

## 手機電玩置入性行銷說服效果之探討

### (摘要)

過去有關置入性行銷的研究大多著力於電視節目與電影情節的置入(Law & Braun, 2000), 近年來隨著遊戲產業的蓬勃發展, 已經有研究學者陸續投入線上 和電腦遊戲置入性行銷的研究 (Nelson, 2002; Nelson, Yaros, & Keum, 2006; Lee & Faber, 2007; Yang & Wang, 2008)。然而, 從心理學角度來探究其他娛樂媒體, 例如: 手機, 之置入行銷效果的研究甚少, 再者, 由於手機置入行銷的手法趨於 普遍, 因此, 探討手機電玩置入行銷對玩家的記憶、態度、購買行為的影響是不 容忽視的。此外, 鮮少研究探究手機電玩中音樂置入性行銷是否可以加深玩家對 所置入品牌的記憶力, 所以, 檢驗手機電玩中音樂置入性行銷能否增加玩家對品 牌的知曉度將是一個值得研究的課題。 因此, 本研究目的在探討手機電玩置入性行銷的說服效果, 以注意力有限空間模型(The Limited-Capacity Model of Attention)與說服知識模式(Persuasion Knowledge Model)為理論基礎來檢驗: 1) 手機電玩種類、所置入之品牌種類、 置入位置、置入方式 (音樂置入行銷 vs. 無音樂置入性行銷) 對玩家立即記憶、 五個月後的記憶、廣告態度、置入行銷態度以及購買行為的影響; 2) 玩家對手機 電玩音樂置入行銷中所置入產品的知曉與記憶之影響。本研究問題包括: 1) 手 機電玩置入行銷的效果為何? ; 2) 哪些因素會影響手機電玩置入性行銷的效 果? ; 3) 玩家如何看待手機電玩中所置入的品牌? 本研究將執行一個前測、一個 2 (遊戲總類: 高專注度 x 低專注度) x 2 (置入 位置: 中心 vs. 周邊) x 2 (品牌種類: 高熟悉度品牌 vs. 低熟悉度品牌) x 2 (置入方 式: 音樂置入行銷 vs. 無音樂置入性行銷) 組間實驗、以及一個五個月過後對記憶 影響程度的測試。研究發現將對理論與實務有所貢獻, 在理論部份, 本研究發現 希望能提供手機電玩置入性行銷效果較完整的理論解釋; 在實務部份, 本研究發 現希望能提供行銷業者檢驗手機是否是一個有效的平台來執行置入性行銷策 略, 以及如何透過手機來進行置入性行銷, 達到最大的廣告效益。

## Product Placement in Mobile Phone Games--- The Impact on Persuasion

Product Placement in Mobile Phone Games: The Impact on Persuasion Summary Various past researches have studied product placement, such as in television shows (Law & Braun, 2000). Some studies have begun to examine brand placement in computer or on-line games (Nelson, 2002; Nelson, Yaros, & Keum, 2006; Lee & Faber, 2007; Yang & Wang, 2008). However, the effectiveness of brand placement in other entertainment media, especially mobile phone games, from psychological aspects has received little attention. Furthermore, due to the increase of product placement in mobile phone games, it would be valuable to gain insights into the game players' perceptions of the impact of product placement in mobile game on game players'

memory, attitudes towards product placements in games and their purchase intention. In addition, researches have rarely tested the use of music as a memory cue to increase users' memories of products embedded in the games. It would be interesting to examine whether raising awareness of brand names by music within a game can gain a player's awareness successfully. Thus, the purpose of this current research is to explore the effect of product placement on mobile phone games on persuasion. Specifically, this study will examine 1) whether the type of games, the type of brands, location of product placement, and type of placement (games with music vs. games without music) on mobile phone games will affect gamers' memory directly after playing game and at a five-month delay, attitudes towards the advertisement, attitudes towards product placement, and purchase intention; 2) Whether the use of music can increase users' awareness and memory of brands placed in mobile phone games. In order to extend extant literature on product placement, the following research questions are addressed: What is the effect of product placement on mobile phone games? What are the factors that influence the impact of product placement on mobile phone games on persuasion? How do game players process products or brands embedded in mobile phone 2 games? One pretest, one 2 (Type of games: high level of attention x low level of attention) x 2 (Location of placement: focal vs. peripheral) x 2 (Type of brand: high familiarity brand vs. low familiarity brand) x 2 (kind of placement in game: games with music vs. games without music) between-subjects design and one memory test of a five-month delay will be conducted. The findings are expected to both provide theoretical and Practical Contributions. Extending prior product placement research by incorporating the notion of the type of games, the type of brands, and location of product placement with music placement in mobile games could invaluablely provide a more comprehensive theoretical contribution to explain product placement effects in mass communication. In addition, the findings are expected to advise marketing communication practices about whether the mobile phone is a better platform to execute the strategy of product placement and the means to employ product integration via mobile phones to effectively reach their target consumers.

## **Product Placement in Mobile Phone Games: The Impact on Persuasion**

### **ABSTRACT**

The purpose of this current research is to explore the effect of product placement on mobile phone games on persuasion. A 2 (Type of games: high level of attention x low level of attention) x 2 (Location of placement: focal vs. peripheral) x 2 (Type of brand: high familiarity brand vs. low familiarity brand) between-subjects design was conducted (N=324). As hypothesized, results showed that 1) gamers have a greater memory of brands when they were embedded in the focal area of the game than when they were placed in the peripheral area of the game; 2) gamers have a better memory when high familiarity brands were embedded within the games than when low familiarity brands were placed; 3) Gamers who have more positive attitudes towards product placements are more likely to exhibit stronger purchase intentions.

### **INTRODUCTION**

What do young people do nowadays? They do not watch television, and neither do they listen to the radio nor read magazines and books. Where do they spend their time? It seems that traditional advertising does not reach them anymore. Based on the report from comScore (2009a), a global leader in analyzing the digital world, 87 million people in the United States (U.S.) are playing online games in May 2009. Compared to May 2008, it was an increase of 22 percent. Over the past year, young consumers increasingly shifted their interests into alternative forms of entertainment such as video and online games. Therefore, the market for online and computer games keeps showing strong growth in the U.S. In addition, not only do these online and computer games draw young people's attention, mobile phone games have become yet another alternative form of entertainment for teenagers and young adults. In 2007, 98.4 million people in the U.S. and Western Europe are playing mobile phone games (comScore, 2008). Furthermore, a recent estimation from GfK NOP and Brightkite (2009) showed that among U.S. mobile phone users, 60 percent who are

between 18 and 24 year old, and 49 percent who are between 25 and 34 years old were playing mobile phone games at the end of 2008. It can be said that more teenagers and young adults are playing games than ever before. This kind of consumer behavior has led advertising agencies to consider this media vehicle as a new placement advertising channel for promotional products (Nelson, Keum & Yaros, 2004).

Cellular phones entered the consumer market in the early 1990s. In today's modern society, it is ubiquitous. Based on data released from International Telecommunication Union (ITU, 2008), in 2008, over half of the world's population has a mobile cellular phone. In the U.S. there are nearly 90 percent of mobile phone users in 2008 (Frost & Sullivan, 2009). In Taiwan, according to the report from the National Communications Commission (NCC, 2009), the number of mobile phone subscribers in 2008 had reached 25.41 million and the mobile phone penetration rate is 110.3 percent. Based on those surveys, there are so many mobile phone users that the mobile phone is considered as yet another platform for games. In order to gain market share, gaming companies are devoting more efforts to design and provide more mobile phone games for users.

Over the past year, due to the advancements in technology, the mobile phone has developed into a better platform for playing games and more complex games have been designed (Chehimi, Coulton, & Edwards, 2008). Therefore, mobile phones have rapidly evolved into a better platform that is capable of supporting gaming (Rajala, Rossi, Tuunainen & Vihinen, 2007). Based on the report from comScore (2009b), the number of mobile gamers who downloaded a game to their mobile device grew 17 percent from November 2007 to November 2008. There were 8.5 million people who downloaded a game to their mobile device on November 2009. In addition, 34 percent of those who download a game used a smartphone. It seems that the introduction of smartphones boosted the mobile games industry. The worldwide download revenue of mobile games is expected to reach \$8.4 billion by 2010. As the mobile phone game industry develops quickly, the value of the

mobile games market is expected to grow to \$10 billion and even more by 2013 (Juniper Research, 2008). Mobile games represent the next frontier in portable gaming (Graft, 2006).

Mobile phone gaming is becoming a unique form of entertainment. The reason for its rising popularity is that players can play mobile phone-based games anywhere and anytime. They can play mobile phone games in their spare time while waiting for someone, killing time, during a break, when feeling bored, traveling, or relaxing after daily routines. Unlike online games or computer games, people do not need to carry a big piece of equipment or spend time playing a long game. Rather, users can spend a fraction of their time playing simple games to entertain themselves on a portable mobile phone. They can play and stop mobile phone games as and when they want at any place.

With the increasing number of people playing games, marketers have started to design unique, innovative, interactive advertising embedded in games to effectively reach target audiences. To date, the market of in-game industry is rapidly growing. According to the Yankee Group report, the global in-game advertising market will reach \$971.3 million by 2011 (Marketing Charts, 2007). The market of mobile game is expanding quickly. Commercial practices notice this huge market share. They place products and brands into on-line games or mobile games. For example, Coco-Cola moved some advertising budgets from television towards in-game advertising (Grover, Lowry, Khermouch, Edwards & Foust, 2004). This promotional tactic is called product placement. The definition of brand placement varies. Some researchers define “brand placement (as) the inclusion of brands in movies or television scripts (or games, websites, books, et c)” (Ferraro & Avery, 2000, p.1). Others refer brand placement as “the purposed incorporation of a brand into an entertainment vehicle” (Russel & Belch, 2005, p74). There is a growing frequency of product placements across many entertainment media such as television programs (e.g., Ferraro & Avery, 2000), movies (e.g., Nebenzahl & Secunda, 1993) novels, songs (e.g., Friedman, 1986), games (e.g., Nelson, 2002), and

many others. As shown, product placement has become more popular than ever.

The literature about product placement in movies, television or online and computer games has provided several relevant theories and measures to assess the impact of embedded products in games. Nevertheless, differences among media should be discussed. Product placements in mobile phone games are similar to those in on-line games. In order to advance game-realism to make it memorable, some types of mobile phone games emulate the “real world,” such as car racing games or embedded products into storylines such as the *Shrek* games. On the other hand, there are still some differences between product placements in mobile phone games and on-line games. Compared to other game platforms, the disadvantages of playing games over mobile phone are the small screen, limited interface which is designed for making phone calls, limited storage capacity, and low speed (Ha, Yoon, & Choi, 2007). However, the mobile phone game is more “accessible, mobile, portable, and convenient than other game platforms” (Ha, Yoon, & Choi, 2007, p276). That is why players can play games anywhere and anytime (Ha, Yoon & Choi, 2007).

Because of these differences mentioned above, the impact of product placements between on mobile phone games and on-line and computer games may differ. Since mobile gamers can start to play games or stop anywhere and anytime, they may not have a higher degree of involvement in playing games compared to computer gamers. Grigorovici & Constantin (2004) indicated that consumers have positive effect on message processing when they are low involvement in gaming environments. On the other hand, consumers have a negative effect on the advertising process with their high involvement in media vehicle (Grigorovici & Constantin, 2004). The reason behind this is that while the level of involvement in playing games is high, players’ amount of attention capacity will be used to focus on games and have little or no capacity to process commercial messages. Conversely, when the level of involvement in playing games is low, players will have enough capacity to pay attention to the advertisements shown on the games (Grigorovici & Constantin, 2004).

Therefore, following these arguments, the effect of product placement on mobile games may be greater than online or computer games. Examining the different impact of product placement between mobile games and online or computer games is not the focus in this current study, However, the purpose of raising this discussion is that the effect of brands embedded within the mobile phone games should be taken into consideration. Therefore, the Kahneman 's (1973) limited-capacity model of attention, was used to examine the possible effects of product placement in games.

Various past researches have studied product placement, such as in television shows (Law & Braun, 2000). Some studies have begun to examine brand placement in computer or on-line games (Chaney, Lin, & Chaney, 2004; Nelson, 2002; Nelson, Yaros, & Keum, 2006; Lee & Faber, 2007; Yang & Wang, 2008). However, the effectiveness of brand placement in other entertainment media, especially mobile phone games, from psychological aspects has received little attention. Furthermore, due to the increase of product placement in mobile phone games, it would be valuable to gain insights into the game players' perceptions of the impact of product placement in mobile game on game players' memory, attitudes towards product placements in games and their purchase intention.

Thus, the purpose of this current research is to explore the effect of product placement on mobile phone games on persuasion. Specifically, this study examined whether the type of games, the type of brands, and location of product placement on mobile phone games will affect gamers' memory directly after playing game, attitudes towards the advertisement, attitudes towards product placement, and purchase intention. In order to extend extant literature on product placement, the following research questions are addressed: What is the effect of product placement on mobile phone games? What are the factors that influence the impact of product placement on mobile phone games on persuasion? How do game players process products or brands embedded in mobile phone games?

## **LITERATURE REVIEW**

### **Mobile Games**

The mobile game is a digital game that can be played on any portable device such as a mobile phone, smartphone, personal digital assistants (PDA), or other portable media player (Moreou, Sanchez, & Niu, 2004; Parikka & Suominen, 2006). The first pre-installed mobile game is the black-and-white Snake, launched by Nokia in 1997 (Rajala, Rossi, Tuunainen & Vihinen, 2007). In 2001, the mobile phone turned into a mobile device with a color screen. Today, with advanced technologies, the mobile game is rapidly moving from black and white to color, from 2D to 3D graphics, and also evolving into virtual-reality environments (Graft, 2006). Mobile games can be downloaded from a server upon connection to a computer or bluetooth device. They can also be pre-installed on the mobile handset, “embedded as part of the device’s preloaded software” (Moreou, Sanchez, & Niu, 2004, p3; Rajala, Rossi, Tuunainen, & Vihinen, 1997). Gaming genres vary from adventure games, action games, sporting games, educational games, First Person Shooters (FPS), flight simulation, strategy games, role-playing games, racing games, and many other forms (Dickey, 2007; Moreou, Sanchez, & Niu, 2004). In order to fit the requirements of the experiment design, car racing games and bowling games were chosen to as stimuli.

### **The Effectiveness of Product Placement**

Since at least 1940, product placement has started to appear in films (Balasubramanian, 1994). One of the earliest examples of product placement in films is *E.T. The Extraterrestrial* released in 1982. Hershey's Reese's Pieces was used in the move and thereby the sale of this candy was increased by 65 percent. Following the E.T. placement success, product placement quickly became a common advertising strategy embedded in movies as well as in television shows. By 1995, the



increasingly integration of products into entertainment vehicles was noticed. Computer or online games are sometimes designed for certain brands. The partnership between commercial practices and content providers can explain the phenomena, known as “advertising-as-entertainment” (Neilson, 2002, p. 81).

Product placement is a form of advertising used by marketers in which a promotional product is prominently displayed within a part of scene or story in a television programs, film, novel, song, radio programs, news, games or other form of media (Gupta & Gould, 1997; Gupta & Lord, 1998). The term product placement refers to “the purposeful incorporation of a brand into an entertainment vehicle” (Russell & Belch, 2005, p74). The line between advertising and entertainment is increasingly blurred. Therefore, consumers almost cannot tell the differences between advertising and entertainment when they are exposed to media. Thus, the term product placement can be also defined as one type of hybrid messages, in which due to using a non-commercial character, consumers are not aware of the commercial message. They would then like to process it (Balasubramanian, 1994). More specifically, product placement is a paid form of advertising, but it works differently compared to paid commercial messages. By seamlessly integrating the planned and unobtrusive setting of brands into a media vehicle, consumers will not easily notice the product placements and may not perceive the media as commercial. For example, an actor in a movie or television may use a promotional product as a form of product placement. Consequently, consumers’ perceptions of product placement on games are different from their perceptions of traditional advertising. Product placements may not be considered as commercials, so consumers are less likely to be skeptic about the messages. Thus, their defense mechanisms for product placements may not be easily activated (DeLorme & Reid, 1999; Grigorovici & Constantin, 2004; Obermiller, Spangenberg, & MacLachlan 2005). Consumers view product placements to be more acceptable

than traditional advertising and that they enhance a game's realism and enjoyment.

Product placements are divided into visual only, audio only, and combined audio-visual (Gupta & Lord, 1998). The visual placement can be used to create a realistic setting in movies, television programs, or games. In movies or TV shows, products are embedded in the background or used as props (Gupta & Lord, 1998). In games, products are placed on billboards, hoardings or in game itself, such as the brand of a car in a racing game. Audio only placement is that a brand name is mentioned or brand related information is stated by actor in audio form, but the product itself is not shown in the media context (Gupta & Lord, 1998). A combined audio-visual placement involves the name and related message of the brand to be mentioned, and the image of brand and logo will also be shown at the same time (Gupta & Lord, 1998). Furthermore, d'Astous & Seguin (1999) proposed that product placements can be categorized into three dimensions: implicit placement, integrated explicit placement, and non-integrated placement. Superficially, implicit placement refers to a brand or a logo embedded within the program passively. For example, a scene is played in a certain restaurant. Integrated explicit placement means a product is played in the media context actively. For example, a certain brand is clearly mentioned and discussed in the story line. Non-integrated placement indicates that the brand is formally presented rather than integrated within the context (d'Astous & Seguin, 1999).

Prior research has shows that product placement can play a critical role in persuasion. It is important to find out the factors that can influence the impact of product placement on games. Factors such as location of placement, type of placement in game and music placement are discussed in the following paragraphs. Regarding factors affecting product placement effects, one of the important ones is proximity (Lee & Faber, 2007; Acar 2007). Brands can be placed within the focal field or in the peripheral area. In the former, the product is the inclusion of a product name or logo

central to the action in the game. In the latter, the product is embedded in the outside of the centrality of action (Lee & Faber, 2007). Compared to peripheral placement, focal product placement tends to elicit better memory of the brands (Lee & Faber, 2007). Regarding the type of product placements, memory of audio product placement is greater than memory of visual product placement (Gupta & Lord, 1998). Regarding music placements, Lavack, Thakor, & Bottausci (2008) found that attitudes towards the ad and attitudes towards the brand are more positive in radio advertising when the music and brand are congruent than when they are not.

The primary goal of product placements is to get a brand noticed and remembered (Nelson, 2002). Prior research has used memory-based awareness measures, including recall and recognition, to examine the effectiveness of product placement (Brennan & Dubas, 1999; Nelson, 2002; Pracejus, 1995). Most research focus on short-term recall immediately after computer or on-line games. However, the effectiveness of brand placement on mobile phone games has received little attention. In order to explore the effect of product placement on mobile phone games, the current study assessed short-term recall.

Product placements not only increase the awareness of embedded brands, they also induce audiences' positive attitudes towards product placements or even purchase intention because placed brands can add to the realism, making audiences feel at ease rather than being deceived by advertisers (Nelson, 2002). For example, some types of mobile phone games are designed for certain brands such as AMF bowling game, for movies such as *Texas Chainsaw Massacre* mobile game or for cartoon such as *SpongeBob* Games. In addition, there are two different characteristics of product placements used between games and film or television. The first is that playing games are more interactive, vivid, and involving (Steuer, 1992). Second, users control in playing games may make gamers feel in control of the products (Nelson, 2002). Due to these differences, the use of product

placements in games needs to be assessed (Nelson, 2002). Consequently, game players' perceptions of the impact of product placements in mobile games on game players' memory, attitudes towards product placements in games and purchase intention assessed in this research.

### **The Limited-Capacity Model of Attention**

The function of product placements is to increase brand awareness (Karrh, 1994). However, the number of game players may not be equivalent to the number of players who actually notice the brands or products placed in the games (Lee & Faber, 2007). The primary attention of game players is on the game. In addition, compared to other devices for online or computer games, the screen of the mobile phone is smaller. It would be important to examine how product placements on a mobile phone game can actually be noticed and remembered.

Kahneman (1973) proposed the limited-capacity model of attention to show that mental efforts have a limited capacity to devote to a task. The total capacity can be divided into primary task and share capacities (Kahneman 1973; Lynch & Srull 1982). The primary task capacity is used to process the main media message, whereas the share capacity is a secondary task capacity that focuses on the surroundings around the main part of games or on the background of games (Nebenzahl & Secunda, 1993). In order to assess the impact of product placements in mobile games on persuasion, understating the role of the primary task capacity and secondary task capacity in playing games is important. Following Lee and Faber's (2007) and Grigorovici and Constantin's (2004) operational definitions of the primary and secondary tasks in this research, for gamers, playing the game is the primary task, but processing advertising message placed within the game is the secondary task. Th

Based on the relationships among these concepts, minimal attention has been given to the effect of product placement in mobile phone games in relation to advertising effects in the context of mass communications. It would be valuable to investigate whether product placements have an

impact on information processing and persuasion effects. On the basis of the literature review, several hypotheses were tested in this study.

### **Hypotheses**

It has been documented that memory of a brand's can be more easily induced when the brand is embedded in the media than when it is not. There are several factors that influence the effect of product placement on memory. First, concerning the types of games, when products are integrated into a simple and easy game such as a puzzle or strategy game, gamers can better recall those brands than when products are placed into a complicated game and speed game such as a sport game (Winkler & Buckner, 2006). The reason beyond this is that playing a simple game requires less effort and users are not totally absorbed into the game play. Thus, they have a larger spare capacity to process advertising message (Winkler & Buckner, 2006). On the other hand, when playing a high speed and complicated game, gamers need to put more effort and a lot more patience on the game play due to the fast pace and dynamic experience, and thus do not have sufficient spare capacity to notice other messages (Winkler & Buckner, 2006).

Second, regarding the location of brand placements, previous researchers examining product placements indicated that prominent product placements will have better recall than subtle product placements (d'Astous & Chatier 2000; Gupta & Lord 1998). The reason is that brands displayed in a prominent place are more likely to receive attention and improve the perceptions on that brand. Therefore, placements which are prominent to the centrality of the action result in greater brand recall for the brands than do placements that are outside of the main field of visual focus (Brennan, Dubas & Babin, 1999; Gupta & Lord, 1998; Law & Braun, 2000).

Third, regarding the familiarity of brands in movies, familiar brands were more likely to be

made aware than unfamiliar brands (DeLorme, & Reid, 1999). Furthermore, recognition of familiar brands was higher than unfamiliar brands (Brennan & Babin, 2004). Finally, concerning short and long term recall, based on the results of Nelson's (2002) study on recall of brand placements in computer and video games, gamers can recall about 25 to 30 percent of embedded brands after game-play and about 10 to 15 percent after a five-month delay.

Except for the effect of product placements on memory, the impact of product placements on attitudes towards the ad in general, attitudes towards product placement, and purchase intention are also important. According to the results of Nelson, Keum & Yaros (2004), more favorable attitudes towards advertising in general result in more favorable attitudes towards product placement. In addition, viewers are more inclined to select the brands that are seen in the movies or television programs than those that are not (Law & Braun, 2000; Yang & Roskos-Ewoldsen, 2007). Based on the basis of the literature review, the following hypotheses are advanced:

*H<sub>1</sub>: Type of placement has a main effect on product memory i.e., gamers have a greater memory for the placed brand when playing games with a low level of attention than when playing games with a high level of attention.*

*H<sub>2</sub>: Location of placement has a main effect on product memory i.e., gamers have a greater memory for brands when brands are embedded in the focal area of the game than when brands are embedded in the peripheral area of the game.*

*H<sub>3</sub>: Type of brand has a main effect on product memory i.e., gamers have a greater memory for the high familiarity brands embedded within the games than the low familiarity brands played in the games.*

*H<sub>4</sub>: Gamers who have more positive attitude towards advertising in general are more likely to exhibit more positive attitude towards product placements.*

*H<sub>5</sub>: Gamers who have more positive attitude towards product placement are more likely to exhibit higher purchase intention.*

## **RESEARCH METHODS**

One pretest and one between-subject experiment were conducted to examine the above hypotheses. The following sections discuss in detail the design of the pretest and experiment. The first factor, type of games: (high level of attention vs. low level of attention), the second factor, location of placement: (focal vs. peripheral), and the third factor, type of brand: (high familiarity brand vs. low familiarity brand) were manipulated through the 8 versions of mobile phone games. Persuasion effects were measured by recall, brand attitude, attitude towards the product placement, and purchase intention.

### **Pretest I: Selection of High and Low Familiarity Brands**

The purpose of this pretest is to determine which brands are familiar or unfamiliar with participants. About 20 undergraduates at the National Chiao Tung University, Taiwan, were invited to identify which brands they are familiar with and rate their levels of familiarity with these brands. The brands in other countries and are not promoted in Taiwan were selected as unfamiliar brands. Popular brands in Taiwan were considered as familiar brands. Fifteen familiar brands and fifteen unfamiliar brands were tested such as McDonald's, Nike, Benz, Taco Bell, T-Mobile, etc. Familiarity was assessed using one Likert-type scale from 1 (*not at all familiar*) to 9 (*very familiar*), asking the extent to which "*how familiar is the following brand to you?*" (Nelson, 2002, p. 89). Brands were divided into two items, including high familiarity and low familiarity. Mean scores of brands higher than the scale midpoint of 5 were labeled as high familiarity, whereas mean scores of brands less than the scale midpoint of 5 were categorized as low familiarity (Nelson, 2002). Based on the results of this pretest,

three high familiarity brands (including McDonald's, 7-Eleven, and CPC) and three low familiarity brands (including Taco Bell, WaWa, and BP) were selected to be placed in the mobile phone games.

### **Main Experiment**

A 2 (Type of games: high level of attention x low level of attention) x 2 (Location of placement: focal vs. peripheral) x 2 (Type of brand: high familiarity brand vs. low familiarity brand) between-subjects design were employed. This experimental design was aimed at examining the impact of product placements in mobile games on recall, attitudes and purchase intention.

### **Design of the games**

Two mobile phone games, car racing and bowling games, were chosen for this study. A car racing game is a game requiring a high level of attention, whereas a bowling game is a game requiring a low level of attention. The games were developed to meet the requirements of this experience. Regarding car racing, in order to make the games comparable to other racing games and feel more realistic to the gamers, the game contains cars, scenery, billboards, and such. The selected products were embedded within the game. Each brand name and logo appears on the rack in every lap. Participants played nine laps. Each brand was presented five times during the game. In regards to the bowling game, the chosen products were placed in bowling balls and billboards above the lanes. Each brand appeared one time when players rolled the ball.

Eight versions were created. All versions of games were designed the same way with exception to the three factors. First, they differ based on the manipulation of the types of games, high level of attention vs. low level of attention. Second, regarding the location of product placements, in half of the versions, products were placed in the central areas, which is close to the action, whereas in the



other half they were embedded in the peripheral fields. In this experiment design, in the car racing game, the focal area is the place where a treasure is embedded on the lane. The treasure can enable the car to speed up and can be used as a weapon to slow down other cars (see Pictures 1 & 3). The peripheral area is the location where billboards are appearing on the side of the road (see Pictures 2 & 4). In the bowling game, the focal area is the bowling ball itself. These come in three different weights, including nine, 10 and 11 pounds. Each of these three bowling balls represents one of the brand names, including high familiarity brands and low familiarity brands (see Pictures 5 & 7). The peripheral place is the background of billboards. There are three billboards. Three high familiarity brands or three low familiarity brands are placed in these three billboards (see Pictures 6 & 8). Lastly, concerning the type of brands, high familiarity vs. low familiarity, in half of the versions, three high familiarity brands were placed in the central field, while in the other half of the versions, another three low familiarity brands were embedded in peripheral area. In sum, there are 8 conditions. In order to eliminate the possibility of carry-over, practice, or fatigue effects, counterbalancing were employed. In other words, the brands were counterbalanced by the order of product.

## **Participants and Procedure**

Participants were recruited from undergraduate courses at the National Chiao Tung University, Taiwan, for the study. This study was held in a classroom. Participants were randomly assigned into one of the conditions. They were told that a game company will announce new mobile phone game and is interested in their evaluation before this game is released. Then, they were asked to read an instruction and receive a short training session about how to play the mobile phone game developed for this study. They then started to play the car racing game or a bowling game. After playing, they were first asked to complete questions that assessed their recall of products placed in the mobile phone games, their attitudes towards the brands, attitudes towards the product placement, and

intentions to purchase the product. Secondly, they responded to a series of items that are served as a manipulation check. Lastly, self-reported demographic information was provided.

## **Independent (Stimulus Development)**

### ***Types of Mobile Games***

Based on the level of attention players have to allocate, two games used in this research were designed to be one requiring a high level of attention and the other requiring a low level of attention. In this experiment, the former is a car racing game whereas the latter is the bowling game.

### ***Types of Brands***

A pretest was conducted to ask participants to rate their levels of familiarity with these brands. Based on the results of the pretest of selection of brands, three high familiarity brands and three low familiarity ones were chosen to design the games.

### ***Location of Product Placement***

In the car racing game, the brand name and logo were embedded either in the focal area or in the peripheral field. In the focal placement, in half of the versions, brand names appear as treasures located on the road. On the contrary, in another version, brand names were presented on billboards, placed on the side of the track. In the bowling game, in the focal placement, brand names were embedded on bowling balls. On the other hand, in the peripheral field, the products were integrated into the background of billboards.

## **Manipulation Checks**

Manipulation checks were conducted to ensure whether the manipulation of locations of

product placement succeeds. It were assessed on a Likert-type scale from 1 (strongly disagree) to 7 (strongly agree), asking participants the degree to which they feel that “*Brand names were located in the center of the action or off to the side*” (Lee & Faber, 2007, p.82). Regarding the manipulation check of the type of brands, participants were asked to rate the perceived familiarity of brand names shown in the game. It was assessed along a Likert-type scale from 1 (strongly disagree) to 7 (strongly agree), by asking participants to indicate the extent to which they are familiar with the brand names shown in the game/not familiar with the brand names presented in the game.

### **Measures: Dependent Variables**

#### ***Memory (Brand recall & Brand recognition):***

Two types of brand memory, including brand recall and brand recognition, were measured in this study. Regarding brand recall, free and aided-recall measures were used. Participants responded to several open-ended questions: First, free-recall questions were listed. “*What products or brands do you remember seeing in the game? (list any or all below)*” (Nelson, 2002, p. 85). Second, aided-recall questions were asked, “*What fast food restaurants do you recall seeing? (and so forth for other brands)*. Concerning brand recognition, 10 brands names were provided. Three of them are embedded within the game, but the rest of them are not. Participants were asked to indicate which brands were shown in the mobile phone games they played (Lee & Faber, 2007).

***Attitudes towards the advertisement in general:*** Attitudes towards the advertisements were assessed on a Likert-type scale from 1 (strongly disagree ) to 7 (strongly agree), asking users the extent to which they experience the following: “*I hate watching ads on television; I watch movies (at a theater or rented) to escape from the barrage of TV ads; While watching a TV program, I frequently flip channels to escape watching ads; When an ad appears on my TV, I stop looking at the screen until the program starts again; Ads provide information about products; Ads can be entertaining* (Gupta & Gould, 1997; Nelson, Keum & Yaros,

2004). The scores were averaged to form attitudes towards the advertisement in general measure with  $\alpha$  equaling .76.

**Attitudes towards product placement:** Attitudes towards product placements were assessed on a Likert-type scale from 1 (strongly disagree) to 7 (strongly agree) using statements like: *“I hate seeing brand name products in games if they are placed for commercial purposes; I don't mind seeing brand name products in games as long as they are not unrealistically shown; I prefer to see real brands in games rather than using fictitious brands; Games should use real brands rather than fake/fictitious brands; The presence of brand name products in a game makes it more realistic; I generally prefer games that do not have product placements in them to those that do; I don't mind if brand name products appear in games.”* (Gupta & Gould, 1997; Nelson, Keum & Yaros, 2004). The scores were averaged to form attitudes towards product placement measure with  $\alpha$  equaling .83.

**Purchase intention:** This research examined the effect of brand placements on the participants' actual choice behavior and their purchase intention. Purchase intention were assessed by using two Likert-type scales from 1 (*strongly disagree*) to 7 (*strongly agree*), asking the extent to which *“product placement in games make me want to buy the products”* (Nelson, Keum & Yaros, 2004) and they would consider buying the product soon and in the future (Meyers-Levy & Maheswaran, 2004). The scores were averaged to form purchase intention with  $\alpha$  equaling .74. In addition, regarding the implicit choice, the actual choice behavior of participants were assessed by *“asking participants to choose a product as a token of appreciation for participating in the research”*; *Where would you like to buy this product?* (Yang & Roskos-Ewoldsen, 2007, p. 483).

## RESULTS

### Manipulation Checks

To check the manipulations on location of placement (focal vs. peripheral) and type of brand

(high familiarity brand vs. low familiarity brand), independent sample t-tests were conducted separately. Pertaining to the manipulations on location of placement, the dependent variables were measured on a 7-point scale. Participants were asked to indicate the extent to which they perceived the locations of brand names in the mobile phone games, that is, whether they were located in the center of the action or off to the side. This manipulation check was a success. This analysis yielded a significant effect for the location of placement. Participants who played a game with brands embedded in the focal area were more likely to agree that the brands were embedded in the center of the action, compared to those who played a game with brands placed off to the side ( $\bar{X}$  : 4.38 vs. 2.61,  $t = 3.89$ ,  $p < .001$ ).

Pertaining to manipulations on type of brand, the dependent variables were measured on a 7-point scale. Participants were asked to indicate their agreement with statements such as: “*I am familiar with brand names in the mobile phone game / not familiar with brand names presented in the game.*” The manipulation check was successful. This analysis yielded a significant effect for the type of brand. Participants who played a game with high familiarity brands were more likely to agree that the brands were high familiarity brands, compared to those who played a game with low familiarity brands ( $\bar{X}$  : 5.63 vs. 3.23,  $t = 14.80$ ,  $p < .001$ )

**Hypothesis Testing.** To test Hypotheses 1, 2, and 3, a 2 (type of games) x 2 (location of placement) x 2 (type of brand) multivariate analysis of variance (MANOVA) was conducted to examine two dependent variables, including free recall and aided recall. Follow-up contrasts<sup>1</sup> were also conducted to identify differences in the means of recall across conditions. Results from the MANOVA showed that there were significant main effects for location of placement and type of brand,  $Wilks' \Lambda = .98$ ,  $F(2, 315) = 3.07$ ,  $p < .05$ , partial  $\eta^2 = .02$  and  $Wilks' \Lambda = .57$ ,  $F(2, 315) = 118.81$ ,  $p < .001$ , partial  $\eta^2 = .43$ , respectively (see Table 1). Subsequent univariate analyses indicated

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<sup>1</sup> One-tailed tests were used on all planned contrasts in this study.

that location of placement had a significant main effect on free recall,  $F(1, 316) = 4.18, p < .05$ , partial  $\eta^2 = .01$  and aided recall<sup>2</sup>,  $F(1, 316) = 5.26, p < .05$ , partial  $\eta^2 = .02$ . Follow-up planned contrasts separately showed that gamers had a greater free recall  $\bar{X} : 1.29$  vs.  $1.06, t = 2.05, p < .05$  and aided recall  $\bar{X} : 2.10$  vs.  $1.85, t = 2.29, p < .05$  when brands were embedded in the focal area of the game than when brands are were played in the peripheral places of the game.

Type of brand also has a main effect on free recall,  $F(1, 316) = 235.45, p < .001$ , partial  $\eta^2 = .43$  and aided recall,  $F(1, 316) = 48.18, p < .001$ , partial  $\eta^2 = .13$ , respectively. Follow-up planned contrasts separately showed that gamers experienced a greater free recall  $\bar{X} : 2.02$  vs.  $.33, t = 15.34, p < .001$  and aided recall  $\bar{X} : 2.36$  vs.  $1.59, t = 6.94, p < .001$  when high familiarity brands were embedded within the games than when low familiarity brands were placed in the games.

In addition, results indicated that 50.1 percent of participants can freely recall any brand that is embedded in the car racing game or bowling game. Among those participants, 12 percent of participants recalled one brand correctly, 9.9 percent recalled two brands correctly, and 29 percent recalled three brands correctly. Aided recall also helped prime the gamers with their recall. In addition, 87.3 percent of participants can recall any brand that is embedded in the car racing game or bowling game. Among those participants, 21.3 percent of participants recalled one brand correctly, 21.6 percent recalled two brands correctly, and 44.4 percent recalled three brands correctly. In sum, these results provide sufficient evidence to support  $H_2$  and  $H_3$ . However, there was no significant effect for the type of games,  $Wilks' \Lambda = 1.00, F(2, 315) = .17, p = .84$ , partial  $\eta^2 = .00$  (see Table 1). Based on these results, there was insufficient evidence to support  $H_1$ .

It is interesting to note that the MANOVA analysis showed that there was a significant three-way interaction effect among type of games, location of placement, and kind of placement in

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<sup>2</sup> Data of false recalls were not included to run the statistics.

game, *Wilks'*  $\Lambda = .97$ ,  $F(2, 315) = 4.20$ ,  $p < .05$ , partial  $\eta^2 = .03$ . Subsequent univariate analyses indicated there was a significant three-way interaction effect among type of games, location of placement, and kind of placement in game on free recall,  $F(1, 316) = 7.95$ ,  $p < .01$ , partial  $\eta^2 = .03$  rather than on aided recall,  $F(1, 316) = .91$ ,  $p = .34$ , partial  $\eta^2 = .00$ .

Follow-up planned contrasts separately showed that in the car racing game, gamers experienced a greater level of free recall  $\bar{X}$ : 2.33 vs. 1.98,  $t = 6.80$ ,  $p < .001$  when the high familiarity brands were embedded in the focal area of the game than when they were embedded in the peripheral area of the game;  $\bar{X}$ : .47 vs. .03,  $t = 10.39$ ,  $p < .001$ , and when the low familiarity brands were embedded in the focal area of the game than when they were embedded in the peripheral area of the game.

In the bowling, gamers experienced a greater degree of free recall  $\bar{X}$ : 2.19 vs. 1.57,  $t = 7.74$ ,  $p < .001$  when the high familiarity brands were embedded in the focal area of the game than when they were embedded in the peripheral area of the game;  $\bar{X}$ : .51 vs. .33,  $t = 5.72$ ,  $p < .001$ , and when the low familiarity brands were embedded in the focal area of the game than when they were embedded in the peripheral area of the game.

As predicted in  $H_{4a}$ , results from the Pearson Correlation showed that respondents' rating of their attitudes towards advertising in general was significantly positively associated with their rating of their attitudes towards product placements,  $r = .13$ ,  $p < .05$ . Therefore, gamers who had more positive attitudes towards advertising in general were more likely to exhibit more positive attitudes towards product placements.

Consistent with  $H_{5a}$ , results from the Pearson Correlation showed that respondents' ratings of their attitudes towards product placement was significantly positively associated with their ratings of their purchase intention,  $r = .36$ ,  $p < .001$ . Therefore, gamers who had more positive attitudes towards product placement were more likely to exhibit a stronger purchase intention.

Regarding purchase intention, among 294 respondents, 161 participants would like to choose a product, which is placed in the game, as a token of appreciation for participating in the research. In other words, when asked to buy a product, 54.8% of the respondents thought of products embedded in the game. These results were obtained from two open-ended questions.

### **Discussions and Conclusions**

This study examined the use of product placements on mobile phone games. Specifically, the goal of this research is to assess whether the type of games, the type of brands, and location of product placement on mobile phone will affect gamers' memories directly after playing the games, their attitudes towards product placements, and their purchase intention. In the main experiment, a car racing and bowling game were chosen as a game requiring a high level of attention and a low level of attention respectively. Both games were manipulated through location of placement (focal vs. peripheral) and the type of brands (high familiarity brand vs. low familiarity brand). Participants' assessments of product placements were measured by memory (brand recall & brand recognition), attitudes towards brands, and purchase intention. Most hypotheses were strongly supported.

Specifically, support was found for H<sub>2</sub>. Results revealed that gamers had a greater memory of brands when they were embedded in the focal area of the game than when they were placed in the peripheral area of the game. This result is consistent with the notion that focal product placement is more likely to evoke better memory of the brands (Lee & Faber, 2002; Law & Braun, 2000). Based on the limited-capacity model of attention, mental efforts have a limited capacity to devote to a task. The more attention capacity that is used to digest the primary activity (for e.g., playing games), the less the attention capacity that is applied to process the secondary tasks (for e.g., processing product information embedded within the game). Therefore, this finding suggests that the location of placement influenced players' recall and recognition. In particular, compared to placements that are outside of the main area, products placed prominently in the center of the action tend to grab more



attention and thereby enhance greater brand memory. Support was also found for H<sub>3</sub>. Results indicated that gamers had a better memory when high familiarity brands were embedded within the games than when low familiarity brands were placed. This is consistent with Brennan & Babin's (2004) findings that show the level of recall of familiar brands was higher than unfamiliar brands.

In this research, the results demonstrated that half the participants can freely recall any brand that is embedded in the car racing game or bowling game. Aided recall helped prime the gamers' recall. About 87 percent of participants can freely recall any brand that is played in the games. The reason for the high recall level is that 76.8 percent of the 324 participants perceived the planned and unobtrusive setting of product placements into mobile phone games as an enhancement to the realism of game. For gamers, advertising is viewed as a form of entertainment. They cannot tell the differences between advertising and entertainment when playing a game. The line between advertising and entertainment is becoming increasingly blurred. Advertising serves as a part of entertainment so as to become a new form of advertising—Advertainment (Kretchmer, 2004). Consequently, as brands become parts of the game, players are less likely to be skeptic about product placements and thus, become less inclined to be defensive against them. Therefore, gamers are more likely to be aware of embedded products and remember them unconsciously. Furthermore, when brands become a major part of the game, such as a treasure that can enable the car to speed up or the selection of bowling balls, players became actively involved, facilitating greater short-term recall. In addition, the ability to control of their characters when playing games may make gamers feel in control of the products (Nelson, 2002). Interactivity, involvement, and user control phenomena can increase gamers' memory (Roehm & Haugtvedt, 1999).

Support was also found for H<sub>4</sub>. Results showed that gamers who have more positive attitudes towards advertising in general are more likely to exhibit more positive attitudes towards product placements. This is consistent with Nelson, Keum & Yaros' (2004) results in which more favorable

attitudes towards advertising in general induced more favorable attitudes towards product placements. Regarding purchase intention, support was found for H<sub>5</sub>. Gamers who have more positive attitudes towards product placements are more likely to exhibit stronger purchase intentions. Furthermore, the findings indicated that more than half of the respondents would like to choose a product, which was placed in the game, as a token of appreciation for participating in the research. This result is consistent with Law & Braun's (2000) finding, in which product placements had an influence on purchase intention.

Interestingly, there was a significant three-way interaction effect among the type of games, location of placement, and kind of placement in game. More specifically, car racing gamers or bowling gamers experienced a higher level of free recall when the high familiarity brands were embedded in the focal area of the game than when they were embedded in the peripheral area of the game; and also when the low familiarity brands were embedded in the focal area of the game than when they were embedded in the peripheral area of the game.

However, the findings of this research did not provide sufficient evidence to support H<sub>1</sub>. Gamers were found to exhibit greater memory for the placed brand when playing games with a low level of attention than when playing games with a high level of attention. One possible explanation could be that no matter what the game genres are, playing mobile phone games requires less effort for gamers. Compared to other devices for online or computer games, the screens of mobile phones are smaller. Thus, even though a car racing game involves a high speed race, it would be easier for gamers to notice the placed products.

These findings are expected to both provide a theoretical framework for understanding persuasion in mass communication and suggest practical implications for more effective advertising strategies. Pertaining to theoretical contributions, prior studies have examined the impact of product placements in movies and television programs on memory. The first study examining motivation to

play online games was conducted by Kim, Park, Kim, Moon, & Chun (2002). Nelson (2002) was the first to investigate the recall of brand placements embedded in computer/video games. Following Nelson's (2002) study, there have been several research studies on the effects of product placements in computer/video games. However, minimal attention has been given to the examination of the impact of product placements in mobile games. Consequently, extending prior product placement research by incorporating the notion of the type of games and the type of brands with location of product placement in mobile games could invaluablely provide a more comprehensive theoretical contribution to explain product placement effects in mass communication. In addition, the findings are expected to advise marketing communication practices about whether the mobile phone is a better platform to execute the strategy of product placements and the means to employ product integration via mobile phones to effectively reach their target consumers. Finally, the findings are expected to provide guidance for marketers to maximize the effect of product placements on mobile phones.

Regarding limitations and directions for future research, the experimental design used three kind of brands—fast food restaurants (McDonald's vs. Taco Bell), convenience store (7-Eleven vs. WaWa), and gas station (CPC & BP). Although this approach provided sufficient ground to test the hypotheses, it is important for future studies to explore other types of products. Future research in this area could take a number of avenues. First, the primary goal of product placements is to get a brand noticed and remembered (Nelson, 2002). Prior research has used memory-based awareness measures, including recall and recognition, to examine the effectiveness of product placement. Most research such as Brennan & Dubas (1999), Nelson (2002), and Pracejus (1995) focus on short-term recall immediately after game-play. However, long-term recall is one of the most important factors to build brand equity (Nelson, 2002). Therefore, future research can assess both short-term recall and long-term recall. Second, prior studies have rarely tested the use of music as a memory cue to

increase users' memories of products embedded in the games. Music can be considered as an affective stimulus (Lavack, Thakor, & Bottausci, 2008). Music can also be viewed as a means that can facilitate and stimulate brand recall (Gass & Seiter, 2007). Consequently, it would be interesting to examine whether background music in games will increase gamers' memories.

Third, the effect of product placements in mobile phone games may differ across gaming genres (e.g., adventure games, action games, or sporting games, etc.). Fourth, in the car racing and bowling games, the chosen products can be considered to be embedded in other places (e.g., car selection, or bowling lanes, etc.). Finally, future research may employ other theories or models such as the Persuasion Knowledge Model to examine the impact of product placements on mobile phone games. Friestad & Wright (1994) proposed the Persuasion Knowledge Model (PKM) to argue that although the aim of commercials such as advertisements or product placement is to influence consumers' beliefs, attitudes, and purchase behavior, consumers will use their knowledge about strategies employed in persuasion attempts to evaluate, discuss and respond to advertising messages. These contribute to the formation of their attitudes towards the ad and brand as well as purchase decision. Consequently, consumers do not simply process commercial messages. They critique and judge persuasive attempts from advertisers (Hirschman & Thompson, 1997). Persuasion knowledge can refer to "Schemer schema", which can filter persuasion messages (Friestad & Wright, 1994, p 1). It would be interesting to examine whether gamers' persuasion knowledge about product placements influence their attitudes towards embedded brands and purchase intention.

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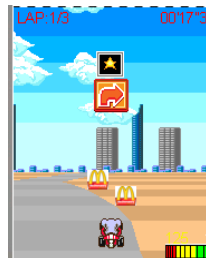
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## Appendix A: Pictures

**Picture 1: High Familiarity Brands Placed in the Focal Area of Racing Car Game**



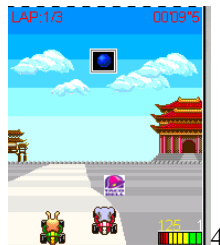
**Picture 2: High Familiarity Brands Placed in the Peripheral Area of Racing Car Game**



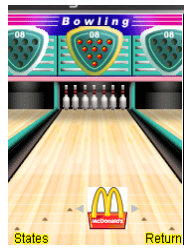
**Picture 3: Low Familiarity Brands Placed in the Focal Area of Racing Car Game**



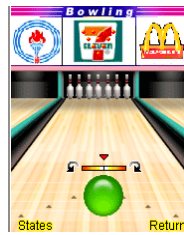
**Picture 4: Low Familiarity Brands Placed in the Peripheral Area of Racing Car Game**



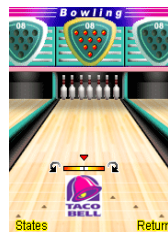
**Picture 5: High Familiarity Brands Placed in the Focal Area of Bowling Game**



**Picture 6: High Familiarity Brands Placed in the Peripheral Area of Bowling Game**



**Picture 7: Low Familiarity Brands Placed in the Focal Area of Bowling Game**



**Picture 8: Low Familiarity Brands Placed in the Peripheral Area of Bowling Game**



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Table 1: Multivariate and Univariate F-values for the Dependent Variables

	MANOVA	Free recall	Aided recall
Type of games (A)	.17	.23	.00
Location of placement (B)	3.07*	4.18*	5.26*
Type of brand (C)	118.81***	235.45***	48.18***
A x B	2.27	2.65	4.19*
A x C	2.32	4.08*	3.02
B x C	2.69	.73	5.18*
A x B x C	4.20**	7.95**	.91

Note. MANOVA d.f. = 2/315, univariate d.f. = 1/316

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $P < .001$