attitude towards the advertisement and  $T_2$ , which entails the recall of the advertisement. The more time the gamer spends on playing the game the more the dependent variables will be influenced by the moderating variable *Gameplay experience*. This can be explained as follows, the more time a gamer plays a level the more he or she will be exposed to the advertising which increases brand recall and establishes a positive or negative attitude. So one should carefully choose which type of in-game advertisement to implement and therefore it's necessary to have an indication of the effect of such advertising.

### 3.2 Hypotheses

With the conceptual framework set up, specific working hypothesis can be set up to test the framework. Working hypotheses (WH) are a “provisional, working means of advancing investigation”; they lead to the discovery of other critical facts (Dewey, 1938). Working hypotheses are linked to exploratory studies (P. M. Shields and H. Tajalli, 2006). They are never proven but are supported by empirical evidence.

Building on the research questions the working hypothesis will explore the subject in more detail. Based on the possible types of in-game advertising for FPS environments found in the literature background the following working hypothesis were created.

❖ **WH1: Gamers will recall interactive placements better than other forms of in-game advertising.**

Nelson (2002) found that the participants recalled the brands of the cars they drove in the game better than the billboards. When there is interaction with a product the motivation and ability to process is higher which leads to central processing of the advertisement (*reference*). Although it's harder for the developer to incorporate an interactive placement, it will still pay off in terms of recall.

➤ *WH1a: Product placements will have a higher recall than billboards*

Because of previous research it is expected that product placements will have a greater recall than billboards in a gaming environment both for prominent and subtle placements. Although it's expected that a billboard gains the lowest recall among gamers this type of in-game advertising has a very big advantage over the others. Namely, it can be dynamic. Where products specifically have to be incorporated in the level during the map development a dynamic billboard element in a map can show dynamic advertising.

➤ *WH1b: Interactive placements will have a higher recall than product placements*

When a gamer actively engages with a product it's expected that it will yield the highest form of recall. Interaction might not only lead to increased brand awareness but might also build brand knowledge through positive associations.

- ❖ **WH2:** Gamers do not find the billboards and product placements intrusive for their game experience when they are well fitted.

It was found (Nelson, 2002) that gamers do not think of in-game advertising as intrusive given a set of conditions. The advertisement should have a good fit within the game environment. They should not distract the player. The risk of incorporating an ad in a way that is intrusive to the gamer it might lead to negative associations towards the ad and the game. For this reason the working hypothesis is only about relevant advertising

- *WH2a: Gamers find interactive placements less intrusive than prominent billboards*

As found in the literature there are multiple factors that determine whether an advertisement is intrusive to the gamer. Generally an advertisement that distracts the player from the game will have a higher intrusiveness than one that is part of the game. Thus, a prominent billboard that the gamer encounters while being in an intense state will yield higher irritation than an advertisement well woven into the game.

- *WH2b: Gamers find subtle billboards and product placements not intrusive*

Subtle billboards and product placements won't interrupt the gamers focus enough to be intrusive. They're not prominent and they can enhance the realism of the game. The less interference with the gameplay should produce the most favorable attitudes. Therefore it is hypothesized that subtle billboards and product placements will be the less intrusive form of in-game advertising.

### 3.3 Control Variables

In order to answer the research question and the sub-questions the relationships between the main variables have to be tested. The formulated working hypotheses can then be, based on the results either be supported or not. However, it is possible that the results of this study are influenced by other variables that were not included in the framework. For this study it will be hard to exclude all the other variables that might influence the Dependent Variables *Attitude towards the ad* and *Recall of the ad* and thus influence the outcome of this study.

Although (Chaney et al., 2004) found no relationship between game experience and brand recall; game experience might still influence the Dependent Variables. First of all because

in previous study all the participants had at least some months of experience playing the game which is time enough to not be a newbie (newbie is slang for a clueless newcomer) anymore. This will not be the case in this study where the participants will include some newbies who may have almost no first person shooter experience.

There will be a small control on personal characteristics which means that this study tries to use participants that could and would play first person shooters outside of this study. This will make it hard to control on specific demographic and psychographic variables because the first person shooter market is relatively large. For example results between 16 year olds and 35 year olds might be different.

Another factor that might influence the results is the relevancy and fit of the advertisement. The brands picked for in-game advertising should appeal to the participants but this study is limited in time and cannot control for the effect that other brand placements might have. A gaming brand (e.g. Nvidia or Ati) might be more personal relevant to the technically educated people as opposed to the casual not technical people.



## 4. Methodology

### 4.1 Research Methods

The purpose of this research is to find out whether in-game advertising in first person shooters is a valuable marketing medium. In order to do this, this study tries to find out the efficiency of the different types of in-game advertising available in the current generation first person shooter environment by measuring brand recall after game experience. Secondly in order to find out how intrusive these different types of in-game advertising are gamers will be asked after the game how they felt about the advertisements. The methodology used for exploring the second hypothesis is a case study. Case study is a preferred method when a research question asks "How" or "Why" something happens, when the researcher has little control over events and the focus is on a contemporary phenomenon in a real-life context (Yin, 2003).

This study uses the hypothetico-deductive method that according to Sekaran (2003) involves seven research steps: observation, preliminary information gathering, theory formulation, hypothesizing, further scientific data collection, data analysis and logically deducing conclusions from the results obtained.

#### 4.1.1 Observation

By being an experienced gamer and regularly checking gaming related websites the researcher is aware of all the new developments in the gaming scene. Websites like tweakers.net, shacknews.com, teamliquid.net, and esreality.com post about upcoming game titles, updates and rumors. Most of these sites have an active user base which helps in sharing information. Throughout the years the video game market matured and there was often news about in-game advertising and how it would be included in a new upcoming title. Because of an interest in marketing and gaming this was a potential interesting topic. The researcher felt like this was a new, fresh and exciting area that lacked enough academic literature. Therefore he decided to study in-game advertising and try to add academic value to this field.

#### 4.1.2 Preliminary information gathering

Preliminary information gathering is the search for information in order to build up the researchers understanding towards the area (Sekaran, 1992). In order to do so a research proposal

was written. Through Google Scholar the researcher found a couple of studies regarding in-game advertising and these were the basis for further preliminary information gathering. The topics of product placements and gaming were explored. Because of the researchers knowledge of video games it was easier to find the right direction. Most concrete information regarding video games was not found in academic literature but on gaming related websites. The original idea was to explore a platform game instead of a first person shooter but research showed that this genre of video games is declining in popularity and first person shooters are still very popular.

Because there was not much academic literature on in-game advertising and only one study was found regarding first person shooters, there seemed to be opportunities in this niche, so the researcher was interested in this area. This resulted in the focus of the research proposal.

#### 4.1.3 Theory formulation

The theory formulation is done by literature research and is necessary in order to get a good understanding of what is already known about the topic to save valuable time and make sure the wheel doesn't get invented for the second time. Not only in-game advertising literature is relevant for the theory formulation but also related literature in order to develop a theoretical framework. The goal of this theoretical framework is to put the topic in perspective.

Most of the literature research was done via Google Scholar which can search through many academic databases. After a potentially interesting study was found it could be accessed through the Leiden University Fulltext SFX. Often used search terms include: *in-game advertising*, *product placements*, *video games*, *intrusiveness* and *brand recall*.

Beside online literature research the researcher enrolled in a Consumer Behaviour course at the University of Amsterdam in order to acquire a better understanding of the place in-game advertisement has in marketing. The literature that had to be read for this course proved to be very relevant for the topic of the study and contributed much to the theoretical marketing background found in this paper.

After all the theoretical framework was completed the researcher was able to extract the different types of in-game advertising by combining the possibilities of first person shooters and existing advertisement techniques in movies and games. Finally, the variables relevant for this study could be identified as described in chapter 3.3.

#### 4.1.4 Hypothesizing

From the theoretical framework educated guesses were made regarding the outcome of the research question. These working hypotheses are presented in chapter 3.2. They represent a tentative statement of a relationship between two variables that have yet to be empirically tested. This study will try to test these hypotheses and the empirical results will either hold and support the hypotheses or discard it.

#### 4.1.5 Further scientific data collection

In order to test the hypotheses further scientific data has to be collected. In order to find out about brand recall and intrusiveness of in-game advertising this study sets up a first person shooter game with various types of advertising and all the participants are measured after the game regarding to brand recall and intrusiveness. According to (Yin, 2003) there are many ways to collect data when conducting a case study, but for this research a survey data collection method is used. The goal was to get at least 30 participants for this study.

##### **4.1.5.1 The level**

In order to conduct the research we need to interview and questionnaire gamers after they have been in contact with in-game advertising in a first person shooter. It is hard to find any FPS on the market that incorporates multiple forms of in-game advertising, especially interactive and product placements. Thus the first issue is which game to use for this study. Secondly there is the issue regarding the time between playing and the questionnaire & interview. As Nelson (2002) demonstrated the recall is significantly lower after a couple of months. This means that interviewing people who played game X and ask them whether they recall any of the ads creates results that are biased.

To tackle these problems the researcher decided to set up his own game. This will keep as many variables as constant as possible. For this an existing game had to be found. The conditions this game had to meet were that it had to be realistic, easy to modify and preferably popular.

For this research the game Half-Life 2 (HL2) was chosen. This is one of the best selling first person shooter games since it came out in 2004 and is still played much today. It's a fictional game that takes place in a near distant future so it has many elements of nowadays and can be perceived as (semi-)realistic. One of the reasons the Half-Life franchise is has become so successful is the support for user created content. The game has many editors which allows users to create their own maps, models and even whole new games based on the Half-Life 2 engine, called mods. Half-Life 2 seemed to be a logical choice for this study.

Half-Life 2 features many game modes like Counter-Strike (CS), Day of Defeat (DOD), Team Fortress 2 (TF2) and Half-Life 2 Deathmatch (HL2DM). The chosen mod for this research is Half-Life 2 Deathmatch. This multiplayer mode was chosen because all HL2 owners have access to this mode so anyone who owns a copy is a possible participant. Other than that, Deathmatch is an easy to understand game mode.

The creation of a HL2DM map is a very time consuming process, especially when one isn't familiar with mapping. Creating a map from scratch isn't feasible for this research because of time constraints. Therefore the researcher borrows an existing map and adds the in-advertising. The map used was found on [www.hl2dmpro.com](http://www.hl2dmpro.com) which is a HL2DM community website. The name of the original map is `pg_democracy` but renamed to `dm_master_thesis` for the experiment. The map adaption process was seen as a potential risk for the research. Unknown barriers could endanger the feasibility and time constraints of this research. Fortunately the researcher was able to learn and apply all the necessary techniques to adapt the level. First the level found online had to be decompiled from a `*.bsp` file to a file type readable by the level editor Hammer with the `*.vmf` extension. VMEX (Valve Map Extractor) is a `*.bsp` to `*.vmf` map decompiler for Half-Life 2 games and was used for this task. This process went well and the `*.vmf` file could be opened in the map editor. Half-Life 2 comes with Source SDK (software development kit), this SDK contains a selection of tools to help developers create new content for Half-Life 2. It includes the standard map editor for Half-Life called Hammer. Hammer could open the map and compile it again, which meant that the recompilation was successful and the map was ready for adaptation.

#### **4.1.5.2 The advertising**

The types of advertising that had to be incorporated into the map *pg\_democracy* are a prominent billboard (Visual), subtle billboard (Visual), product placement (Visual) and an interactive placement. The brands and products chosen for this study are brands that are well known and target the demographics of First Person Shooter gamers. The reason for choosing well established brands is to exclude result bias from unknown local brands. Because a FPS has a large audience local brands are not very likely to buy advertising space in a FPS. For the prominent billboard the chosen brand is McDonalds. This is very well known global brand and gamers are certainly within its target audience. Although it might raise some ethical issues regarding health and obesities those are beyond the scope of this study and irrelevant.

For the subtle billboard the chosen brand is a recent movie poster of Transformers: Revenge of the fallen. Movie posters are often found in real life in the form of subtle billboards on for example bus stops. The movie is released in the summer of 2009 which is the time of the experiment thus makes it a very relevant advertisement and also the movie will appeal mostly to young adult males which are the core FPS gamers.

The interactive placement chosen is archetypal. It was difficult to think of the interactive placement opportunities within the multiplayer environment. The most suitable interactive placement thought of was to replace the medical kits with an existing product. The medical kits have been replaced with a can of Red Bull. The Red Bull cans are found on several places across the map and when the player picks them up it increases their health. Red Bull was found a suitable brand for this interactive placement because gamers often drink energy drinks, it's a well known brand and could be a product that would actually use in-game advertising. In Metal Gear Solid 4, a similar interactive placement was used namely a Japanese energy drink called Regain.

The product placements were the hardest to think of because of the very limited modeling skills of the researcher and the outdoor street setting of the map. The subtle product placement chosen was a Nike football. This seemed to be a product that would be easy to model and incorporate into the map. It is a suitable product for the outdoor street setting of the map and a very well known brand.

An arcade of the video game Street Fighter IV was chosen for prominent placement. It seemed a relevant product for gamers, not too hard to model and place able within the map.

Street Fighter is a well known video game that is over two decades old (Original release date: 1987). Multiple comics and movies have been made based upon the game.

#### **4.1.5.3 Implementation of advertisements**

Including the billboards was expected to be the easiest task and indeed it was. A McDonalds logo was downloaded from the internet. It was found using Google Images and edited in Adobe Photoshop to strip it from unwanted text. Hammer can't read the often used file types for pictures but only \*.vtf files. The image had to be saved as \*.tga and a program called VTFEdit was used to convert the picture to \*.vtf. Furthermore each \*.vtf needs a descriptive \*.vmt file that defines the material in terms of surface type and shader arguments. VTFEdit also provides the opportunity to auto generate this file. Both files had to be placed in the materials folder of HL2MP in order for Hammer to recognize the material. The texture tool in Hammer was used to apply the McDonalds material to the newly created wall. The billboard was placed on one of the most obvious places of the map near the center of the map. The process as described above was also done for the Transformers movie poster. The Transformer poster was placed twice in the map on the existing walls and had a lifelike poster size.

Before the modeling could begin research was done on the web to find tutorials about modeling for Half-Life 2. A tutorial found on moddb.com (<http://www.moddb.com/games/half-life-2/tutorials/physics-props-from-xsi-to-hl2>) was used to start understanding the modeling process and creation of the Red Bull can. The software used for modeling was the XSI Mod Tool which included a special plug-in to save models in the proper Half-Life 2 format. The textures of the model were created using Google Images for the source image and Adobe Photoshop for creating the UV map. After creating the three \*.mdl files needed they had to be compiled for usage within the Half-Life 2 engine. This was done by the compiler that comes with the Source SDK and required a \*.qc file to be made describing the parameters of the model. The compiler created a series of model files that need to be placed in the models folder, so it could be used in Hammer. This is how the models were made and placed within the map. The Red Bull can had to be compiled as Healthkit.mdl to replace the existing model. This was found the fastest way to give the model the ability to increase health. All the original healthkit models were automatically replaced by the new Red Bull can. The Red Bull cans can be found all around the level. There

were two Nike balls placed in the map on common locations. The Street Fighter IV arcade was placed in threefold on the main square of the map.

#### **4.1.5.4 Questionnaire design**

An online questionnaire was made for the game player to fill in directly after having played the level. Questions were focused on brand recall, intrusiveness of the placement, attitude towards to the brand and comments on in-game advertising in first person shooters. The full questionnaire can be found in Appendix III. The questionnaire was created using an online questionnaire tool called thesistools.com (<http://www.thesistools.com/>). First the questionnaire was created on paper and later translated to thesistools.com. Respondents could fill in the questionnaire by going to a link send to them (<http://www.thesistools.com/?qid=87506&ln=eng>). The data was stored in a database and could be downloaded after all the responses were gathered in excel or html format.

### 4.2 Sample selection

The sample used in the research are gamers with various experience. Nowadays gaming is not something done only by the stereotype gamers, but it is something done by almost everyone. Therefore almost everyone with some gaming experience was able to participate. Previous research (Chaney et al., 2004) didn't find a link between experience and recall. So when the sample has both experienced and inexperienced people, it might be interesting to see if this research can find a link between experience and recall. When participants agreed to take place in the research an appointment was scheduled to play the level. In most cases three participants were invited to the researcher's house where they were seated in three different rooms with a computer. They played against each other for 20minutes and immediately afterwards answered the questionnaire.

#### 4.2.1 Contacting the sample

The gamers were contacted in two ways. First the direct social network of the researcher was asked to participate in the study. The second approach method used was the Internet Relay Chat (IRC). IRC is a piece of chat software mainly designed for group discussions. Groups can setup their own channel and all the participants can then join this channel and have a conversation. Besides group discussions IRC also allows for personal messages to users. Many experienced gamers that operate in clans use IRC to discuss matters. This is why IRC could potentially deliver many respondents.

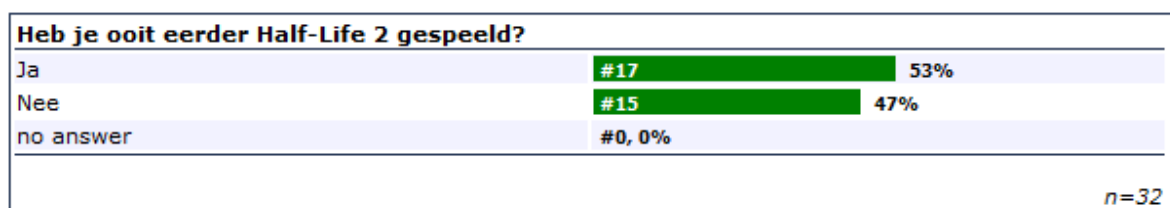
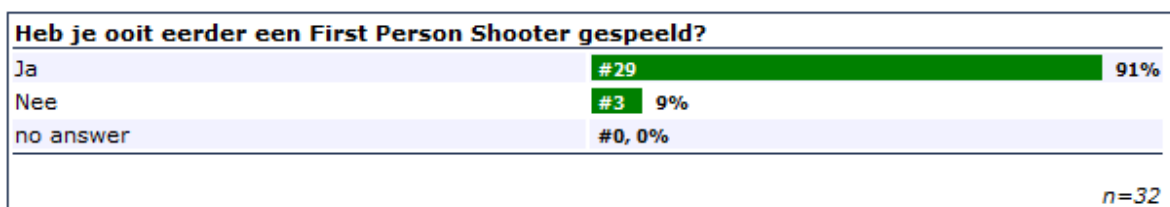
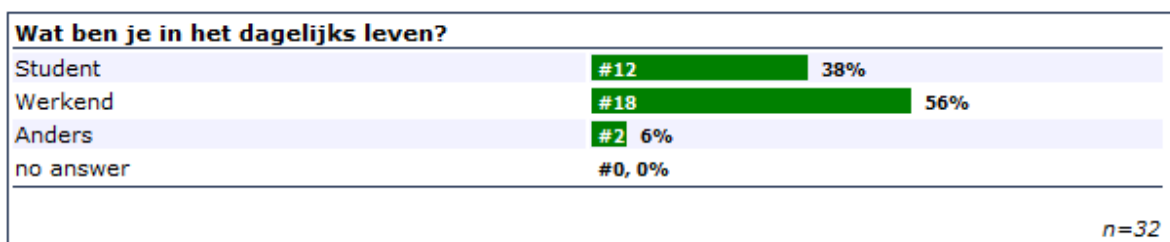
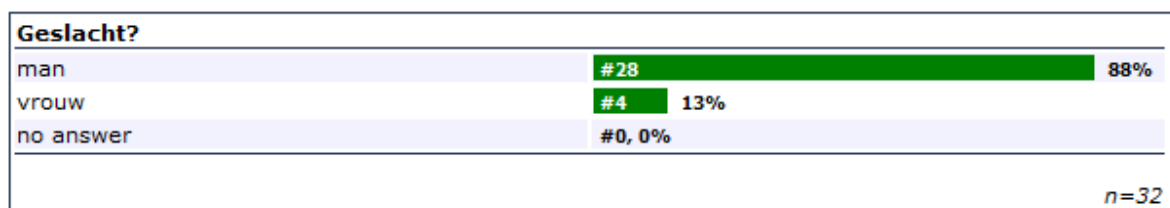
In the end IRC didn't deliver as many participants as hoped because it looked like there were no HL2DM community channels on Quakenet. A hand full of willing participants were found in channels of other HL2 mods such as Team Fortress Classic and Team Fortress 2. Many people weren't interested in participating and some who were didn't have HL2DM installed which formed quite a barrier for participating. Most of the participants were found in the direct social network of the researcher including other students, colleagues and friends.



## 5. Results

In this chapter presents the factual results of the study in Tables 1-9 as shown in Section 5.1. Thirty-two people participated in this study from age 16 to 55; most had a Dutch nationality and came from or around the town of Hoofddorp. The study took place from the beginnings of July 2009 until the end of August 2009. The game played was Half-Life 2: Deathmatch and was played in groups of 2 or 3 people.

### 5.1 Quantitative results



Hoeveel uur per week speel je First Person Shooters?		
Nooit	#17	53%
<3 uur	#10	31%
3-6 uur	#3	9%
6-9 uur	#1	3%
>9 uur	#1	3%
no answer	#0	0%
n=32		

Vind je jezelf een ervaren gamer?		
Ja	#16	50%
Nee	#16	50%
no answer	#0	0%
n=32		

Table 1: Demographic and Psychographic results

Age		
N	Valid	32
	Missing	0
Mean		23,84
Mode		22
Std. Deviation		6,802
Minimum		16
Maximum		55

Table 2: Age

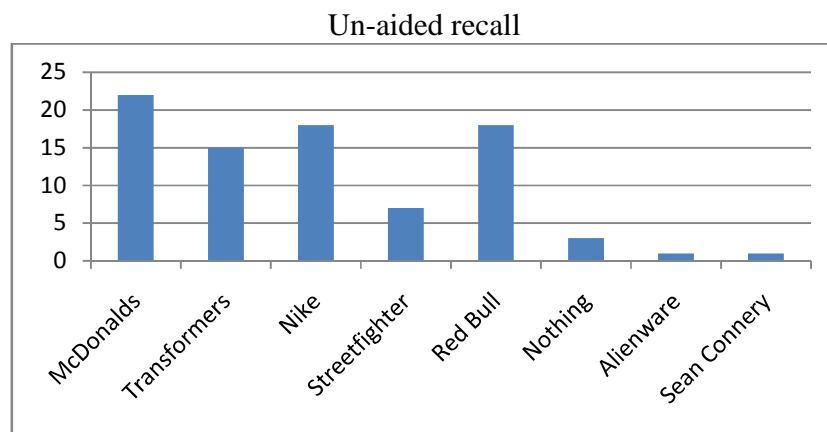


Table 3: Un-aided recall

**Un-aided Recall**

McDonalds	22
Transformers	15
Nike	18
Streetfighter	7
Red Bull	18
Nothing	3
Alienware	1
Sean Connery	1

Aided recall

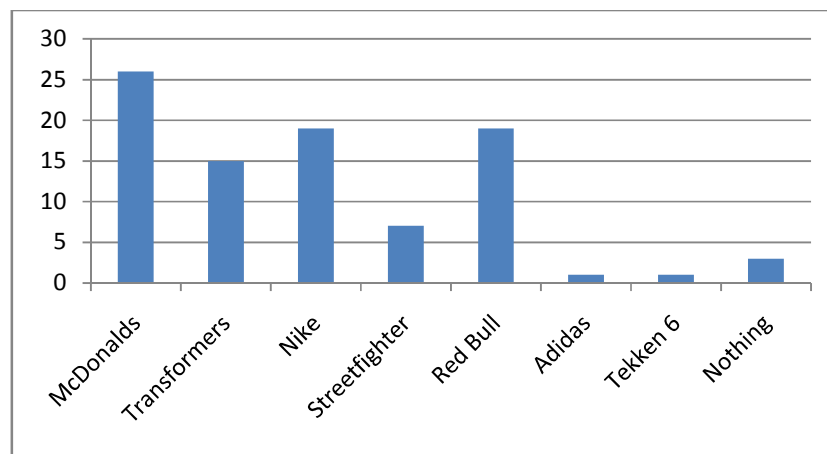


Table 4: Aided recall

**Aided Recall**

McDonalds	26
Transformers	15
Nike	19
Streetfighter	7
Red Bull	19
Adidas	1
Tekken 6	1
Nothing	3

Buying intention of the brands

		McDonalds	Transformers	Nike	Street Fighter IV	Red Bull
N	Valid	20	15	16	8	18
	Missing	12	17	16	24	14
Mean		,75	,07	-,13	-,25	,44
Std. Deviation		,550	,884	,719	,886	,784

Table 5: Buying intention

*-1 = negative, 0 = neutral, 1 = positive*

Brand reputation		McDonalds	Transformers	Nike	Street Fighter IV	Red Bull
N	Valid	20	15	17	7	18
	Missing	12	17	15	25	14
Mean		,70	,53	,41	,00	,83
Std. Deviation		,571	,640	,795	1,000	,383

Table 6: Brand reputation

*-1 = negative, 0 = neutral, 1 = positive*

Intrusiveness		Bil_mis	PP_mis	IP_mis	Bil_int	PP_int	IP_int	Bil_real	PP_real	IP_real
N	Valid	32	32	32	32	32	32	32	32	32
	Missing	0	0	0	0	0	0	0	0	0
Mean		1,50	1,69	1,69	1,53	2,00	1,72	3,63	3,56	3,56
Mode		1	1	1	1	1	1	5	4	3
Std. Deviation		,803	,965	,859	1,016	1,191	,888	1,314	1,190	1,014
Minimum		1	1	1	1	1	1	1	1	1
Maximum		4	5	4	5	5	4	5	5	5

Table 7: Intrusiveness

*1 = disagree, 5 = agree*

*mis = misleading*

*int = interruptive*

*real = realistic*

*Bil = billboard*

*PP = product placement*

*IP = interactive placement*

		Game Experience			
	Experienced?	N	Mean	Std. Deviation	Std. Error Mean
Bil_mis	Yes	16	1,69	,946	,237
	No	16	1,31	,602	,151
Bil_int	Yes	16	1,44	,892	,223
	No	16	1,63	1,147	,287
Bil_real	Yes	16	3,56	1,263	,316
	No	16	3,69	1,401	,350
PP_mis	Yes	16	1,69	,793	,198
	No	16	1,69	1,138	,285
PP_real	Yes	16	3,69	1,078	,270
	No	16	3,44	1,315	,329
PP_int	Yes	16	1,69	1,078	,270
	No	16	2,31	1,250	,313
IP_mis	Yes	16	1,69	,946	,237
	No	16	1,69	,793	,198
IP_int	Yes	16	1,69	,946	,237
	No	16	1,75	,856	,214
IP_real	Yes	16	3,69	,946	,237
	No	16	3,44	1,094	,273
McD_Buy	Yes	13	,92	,277	,077
	No	7	,43	,787	,297
McD_Rep	Yes	13	,85	,555	,154
	No	7	,43	,535	,202
TF_Buy	Yes	9	,44	,882	,294
	No	6	-,50	,548	,224
TF_Rep	Yes	9	,78	,441	,147
	No	6	,17	,753	,307
Nike_Buy	Yes	10	-,10	,738	,233
	No	6	-,17	,753	,307
Nike_Rep	Yes	11	,18	,874	,263

	No	6	,83	,408	,167
SF4_Buy	Yes	5	,00	1,000	,447
	No	3	-,67	,577	,333
SF4_Rep	Yes	4	,00	1,155	,577
	No	3	,00	1,000	,577
RB_Buy	Yes	10	,40	,843	,267
	No	8	,50	,756	,267

Table 8: Game experience

## Students and Workers

	Occupation	N	Mean	Std. Deviation	Std. Error Mean
Bil_mis	Student	12	1,33	,651	,188
	Working	18	1,56	,856	,202
Bil_int	Student	12	1,33	,888	,256
	Working	18	1,72	1,127	,266
Bil_real	Student	12	3,75	1,215	,351
	Working	18	3,78	1,263	,298
PP_mis	Student	12	1,58	1,240	,358
	Working	18	1,72	,752	,177
PP_real	Student	12	3,75	1,422	,411
	Working	18	3,50	1,098	,259
PP_int	Student	12	2,00	1,348	,389
	Working	18	1,89	1,132	,267
IP_mis	Student	12	1,50	,798	,230
	Working	18	1,78	,878	,207
IP_int	Student	12	1,33	,651	,188
	Working	18	1,94	,938	,221
IP_real	Student	12	3,83	,937	,271
	Working	18	3,44	1,097	,258
McD_Buy	Student	8	1,00	,000	,000
	Working	11	,64	,674	,203
McD_Rep	Student	8	,50	,756	,267

	Working	11	,91	,302	,091
TF_Buy	Student	7	,29	,756	,286
	Working	7	-,14	1,069	,404
TF_Rep	Student	7	,43	,535	,202
	Working	7	,57	,787	,297
Nike_Buy	Student	6	,17	,408	,167
	Working	10	-,30	,823	,260
Nike_Rep	Student	6	,33	,516	,211
	Working	11	,45	,934	,282
SF4_Buy	Student	3	-,33	,577	,333
	Working	5	-,20	1,095	,490
SF4_Rep	Student	3	,00	1,000	,577
	Working	4	,00	1,155	,577
RB_Buy	Student	6	1,00	,000	,000
	Working	10	,10	,876	,277

Table 9: Students and workers



## 6. Discussion of the results

### 6.1 Introduction

In this chapter, the results will be discussed that were obtained from the questionnaires and were tested using SPSS and Thesistools.com. A complete overview of all results of the questionnaires and the tests can be found in chapter 5. Comments from respondents can be found in Appendix II. The questionnaire can be found in Appendix III. The discussion and results will be presented according to the structure of the questionnaire. The hypotheses will supported or not accordingly. First, brand recall will be assessed, then the intrusiveness of in-game advertising will be discussed and finally, additional results besides the Working Hypothesizes will be presented.

### 6.2 Brand Recall

After playing for 20 minutes the participants were asked to write down the brands they saw during the game. These are the results:

*Un-aided recall (n=32)*

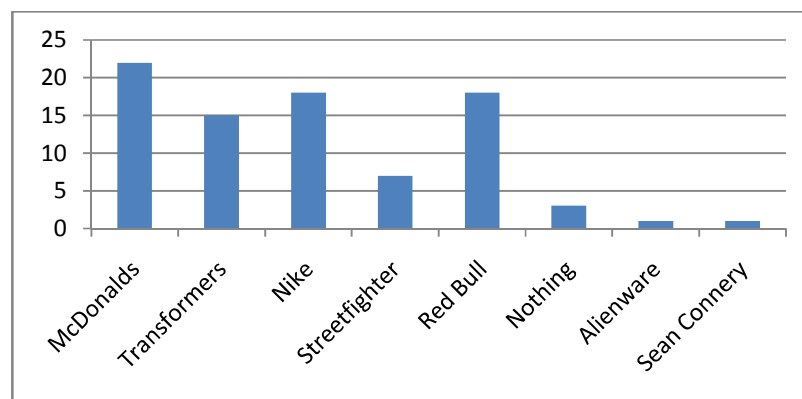


Table 10: Un-aided recall

Of the 32 participants McDonalds was recalled 22 times. Nike and Red Bull were recalled both 18 times. Transformers was recalled 15 times and Street Fighter 7 times. Three participants didn't recall any brands. The not incorporated brands Alienware and Sean Connery were found. After the Un-aided recall the participants were shown a number of brands from which they had to select the ones they saw. The aided recall produced the following brand recall results:

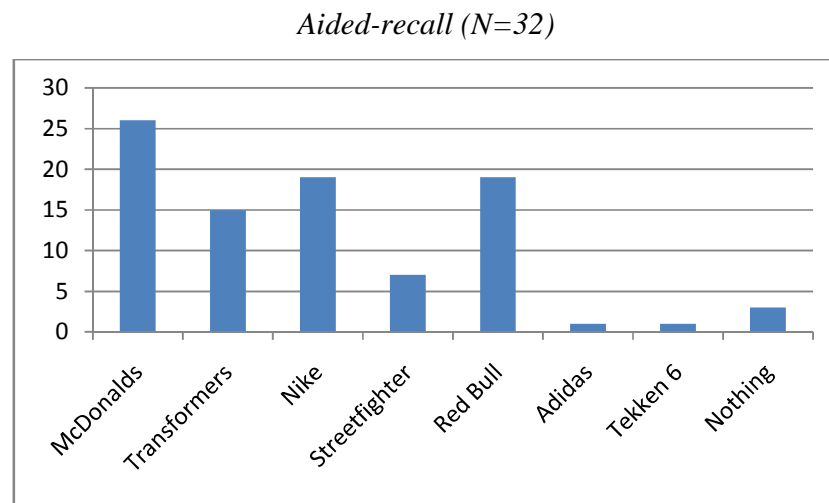


Table 11: Aided recall

McDonalds was selected 26 times, Nike and Red Bull 18 times, Transformers 15 times and Street Fighter 7 times. Adidas and Tekken 6 were both selected once and three participants didn't recall any brands.

❖ *WH1a: Product placements will have a higher recall than billboards*

It was hypothesized that Nike and Street Fighter would have a higher recall than McDonalds and Transformers. The results show that the prominent billboard (un-aided 22, aided 27) was recalled more than the prominent product placement (un-aided 7, aided 7). The subtle billboard (un-aided 15, aided 15) was recalled less often than the subtle product placement (un-aided 18, aided 19). There is no significant positive difference for product placements. Therefore this working hypothesis is not supported by the results of this study.

The prominent product placement was not very effective compared to the other placements. Multiple factors are responsible for this performance and are discussed in paragraph 6.4.5. Further research with well fitted prominent product placements will be necessary to test the working hypothesis.

❖ *WH1b: Interactive placements will have a higher recall than product placements*

It was argued that interaction would yield the highest form of recall. The results show no difference between Nike and Red Bull and a higher recall for Red Bull compared to Street Fighter. Both Nike and Red Bull have a higher recall than the subtle Transformers billboard but a

lower recall compared to the McDonalds billboard. So far there's no significant difference between found between interactive and product placements. Therefore this working hypothesis is not supported by the results of this study.

**WH1: Gamers will recall interactive placements better than other forms of in-game advertising.**

The results of this study do not show a higher recall for interactive placements. The most recalled form of advertisement in-game was found to be a prominent billboard with 69% un-aided recall. The interactive and subtle product placement followed by 56% un-aided recall. The subtle billboard placed fourth with 47% and the prominent product placement with 22%. These results show no support for this hypothesis.

### 6.3 Intrusiveness

The intrusiveness of the in-game advertising was tested in the questionnaire. Each participant had to rate each form of advertising (billboards, product placements and interactive placements) on how misleading, interruptive and realistic they were.

Intrusiveness										
		Bil_mis	PP_mis	IP_mis	Bil_int	PP_int	IP_int	Bil_real	PP_real	IP_real
N	Valid	32	32	32	32	32	32	32	32	32
	Missing	0	0	0	0	0	0	0	0	0
Mean		1,50	1,69	1,69	1,53	2,00	1,72	3,63	3,56	3,56
Mode		1	1	1	1	1	1	5	4	3
Std. Deviation		,803	,965	,859	1,016	1,191	,888	1,314	1,190	1,014
Minimum		1	1	1	1	1	1	1	1	1
Maximum		4	5	4	5	5	4	5	5	5

Table 12: Intrusiveness

*1 = disagree, 5 = agree*

*mis = misleading*

*int = interruptive*

*real = realistic*

*Bil = billboard*

*PP = product placement*

*IP = interactive placement*

Results on the question about how misleading the participants found in-game advertising are positive with means of 1.50 for billboards, 1.69 for product placements and 1.69 for interactive placements. In-game advertising was not found intrusive with means of 1.53 for billboards, 2.00 for product placements and 1.72 for interactive placements. Questionnaire results show that participants in general find the in-game advertising improving the realism of the game with means of 3.63 for billboards, 3.56 for product placements and 3.56 for interactive placements.

❖ *WH2a: Gamers find interactive placements less intrusive than prominent billboards*

Interactive placements score 1.69 on misleading and 1.72 on intrusiveness where 1 is totally not intrusive and 5 is totally intrusive. Billboards score 1.50 and 1.53. This shows that the participants find billboards slightly less intrusive. Both are on the positive side of the scale and are not found to be very intrusive. Based on these numbers this working hypothesis is not supported.

❖ *WH2b: Gamers find subtle billboards and product placements not intrusive*

Product placements score 1.69 and 2.00 and are thus compared to billboards with scores of 1.50 and 1.53 found a little more intrusive. All scores are lower than 3 (neutral) and tell us that both forms are found not intrusive. This research provides support for this working hypothesis.

❖ **WH2: Gamers do not find the billboards and product placements intrusive for their game experience when they are well fitted.**

The results above show a general positive attitude towards in-game advertising. None of the forms of in-game advertising are found misleading or interruptive overall. This could indicate that the advertising is implemented is relevant and fitted the gaming environment. This working hypothesis is supported by the results of the research.

Billboards were expected to be the most intrusive, especially the prominent McDonalds billboard. A reason why the results are more positive than expected could first of all be the level of fit they have in the gaming environment, which was taking into account during the level design. From the 32 respondents, 3 people did not see any form of advertising. Afterwards many respondents commented that they didn't notice some forms and were only focused on playing the

game. Perhaps this focus on the opponents during game play makes advertising less obvious and intrusive.

## 6.4 Other findings

### 6.4.1 Buying intention and brand reputation

The participants were asked to indicate how the advertisements influenced their buying intentions and the reputation of the brands on a 3 point scale. The McDonalds advertisement had a very positive impact on the buying intention of the participants (0.75) and the brand reputation (0.70). This could indicate a good fit for McDonalds and fast food billboards in First Person Shooters. The interactive placement of Red Bull also shows an overall positive buying intention of 0.44 and brand reputation of 0.83, which also shows a good fit.

Nike (-0.13) and Street Fighter IV (-0.25) both have slightly negative means for buying intention which could indicate that most of the participants are not part of the target market of these products. Although the Nike product placement might not have reached many potential buyers, the placement does build its brand reputation positively (0.41). The way the Street Fighter IV advertisement is placed might not be the ideal way for the brand to advertise with a negative buying intention and neutral brand reputation. These results might be biased because of the small sample (7).

Transformers has a neutral buying intention (0.07) but a positive brand reputation (0.53). This shows that the advertisement creates awareness and positive associations but the question remains whether this form of in-game advertising is efficient enough.

### 6.4.2 The influence of game experience

Of the 32 respondents who were asked to rate themselves an experienced gamer or not, 16 respondents rated themselves experienced and 16 did not. Regarding intrusiveness of in-game advertising the groups did not show much difference, both reacted positively as discussed in paragraph 6.3.

The combined buying intention of the advertised products is overall higher for experienced gamers (1.66). Inexperienced gamers have a combined buying intention of -0.43.

The advertisements might be more relevant for the experienced gamers. Especially Street Fighter IV and Transformers have a much higher buying intention. Obviously Street Fighter IV is a video game, so it would appeal more to gamers. Also Transformers apparently appeals more to gamers, perhaps because of the state of the art CGI graphics, robots and action.

A comparison regarding brand recall, shows that every form of in-game advertising was recalled more by experienced gamers. Experienced gamers recalled 47 advertisements compared to 30 for inexperienced gamers. A respondent commented *“Because I wasn’t known to First Person Shooters I had to focus on the controls and movement not to die. I think I missed some of the environment because of this.”* Probably inexperienced gamers were more focused on learning the game than the environment, this could explain the difference in brand recall. Chaney et al.(2004) found no relation between game experience and brand recall. This study does not support this finding. On the contrary the results show an increase in buying intention and brand recall for experienced gamers. An explanation for this could be the different way both studies label participants experienced. The participants themselves decide whether they find themselves experienced in this study. Whereas the other study defines it as a combination of online game hours per week, time playing FPS a week and time playing FPS games.

#### 6.4.3 Students and Workers

Of all the participators twelve were working and eighteen were still in college. Both groups do not think that the advertisements were misleading but the results show that workers (1.69) found the advertisements slightly more misleading than students (1.47).

The combined buying intention for students (2.13) is much higher than for workers (0.1). This could indicate that the products and brands advertised appeal more to the students. No difference is found between the amount of un-aided recalled brands for students (2.5) and workers (2.4).

#### 6.4.4 Game realism

Nelson's (2002) research showed that in-game advertisements could enhance game-realism. This proposition was tested for First Person Shooters and the results of this research support the proposition. Some quotes from the respondents:

*“With moderate use it adds to the game realism.”*  
*“It makes first person shooters based on the real world more realistic.”*  
*“It ruins the beauty of the game. Adds realism.”*  
*“It makes the game experience more realistic because in real life there's also much advertising.”*  
*“In the real world advertising is everywhere so no advertising would be weird.”*

Most respondents say they think in-game advertising increases the realism of the game. However, they do have some conditions. The game should be based on the real world and not on a fantasy world, the advertising should fit the game environment and not be excessive.

Game realism (1=negative, 3=neutral, 5=positive)		Bil_real	PP_real	IP_real
N	Valid	32	32	32
	Missing	0	0	0
	Mean	3,63	3,56	3,56
	Std. Deviation	1,314	1,190	1,014

Table 13: Game realism

### 6.5 In-game advertisement forms

This research identifies multiple forms of possible in-game advertisement and applies five forms to an experiment. Prominent and subtle billboards, prominent and subtle product placements and an interactive placement were implemented in a First Person Shooter game environment. All, except the prominent product placement, were found effective. Not only the form of the in-game advertisement guarantees brand building, but many other factors influence the effectiveness of the advertisement. Reasons why the prominent product placement didn't perform as well as the others could be:

1. Placement in the game environment, the placement stood in a corner where not many people looked.
2. Wrong product form, respondents saw the model but referred to it as a refrigerator
3. No peripheral cue, respondents saw the model but didn't look closely
4. Wrong target group, the respondents might not care about a fighting video game

When these factors will be improved the outcome for the prominent product placement will probably much better. For an advertisement to be effective in a first person shooter, this research shows that it should:

1. Fit into the game environment
2. Be placed on a location where the player can't miss it.
3. The product should be relevant for the gamers
4. The brand should be clearly visible

Each form of advertising tested has its own advantages and disadvantages. Billboards are easy to implement and can be dynamic. But having massive amounts of billboards will probably start to annoy the player. Product and interactive placements, although harder to implement, can help create a mixed balance of advertisements.



## 6.6 Reliability and Validity

### 6.6.1 Reliability

Reliability of a measure is 'an indication of the stability and consistency with which the instrument measures the concept and helps to assess the "goodness" of a measure' (Sekaran, 2003). The questionnaire used for assessing the game experience of the participants is reliable in a way that results can be reproduced when all the sample is similar and all other factors are kept the same. The level used in this research is available on request.

The sample used in this study reflects the total population to a certain degree. The confidence interval gives an indication about how certain the results will reflect on the total population. Factors influencing the confidence interval are the sample size, total population and percentage. For determining the accuracy of an existing sample the percentage should be 50. The sample size of this study is 32 and the total population of potential players is >1.000.000. This gives a confidence interval of 17.32. The confidence level tells us how sure we can be. Most researchers use the 95% confidence level. This means we can be 95% sure that over the total population the results are within 17.32% of the findings in this research.

### 6.6.2 Validity

Validity is about how sound the research is. "Any research can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings" (Seliger & Shohamy 1989).

Internal validity is about flaws within the research itself. This research was setup based on previous literature and the design was validated by the thesis supervisor, which should result in a high internal validity.

External validity is about to which extend the results found can be applied to a larger group. The participants in this study were mostly direct contacts of the researcher. This created some randomness but on a larger scale might be biased. The time of the experiment was shorter than an average gaming session which could have influenced the results. These factors have an impact on the external validity of this study.

### 6.7 Limitations & Further Research

As mentioned before this study has several limitations. First, because of time constraints only 32 participants were able to play the level. Although it's twice the sample of Nielsen's (2002) study it is still a small sample. No comparable study was found with more than 50 participants. Future research should control for sample bias.

Secondly, participants played for only twenty minutes. Normally they would spend much more time in the game. This could increase brand recall. On the other side, perhaps they would be less positive about the intrusiveness as they see the advertisements more frequently. Furthermore the game form played was multiplayer on one map. Most First Person Shooters also have a single player mode which has different game dynamics with long maps and one or multiple possible pathways to the end. This form will possibly require a different way of implementation and perhaps have some extra opportunities, like incorporating the product in cut-scenes.

The prominent product placement, Street Fighter IV, was in retrospect not as prominent as expected. The fit of the advertisement was not as good as the others. This resulted in some interesting insights but further research is necessary on prominent product placements in-game. The subtle product placement was quite effective. So a well fitted prominent product placement might or should result in an ever higher recall.

The product placements in the game weren't static and could be moved and thrown around. The models acted as they would do in real life, the ball rolled and the arcade could be picked up and thrown to kill others. So the models were somewhat interactive which might have influenced the outcome compared to fully static models.

And finally, the advertisements tested were purely visual. Further research should include some audio and audio/visual advertisements. If the pickup sound of the Red Bull would have been a big 'Aaahh, damn tasty', it might increase recall and positive associations. Another example could be a radio playing a commercial somewhere in the level.

## 7. Conclusions

There is an overall positive attitude towards in-game advertising. Participants of this study did not find the in-game advertising misleading or interrupting the game experience. In fact, they find that in-game advertisements can improve the realism of the game. A positive attitude can increase brand recall and positive associations. None of the advertising forms implemented in this study were found intrusive. In other forms of advertising, such as television commercials, the advertisements often damage the customer experience. The most intriguing and surprising result of this work is that we have found a possibly unique situation where advertising actually has been found to enhance and improve the customer experience.

Five different forms of in-game advertising were tested in this study. Unexpectedly, the prominent product placement was least effective, while the interactive and subtle product placement were reasonably effective with 56 percent un-aided recall. The prominent billboard even had 69 percent un-aided recall and the subtle billboard had 47 percent. Factors that have an influence on the poor performance of the prominent product placement are the placement in the game environment, product form, peripheral cue and the target group.

Results of this study contradict a finding by Chaney et al. (2004) which does not find a difference on brand recall between experienced and inexperienced gamers. A higher brand recall and buying intention was found for the experienced gamers in this study. A reason for this contradicting finding might be the way both studies qualified experience.

This research expands the framework of knowledge about in-game advertising in First Person Shooters. Further studies should control the results, test audio and audio/visual product placements and further explore influential factors on the effectiveness of in-game advertising. So in-game advertising can be used to target the increasingly harder to reach group of young adults and game developers can consider implementing in-game advertising to open up new revenue channels.

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## Appendices

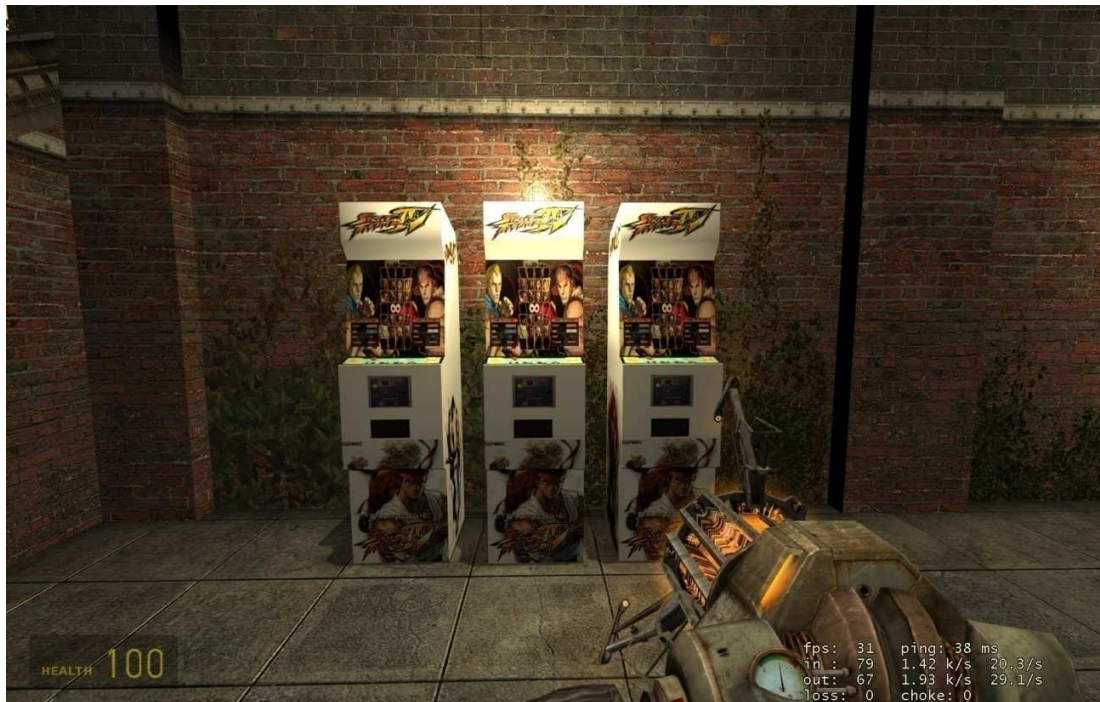
### Appendix I: DM\_Master\_Thesis

This is a graphical overview of the map DM\_Master\_Thesis, used for this research.

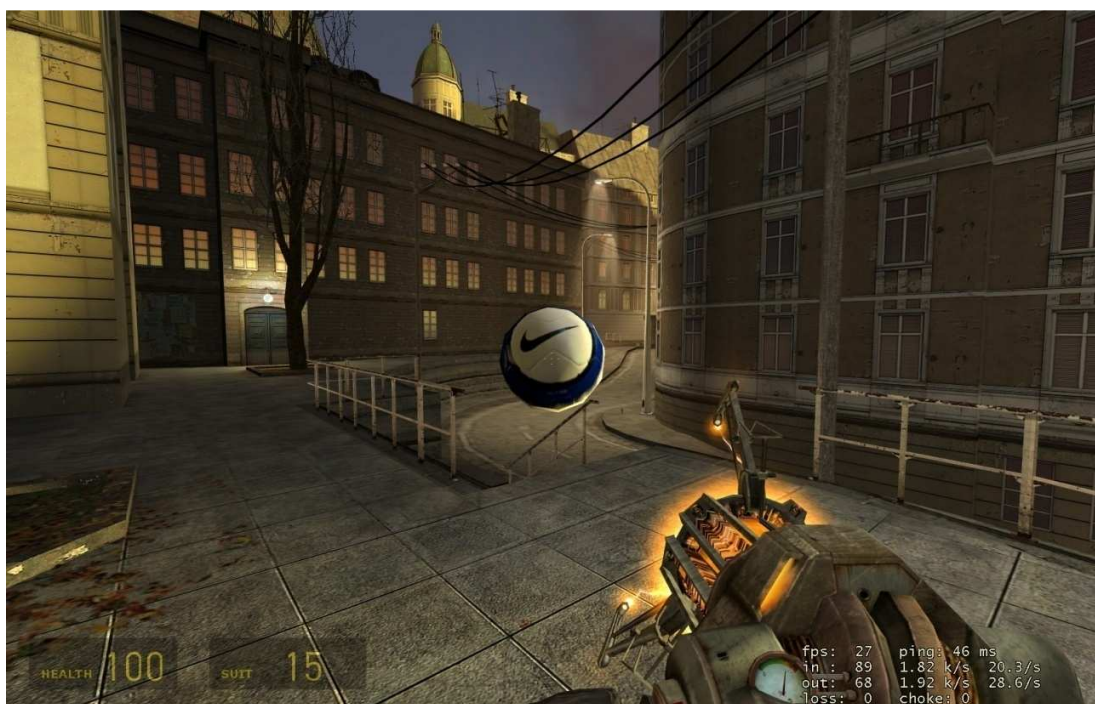
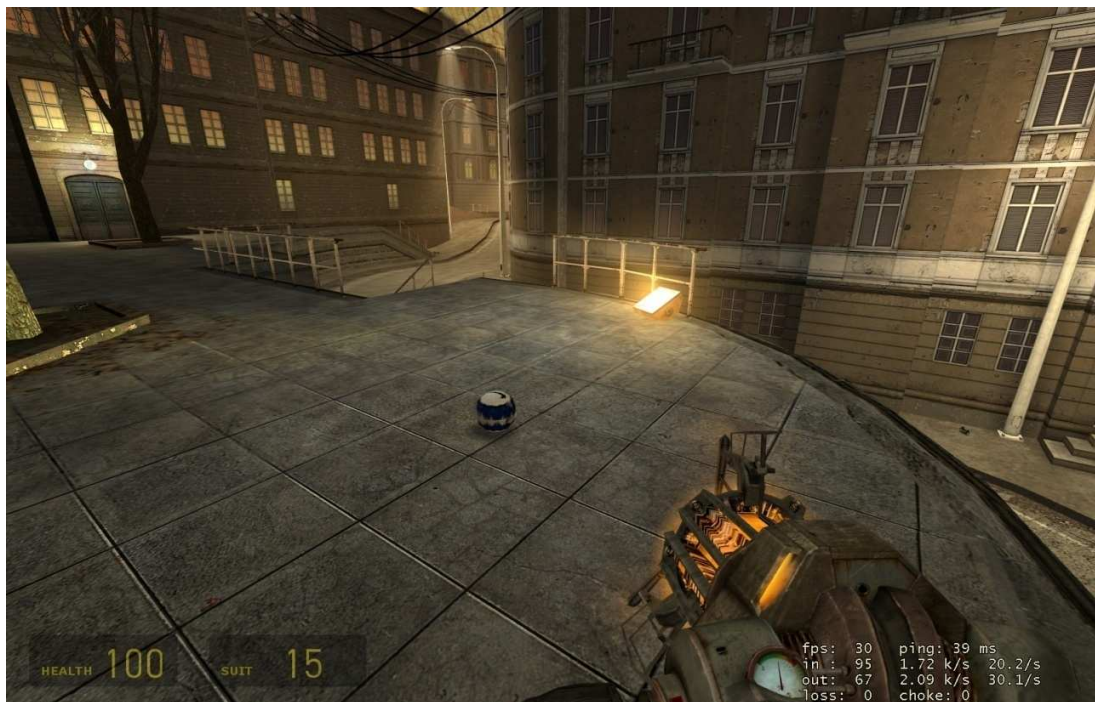
#### Red Bull soda cans



Street Fighter IV arcades



Nike football

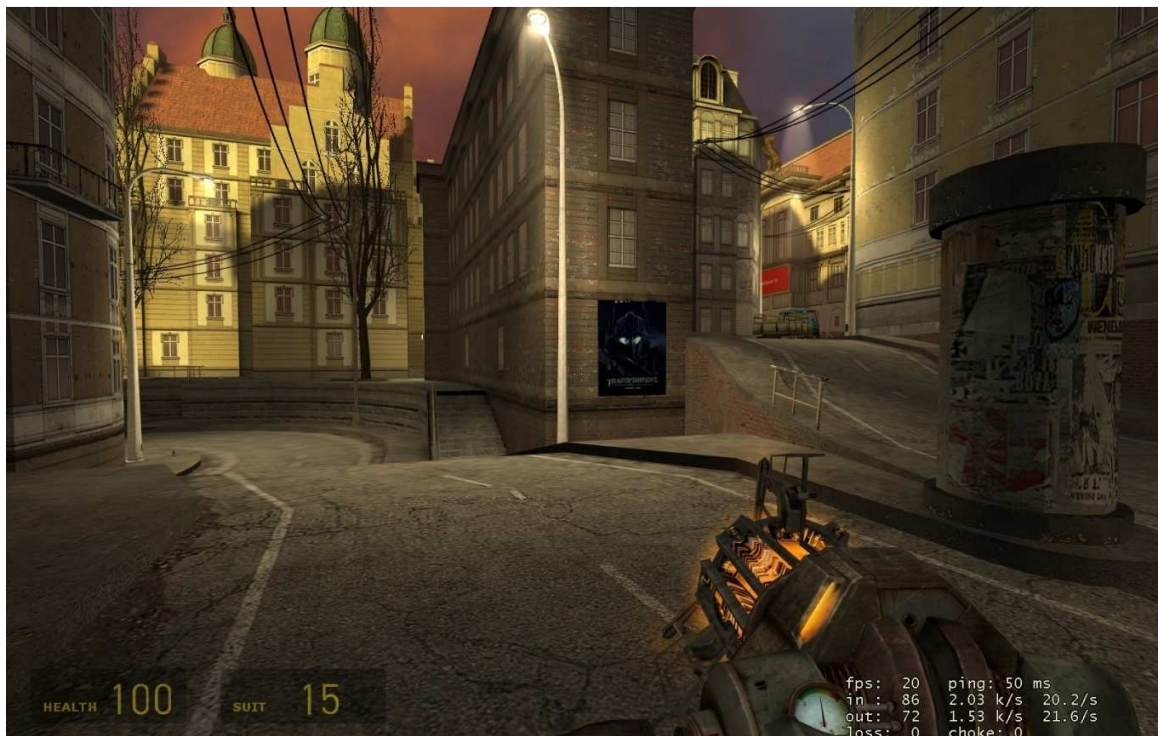




McDonalds billboard



Transformers billboards



Appendix II: Qualitative results

*What do you think about in-game advertising?*

**Respondent 1**

It's up to the servers owners to permit it or not. Personally I don't need it; if doesn't effect me in to buying the product it only distracts me from playing the real game. I don't find it realistic.

**Respondent 2**

I don't mind it; in moderate use it adds to the game realism. And that's good! And it depends a lot in what environment you are in-game.

**Respondent 3**

I don't mind billboards and such; but only if it's realistic. A McDonalds billboard in a futuristic space sci-fi would seem out of place.

**Respondent 4**

No Problem.

**Respondent 5**

Not needed.

**Respondent 6**

Not disturbing. They're places of recognition

**Respondent 7**

Fine when used realistically. It may not disturb or distract.

**Respondent 8**

No problem. I've played adware games in the past.

**Respondent 9**

No problem if it's not disturbing. It makes first person shooters based on the real world more realistic. It wouldn't work in a fantasy world.

**Respondent 10**

Possible but differs per game.

**Respondent 11**

It's smart because it doesn't disturb.

**Respondent 12**

Not necessary. It ruins the beauty of the game. Adds realism

**Respondent 13**

Not interesting

**Respondent 14**

It's ok, doesn't matter much. It adds realism.

**Respondent 15**

What the fuck do I care about advertising. I see it but it doesn't disturb me or puts me onto something.

**Respondent 16**

It's nice/okay.

**Respondent 17**

You won't notice it during the game. When you pay attention to it it's nice to see.

**Respondent 18**

It doesn't influence the game negatively when it's relevant to the game environment. It can even be positive for the game environment.

**Respondent 19**

Funny

**Respondent 20**

It's not bad. After all the gaming industry can increase earnings by in-game advertising. Money they probably need because of piracy. If the advertising is implemented well it's in my opinion no problem.

**Respondent 21**

It makes the game experience more realistic because in real life there's also much advertising. But it can also irritate especially when there is an emphasize on advertising. Because I wasn't known to first person shooters I had to focus on the controls and movement not to die. I think I missed some of the environment because of this. Results might be different for a more experienced gamer.

**Respondent 22**

-

**Respondent 23**

If the game is relevant to the advertising it makes it more realistic

**Respondent 24**

I think it's good. You think I might buy or eat that.

**Respondent 25**

It speaks for itself.

**Respondent 26**

Makes the game more realistic and keeps the gameplay exiting.

**Respondent 27**

No opinion, don't care

**Respondent 28**

I don't mind in-game advertising. It adds to the realism of a game. In the real world advertising is everywhere so no advertising would be weird. Furthermore games can become better when there's more money and advertising is money. So it's better.

**Respondent 29**

It makes the game experience more realistic. Wherever you go you are influenced (conscious of sub-conscious) by advertising. Advertising in videogames makes the game more real life.

**Respondent 30**

Advertising makes the game more realistic. Furthermore I don't think it's useful to have ads in-game or during the loading screen. Die-hard gamers might remember it but casual gamers like me won't notice it.

**Respondent 31**

It makes it more realistic. It would be strange for example if a football game won't have any billboards because they're there in real life as well.

**Respondent 32**

It makes the games and especially the environment more realistic. I don't pay much attention to it but it gives an extra something the level. It's not an interrupting way of advertising.



*What other video games can you recall having in-game advertising? Please list the games and products/brands.*

<b>Game</b>	<b>Brands</b>	<b>#</b>
No recall		9
Entropy Universe	Coca-Cola	1
Counter-Strike	Nvidia, AMD, Intel	4
Fifa	Nike, Adidas	13
Racing games	Tire brands	3
Grand Theft Auto		4
Need For Speed		2
SIMS		2
PES		2
Football Manager		1
Gran Turismo	BMW, Mercedes, Audi, etc.	3
Metal Gear Solid 4	Clock, Regain, Playboy, iPod	3
Shaun White	Burton, Forum	1
Project Gotham Racing	Burger King	1
Playstation Network	Coca-Cola	1
Sin		1
Dame was loaded		1
Duke Nukem 3D		1

This appendix shows the questionnaire used for this study. Some white spacing is removed to reduce pages.

To be completed after the Half-Life 2 Deathmatch session.

Demographics									
Gender:	Male			O		Female		O	
Age:	<hr/>								
Occupation:	Student			O		Working		O	
	O							Other	
Gaming									
1. Have you played any First Person Shooters before?									
Yes			O		No			O	
2. Have you played Half-Life 2 before?									
Yes			O		No			O	
3. How many hours per week do you play First Person Shooters?									
Never	O	<3 Hours	O	3-6 Hours	O	6-9 Hours	O	>9 Hours	O
4. Do you consider yourself an experienced gamer?									
Yes			O		No			O	
5. What products or brands do you remember seeing in the game you just played? (list any or all below) . For each brand indicate how the appearance in the game influenced your likelihood to buy and reputation of the brand by using + for positive, - for negative and O for neutral.									

(+)positive (O)neutral (-)negative

Brands	Likelihood to buy(+/-)	Reputation(+/-)

Please circle the brands you remember seeing in-game.

McDonalds	Burger King	Pizza Hut	Apple	Microsoft
The Proposal	Transformers	Bruno	BMW	Red Bull
Nike	Kentucky Fried Chicken	Adidas	Sony	Puma
Street Fighter IV	Soul Calibur IV	Anno 1404	Intel	Nvidia
ATI	Coca Cola	Pepsi	Monster	Guitar Hero

How do you feel about in-game advertising?

**6. Do you find Billboards in first person shooters:**

- Deceptive ☐ ☐ ☐ ☐ ☐ Not deceptive
- Interrupt/impairs the game playing experience ☐ ☐ ☐ ☐ ☐ Doesn't Interrupt/impairs the game playing experience
- Adds to game realism ☐ ☐ ☐ ☐ ☐ Doesn't add to game realism

**7. Do you find Product placements in first person shooters:**

- Deceptive ☐ ☐ ☐ ☐ ☐ Not deceptive
- Interrupt/impairs the game playing experience ☐ ☐ ☐ ☐ ☐ Doesn't Interrupt/impairs the game playing experience
- Adds to game realism ☐ ☐ ☐ ☐ ☐ Doesn't add to game realism

**8. Do you find interactive product placements in first person shooters:**

- Deceptive ☐ ☐ ☐ ☐ ☐ Not deceptive
- Interrupt/impairs the game playing experience ☐ ☐ ☐ ☐ ☐ Doesn't Interrupt/impairs the game playing experience
- Adds to game realism ☐ ☐ ☐ ☐ ☐ Doesn't add to game realism

9. What other video games can you recall having in-game advertising? Please list the games and products/brands.

10. What do you think of in-game advertising in first person shooters?