

**THE EFFECT OF THE USE OF GAMIFICATION STRATEGY IN MOBILE HEALTH  
APPLICATIONS ON CUSTOMER LOYALTY<sup>1</sup>**Cansu TOPRAK\* Assoc. Prof. Hicran ÖZGÜNER KILIÇ (Ph.D.)\*\* **ABSTRACT**

*Mobile marketing progress also affects the development of the mobile application market. Mobile applications developed in parallel with the development of mobile marketing help the development of new applications in the healthcare sector. When mobile health applications are developed, different opportunities can be offered to patients or users who want a healthier lifestyle, and applications can have the power to improve people's quality of life. One of the increasing values of mobile health applications is gamification. Providing health services to users in a mobile environment through gamification can increase the effectiveness of the services. Since gamification is based on motivation, it aims to track the health of its users by rewarding them. The gaming experience can contribute to loyalty towards the mobile application through the value created by the user by connecting to the mobile application. In this research, the effect of game experiences on customer loyalty as a result of the use of gamified content in mobile health applications was investigated. As a result of the research, it has been shown that game experience dimensions in mobile health applications have a positive effect on customer loyalty and it has been suggested that healthcare companies or application developers can apply gamification strategies in their mobile applications to increase the loyalty of their customers.*

**Keywords:** Customer Loyalty, Gamification, Mobile Applications, Mobile Health, Mobile Marketing.

**JEL Codes:** M30, M31, M39.

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## MOBİL SAĞLIK UYGULAMALARINDA OYUNLAŞTIRMA STRATEJİSİNİN KULLANILMASININ MÜŞTERİ SADAKATİNE ETKİSİ

### ÖZET

*Mobil pazarlama ilerlemesi, mobil uygulama pazarının gelişimini de etkilemektedir. Mobil pazarlama gelişimi ile paralel olarak geliştirilen mobil uygulamalar, sağlık sektöründe yeni uygulamaların geliştirilmesine yardımcı olmaktadır. Mobil sağlık uygulamaları geliştirildiğinde, daha sağlıklı bir yaşam tarzı isteyen hastalara veya kullanıcılara farklı fırsatlar sunulabilir ve uygulamalar insanların yaşam kalitesini artırma gücüne sahip olabilirler. Mobil sağlık uygulamaların da artan değerlerden biri oyunlaştırmadır. Sağlık hizmetlerinin kullanıcılara oyunlaştırma ile mobil bir ortamda sunulması hizmetlerin etkinliğini arttırabilmektedir. Oyunlaştırma temelinde motivasyona dayalı olduğundan kullanıcılarını ödüllendirerek sağlıklarını takip etmeyi amaçlamaktadır. Oyun deneyimi, kullanıcının mobil uygulamaya bağlanarak yarattığı değer ile mobil uygulamaya yönelik sadakat oluşmasına katkı sağlayabilmektedir. Bu araştırmada mobil sağlık uygulamalarında oyunlaştırılmış içeriklerin kullanılması sonucunda yaşanan oyun deneyimlerinin müşteri sadakatine etkisi araştırılmıştır. Araştırma sonucunda mobil sağlık uygulamalarındaki oyun deneyimi boyutlarının müşteri sadakati üzerinde olumlu etkisi olduğu gösterilmiş ve sağlık şirketlerinin veya uygulama geliştiricilerin müşterilerinin sadakatini artırmak için mobil uygulamalarında oyunlaştırma stratejileri uygulayabilecekleri önerilmiştir.*

**Anahtar Kelimeler:** *Müşteri Sadakati, Oyunlaştırma, Mobil Uygulamalar, Mobil Sağlık, Mobil Pazarlama.*

**JEL Kodları:** *M30, M31, M39.*

### 1. INTRODUCTION

Customer loyalty's an important aspect for maintaining continuity in brands. Loyalty helps foster active and effective communication between customers and the brand, creating value for the customers. Additionally, loyal customers play a significant role in the decision-making process of potential customers by sharing positive emotions resulting from their loyalty experiences. The advancements in technology've led to changes and the development of mobile technologies, facilitating the transition of loyalty to the online environment. The relationship between mobile customer loyalty and experiences and retention's influenced the development of mobile applications. Yılmaz (2020), the relationship between experience and customer loyalty's defined as ensuring frequent usage of the service to retain the customer. Experience plays a vital role here and can be enhanced with concepts that focus on user cycles. Feedback received from these cycles leads to rewards such as points and badges, while helping users develop a sense of ownership and motivation through storytelling. As user retention's a key objective in mobile applications, these cycles contribute to customer loyalty.

In this context, the aim of the research's to investigate the effect of the game experience experienced as a result of gamification on customer loyalty in mobile health applications in the scales of "customer loyalty in the context of game experience and e-services. No previous research has been found in this field. Since the research aims to holistically investigate the effects of gamification experience on customer loyalty in mobile health, only the dimensions in the game experience scale were taken into account and research hypotheses were created.

This research, which was supported by other studies in the literature, contributes to the literature based on these concepts by proving that gamification content's a positive effect on customer loyalty and therefore it would be appropriate to use it in marketing strategies.

## **2. MOBILE MARKETING AND MOBILE APPLICATION**

Looking at the definitions of mobile marketing in the literature; mobile marketing; "marketing with wireless tools for potential customers and consumers" (Taşçı, 2010: 11), "marketing with mobile phones to promote goods, services and ideas" (Pousttchi and Wiedemann, 2007: 4), "innovative channel that communicates it to customers" (Chia-Ling et al., 2012: 24), "pricing, promotion and distribution of products and services by using mobile devices for communication and entertainment purposes between the end user and the brand, planning and executing activities through mobile channels understanding" (Leppäniemi and Karjaluo, 2005: 200) etc. It finds a place for itself in different ways such as, but with similar expressions. In short, it's possible to define mobile marketing as marketing activities carried out over mobile devices. The first mobile marketing application was sent as a text message in 1992 by Nokia company from the model named 1011 (Kömürcü et al., 2015:199). With the progressive development of mobile communication technology, mobile marketing's become an important tool in marketing. Because mobile marketing gives more importance to customer experience in terms of awareness, image and loyalty. Recent studies support this development and its importance. According to the data shared by the software company Appnext, which works on this subject, mobile expenditures in 2022 amounted to 395.96 billion dollars with 75.5% globally, and 452.6 million dollars with 72% in Turkey. In the predictions for 2023, an increase of 76.1% to 446.14 billion dollars is expected globally, and an increase of 74.3% to 522.8 million dollars is expected in Turkey (<https://www.appnext.com>).

**Figure 1. Annual Change In Mobile Spending**



**Source:** Annual Change In Mobile Spending. (n.d). April 5, 2022. <https://www.appnext.com>

In mobile marketing, the fact that mobile devices don't need add-ons causes companies and brands to use any time they want to reach their consumers. In addition, unlike the traditional message stack, permission marketing's made and communication resources're customized according to the consumer, ensuring that they are personal. In mobile marketing, the costs're lower since direct marketing is done by not using the traditional promotion method. For this reason, it provides clear information with more effective and more detailed, more measured reports in mobile marketing processes. In contrast to the one-way interaction of the traditional marketing approach, for example, in product promotion, it performs two-way interaction in one-way sweepstakes. Mobile marketing supports one-to-one purchasing orientation by creating a direct communication bridge between the customer and the brand. Consumers end up purchasing 78% of their mobile time. It is stated that the rate of mobile commerce in global e-commerce will be 43% in 2017 and more than 70% in 2020. In addition, mobile searches increased by 200% in 2018, and 80% of the time spent was spent in applications (<https://www.webolizma.com>).

Since time's precious for consumers and customers, the purpose of businesses and brands that carry out their marketing activities via mobile; It establishes a one-to-one reciprocal relationship with the demands and needs of the target audience, which changes and differentiates with technological developments, independent of space and time. In addition, businesses and brands prefer to use mobile marketing for purposes such as improving the positioning of their products and services, increasing sales, creating consumer loyalty, gaining new customers, providing consumer loyalty, and increasing service or product awareness. In addition, mobile marketing also aims to create brand awareness and change the image with discounts, gift coupons, direct marketing, news and information service, sending melody and music (Ashraf and Kamal, 2010: 13).

The rapid development of technology and the change in its use have led consumers to mobile devices much more and caused brands to mobilize their communication between consumers. Brands

have transformed their existing websites into mobile compatible sites or have released their mobile applications to be closer.

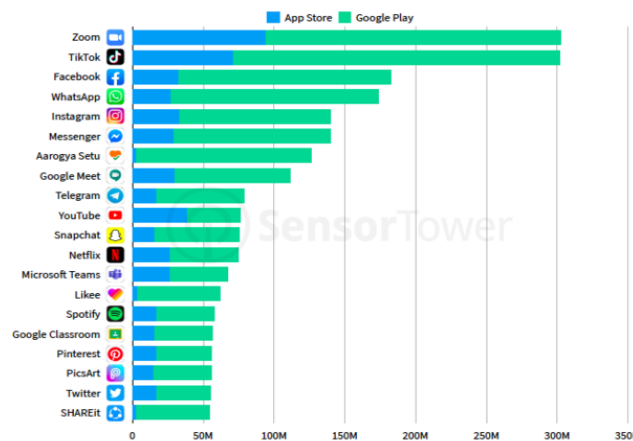
1 out of every 5 people in the world's a smart phone and 1 out of 17 people's a tablet computer. In addition, the average daily usage time spent on phones's more than 2 hours on average, and mobile applications take up most of this time. When examined in the supporting statistics, when the remarkable consumption data in 2021 is examined; There are 3.8 billion smartphone users and 4.66 billion internet users (We Are Social Report, 2021: 23-79). 89% of time on mobile devices's spent inside an app.

Mobile applications; They're software that have names such as application, web application, online application, Android application, iPhone application, created for more functional use of mobile devices such as smart phones, computers or tablets and computer features in certain functions in smaller devices.

According to the second quarter data of the mobile application research company Sensor Tower for the global market of 2020, the number of application downloads globally reached an all-time high of 37.8 billion, with an annual increase of 31.7%. The number of app downloads in the App Store increased by 22.6% and reached 9.1 billion, while Google Play grew by 34.9% and reached 28.7 billion (<https://www.haberturk.com>).

There are many mobile applications in the app stores for the jobs that consumers and customers need. As can be seen in figure 2, when the mobile application download order of 2020 is examined, it is seen that there are mobile applications in different categories such as entertainment, shopping, socialization, health, eating and drinking, travel. While users personalize their mobile devices thanks to mobile applications, businesses have included mobile applications in their marketing communication channels, providing a competitive advantage alongside brands using websites and social media in the sector.

**Figure 2. 2020 Mobile App Download Rankings**



**Source:** The Historical Record In The Mobile App Market Came With 'Corona.' (August 3, 2020). July 27, 2022

Psion firm in 1980; developed the Psion Organizer I model, which is shown as the “World's First Practical Pocket Computer” with a calculator, clock and several applications. In 1993, IBM produced the world’s first smartphone with useful applications. With the Nokia 70s adding the popular video games Snake and Tetris and Tic-Tac-Toe to their phones, it started to change the way phone users think about communication, causing more people to start carrying phones. With the release of Ios operating systems in 2007 and Android operating systems in 2008, the systems on phones increased and in 2008, both operating systems brought their own application stores into use and brought mobile applications to the fore.

In the researches; Consumers are more likely to purchase in mobile applications because they can compare different categories or different product features. It’s been shown that mobile applications affect behavior, general purchasing tendency, even when purchases aren’t planned. Consumers think that applications that are more practical to use provide more benefits than applications in the same category. The more benefits the applications provide, the more the consumer tends to use and purchase against that application (Biçer et al., 2019: 2015-217).

When the mobile application categories are examined; According to Data.ai's first quarter 2022 data, social media and communication category ranked first, while Facebook was the most used application. While WhatsApp took the second place, Instagram took the third place and Facebook Messenger took the fourth place. TikTok, which has more than 1 billion monthly users, enters the list in fifth place; The rest of the list is followed by Amazon, Telegram, Twitter, Spotify and Netflix. According to Data.ai, which also studies mobile spending, users spent the most on TikTok. YouTube entered the list at number two. Tinder was third, followed by Disney+ and HBO Max. Overall, consumer spending on apps is estimated to have increased by over 40% in the 2020-2022 range, with total spending increasing 42% for the Apple Store and 44% for Google Play compared to the first quarter of 2020.

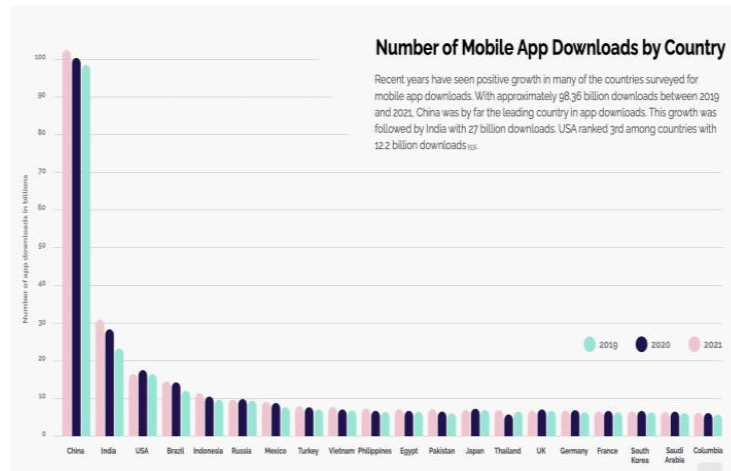
When the most developed finance, e-commerce and gaming sectors’re examined in order; In the financial sector, the turnover of banking applications increased by 88% compared to 2020 and reached 6.8 billion dollars in 2021. 52% of internet purchases in 2021 were made with digital wallets, and with the increase in digital wallets, cash usage decreased by 42% between 2019 and 2021. In the sub-categories of downloads, payment applications accounted for 57%, banking applications 34%, stock investment applications 7% and crypto applications 2% (Adjust Guide, 2022: 16).

In the e-commerce sector, mobile application downloads increased by 12% in 2021 compared to the previous year. Application turnovers, on the other hand, increased by 46% in 2020 - 2021. In general downloads, shopping applications and marketplace applications have a significant size in sub-categories. In addition, marketplace applications provided higher user retention rates with 27% on Day 1 and 10% on Day 30, compared to sub-categories in the sector (Adjust Directory, 2022: 39).

In the game industry, again, in 2021 downloads, the second half of the year showed a 12% higher performance compared to the first half, and there was an annual increase of 32% in 2021. In the subcategories of general downloads, the hyper casual genre is the leader with a share of 27%. The category is followed by action with 17%, puzzle with 11%, sports with 10% and simulation with 4% (Adjust Directory, 2022: 51).

According to the results in Graph 1.3; Mobile application downloads in countries have grown, with 98.36 billion downloads between 2019 and 2021, China is the leading country. China is followed by India with 27 billion downloads and the USA with 12.2 billion downloads.

**Figure 3. The Ranking of Countries in Terms of Mobile App Downloads**



**Source:** Commencis. (2022). 2022 Top Mobile App Trends. Commencis. 25.

According to the industry-based mobile application trends in the Commencis Mobile Application Trends 2022 report, finance, retail, social media, delivery services, gaming and health applications're the prominent concepts in mobile.

Practices in the health sector started with the declaration that patient control could be carried out by radio without meeting with the doctor in the 1920s, and the first practical application was carried out in the 1960s by monitoring the health status of astronauts from space. Mobile health applications that continue to develop; disease monitoring and patient control, emergency medical response system, after-care patient support, information system, mobile learning and health financing (Barton, 2012: 2).

### 3.GAMİFİCAİTON AND CUSTOMER LOYALTY

Games're rule-based practices that have processes, aim to have fun, socialize and learn, have results such as gain and loss, and also have goals. In games; There are some common features such as a common end goal, clear rules, instant feedback and voluntary participation (Ertemel, 2016: 136). The four common features in the games have also come to the fore as the basic common features of the



fictions gamified in the physical and virtual world. Considering what the games cover, a game includes; system, player, competition, rules, interaction and feedback (Ertemel, 2016: 135).

While games are the application of game design principles to the content of a game, gamification's the application of game design principles to game elements and existing organization or processes (McCarthy et al., 2014: 353).

In the most frequently used definitions of gamification; According to Deterding (2011) it's the use of game elements in non-game areas to increase user participation and experience. According to Huotari and Hamari (2012), it is the process of developing services together with the gaming experience to create value for the user. According to Zichermann and Linder (2014), it's the integration of game elements such as points, badges and levels into daily life. It's the process of motivating users with a combination of loyalty programs and game mechanics. According to Werbach and Hunter (2015), game elements and mechanics're used in non-game areas to increase interest, affect loyalty and motivation.

The name gamification was first used by computer engineer and game designer Nick Pelling in an application he developed for vending machines in 2002, but it was not found appropriate. The current basis of gamification's based on the digital media industry in 2008. Gamification, which was included in the blog content for the first time by Brett Terrill, was defined as "increasing interaction by applying game mechanics to other web features" (Çetin, 2020: 28).

Gamification draws on human desires to achieve higher goals and acknowledge achievements. Some clients are motivated by rewards, others by a sense of self-actualization. That's why there's a certain level of dependency on reaching high stats like in games. Customers engage in interactions with brands that create stronger and more effective emotional intimacy that continues. Rewards are given to customers when they complete certain transactions, such as when they buy more products or recommend them to their friends (Kotler and Kartajaya, 2017: 215).

As a result of more than 100 applications examined by Kevin Werbach and Dan Hunter, gamification elements; are grouped into three groups as dynamics, mechanics and components. dynamics; While they are abstract gamification elements that aren't directly involved in gamification, the components are; They're the most concrete gamification elements that are constantly considered. The mechanics, on the other hand, depend on the dynamics by feeding the components in the design (Werbach and Hunter, 2012: 71).

Gamification, especially with the mobility brought by mobile devices, can be used in finance, education, marketing, health, etc. It lays the groundwork for the development of applications in different areas and at a higher rate. In the health sector, which is one of the areas where gamification applications have developed, the first examples of mobile health applications with gamification have been aimed at directing patients' lifestyles to a healthier one with minor changes, and even today, research on behavior change continues on this subject. Because it's known that the rewards aimed at improving their health



by performing the most motivational effect in terms of directing the patients are motivating. The important thing in mobile health applications is to try to turn negative behaviors into positive ones and to make them repeat. According to the report of Deloitte's research to examine the success of gamified health applications, the success of mobile health applications depends on the 3F factor. These; fun, friend and feedback factor.

However, although there are positive aspects in mobile health applications, it can cause the patient to lose motivation in long-term use. Concerned that gamification content causes behavioral changes over time, researchers emphasize that gamification content should be more motivational by improving behavior and abilities, rather than changing behavior. For this reason, it's very important for the user to establish the balance between information and pleasant time, with the support of health companies, for gamification to show results in accordance with its purpose (Gülpinar, 2014: 14).

The use of gamified content in mobile health applications has an important place for both patients and healthcare providers. Because patients can personalize their user stages and control them by themselves, thanks to the content. Since it's more motivation-oriented, it increases the time spent in the mobile application and improves user interaction and experience. In addition, since users know that they're in control, it provides motivation to reach existing goals. For healthcare providers, it collects more user data as it encourages patients to use mobile apps. Users are motivated for their appointments or useful things. Self-services free medical personnel from routine paperwork and allow them to focus on helping people. In addition, gamification improves the quality of work by allowing medical practitioners to learn educational materials in a shorter time and with a higher success rate than traditional learning methods.

In terms of multiplying experiences and interaction customer loyalty's an important issue and there are many definitions of customer loyalty in the literature. Dick and Basu (1994) loyalty; Morgan and Hunt (1994), where the product and service's a regular customer because the customer always prefers the same product and service the customer's desire to continue that relationship because he finds value for himself in the brand with which he's in a relationship (Ertürk, 2020: 10), Oliver; a commitment to repurchase the preferred product or service on an ongoing basis (Oliver, 1999: 36), Keiningham; Khuong defined loyalty as the general feeling of satisfaction that the customer feels as a result of the purchase (Khuong et al., 2016: 230), not the past experience of the customers.

Reichheld (2003) defines brand recommendation as the best sign of customer loyalty, who says that the question and answer of whether the brand will be recommended to the environment's a good sign of true loyalty measurement. Making suggestions poses a risk to the person himself, going beyond his values. Because the brand mayn't be valuable for the person to whom the recommendation's made about the brand to which it's loyal, or it may give a negative opinion after using it by relying on the recommendation.

Stating that sincerity, trust and loyalty're the basis of loyalty, Morris (1999) states that brands'll need to stay in contact with customers continuously and obtain valuable information about them. However, loyalty implies that it's directly related to the company's profit, infrastructure development, employee satisfaction and earnings. (Kiseleva et al., 2016: 96).

When the approaches about loyalty are examined, the behavioral approach, which states that purchasing from the same brand by measuring the customer's repeated purchase of the product or service, can be caused by situational effects, is the psychological commitment to the brand and the level of emotional defense, and it is the attitudinal approach that examines the psychological aspects by expressing the person's repurchases and recommendations. It has emerged in a certain order as a mixed approach combining both behavioral and attitudinal.

There are factors such as perception of value, image perception, emotions, trust, satisfaction, rewarding, habit and quality that affect the continuity of loyalty and the formation of customer loyalty in approaches (Agrawal et al., 2012: 280).

The development of internet technologies and the proliferation of access networks've led to the use of mobile applications for reasons such as reaching more affordable prices for products and services, access and ease of use by highlighting mobility (Goolsbee and Klenow, 2018: 490). Mobile applications are more sensitive to customer loyalty because they are more related to experience and promotion. For this reason, it becomes necessary to create a deeper emotional bond with customers in order to create true loyalty. It has been proven (<https://www.forbes.com>) that mobile loyalty content created to improve mobile loyalty increases the user visitor density, spending and time spent per user, or by winning back old users, increasing the customer lifetime value by more than 30% (<https://www.forbes.com>) led to the evolution towards focus.

In general, 89% of companies see customer-related experiences as a very important concept in customer retention. Yılmaz (2020) the relationship of experience with customer loyalty; Customer retention is generally defined as enabling the user to use the service frequently. Experience's a crucial factor here and can be enhanced by gamification, which relates to concepts that make user cycles the focus, such as the Hook Model. While the feedback received from the loop leads to rewards such as points and badges, it helps the users to motivate them to internalize the service by creating a sense of story. Since loops are intended for frequent use by users in mobile applications, it helps user retention and customer loyalty. Experience seeks a balance that is not just about users, but also about what companies expect from their users from the service. Mobile applications that can do this in a healthy and successful way will be able to provide a continuous experience. Gamification, on the other hand, is a very useful concept to ensure customer loyalty, as it provides this experience by focusing on motivation and desired behaviors (Yılmaz, 2020: 140).

Koivisto and Hamari saw gamification as a method aimed at increasing loyalty and defined its three characteristics. social relations, immersion and being successful (Koivisto and Hamari, 2014: 185).

Yi and Jeon define loyalty programs as marketing programs developed to create customer loyalty by creating privileges that aim to make customers display loyal behavior. In the research of Hwang and Choi, it was concluded that gamified loyalty programs can increase more loyalty and increase consumer participation. They found that gamification's an effective tool in the attitude formed in the loyalty program and that the types of rewards in the programs've an effect on the users. In addition, by discovering that loyalty programs with gamified components give more pleasure than traditional loyalty programs, it's concluded that gamification can have a better effect in promoting loyalty in customers (Hwang and Choi, 2020: 370).

Increasing digitalization with developing changes helps to integrate life into digital and as a result of this, it causes companies to devote more time to taking turns and interacting in digital. The development of technology has also changed the communication channels of brands. The increasing use of mobile devices is one of the most critical factors in these developments. As consumers tend to use mobile devices, businesses've also increased their use of such applications in order to increase customer loyalty in line with expectations and needs. Mobile applications that reduce the decision-making process can meet the expectations of their customers and create customer loyalty. Loyalty causes behavioral change, and in the studies conducted by Deng (2010) on customer satisfaction and loyalty, the importance of mobile applications in retaining existing customers and strengthening customer loyalty was stated (Donio, 2006: 446).

According to the Healthcare Everywhere 2012 report of Ernst & Young, the increasing interest in changes in daily life and technological developments paves the way for the widespread use of gamifications in the health sector. According to the report, play is an element that supports motivation and the desire to succeed in line with the purpose. Gamification as content of mobile health applications; There are studies showing that it positively affects health behaviors and perceptions of diseases. Thanks to the interactive gamification contents, it is possible to determine the needs and orientations of the patients and to understand their behaviors by collecting statistical information (Tezcan, 2016: 67).

The services offered by mobile health applications affect the users' perceptions, attitudes, satisfaction, continued use of the application, their loyalty and their ability to give positive or negative information about the application to their environment. For this reason, mobile health applications should perform analyzes that can understand how the users of the application and the actual gamification experience are affected for customer loyalty, and strive to improve the experiences in order to gain new customers while retaining their existing customers.

Customers who are satisfied with the mobile application they use, not only use the same application for their next needs, but also direct those around who need such an application to the

application by sharing their experience and knowledge with satisfaction. In addition, feelings about the application affect the level of satisfaction. Application satisfaction is the evaluation of whether the experience meets expectations. When it matches or exceeds expectations, one feels satisfied and attitudes towards mobile application are developed. Since active use of mobile health applications can be a reflection of a strong commitment to the relationship between consumers and mobile health applications, it is considered as a behavioral representation of consumer engagement using mobile health applications. Therefore, when consumers are satisfied with using a mobile health application, they'll commit to and use that mobile health application. However, the mismatch between the expectations and the experience of the practices'll cause negative emotions such as regret and disappointment. Such negative emotions will lead to poor consumer commitment to use only mobile health apps at best (Wang et al., 2021: 12).

The quality and perceived enjoyment of mobile health applications can affect consumers' satisfaction with using the applications. Regarding taste, providing consumers with an enjoyable experience's critical to influencing perceptions of apps. The pleasure of using a mobile health app will be an intrinsic motivation for consumers using the app. Therefore, enjoyment reflects the satisfaction of consumers' intrinsic motivation.

Informational support and emotional support are both dimensions of social support. Health information obtained from mobile health applications can provide emotional support and meet the emotional needs of consumers by meeting their needs to cope with health problems.

Regarding performance features, mobile health apps integrate functions with each other to support communication and interaction between consumers. Facilitating interaction between healthcare professionals and consumers creates a flow experience in the use of mobile health applications and increases consumer satisfaction from using the applications. However, if mobile health applications cannot provide sufficient interaction, the consumer may not be satisfied. Therefore, if sociality has this feature in mobile health applications, it can lead to satisfaction, and if this feature isn't available in mobile health applications, it can lead to dissatisfaction (Wang et al., 2021: 13).

After a positive experience and satisfaction, the user's satisfaction's the emotional responses that the user makes about one or more applications after using the mobile application. Satisfaction is also the support provided by the mobile application and the compatibility of its performance with the user's expectation. If compliance is ensured, the user will be more likely to be satisfied with the application as they will enjoy it more. Since satisfaction is a factor that helps to increase loyalty, it is estimated that the user with high satisfaction will also have high loyalty towards the mobile application (Karunaratna and Kumara 2021: 33). Since users with high satisfaction will consider using the mobile application for a long time after positive experience and satisfaction, their loyalty to the application will increase and they will become a loyal user. Loyal and satisfied users will request to share the mobile application to

which they are committed, the information they've created based on their experiences, to their circles or people who are interested in the application, through word of mouth communication.

According to Oliver (1999), satisfaction's an important and necessary step in the formation of loyalty, but it becomes less important if loyalty begins to occur not with satisfaction but with other stages, and in cases where loyalty cannot be followed, there is no target or there is user indifference. Complete satisfaction is the key to building loyalty and long-term performance. For this reason, many brands devote a lot of resources to increasing user satisfaction and growing loyal app users (Karunaratna and Kumara, 2021: 34).

## **4.METHODOLOGY OF THE RESEARCH**

### **4.1.Purpose and Scope The Research**

Gamification; it's the whole of the applications in which the game content's included in the process by using the instinct of playing in the person's self in a way to be motivated by the work done and transforms the person into a player in the process. Mobile health applications, which're the subject of the research, it's aimed to follow the health of the application users through motivation and reward. The gaming experience leads to the formation of loyalty towards the mobile application with the value created by the user by connecting to the mobile application. For this reason, the study aims to determine the effect of the gaming experience, which occurs as a result of the use of gamification strategy in mobile health applications, on customer loyalty through a holistic analysis.

To attract the attention of users in mobile health applications and to make them use the long-term application since it's important for research one of the health applications with the most gamification elements Zombies, Run11! mobile application's selected. The research population consists of Türkiye users who use or have used the application. It isn't possible to reach all users sampling was required and as a result of the research being carried out on a determined application, as a sampling method from snowball sampling method was chosen. To examine whether the translated survey questions were fully understood before being presented to the sample mass, a pre-test was made by sharing them on social media, and the parts that weren't fully understood were corrected. Then, with the support of game companies, Turkey user data was reached and the survey was presented to users in Turkey with permission. The research data were obtained from 400 participants as a result of the online survey study. However, 344 of the questionnaires were found suitable for analysis due to the incomplete and necessary information not being able to be obtained. The online survey was live from November 15 to December 15, 2022.

In the research, the scale developed by Eppmann et al., (2018) was used to measure the gaming experience. The concept of playful experience consists of 15 expressions of the scale with the dimensions used in four dimensions: (5 questions), flow (4 questions), creative thinking (3 questions),

and experienced emotion (3 questions). The scale developed by Luarn and Lui (2003) was used to measure customer loyalty in the context of e-service. The concept of customer loyalty consists of the dimensions used and 18 expressions of the scale; trust (4 questions), satisfaction (3 questions), value (3 questions), devotion (4 questions), and loyalty (4 questions).

#### 4.2. Research Model And Hypotheses

For the gamification experience scale, the gamification literature has been extensively examined and it has been revealed which factors are commonly found in gamification and gamified experiences. There're also common factors in the customer loyalty scale for e-Services, but since this research aims to investigate the effects of gamification experience on customer loyalty in mobile health in a holistic way, only the dimensions in the gaming experience scale were taken into account and the research hypotheses were formed.

**H1:** Overall gamification usage in mobile health application increases customer loyalty.

**H2:** The gameful experience during mobile health application usage increases customer loyalty.

**H3:** Perceived Enjoyment the gaming experience while using the mobile health application increases customer loyalty.

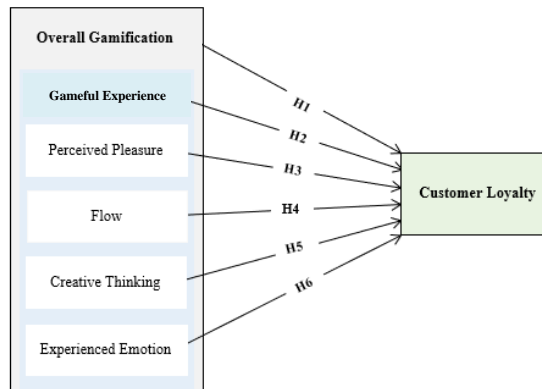
**H4:** The flow in the gaming experience during mobile health application usage increases customer loyalty.

**H5:** Creative thinking in the gaming experience during mobile health application usage increases customer loyalty.

**H6:** The emotion experienced in the gaming experience while using the mobile health application increases customer loyalty.

Research model, which includes the research variables, is depicted in figure 4.

**Figure 4: Research Model**





### 4.3. Findings of The Research

According to the demographic findings of the research, out of 344 participants, 62.80% were male and 37.20% were female. Of the participants, 52.03% were single and 47.97% were married. In terms of age range, 43.60% of the participants were between 26-35 years old, 24.13% were between 36-45 years old, 22.97% were between 18-25 years old, 7.27% were between 46-55 years old, and 2.03% were 55 years old and above. In terms of education level, 40.70% of the participants had a postgraduate degree, 29.07% had a bachelor's degree, 16.86% had an associate degree, and 13.37% were high school graduates. According to the table, 40.12% of the participants were private sector employees, 35.46% were public sector employees, 10.17% were housewives, 9.30% were students, 3.48% were retired, and 1.45% were unemployed. Finally, in terms of monthly income, 42.44% of the participants had an income of 11,000 TL and above, 29.94% had an income of 9001-11000 TL, 11.05% had an income of 7001-9000 TL, 9.30% had an income of 3001-5000 TL, 6.40% had an income of 5001-7000 TL, and 0.87% had an income of 3000 TL and below. \*Since the survey research data was obtained before the new minimum wage increase, the findings belong before December 23, 2022.

**Figure 5: Participants' Demographic Findings**

Demographic Characteristics		Frequency	Percentage (%)
Gender	Woman	128	37,20
	Man	216	62,80
Age Range	18 - 25	79	22,97
	26 - 35	150	43,60
	36 - 45	83	24,13
	46 - 55	25	7,27
	55 and above	7	2,03
Marital Status	Married	165	47,97
	Single	179	52,03
Education Level	High School	46	13,37
	Associate's Degree	58	16,86
	Bachelor's Degree	100	29,07
	Graduate Degree	140	40,70
Occupation	Student	32	9,30
	Homemaker	35	10,17
	Retired	12	3,48
	Private Sector	138	40,12
	Public Sector	122	35,47
	Unemployed	5	1,45
Monthly Income Status	3000 and below	3	0,87
	3001 - 5000	32	9,30
	5001 - 7000	22	6,40
	7001 - 9000	38	11,05
	9001 - 11000	103	29,94
11000 and above	146	42,44	
TOTAL		344 PEOPLE	100,0

\* The research was conducted before the recent minimum wage increase.

The scale of gameful experience used in the study is reliable since each dimension has a Cronbach's alpha value of at least 0.70, which is within the high-reliability range of  $0.80 \leq \alpha \leq 1.00$ . The Bartlett's sphericity test resulted in a KMO coefficient of 0.937, which is above the minimum level of 0.60 and within the excellent range of  $0.90 \leq KMO \leq 1.00$ , indicating statistical significance and normal distribution. Therefore, the data's suitable for factor analysis. According to the exploratory factor analysis, the playful experience scale has four factors. The total variance explanation rate of the scale is 53.068%, which is considered sufficient within the range of  $0.40 \leq V \leq 0.60$  accepted in social sciences. Additionally, each factor has a factor loading value of at least 0.30 within itself.

The customer loyalty scale in e-services has Cronbach's alpha values above 0.70 for each dimension, which is within the high reliable range of  $0.80 \leq \alpha \leq 1.00$ , indicating that the scale is reliable. The Bartlett's Sphericity test result is 0.916 with a KMO coefficient above the minimum level of 0.60 and within the excellent level range of  $0.90 \leq KMO \leq 1.00$ , indicating that it is statistically significant and normally distributed. In this case, the data is suitable for factor analysis. Exploratory factor analysis reveals five factors in the customer loyalty scale. The total variance explanation rate of the scale is 74.567%, which is within the accepted range of  $0.40 \leq V \leq 0.60$  in social sciences, indicating that this rate is sufficient. The analysis results obtained by conducting regression analysis on the relationships between the variables of the research hypotheses after the data analysis of the scales are presented below.

**H1:** The relationship between Overall gamification usage and customer loyalty was tested through regression analysis of the data, and the P-value was accepted as ( $=0.001 < 0.01$ ). According to the results, a 1% increase in general gamification usage is expected to lead to a 0.508% increase in customer loyalty. Therefore, it can be concluded that the relationship between general gamification usage and customer loyalty is significant, and hypothesis 1 is accepted.

**Figure 6. The Impact of Overall Gamification Usage on Customer Loyalty**

Coefficient	B	Std. Error	T	P
Constant	1,357	0,136	10,529	0,000**
Overall Gamification	<b>0,508</b>	0,036	15,742	0,000**

F: 238,643; Adjusted R<sup>2</sup>: 0,412 \*\*p<0,01

**H2:** The relationship between gameful experience and customer loyalty was tested through regression analysis of the data, and the P-value was accepted as ( $=0.001 < 0.01$ ). According to the results, a 1% increase in gameful experience is expected to lead to a 0.501% increase in customer loyalty. Therefore, it can be concluded that the relationship between gameful experience and customer loyalty is significant, and hypothesis 2 is accepted.

**Figure 7. The Impact of Gameful Experience on Customer Loyalty**

Coefficient	B	Std. Error	T	P
Constant	1,234	0,115	12,366	0,000**
Gameful Experience	<b>0,501</b>	0,033	14,216	0,000**

F: 231,946; Adjusted R<sup>2</sup>: 0,306 \*\*p<0,01

**H3:** Perceived enjoyment derived from gamification during mobile health application usage increases customer loyalty. In the regression analysis testing the relationship between enjoyment and customer loyalty, the P value was accepted as ( $=0.001 < 0.01$ ). According to the results, a 1% increase in perceived enjoyment derived from gamification would lead to a 0.459% increase in customer loyalty.

Therefore, it was decided that there is a significant relationship between the enjoyment derived from gamification and customer loyalty, and hypothesis 3 is accepted.

**Figure 8. The Impact Of Perceived Enjoyment On Customer Loyalty**

Coefficient	B	Std. Error	T	P
Constant	1,735	0,129	13,449	0,000**
Perceived Enjoyment	<b>0,459</b>	0,027	13,786	0,000**

F: 190,065; Adjusted R<sup>2</sup>: 0,355 \*\*p<0,01

**H4:** The relationship between flow in the gameful experience and customer loyalty was tested through regression analysis of the data, and the P-value was accepted as ( $=0.001<0.01$ ). According to the results, a 1% increase in flow is expected to lead to a 0.327% increase in customer loyalty. Therefore, it can be concluded that the relationship between flow in the gameful experience and customer loyalty is significant, and hypothesis 4 is accepted.

**Figure 9. The Impact of Flow on Customer Loyalty**

Coefficient	B	Std. Error	T	P
Constant	2,451	0,068	32,105	0,000**
Flow	<b>0,327</b>	0,025	12,836	0,000**

F: 158,759; Adjusted R<sup>2</sup>: 0,327 \*\*p<0,01

**H5:** Creative thinking in the gamification experience during the use of mobile healthcare applications increases customer loyalty. In the data where the regression analysis was performed to test the relationship between creative thinking in the gamification experience and customer loyalty, the P value was accepted as ( $=0.001<0.01$ ). According to the results, a 1% increase in creative thinking is expected to result in a 0.320% increase in customer loyalty. Therefore, it was decided that the relationship between creative thinking and customer loyalty is significant and hypothesis 5 is accepted.

**Figure 10. The Impact of Creative Thinking on Customer Loyalty**

Coefficient	B	Std. Error	T	P
Constant	2,326	0,096	26,356	0,000**
Creative Thinking	<b>0,320</b>	0,028	10,511	0,000**

F: 137,573; Adjusted R<sup>2</sup>: 0,256 \*\*p<0,01

**H6:** The emotion experienced during the gameplay of mobile health applications increases customer loyalty. The regression analysis testing the relationship between the emotion experienced during the gameplay and customer loyalty in the data yielded a P value ( $=0.001<0.01$ ), which was accepted. According to the results, a 1% increase in the emotion experienced would lead to a 0.335% increase in customer loyalty. Therefore, it was concluded that there is a significant relationship between the emotion experienced during gameplay and customer loyalty, and hypothesis 6 is accepted.

**Figure 11. The Impact of Emotion Experienced on Customer Loyalty**

Coefficient	B	Std. Error	T	P
Constant	2,398	0,087	24,331	0,000**
Emotion Experienced	0,335	0,022	10,679	0,000**

F: 111,713; Adjusted R<sup>2</sup>: 0,244 \*\*p<0,01

## 5. RESULTS AND RECOMMENDATIONS

In the research, the effects of using gamification as a service over mobile applications on customer loyalty were examined. According to the general judgment that emerged and reached in the literature review; Gamification content aims to create a motivation for the customer and create long-term loyalty towards the mobile application. In the research prepared for this purpose, it was aimed to test whether the game experience as a result of gamification contents has an effect on customer loyalty by preparing research questions. For the test, the game experience scale, which consists of four factors as perceived pleasure, flow, creative thinking, and experienced emotion, and the customer loyalty scale in e-services, where the effects of these factors are investigated, were used to examine how the effect affects customer loyalty and loyalty.

Overall, when demographic findings're evaluated, it can be seen that the usage rate of the Zombies, Run!11 mobile health application increases as the education level increases. The Y generation, which is characterized by a desire to explore the world and technology to make it better, creativity, and higher education levels, has shown more interest in the mobile application among participants aged 26-35, who are referred to as "digital natives" due to the development of technology. In addition, as income level increases, 211nda r to technology increases, which provides participants with more opportunities to explore mobile applications. In terms of gender, it may be due to male participants feeling more attached and more playful towards the mobile application content compared to female participants, resulting in more male participants participating in the survey.

The dimensions of perceived enjoyment, flow, creative thinking, and experienced emotion found in the gamification experience scale were shown to provide evidence 211nda re acceptance of research hypotheses in the analyses and to create loyalty and increase customer loyalty tendencies. In addition, it was found that the use of gamification and the experience of playfulness in the hypotheses increased customer loyalty. Thus, it has been proven through the proof of research hypotheses that gamification increases loyalty in mobile health applications.

In previous studies (Robson et al., 2016: 254), the use of gamification has been discussed as being important in establishing connections and interactions with customers by transforming it into a participatory game experience. Additionally, it has been emphasized that the factors used in the gamification experience scale will be helpful and explanatory in terms of changing user behaviors. In another study (Kalantzis, 2017: 63), the use of gamification in customer loyalty relationships and how

motivation can be utilized have been explained. Brands and application developers suggest that they can use motivation-based attention-grabbing methods in loyalty-related relationships, such as providing more notifications, more application discounts, and increasing the amount of time spent on the application. According to them, gamification increases customer loyalty by providing a game-like experience with emotions, flow, and narrative.

It has been stated that interactive gamification will establish a strong connection with the brand (Maier and Mattke, 2021: 65). Maier and Mattke have indicated that gamification can be used to improve brand loyalty by correcting the mobile application user experience and improving the user's attitude towards the brand. The factors used in the gamification experience scale in the study are similar in terms of improving the user's attitude toward the brand. As it was found that gamification can increase customer loyalty the research, the research results are consistent with these statements.

Ritz and Schmäh (2021) have investigated how gamification content can increase customer loyalty by examining intrinsic motivation. They stated that customers need gamification approaches to understand how motivational action plans and experiences can result in behavioral changes that can be sustained over time (Ritz and Schmäh, 2021:4). The factors in the gamification experience scale correspond to these concepts, and the results of the study prove that these factors can increase customer loyalty 212nda re thus in line with the findings.

Gamification's an emerging marketing strategy that is widely used in many mobile services. Due to the support of evolving marketing methods, research on gamification and its related fields is expected to become even more important in the future. Studies have shown that well-designed gamification narratives can have a loyalty-increasing effect on customers. If gamified narratives incorporate user motivation throughout the process, products, services, or applications can establish deeper relationships with their customers, increase their lifetime value, and promote loyalty.

Instead of Flow Theory, some gamification models include the Hook Model, SAPS Reward Theory, player type characteristics, and more. Designers, developers, and companies can use the Hook Model elements by assigning reward types corresponding to each step, incorporating model features into their strategies, product or service designs, and aiming to achieve marketing goals. With the SAPS Reward Theory, gamification designers can aim to improve the customer experience, encourage customer interest and engagement, and activate positive emotions and attitudes by using gamification elements.

Designing gamification's a creative process that requires many different skills, so it's recommended that all types of employees working on a gamified product or service be sufficiently educated and knowledgeable about the dimensions of gamification. Managers should ensure that employees working on gamification receive training on various concepts related to gamification, such as its different aspects, its importance on customer loyalty, digital marketing, customer retention,

customer engagement, revenue protection, brand image, brand loyalty, and more, in order to achieve their goals.

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Fikir veya Kavram / <i>Idea or Notion</i>	Araştırma hipotezini veya fikrini oluşturmak / <i>Form the research hypothesis or idea</i>	Cansu TOPRAK Assoc. Prof. Hicran ÖZGÜNER KILIÇ
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