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# OYUN İÇİ ÜRÜN YERLEŞTİRMENİN OYUN İÇİ REKLAMLARA YÖNELİK TUTUM VE OYUN İÇİ SATIN ALMA NİYETİNE ETKİSİ: GENÇ TÜKETİCİLER ÜZERİNE BİR ARAŞTIRMA

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## ÖZ

Markalar ve reklamcılar, dijital dünyaya ve medya dijitalleşmesine yönelen kitlelere ulaşmak ve onları ikna etmek için yeni yollar arayan kitleleri hedeflemek için sürekli yeni yollar ararlar. Bu hızlı gelişmelerden en çok etkilenen sektörlerin başında oyun sektörü gelmektedir. Günümüzde çevrimiçi oyunlar vazgeçilmez eğlence araçlarıdır ve bunun sonucunda işletmeler reklam bütçelerinin önemli bir bölümünü oyun içi reklam kampanyalarına ayırmaya başlamışlardır. Buradan hareketle çalışma, oyun içi ürün yerleştirmenin genç tüketicilerin oyun içi reklamlara yönelik tutumları üzerindeki etkisini ve tutumların satın alma niyetleri üzerindeki etkisini ortaya koymayı amaçlamaktadır. Lisans öğrencileri üzerinde gerçekleştirilen çalışmada, oyun içi ürün yerleştirme uygulamalarının oyun içi reklamlara yönelik tutum üzerinde olumsuz etkisi olduğu tespit edilmiştir. Öte yandan, reklama yönelik tutumun satın alma niyeti üzerinde anlamlı ve olumlu bir etkiye sahip olduğu tespit edilmiştir. Çoklu grup analizleri sonucunda oyun içi ürün yerleştirme uygulamalarının erkeklerde kadınlara kıyasla oyun içi reklamlara yönelik tutumları olumsuz etkilediği tespit edilmiştir. Buna karşılık, kadınlar için anlamlı bir etki bulunamamıştır. Bu etki düzeyleri arasındaki farklılıklar incelendiğinde cinsiyete göre yol katsayıları arasında anlamlı bir farklılık bulunmuştur. Araştırma sonuçları teorik açıdan alanın gelişimine, pratik açıdan da her geçen gün gelişen ve ilerleyen oyun endüstrisine önemli katkılar sağlamaktadır.

**Anahtar Kavramlar:** Online Oyun, Oyun İçi Reklam, Oyun İçi Ürün Yerleştirme, Genç Tüketiciler

**Jel kodları:** M31, M37

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# THE EFFECT OF IN-GAME PRODUCT PLACEMENT ON ATTITUDE TOWARDS IN-GAME ADVERTISEMENTS AND IN-GAME PURCHASE INTENTION: A STUDY ON YOUNG CONSUMERS


## ABSTRACT

Brands and advertisers constantly seek new ways to target audiences shifting towards the digital world and media digitalization who search for new ways to reach and persuade their audiences. The game industry is one of the most affected sectors by those rapid developments. Online games are indispensable entertainment tools of the technology age. As a result, businesses have begun to devote a significant portion of their advertising budgets to in-game advertising campaigns and applications. This study aims to reveal the effect of in-game product placement on young consumers' attitudes towards in-game advertisements and attitudes' effect on their purchase intention. The study was conducted on undergraduate students, and a convenience sampling method was used. As a result, it was found that in-game product placement practices had a negative effect on the attitude towards in-game advertisements. On the other hand, the attitude towards the advertisement had a significant and positive effect on the purchase intention. Men's in-game product placement practices negatively affect the attitude towards in-game advertisements. In contrast, no significant effect was found for women. When the differences between these effect levels were examined, a significant difference was found between the path coefficients according to gender.


**Keywords:** Online games, In-game advertising, In-game product placement, Young consumers

**JEL Codes:** M31, M37

## INTRODUCTION

Although it is almost old as the history of humanity, the concept of gaming did not receive serious attention for years with the effect of the 'economy-based climate' shaped by the impact of the Industrial Revolution, which surrounded all aspects of our lives. The concept of gaming started to be the subject of academic studies after the 1960s. Video games, which can be considered the core of that movement, began to be a subject of academic research in the 90s after becoming an important element global economy. Today, individuals play online games to have a good time, relieve stress, and dive into something "fun" (Park and Lee, 2011). Players use virtual social worlds as an escape mechanism from the real world, play games to meet their social and hedonic needs, and use them as virtual community members while constantly looking for unique activities (Jung and Kang, 2010).

Today, brands constantly seek new ways to target audiences (Papadopoulos, 2020). We also have older gamers who grew up as teenagers playing video games and now continue. Publishers and developers also broadened their target audience with an older segment seeking new market opportunities (Martí-Parreño et al., 2017). Traditional mass media advertising is under pressure with a shift towards social media, the internet, etc. The digitalization of media, especially mobile phones, offers

a wide scope to reach consumers easily and interact with them, which can be used as an advertising channel. For instance, smartphone advergaming is considered one of the best communication channels that involve both the sender and the receiver. (Al-Soluiman et al., 2020). With the increased spread of the internet in recent years, in-game ads have become more and more used in the advertising sector besides traditional media such as TV and radio (Dal Canbazoğlu, 2019). Digital gaming has become one of the largest entertainment sectors worldwide during the last decade (Herrewijn and Poels, 2013), continuing to draw the attention of millions of people all around the world. Young and mid-aged male consumers, in particular, had a migration from TV to video games for their leisure time, and the gaming industry increasingly captivated larger audiences worldwide. Advertisers have begun to pay increasing attention to the game industry (Lewis and Porter, 2010). Players satisfied with the game tend to make in-game purchases more frequently (Akhan et al., 2017).

The online gaming market has become widespread with the development of technology and internet usability, with a change in the business model in the last decade due to the constantly growing internet usage and the improved infrastructure that supports easier and faster access. The growing number of Internet users and changes in online gaming have changed the business model in the gaming world, with a buying process and a subscription system and the sale of virtual goods (Chau et al., 2019). Best of our knowledge, our study is one of the first studies that investigate in-game product placement in the context of virtual products and purchasable gaming content, namely microtransactions. This study aims to reveal the effect of in-game product placement on young consumers' attitudes towards in-game advertisements and attitudes' effect on their purchase intention. The study consists of four parts: First, a comprehensive literature review was conducted on digital gaming and in-game ads. Then, the research model was created, tested, and analyzed based on the hypotheses. Finally, in the conclusion section, study results are discussed with suggestions for future research.

## I. LITERATURE REVIEW

Following the increase in user count of games, advertisers have shown a strong interest in promoting their video game products. Games capture a young and engaged consumer segment due to their fun, challenging, and exciting nature. Research on video games gained high attention in the last 20 years (Yoo and Peña, 2011). Advergaming traditionally offers one unique marketing message at a time. Here, seamless integration is a crucial factor in successful in-game advertising. The decision to make between multiple platforms, genres, or advertise in a single-player/multiple-player game will greatly affect an in-game ad (Terlutter and Capella, 2013). As new devices for playing games have been introduced to the market today, games are getting more adjusted to fit different lifestyles and tastes (Papadopoulos, 2020).

### A. IN-GAME ADS

People play games because they are interested in the game itself, not the advertisement. The advertised product should match the game being played to prevent a negative advertisement evaluation. Higher congruity between the brand and the game will lead to a positive attitude towards game advertising (Soebandhi and Andriansyah, 2017). Most digital games offer players a novel experience each time the game is played, which causes them to experience different emotions and interactions (Nelson et al., 2004). Players interact actively with the game as an integrated part of the related story (Bambauer, 2006). Higher interaction with a game causes an immersive and exciting experience. VR is a tool that helps players to feel more immersed and present. Therefore VR technology increases ad-effectiveness for familiar and unfamiliar brands with opportunities that traditional media cannot offer (Papadopoulos, 2020). In-game ads are advantageous in terms of durability. The ad will be active for a long time because games have a long 'shelf life' since many players repeatedly play them in periods (De Pelsmacker et al., 2019). The size of in-game ads is also an important topic to cover here. Results suggest that large-size brands are recalled and recognized significantly better. Due to its active nature, the effect of the in-game product placements is different from other contexts, such as a TV show which is a passive action (Chaney et al., 2018).

In-game ads can be similar to the product placements in movies in the form of billboards or product placements (Özüölmez, 2019). In-game ads can be in static and dynamic forms. Static ads always look the same when played. Meanwhile, ads can be customized for each player via the Internet connection in a dynamic setting. In dynamic in-game ads, the advertisers may use date, location, and more relevant info. Also, some studies measure the relationship between the overall in-game performance of players and in-game advertising effectiveness (Ghosh and Rao, 2015). Emotions and experiences impact how players process the game environment during gameplay, including in-game ads (Herrewijn and Poels, 2013). In-game advertising plays a role in creating awareness. Logos and creatives flashed on-screen are relatively subtle and do not recall a commercial message directly.

Nevertheless, gamers must notice ads because players control a digital character, vehicle, or team. They are mostly focused on their performance than the regular passive audience, such as movies. Consequently, an increase in play-time will create more exposure and awareness (Cianfrone et al., 2008). Segmentation in in-game ads is relatively easy and controllable because video games' target group is mostly homogeneous and definable (Bambauer, 2006). Animated ads generate higher recognition and a more positive attitude toward the ad due to their interactive nature than static billboard ads (Huang and Yang, 2012). Negative effects like advertisement fatigue and advertisement wear-out can be reduced by advertising the in-game goods only when the player is likely to purchase with the right timing, resulting in improved conversion rates for ads (Endriss and Leite, 2014).

## B. IN-GAME PRODUCT PLACEMENTS

Product placement in games has been a growing trend (Zhu and Chang, 2015). There is now an increasing effort to better understand how product placement works in video games and drivers of product placements that affect consumers' memory and perception systems with more effort (Martí-Parreño et al., 2017). Content developers consider more and more product placement opportunities as part of the game design, affecting players' purchase intention. The advancement of information technologies pushes marketers to evaluate their advertising strategy constantly. As gamers are frequently exposed to creative images, their product experience from playing the game is expected to be more effective (Hussein et al., 2010). Using" illustrative" or "demonstrative" placements will help consumers remember brands to increase consumers' purchase intention (Ho et al., 2011). In-game product placements are similar to product placements in television programs (Yang et al., 2006). Billboards stood out as the most common type of in-game product placements and became more attractive as online games have become increasingly popular. Today, it is possible for brands to rent billboards for a particular period or content. Also, there are product placements for items used by NPCs in the game (Glass, 2007).

Product placement can be described with a three-dimensional framework: screen placement (the visual component), script placement (audio component), and plot placement (connection to the plot) (Russell, 2002). Literature suggests clear evidence that product placement in video games positively affects the related brand. The game's positive feelings are also reflected in its advertisements (Bambauer, 2006). For instance, social games with product placements allow companies to promote their brand in a gaming and entertainment context. While achieving goals, social gamers interact indirectly with the product by using it in enhanced interpersonal relationships (Zhu and Chang, 2015). Also, there are studies that higher brand recognition with an easier game–difficulty condition will reflect a more positive emotional response toward the condition ads and product placements created (Dardis et al., 2019).

Product placements in movies and TV shows are usually visually appealing, just like product placement in video games is mostly visual in the shape of banners and billboards to increase brand recall and brand recognition (Martí-Parreño et al., 2017). The congruity level between the brand and game is also a point of interest regarding in-game apps. Gamers tend to dismiss incongruent ads due to a "high cognitive load" (Lewis and Porter, 2010). De Pelsmacker et al. (2019) define congruity as "the perceived level of fit between the execution of the in-game ad and the game environment." For example, a contemporary advertising method such as modern billboards will be more harmonious in a racing/sports game than an RPG game with a medieval theme. Adds in sports games feel more realistic to consumers because ads exist in real-life settings and positively contribute to the gameplay experience (Terlutter and Capella, 2013). Congruity is also important in terms of

gender. For example, Yoo and Peeña found that violent game conditions cause lower brand attitudes for females, suggesting that the gaming environment's effects interact with the player's gender (Yoo and Peña, 2011). Perceived ad congruity and interactivity positively affect fantasy game players' attitudes to IGA by reducing intrusiveness.

Gaming is an active experience in a virtual world, offering numerous emotions and experiences. For example, completing a goal will make players feel skillful, which evokes emotions such as pride. More difficult games or difficulty levels affect the processing and evaluation of the brands featured in in-game ad placements. Players often experience more tension and less pleasure in high-difficulty conditions, so providing an optimal flow state with a balance between challenges and skills will be important. (Herrewijn and Poels, 2013).

In contrast, the familiar brand's attitude worsens due to ad placements (Mau et al., 2008). Realistic conditions inhibit intrusiveness from preventing negative attitudes toward advergames. Also, individual factors play an important role in advergames (Terlutter and Capella, 2013). Research also suggests that players are more positive about ads when adding realism to the game (De Pelsmackeer et al., 2019; Nelson et al., 2004; Ho et al., 2011). Therefore, advertisers should contextualize ads within the game world (Lewis and Porter, 2010). Also, Martí-Parreño et al. (2017) found that marketers targeting both familiar and unfamiliar brands will benefit equally from the effect of repetition, stating that unfamiliar brands will not need to increase repetition to a higher degree than familiar brands to achieve the same brand recall and brand recognition increment.

### C. MICROTRANSACTIONS

The rapid development of the game industry has led all players to become stronger against the other and make their characters stronger through virtual items sold in the game to reach higher levels. Also, players enjoy showing off to other players by customizing their character's look through rare virtual items. The stronger and wealthier characters and the desire to look better than the other players are among the players' motivations to purchase functional or decorative virtual items. It is also a shortcut for earning in-game purchases, especially in multiplayer modes, and is preferred in places. It is possible to classify the games into different Single Player and Multiplayer modes and genres, such as sports, first-person shooter, and role-playing. Also, we can classify in-game purchases (microtransactions) as items that provide cosmetics and functionality. Payment methods such as Real Currency and Virtual Currency are used for in-game purchases (Chua et al., 2019). Of course, both virtual and real-world currencies cost real money (Tomic, 2018). Microtransactions have a growing impact on players, publishers, and the whole industry. Skins and costumes provide a custom look that allows players to express themselves and their identities (Reza et al., 2019).

Microtransactions refer to a payment made for purchasing additional content in video games. Histories were based on the primary way of earning revenue for publishers, with players paying for all content at once when purchasing the game. Trends emerging from mobile applications and following the growth in the mobile game market are reflected in PC and console games, and nearly half of publishers' total revenue is derived from microtransaction (Tomic, 2018). Microtransactions take advantage of economies of scale, increasing the average earnings per player through additional content sales. In the future, a sharp decline in the classical approach and a faster rise in the sale of microtransactions can be expected (Tomic, 2018). Microtransaction has three categories: cosmetic, additional content, and pay-to-win. Cosmetics do not affect the gameplay or mechanism, but cosmetics such as costumes or narrator sounds for a character that does not change anything for the gameplay. The second scope is additional content such as new missions or scenarios in strategy games or a chance to play with a classic team in sports games. Lastly, transactions provide benefits to other players who do not pay. Therefore, it increases strength in-game, affecting players' balance (Tomic, 2018). That kind of acquisition, such as weapons and power-ups, directly affects gameplay (Reza et al., 2019).

## II. HYPOTHESIS DEVELOPMENT AND RESEARCH MODEL

Familiar brands in video games perform better in a brand recognition measure. In-game ads offer an opportunity to help game developers to monetize their games (Papadopoulos, 2020). Advertisements in video games are advergames and in-game advertising applications. Advergames are specially designed for brands and products with related themes, such as logos specifically made for advertising purposes (Karahisar, 2013; Özüölmez, 2019). Here, the entertaining nature of gaming creates a more favorable attitude toward the advertised brand (Wise et al., 2008). Congruity level between gamer and the advertising has a positive effect on ad interest, help form a positive attitude which may positively affect in-game purchase intention (Chang et al., 2010). Also, results suggest that advertising attitudes and verbal and visual presentations of products have a positive effect on purchase intentions (Kim and Lennon, 2008; Lin, 2011).

Based on these findings, our first hypothesis is:

*$H_1$: Young consumers' attitudes towards advertising have a positive effect on their in-game purchase intentions.*

Today, it is possible to encounter product placement activities in all kinds of content, from movies to TV series, games to music videos, and social media posts (Russell, 2019). The main factor distinguishing product placement activities for games from others is undoubtedly the interaction factor (Glass, 2007). The congruity between advertising, product, and game reduces the sense of interference in interaction and increases advertising efficiency (De Pelsmacker et al., 2019). It is a matter of debate if consumers, who are constantly bombarded with ads from all channels, will accept to see advertisements in the games they play to get away from

the stress of daily life, especially if they paid for that game (Peterson, 2011). Literature also suggests that product placement weakens the attitude towards games based on perception towards advertisement/brand. At this point, the congruity of the product/brand with the game and the content is an important factor (Mau et al., 2008). In the light of these insights, we hypothesize $H_2$ as:

*$H_2$: Young consumers' attitude toward in-game product placements has a negative effect on general attitude towards advertising.*

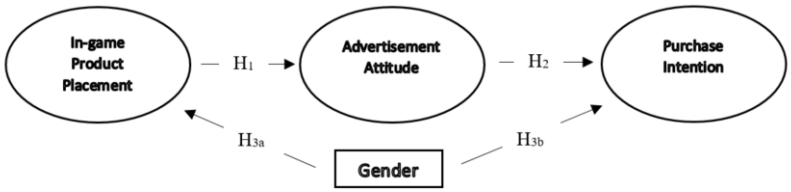
We also propose that male and female gamers may have different attitudes towards in-game product placements and ads due to gender-specific differences, information processing strategies (Darley and Smith, 1995), and interaction levels (McMahan et al., 2009). Men tend to have a more immersive experience than women so that they may differ in their attitudes towards product placements and ads. Therefore, we hypothesize H3a and H3b as:

*$H_{3a}$: The effect of in-game product placement on advertisement attitude differs significantly according to the biological sex of the respondents.*

*$H_{3b}$: The effect of advertisement attitude on purchase intention differs significantly according to the biological sex of the respondents.*

The research model of the study can be seen in Figure 1 below:

**Figure 1:** Research Model




## III. METHODOLOGY

The study was conducted on undergraduate students. Using a sample consisting of young people with a high level of education and closely following the game industry contributes to the effectiveness of the research. The convenience sampling method was used in this study.

The questionnaire consists of two parts. Questions regarding participants' demographic data were presented in the first part, such as age and education. The second part includes scale items determining the attitude toward advertising, in-game product placements, and purchase intention. Scale items related to satisfaction, acting, social self, and intention factors were taken. Research questions consist of Nelson et al. (2004) and Ho and Wu's (2012) scales from their studies. The five-point Likert scale was used to evaluate the responses to the scale questions (1 = strongly

disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). Analyzes were conducted using IBM SPSS 23 and SMART-PLS statistical analysis programs (Ringle et al., 2015).

## A. DATA ANALYSIS AND FINDINGS

The study was conducted on 399 undergrad students of Bursa Uludag University in June 2018. Demographic characteristics of the sample are presented in Table 1 below.

**Table 1:** Demographic Characteristics of the Sample

| | | **N** | **%** |
|---|---|---|---|
| Gender | Female | 208 | 52 |
| | Male | 191 | 48 |
| Income (Turkish Lira / TL) | 1000 TL and below | 203 | 51 |
| | 1001 TL - 2000 TL | 112 | 28 |
| | 2001 TL – 3000 TL | 46 | 11 |
| | 3001 TL – 4000 TL | 19 | 5 |
| | 4001 TL and more | 19 | 5 |
| **Total** | | **399** | **100** |

### 1. Measurement Model Analysis Results

The partial least squares structural equation modeling method was used to test the research model. Structural equation modeling is a statistical analysis method that has become very popular in marketing, especially in recent years (Henseler, 2017). PLS-SEM is a variance-based analysis method that maximizes the explained variance of endogenous latent dimensions (Hair et al., 2011). In this study, the SmartPLS program was preferred because of its user-friendly interface.

Before analyzing the measurement model, the overall reliability of all statements in the questionnaire was calculated, and The Cronbach's Alpha value for the total of 16 statements was found to be 0.661. This value shows that the overall reliability of the scale is adequate (Taber, 2017). Cronbach's Alpha and Composite Reliability values were calculated for the internal consistency reliability of the dimensions in the study. Cronbach's Alpha and Composite Reliability (CR) values should be 0.70 and above. For convergent validity analyses, factor loadings and explained mean-variance (AVE) values were taken into account. Hair et al. (2014) recommend factor loadings and explain mean-variance (AVE) values above 0.50. The discriminant validity, cross-loadings, Fornell-Larcker criterion, and HTMT criterion values were analyzed. Measurement model analysis results are presented in Table 2 below.

**Table 2:** Measurement Model Analysis Results

| Item Codes | Items | Factor Loading | Cr. Alpha | Composite Reliability (CR) | Average Variance Extracted (AVE) |
|---|---|---|---|---|---|
| ADVATT 1 | I hate watching ads. (R) | 0,726 | 0,766 | 0,854 | 0,663 |
| ADVATT 3 | When I watch TV/movies, I try to avoid watching ads. (R) | 0,896 | | | |
| ADVATT 4 | When I see ads, I stop watching the screen until the ads are over. (R) | 0,811 | | | |
| PPLACEMENT 2 | I would not mind seeing the brand name in games unless it is shown unrealistically. | 0,706 | 0,608 | 0,792 | 0,562 |
| PPLACEMENT 3 | I prefer to see real brands in games instead of using fictitious brands. | 0,859 | | | |
| PPLACEMENT 5 | I prefer to see real brands in games instead of using fictitious brands. | 0,671 | | | |
| PINTENTION 1 | I might consider buying virtual items from the game I play in the future. | 0,885 | 0,914 | 0,945 | 0,852 |
| PINTENTION 2 | I am willing to buy virtual items from the game I play in the future. | 0,957 | | | |
| PINTENTION 3 | There is a high probability that I will purchase a virtual item from the game I play in the future. | 0,925 | | | |

Seven items (ADVATT 2, ADVATT 5, ADVATT 6, PPLACEMENT 1, PPLACEMENT 4, PPLACEMENT 6, PPLACEMENT 7) with low factor loadings were excluded from the measurement model analysis. Hair et al. (2014) suggest that the factor loadings of the items should be above 0.50. After these statements were

removed from the analysis, factor loadings were found between 0.671 and 0.957 and AVE values between 0.562 and 0.852. These values are above 0.50, which is considered the threshold value. Therefore, these values show that convergent validity is achieved. It is seen that the Cronbach's alpha coefficients of the dimensions are between 0.608 and 0.914. Of these values, only the Cronbach's Alpha value of the Product Placement dimension is below the threshold value of 0.70, but that value is adequate (Taber, 2017). Composite Reliability values are between 0.792 and 0.945. These values are above 0.70, considered the threshold value for the CR. Cronbach's Alpha coefficients and CR values state that internal consistency reliability is provided for the measurement model, as shown in Table 2.

Cross-loadings, Fornell-Larcker criterion, and HTMT (Heterotrait-Monotrait Ratio) criterion were used to determine discriminant validity. The following table 3 shows the cross-loads found as a result of the analysis. When the cross-loadings in Table 3 are examined, it is seen that each statement is grouped within its own dimension.

**Table 3:** Results of Factor Analysis

| Items Codes | Advertisement Attitude | In-Game Product Placement | Purchase Intention |
|---|---|---|---|
| **ADVATT 1** | 0,726 | -0,068 | 0,023 |
| **ADVATT 3** | 0,896 | -0,186 | 0,121 |
| **ADVATT 4** | 0,811 | -0,099 | 0,147 |
| **PINTENTION 1** | 0,103 | 0,124 | 0,885 |
| **PINTENTION 2** | 0,153 | 0,114 | 0,957 |
| **PINTENTION 3** | 0,119 | 0,093 | 0,925 |
| **PPLACEMENT 2** | -0,117 | 0,706 | 0,099 |
| **PPLACEMENT 3** | -0,146 | 0,859 | 0,041 |
| **PPLACEMENT 5** | -0,096 | 0,671 | 0,153 |

According to the criterion proposed by Fornell and Larcker (1981), the square root of the AVE values of each variable should be greater than its correlation with any other variable (Hair et al., 2013). Table 4 below shows the discriminant validity analysis results according to the Fornell-Larcker (1981) criterion.

**Table 4:** Results of the Discriminant Validity Analysis according to Fornell Larcker Criterion

| | Advertisement Attiude | In Game Product Placement | Purchase Intention |
|---|---|---|---|
| **Advertisement Attiude** | **0,814*** | | |

| | | | |
|---|---|---|---|
| **In-Game Product Placement** | -0,162 | **0,750*** | |
| **Purchase Intention** | 0,138 | 0,118 | **0,923*** |
| (* represents the square root of the AVE value) | | | |

In Table 4 above, it can be stated that Fornell-Larcker discriminant validity is provided since the square roots of the AVE values for each dimension is higher than the correlations of these dimensions with each other. The HTMT (Heterotrait-Monotrait Ratio) criterion proposed by Henseler et al. (2015) expresses the average ratio of the correlations of the indicators belonging to all the dimensions in the research model the geometric mean of the correlations of the indicators belongs to the same dimension. Although the HTMT value is recommended to be below 0.85, the HTMT value among dimensions with high conceptual similarity can reach 0.90 (Henseler et al., 2015).

**Table 5:** Results of the Discriminant Validity Analysis according to HTMT Criterion

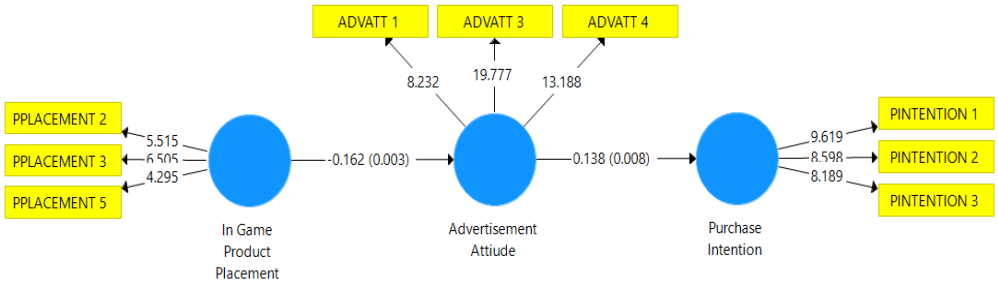
| | **Advertisement Attitude** | **In-Game Product Placement** | **Purchase Intention** |
|---|---|---|---|
| **Advertisement Attitude** | | | |
| **In-Game Product Placement** | 0,206 | | |
| **Purchase Intention** | 0,136 | 0,176 | |

Table 5 shows that HTMT (Heterotrait-Monotrait Ratio) values of all dimensions are well below the 0.85 threshold value. Therefore, according to the HTMT (Heterotrait-Monotrait Ratio) criterion, divergence validity conditions were met. As a result, the proposed research model is suitable for structural equation modeling (SEM) analysis.

### 2. Structural Model Analysis Results

Partial least squares structural equation modeling (PLS-SEM) was used to test the research hypotheses proposed in this study. In the analysis of the structural model, path coefficients (β), t values ($t>1.96$), p values ($p<0.05$), inner VIF values, coefficient of determination ($R^2$), effect size ($f^2$), the predictive power of the model ($Q^2$) values were calculated. In order to evaluate whether the PLS path coefficients are significant or not, 5000 subsamples were taken from the sample using the Bootstrapping technique, and the t values were recalculated. Blindfolding analysis was run for the predictive power ($Q^2$) value. Figure 2 below shows the results of the PLS-SEM analysis.

**Figure 2:** Research Structural Equation Model




As a result of the hypothesis tests performed, it is seen that the effect of In-Game Product Placement, which expresses the $H_1$ hypothesis, on Advertisement Attitude (β) is -0.162. This effect is significant since the significance value of the $H_1$ hypothesis is p=0.003 (p<0.05). However, there is a negative effect. It is seen that the effect of Advertisement Attitude, which expresses the $H_2$ hypothesis, on Purchase Intention (β) is 0.138. This effect is significant since the significance value of the $H_2$ hypothesis is p=0.008 (p<0.05). Details can be seen in Table 6 below.

**Table 6:** Hypotheses results

| Hypotheses | Path | Std. β Coeff. | Std. Dev | t | p | Result |
|---|---|---|---|---|---|---|
| **$H_1$** | In-Game Product Placement -> Advertisement Attitude | -0,162 | 0,054 | 3,00 | 0,003 | Supported |
| **$H_2$** | Advertisement Attitude -> Purchase Intention | 0,138 | 0,052 | 2,68 | 0,008 | Supported |

$R^2$ value expresses the variance of each endogenous dimension explained by the exogenous dimension. For endogenous dimensions in the structural model, $R^2$ values of 0.75, 0.50, and 0.25 are defined as large, medium, or weak, respectively (Hair et al., 2011). When the $R^2$ value in Table 6 is examined, it is seen that both dimensions explain the endogenous variables poorly. The $f^2$ value is used to evaluate the contribution of an exogenous dimension to the $R^2$ value of an endogenous dimension (Hair et al., 2013). According to Cohen (1988), $f^2$ values of 0.02, 0.15, and 0.35 represent small, medium, and large effects. When Table 6 is examined, it is seen that both dimensions have small effect sizes. As shown in Table 6, the Inner VIF value is below the threshold value of 5 (Hair et al., 2013). Therefore, it can be stated that there is no linearity problem.

**Table 7:** Results of Determination Coefficient ($R^2$ ), Effect Size ($f^2$), Predictive Relevance ($Q^2$), and VIF Values

| | $R^2$ | $f^2$ | VIF | $Q^2$ |
|---|---|---|---|---|
| **Advertisement Attiude** | 0,026 | 0,027 | 1,000 | 0,012 |
| **Purchase Intention** | 0,019 | 0,019 | 1,000 | 0,011 |

The $Q^2$ value found by running the blindfolding analysis evaluates the model's predictive power without including data for a particular indicator block in the model. $Q^2$ values greater than zero indicate that the model has predictive power (Ali et al., 2016: 463). When Table 6 is examined, it can be stated that the model has predictive power since the $Q^2$ value obtained is greater than zero (Q2>0).

### 3. Multi-Group Analysis Results by Gender

Multiple group analysis was performed for the last hypothesis in the research model. In the research model, the moderator role of the gender categorical variable was investigated, and it was analyzed whether the two hypotheses proposed in the research model differ according to the categorical variable of gender. For this purpose, according to gender, the sample was divided into two groups: female (N=208) and male (N=191). The results of multi-group analysis by gender are examined below. The SEM analysis results for the female and male genders are both presented in the models below:

**Figure 3:** Results of PLS-SEM analysis according to the answers of female participants

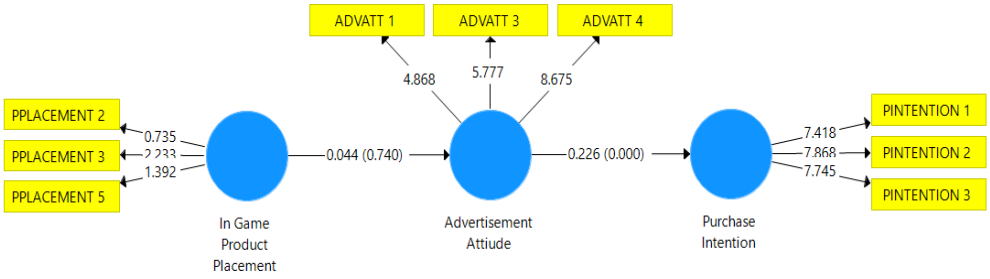
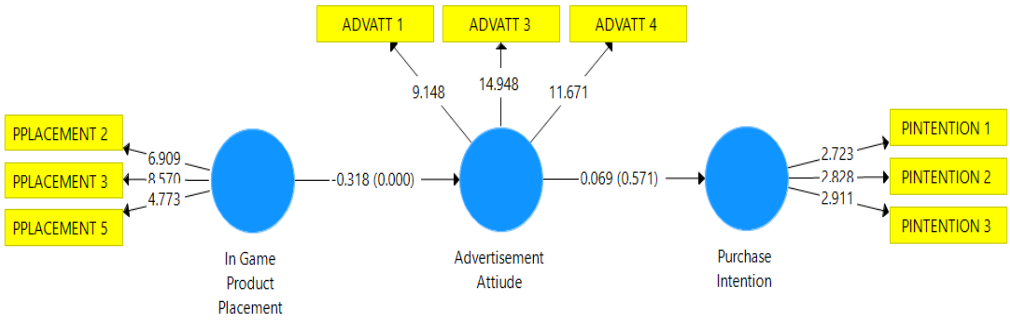


**Figure 4:** Results of PLS-SEM analysis according to the answers of male participants




In Table 8 below, the path coefficients and significance values that occur when the analysis is performed according to male and female participants are seen in detail.

**Table 8:** Results of PLS-SEM analysis by gender (F: Female, M: Male)

| | **Std. β Coeff. (F)** | **Std. β Coeff. (M)** | **Stdev (F)** | **Stdev (M)** | **t-value (F)** | **t-value (M)** | **p-value (F)** | **p-value (M)** |
|---|---|---|---|---|---|---|---|---|
| **In Game Product Placement -> Advertisement Attiude** | 0,044 | -0,318 | 0,132 | 0,078 | 0,335 | 4,058 | 0,738 | 0,000 |
| **Advertisement Attiude -> Purchase Intention** | 0,226 | 0,069 | 0,063 | 0,122 | 3,574 | 0,562 | 0,000 | 0,574 |

Results of Table 8 show that the effect on Advertisement Attitude -> Purchase Intention was significant in women ($p=0.000<0.05$), and the effect level was $\beta=0.226$. The effect (In-Game Product Placement -> Advertisement Attitude) was insignificant in women but significant in men ($p=0.000<0.05$). However, this was found to be significant but negative ($\beta=-0.318$). In the multi-group analysis, apart from the individual effect and significance levels, it should also be examined whether there is a statistically significant difference. For this purpose, analyses were made regarding the difference between the path coefficients and the significance level of this difference. The analysis results are given in Table 9 below.

**Table 9:** Difference Between Path Coefficients and P-value of the Difference by Gender

| | **Path Coefficients-diff (Female - Male)** | **p-Value (Female vs. Male)** |
|---|---|---|
| **In Game Product Placement -> Advertisement Attiude** | 0,362 | **0,019** |
| **Advertisement Attiude -> Purchase Intention** | 0,157 | 0,209 |

When Table 9 above is examined, a significant difference between the path coefficients by gender effects was observed on In-Game Product Placement's effect on Advertisement Attitude. The significant ($p=0.000<0.019$) difference in this effect by gender is 0.362 supports the $H_{3a}$ sub-hypothesis, while the $H_{3b}$ sub-hypothesis was not supported.

## RESULTS

With the rapid growth of the mobile industry, the game industry also has diversified and evolved. Online games play an important role in this development, and understanding the factors affecting in-game purchases in the gaming industry is crucial for companies to generate revenue and succeed. Our research shows that service providers and gaming companies need to maximize players' in-game satisfaction to generate more revenue and continue their operations.

Structural equation model analysis results show that young consumers' in-game product placement practices negatively affect advertising attitudes. In other words, there is a significant but negative effect, albeit low. This result is worth investigating for gaming companies in terms of why in-game product placement has a negative effect on ads. Literature review suggests that positive attitudes toward advertising result in positive attitudes toward product placement in games and game advertising, resulting in a positive effect on purchase intention (Nelson et al., 2004). In this respect, the negative effect of in-game product placement on the attitude towards in-game ads found in our study differs from that result.

The reason why in-game product placement applications have a negative effect on the attitude towards in-game advertisements may be because in-game product placement applications negatively affect the in-game flow experience of the players. As a matter of fact, studies on the flow experience during games show that game addiction increases with the flow experience increases (Chou and Ting, 2003). Also, perceived in-game advertising invasiveness has a significant effect on attitude toward the game and the advertised brand (Malhotra et al., 2021). Negative attitudes toward in-game ads can occur due to many more reasons. Therefore, there is a need for more detailed research on this subject in the future. Another interesting finding of our research is that it was found relatively low despite the positive effect of attitude toward in-game ads on purchase intention. This finding suggests that the key

to increasing microtransaction sales will not be the ads but other factors. Therefore, video game companies should focus their efforts on presenting items/cosmetics that enhance the game experience or increase gamers' competitive advantage against other players.

Multi-group analysis results show that in-game product placement differs by gender on attitude towards in-game advertisements. According to the analysis results, the effect of in-game product placement on in-game advertising was found to have a significant and negative effect on male players compared to women. The analysis results show that men respond more to in-game product placement, and this reaction has a negative and high effect on the attitude towards the advertisement. Men may be more attracted to the flow experience and may have a negative attitude towards ads because ads affect the flow experience. These results reveal that the subject should be dealt with in more detail in future studies.

With the widespread use of mobile technologies, the potential for the gaming industry increases. Therefore, marketing professionals take new lifestyle patterns into account and utilize video games to reach a wide array of consumers (Ho et al., 2011). Online video games offer great opportunities for communication and interaction between brands and the public (Ghirvu, 2013). Therefore, advertisers search for new ways to reach and persuade their audiences (De Pelsmacker et al., 2019). Interaction with the product will create a positive emotion on the gamer, moderated by product familiarity. Gamers familiar with the product can distinguish the virtual product from other virtual items in the game. Hence, interaction with the product has a significant effect on positive emotions.

This research has effort, time, and cost constraints, as with many other academic studies. This study was conducted on a student sample, and it is one of the most important limitations, and this restriction negatively affects the generalization of the research results. Research on the premise of in-game purchase intentions can be extended to other player segments to understand different consumer groups. Future studies should focus on mobile games, as mobile internet access is getting easier and cheaper every day. In addition, more detailed analyzes regarding game genres, game playing environments, and game addiction can be carried out in future research. The research can be expanded by including variables such as in-game product placement types, durations, times, types of games played, and game addiction levels in the research models. Important results can be obtained regarding the game industry and public life.

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