Player Performance and in Game Advertising Retention

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ABSTRACT

In game advertising or IGA is an increasingly common means of promoting brands and products. This study seeks to understand the effectiveness of in game advertising by understanding player retention of brand messages. The researchers created a controlled environment and 3D car racing game, embedding in game advertising and measuring player performance and advertising retention. The study produces a highly detailed view of the relationship of brand retention, player ability, and engagement.

Categories and Subject Descriptors

H.3.3 [**Information Services**]: H.3.5 On-line Information Services

General Terms

Management, Measurement, Documentation, Performance, Design, Economics, Experimentation, Human Factors

Keywords

In game advertising, IGA, game design, advergames, retention, player performance, marketing

1. INTRODUCTION

Aligned with the growth of the video game industry, in game advertising, or IGA, is an increasingly common means of promoting brands, services and products [1]. Many game developers provide advertisers opportunities to embed their product messages into game environments[2]. Although in game advertising is not new, its efficacy is not well researched.

In game advertising is similar in concept to product placement. Product placement is merely the incorporation of branded advertising commonly employed in movies and television. The primary distinction between in game advertising and traditional product placement is player activity. In movies, television and other non-participatory media, the effectiveness of product placement can be linked to prominence [3]. Practically, prominence is effected by cinematographic decisions which lead the player to pay attention to specific elements within the experience of a television scene or other linear media. However games are an interactive medium, often allowing players to control what they see. Moreover, games are goal-oriented experiences, where players may choose to pay attention only to what helps them meet their goals.

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Research into IGA has demonstrated mixed results. Chaney et al. found in their first person shooter research that while advertisements were noticed, little brand information was retained [4]. They found that engagement has an inverse effect on brand retention. According to their research, greater engagement means less retention. Yang et al analyzed the effectiveness of IGA in sports games and found that players had very little recognition, but did retain fragments of the brand message [5].

The research presented here seeks to understand the relationship of player ability, player experience, and advertising retention. The research seeks to understand if advertising retention is positively correlated to player ability and player experience. Unlike previous research which uses existing game environments[6] or existing brands[7], this research seeks to document the efficacy of new brands in a new environment as part of its control. Using factor analysis the researchers also work to indicate primary factors that influence in game advertising retention and player performance. The resulting research aims to reveal variables that influence the quality of in-game advertising and brand retention. While it is generally understood that flow[8] is an important factor in successful advergame experiences[9], there is relatively little empirical study on important factors in effective in game advertising. In particular, this research extends research in advergames[10] with a complimentary understanding of factors for successful in game advertising as they relate to player ability.

The researchers combine conventions of the advertising arts with game design to create an experiment that demonstrates relationships between ability, experience and advertising retention. This experiment incorporates in game advertising for consumer product goods with the experience of driving a car through a race course. It investigates the retention of three fictitious brands in a custom car racing game experience. This research should aid game designers and developers and producers of IGA. It should also support continued research between scholars.

2. Methodology

The researchers elected to create their own 3D game to minimize the effects of player experience while maintaining the basic

experience of common modern games. The researchers chose not to modify an existing game because there may have been inconsistencies between players who have experienced the game previously. This is especially important when factoring the addition of new game elements, which may have been too prominent for players familiar with the unmodified game environment. A custom game also offers fine control over player experience and the ability to provide all research participants with a relatively new experience.

The researchers elected to create a car racing game for the study. The car racing game type offers a few distinct benefits from other common game experiences. In car racing games, the game goal is clear to a very large audience – be the first to cross the finish line. The game rules are equally clear, as steering a car is a commonly practiced action. The game experience can be well controlled, as all players follow the same basic path, unlike non-linear game experiences. As a combination of simulation and sport, car racing games also commonly have some in game advertising in them. Racing games are also designed to be played by a wide demographic, containing little objectionable content and affording for a wide range of play abilities.

The researchers conducted a fundamental survey of standard digital game types and found that other common play experiences offered challenges that were likely be a detriment to the study. According to the NPD Groups 2010 study of bestselling video games, racing games rank 5th of the 13 ranked categories [10]. The researchers found the top two ranking categories, sports games and family entertainment, were too broad for this study. Sports games in particular required substantial player investment in learning rules and controls. Family entertainment experiences were inappropriate for study simply because few of these games employ any in game advertising, as much of the in game advertising is targeted at more specific audiences. The third and fourth ranking categories, shooters and action games, offered less clear goals, more complex controls and were subject to inconsistent player experiences.

For the experiment, the researchers constructed a 3D race car game, figure 1, using the Unity3D game environment. The game employs conventional physics and environment cues common to an average racing game. The game includes one player controlled red car and two competitor silver cars, all of the same make and model. Players control their car with the computer keyboard's arrow keys.

Figure 1. Car race game constructed for study

The researchers also elected to create custom advertising, to control for the variety of previous experience study participants may have had with specific brands or products. The researchers chose to advertise common consumer product goods that players were likely to understand quickly. The products were a laundry detergent, toothpaste, soda - commonly used by a wide array of consumers. The products were advertised via in-game billboards.

Figure 2. 3 Billboard advertisements created for study

Three billboards advertising products lined the track. Each billboard was designed against the same basic template. They each contained a single image of the product and a simple slogan that incorporates the product's use. Each billboard was designed to use a single, distinct accent color drawn from the product's image. The product billboards are demonstrated in figure 2.

The researchers expected billboard location to effect retention. As a control, three tracks were constructed. Billboard location was rotated for each of the constructed tracks. The billboard that was first in track 1, was second in track 2, and third in track 3 for example. Other than changes to billboard order, all other track properties remainded the same.

By rotating billboard location the researchers hoped to reveal patterns in retention based on exposure time and visibility. Each of the billboards was placed on the right-hand side of the track. Each billboard was a uniform size. The track was also lined with a bordering wall to prevent players from falling too far off course. No other signs or indicators were provided in the game environment.

The tracks were shaped as a fairly simple indented elipse illustrated in figure 3. The tracks was designed to offer a comparable experience to a beginning level track in a commercial game. The environment was completely flat, offering no major topography, as it was expected that billboard visibility could be effected by rate of travel over hills.

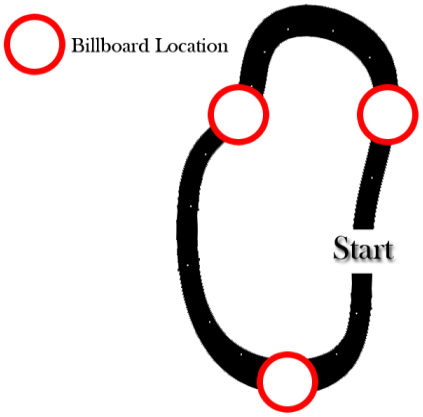

Figure 3. Race track shape and billboard placement

3. The Experiment

23 volunteers were recruited for the study. Participants were asked to complete a pre and post survey outlining 11 factors about their experience with video gaming and 8 factors about their experience in the game. Once each participant completed the pre-game survey, they were asked to play the study game for 3 minutes. Participants were only asked to play the game, they were never asked to pay attention to the in game advertising.

During the play session, the researchers recorded the number of times players crashed and the number of laps they completed. Crashes were defined as any moment the player clearly lost control of the car and sharply diminished speed by hitting other cars or parts of the race course. After 3 minutes, gameplay was stopped and the players were asked to complete the post-game survey.

The research was conducted on 3 Windows XP machines running with 20" flat panel monitors. Players were provided with a pair of JVC over-ear headphones to hear game audio. The study was executed in a focus group lab designed for evaluating user experience. The participants played individually and were not allowed to watch other players or preview the game before they played. Each game playing station occurred in a single person kiosk, preventing other participants from witnessing other play sessions. Participants were equally distributed between each of the 3 available tracks.

14 Male participants and 9 female participants were recorded. They ranged in age from 19 to 46 with a mean age of 22.4. 74% owned any type of gaming console, and 43% owned a portable gaming console. 96% of the participants played a video or computer game within the last month. 26% played games everyday, and another 26% played at least 2-3 times a week. In general the participant group was fairly comfortable with digital games and all participants were used to using a computer on a daily basis.

The participant group was also fairly proportionate to game players in the United States. Our participant ratio of 61% male, 39% female is nearly identical to the national ratio of 60% females, 40% female [11] game players. With 74% of the participants owning gaming consoles, the study group was slightly higher than the national average of 67% [11] for console ownership.

3.1 Gameplay Characteristics

The researchers recorded 2 primary gameplay characteristics, laps completed and player crashes, to investigate the relationship between player in-game performance and their retention of in game advertising. The game was designed to allow an advertisement to appear every 10 seconds of gameplay, requiring a player to complete a lap in about 30 seconds to see each of the 3 advertisements. In the experiment's 3 minute play session, the mean number of laps completed by participants was 6.0. 73.8% of participants completed between 5-7 laps. One participant was able to complete only one lap. One participant completed 10 laps, which was the most laps completed by any participant.

The game was designed to minimize crashes by providing easy turns and competing cars that held their racing line to provide predictable behavior. Crashes were dictated by that game's rigid body physics system. In general crashes were initiated when a player car created a head-on collision with a non-player car or wall in the game environment. The mean number of crashes experienced was 4.39, with 73.8% of participants experiencing between 2-5 crashes. One participant only crashed once. Two participants crashed nine times, providing the most number of crashes experienced by any participants.

4. Results

An important goal of this experiment was to evaluate variables that might influence the quality of in-game advertising and branding. To do this, the authors noted the total number of brands that each participant was able to recall. There was a negative correlation ($r = -.33$) between the number of crashes experienced by each participant and the number of brands recalled. There was a positive correlation($r = .36$) between the number of laps completed and the number of brands recalled.

The researchers' findings suggest that poor performance, as measured by the number of crashes, prevents retention of in game advertising. From the data, it seems poor performance may have distracted participants from focusing on the in-game advertisements. Conversely, the findings also suggest that improved performance, as measured by the number of laps, increase retention of in game advertising. This is perhaps because more laps, meant increased opportunity to notice the in-game advertisements.

As evidence, one female participant, who did not notice any of the billboard advertisements, crashed nine times. This participant tied another participant for the most crashes and completed five laps, which was less than the average participant. This participant plays PC or video games rarely, about once a month. Referring to the billboards, she wrote in the post-game survey, "I realized they were there but didn't feel like I had time to look at them. They weren't in my direct line of vision."

Similarly, another female participant who did not notice any of the ads crashed five times, which was more than the average participant, and completed five laps of the game, which was less than the average participant. She rarely plays PC or video games, less than once a month, but plays games on her phone 2-3 times

per week. She wrote, "I am honestly so bad at race type games that I did not read the signs."

Another obstacle to attending to the in-game ads could have been the number of race cars on the track with the participant's car. We noted this competitive distraction through qualitative feedback provided by participants. As one participant wrote, "I noticed the ads more when the game was less competitive. There were times that I was driving without one of the other cars around me, and then I had time to read what the ad said. When the game was more competitive, I didn't notice them." Another participant also mentioned the competition introduced by the other race cars. He wrote, "I was frustrated with the two white cars as they had double-lapped me and paid less attention to the billboards then I would have had I been winning or catching up." Interestingly, these two participants were fairly accurate in their retention of the in game advertising. The first of these participants was able to recall two of the three brands, and the second was able to recall one of the three. It stands to reason that competitive distraction could create effect players in similar ways to crashing on the track.

In sum, only 35% of the participants successfully recalled brands or advertising messages when asked to describe them in the post-game survey. Interestingly all but one of the participants noticed the billboards on the track. There was no significant relationship between billboard location and rate of player retention in this small set experiement.

4.1 Gaming Experience Effects on Brand Processing

The researchers also wanted to know how gaming novices and experienced gamers might differ in processing in-game advertising and branding. We found that different types of gaming experience correlated with brand processing in different ways. Specifically, frequency of PC game play was positively correlated ($r = .49$) with the number of brands recalled as was mean frequency of gaming console and personal gaming console use ($r = .56$). In addition, frequency of phone gameplay was negatively correlated ($r = -.38$) with the number of brands recalled. From the data generated, frequent players of PC, console, and portable games are more likely to retain in game advertising. Yet, frequent players of phone games are significantly less likely to retain in game advertising as they were constructed in the game.

Only one participant was able to recall the brand names from all three billboards. This participant was even able to recall the short tag lines that appeared on each billboard. As the above findings would suggest, this male participant is an avid gamer. This individual owns a gaming console and a personal gaming console, both of which he plays every day. When he plays, his average session tends to run more than four hours and he plays a wide range of games. However his interest in games does not extend to phone games, which he never plays. Interestingly, his previous gaming experience may have been more important than his gaming session in our laboratory. During that session, he completed six laps, which was the average, and crashed four times, which was only slightly less than average. This avid player, was exceptional at retaining the advertisements, but fairly average at playing the game.

Three participants were able to recall two of the three brand names. Each had significant gaming experience, and owns a gaming console and a personal gaming console. Two of the three play PC/video games every day in the third play 2-3 times a week.

These findings may support the dichotomous distinction between casual gameplay and traditional digital game play. From the profiles of participants who played phone games, a number of them indicate short play sessions, particularly among players who favored phone games in their play habits. In addition, the correlation between average time spent during a gameplay session and number of brands noticed approached significance ($r = .31$), suggesting that shorter gameplay may be associated with diminished retention of in game advertising.

4.2 Emerging Factors in Gaming Gratification

Uses and gratification theory (U&G), a communication research paradigm posits that people actively use media to satisfy certain needs [12]. The research sought to understand the different gaming gratification factors that might emerge as patterns in performance and retention. To do this, we conducted a factor analysis using 18 different possible gaming gratification variables from the pre-game survey completed by every participant. The participants were asked to rank the factors that most affected their motivation and interest in playing games. The four factors that emerged were:

1. Personal gratification: solving challenges, progressing in the game, improving, and learning new things

2. Social gratification: interacting with, helping and cooperating with other players

3. Competition gratification: earning the best score and competing with other players

4. Escape gratification: getting away from everyday routines

Although none of the factors were strongly correlated with the number of brands recalled, the researchers believe that more research on these and other factors may still reveal gameplay motivations to affect perceptions of in game advertising in similar environments. This experiment indicates that in accordance with uses and gratification theory, designers of game experiences involving in game advertising should emphasize personal, social, competitive and escape elements in the design.

5. Conclusion

The results of the study provide some indication that players who perform well within the game environment tend to retain in game advertising messages better that players who perform badly. This is interesting, in that players who perform badly may have had more time to view in game advertising while they recovered from crashes or moved more slowly. Despite this opportunity to spend more time processing the ads, the qualitative data suggests that these players instead spent their cognitive resources concentrating on the game. Overall, compared to weaker players, the best players appear to be able to process in game ads better because they can more seamlessly play the game, and, tlus, can afford to pay attention to peripheral cues that add to the gameplay environment.

It also seems to indicate that player patterns in retention are correlated to play interests. From our research the amount of time a player spends in traditional digital gameplay has a strong correlation with their ability to recall in game advertising. This is an important observation for heuristic driven marketers, as it does not seem to be the case that merely targeting traditional demographics results in productive retention. The types of messages that will be retained by players seems to depend on the types of games they play (traditional vs. casual). In our small sample, players who preferred longer play experiences typically occurring on game consoles differed in retention patterns from players who sought shorter play experiences typically occurring, in our sample, on smartphones. For marketers, it seems important to understand that while two players may commit more than 10 hours a week to gameplay, the player who commits that time to phone games may have very different retention patterns than the player of console games. For this reason, additional research should be conducted to investigate retention patterns based on player habits, instead of merely investigating age, gender and other traditional demographics.

Lastly, what was not correlated with brand retention is also noteworthy. In particular, none of the four U&G factors were associated with the number of brands recalled. However, this was a first attempt at exploring the role that U&G factors may play in this area of study, and a stable factor structure was identified. Future studies by the researchers are likely to look at social factors in play, as social gratification seems to be an important factor in positive performance and retention of in game advertising. This additional research may include investigations into how specific social patterns (e.g. aggression or cooperation) affect both the message retained and the amount retained. The researchers also expect to expand the study to a much larger group of players and refine the survey tool to include more U&G items that may tap into gameplay motivations.

6. ACKNOWLEDGMENTS

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