

**THE REPUBLIC OF TURKEY
BAHCESEHIR UNIVERSITY**

**MONETIZATION STRATEGIES IN MOBILE
GAMES AND IMPLEMENTATION TECHNIQUES**

Master's Thesis

IBRAHIM KAYA

ISTANBUL, 2019

**THE REPUBLIC OF TURKEY
BAHCESEHIR UNIVERSITY**

**THE GRADUATE SCHOOL OF SOCIAL SCIENCES
GAME DESIGN MASTER PROGRAM**

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05/08/2019

This thesis has been found adequate and successfull in terms of quantity and quality as a
Graduation thesis.

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Ibrahim KAYA



ABSTRACT

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Graduate School of Social Sciences

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Assoc. Prof. Barbaros BOSTAN

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The aim of this study is examining and explaining that how monetization techniques used in mobile games are applied and what are their benefits. In-game advertising, in-app purchasing, subscriptions and paid game monetization methods are most popular monetization methods in mobile games. Qualitative and quantitative data are tried to be collected by determining the benefits of these methods. For this reason, an interview with a mobile game company was arranged and a survey was conducted targeting university students and workers of a game company. As a result of the researches, it was determined that each monetization strategies has different rates of return. It is seen that the income from this game can be further increased by using not only one monetization method in one game but more than one at the same time. With the widespread use of mobile games, users may be interested in various types of games and therefore the income obtained may change according to the type of game.

Keywords: Mobile Games, Monetization, Advertising, In-app Purchases, Subscriptions

ÖZET

OYUNLARDA PARASALLAŞTIRMA STRATEJİLERİ VE UYGULAMA TEKNİKLERİ

Ibrahim KAYA

Sosyal Bilimler Enstitüsü

Oyun Tasarımı

Assoc. Prof Barbaros BOSTAN

Ağustos 2019, 49 Sayfa

Bu çalışmanın amacı mobil oyunlarda kullanılan parasallaştırma tekniklerinin nasıl uygulandığını ve hangisinin ne gibi faydalar sunduğunu incelemek ve açıklamaktır. Mobil oyunlarda genel olarak uygulama içi reklamlar, uygulama içi satın almalar, üyelikler ve ücretli oyunlar parasallaştırma metodu olarak kullanılmaktadır. Bu metodların hangisinin ne gibi fayda sunduğu nitel ve nicel dataolar elde edilip belirlenmeye çalışılmıştır. Bu sebeple örnek bir mobil oyun şirketi ile röportaj gerçekleştirilip aynı zamanda üniversite öğrencilerini hedef alan anket çalışması gerçekleştirilmiştir. Yapılan araştırmalar neticesinde her bir parasallaştırma uygulamasının farklı oranlarda getirisi olduğu saptanmıştır. Bir oyunda sadece tek bir parasallaştırma metodu değil birden fazlasının aynı anda kullanılmasıyla bu oyundan elde edilen gelirin daha fazla artırılabilceğı görülmüştür. Mobil oyunların kullanımının yaygınlaşmasıyla beraber kullanıcıların çeşitli oyun türlerine ilgi gösterebileceğı bu sebeple elde edilen gelirin oyunun türüne göre de değışebileceğı gözlenmiştir.

Anahtar Kelimeler: Mobil Oyun, Parasallaştırma, Reklam, Uygulama İçi Satın Alma, Üyelik

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1.INTRODUCTION

People who are bored with increasing traffic, especially in big cities, play mobile games intensively in public transportation vehicles such as metro, metrobus, ferry and bus. With the introduction of smart mobile phones in our lives, the phones bring high capacity possibilities to the players, the time of playing games with these high-tech phones are increasing. “There is a strong trend towards mobile gaming among youngsters related to the growing adoption of smartphones.” (Beg & All, 2014) Because of the fact that the graphics quality and design of the games increase, the playing time on the mobile is increasing at the same time. If mobile game players think about mobile game is engaging, it will be automatically popular and starting to be downloaded organically. This situation allows to game companies to reach so many mobile game players and getting more money with the effective monetization methods. In addition to this, there is an increase in revenues from the mobile gaming market as brands worldwide are now advertising in mobile games as it explained in detailed in this study. At this point, this thesis aims to provide better understanding of mobile game monetization and its strategies by examining the games of one of the mobile game companies who is Suji Games established by four game developers in Istanbul. Monetization methods are used by most of game companies to make money. In-game advertising, in-app purchasing, subscriptions and paid game monetization methods may be used mostly by game developers. However, each monetization method provides mobile game companies different amount of revenue. At this point, with the help of research methods, most effective monetization methods and their implementations were analyzed. Both qualitative and quantitative data are collected and patterns are sought. According to results of these data, the expectations of mobile game players are tried to be analysed and with the help of understanding their needs and demands the road map is constructed for the mobile game developers that shows the important points while creating a mobile game and choosing effective monetization methods. At the same time, according to the questionnaire answers of the mobile game players, also tried to specify what mobile game players do not want to see while playing. While taking into consideration these criterias , importance of the right advertising format are stated with the right target audience and some particular groups. Because the player lifecycle starts from the acquisition and then continue with the retention and engagement.

If the game developers lose users at that point they do not reach monetization step and can not make money from that mobile game players.

1.1 RESEARCH BACKGROUND

Approximately 2.2 billion gamers are playing game in the world. It can be estimated that 7.6 billion people are living on earth, as of July 2018, that means almost a third of them on this planet are gamer players. Out of those 2.2 billion gamers, 1.2 billion of those who play games are playing games on a PC. ¹In addition to this, In 2020, the number of mobile phone gamers in the U.S. is estimated to grow by 9% from 2017's record of 192.2 million mobile game players. Approximately, 72.3% of mobile users in the U.S. are mobile game players. ² In this regard, the importance of mobile games can be undeniable fact for this industry. Thanks to this great market, there are so many players who want to get the share of this revenue.

1.2 THESIS OBJECTIVES, RESEARCH QUESTIONS AND LIMITATIONS

The mobile game markets are incredibly competitive and according to the report by Deloitte more than 500 new mobile games come out each day. (Annanpera 2018) At this point, what is needed to increase visibility? The biggest challenge of free-to-play game developers is marketing. (Winter 2017). One of the important goals of the game developers to create a game is to make money from it. In this respect, the purpose of this thesis is to clarify the questions that what are the monetization methods for mobile games, which monetization strategy is most suitable and effective for mobile games, how to integrate monetization models inside of the games, what are the principal factors to maximize ad monetization in mobile games? When it comes to limitations, like so many researches not reaching every part of population and assuming results as true for whole people can be limitation for this study.

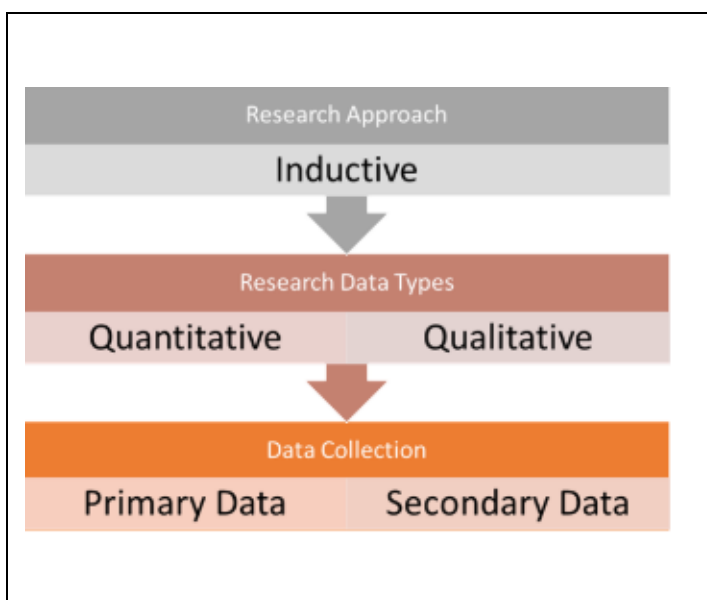
¹ How Many Gamers Are There? , <https://gaimin.io/how-many-gamers-are-there/>, [accessed 29 Mar 2019].

² 2019 Video Game Industry Statistics, Trends & Data ,<https://www.wepc.com/news/video-game-statistics/#mobile-gaming> , [accessed 30 Mar 2019].

1.3 THEORETICAL FRAMEWORK

The theoretical framework is the structure that can hold or support a theory of a research study. The theoretical framework introduces and describes the theory that explains why the research problem under study exists. (Abend 2013). For this thesis ,the study of (Fields & cotton) Monetization methods and their mechanics were examined to understand the issue very well. In chapter 2, the meaning of monetization was tried to explained in detailed and the brief history of game monetization was given to readers. In addition to this, the different monetization methods were discussed one by one. In order to have better understanding of the issue inductive research method was used to generate the results of the research. At the inductive approach researchers begin with a set of observations and then they move from those specific experiences to a more general set of items about those experiences.³ Inductive approach is to reach general judgments based on the individual cases observed. In other words, inductive approach is a kind of reasoning that goes from private to general. At the end of this thesis, it is expected that the most effective monetization methods and their principal methods are tried to be explained easily with the help of both qualitative and quantitative data analysis.

Figure 1.1: Research Methodology



³ Inductive or Deductive ,https://saylordotorg.github.io/text_principles-of-sociological-inquiry-qualitative-and-quantitative-methods/s05-03-inductive-or-deductive-two-dif.html, [accessed 10 Apr 2019].

2. MOBILE GAMES

Mobile games are games designed for mobile devices, such as smartphones, feature phones, pocket PCs, personal digital assistants (PDA), tablet PCs and portable media players.⁴ When it can be considered that so many people have mobile devices in this century, all of them may reach mobile games thanks to their mobile devices. So, mobile games are generally downloaded via the mobile operator's network of the mobile phones. Mobile games can be both downloaded and played everywhere such as at home, at the bus, at work etc. All of these allows mobile game developers to reach their target easily. Moreover it can obviously be said that as mobile devices and their capabilities continue to improve, the mobile applications and games can increase respectively. For example, multiplayer games are starting to be popular (Byl 2015). Early mobile games were simple and it can be played with single player. However, thanks to developments in technology, mobile games were starting to be detailed and playing so many game players at the same time frame. This kind of games can be attributed as Multiplayer games that can be played with the support of internet. Game players are interested in multiplayer mobile games because of the fact that they allow them to play with their friends. When it comes to types of mobile games , it can be said that most popular mobile games are arcade, adventure, simulation, puzzle, racing, strategy and education. Arcade mobile games need full attention and concentration. ⁵Temple Run, Angry Birds and minecraft can be given as an example of arcade mobile games. In addition to this,running characters mostly take place in adventure mobile games and they collect the coins and try to find hidden items. Pokemon Go can be given as an example of adventure mobile games.So, it can be said that adventure games are comparatively wider than arcade games. Because players can find different types of games in adventure game category that include escaping, running, collecting something etc. At the simulation games, mobile game players control the tool or any other object in an ambitious way. Car or aircraft based games may be taken into consideration as simulation mobile games. While at the puzzle games mobile game players bring the pieces of the puzzle together, at the educational games mobile game players can get some information about one specific topic. In total, for whole mobile game

⁴ Mobile Games , <https://www.techopedia.com/definition/24261/mobile-games> , [accessed 29 Mar 2019]

⁵ Guide of Top Mobile Game Categories , <https://citrusbits.com/guide-of-top-mobile-game-categories/>, [accessed 04 Apr 2019].

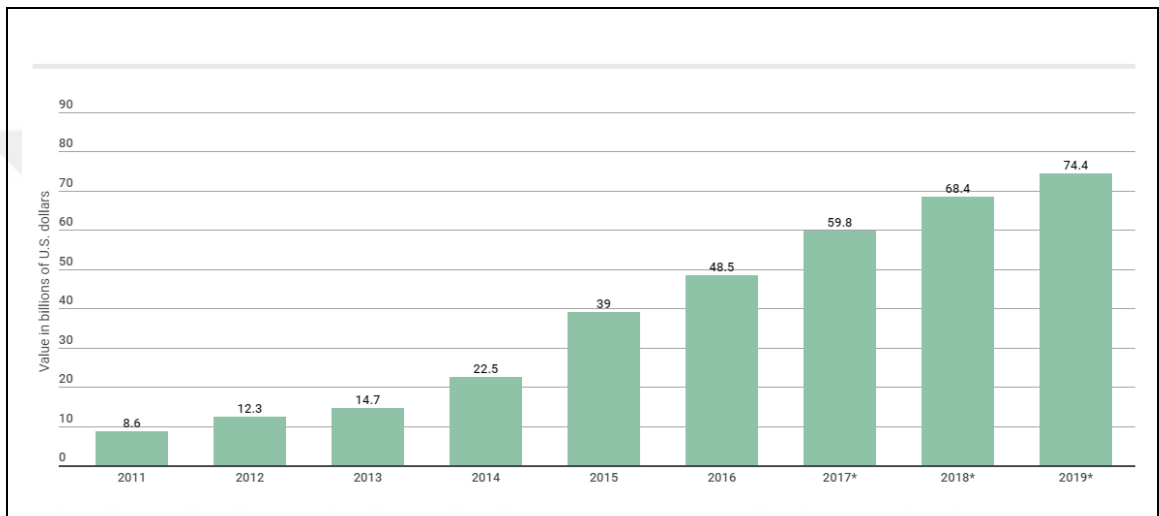
types, it can easily be said that mobile game players gain different experiences according to types.



3. MONETIZATION

When the figure 3.1 is analyzed, worldwide market value of mobile contents are increasing from 2011 to 2019. It means that mobile game companies are generating more money because of their mobile games. At this point, the importance of monetization is emerging.

Figure 3.1: Worldwide Market Value of Mobile Contents in billion U.S dollars (2011 to 2019)



Source : <https://www.wepc.com/news/video-game-statistics/#mobile-gaming>

What does monetize mean? Basically, it is the process of turning a non-revenue-generating item into cash.⁶ It may have so many different meaning in different contents however in our issue, selling applications, subscriptions, creating some multimedia contents are some of the examples of monetization ways. Effective use of monetization in mobile games can increase satisfaction of mobile game players. In order to increase retention and conversion rates the power of the monetization can not be ignored. What are the conversion and retention rates? Conversion rate shows the amount of people that are browsing the application stores, visit the product page, decide to download the application or game. Retention rate shows the percentage of users who launched an application on the Nth day after installing an app.⁷ So, retention is trying to answer of the question of how do I retain the game players? and monetization replies the question of how do I make money? According to report of the Swrve, 46% of all revenue comes from .22% of game players

⁶ Monetize, <https://www.investopedia.com/terms/m/monetize.asp> , [accessed 04 Apr 2019].

⁷ Retention Rate, <https://thetool.io/> , [accessed 04 Apr 2019].

base, because two-thirds of people stop playing next day.⁸ So, retaining the mobile game players is becoming difficult at this stage. It can be said that retention and monetization are two big challenges to be successful. On the other hand, “The perceived values of the game (playfulness, connectedness, access flexibility, and reward) have direct influence on the loyalty of all players but appear to have relatively little impact on the purchase intentions of nonpaying players.” (Hsiao 2016). At this point, companies use different monetization methods. The importance of target audience, choosing right monetization method, using them properly by taking into consideration effectiveness of each of them are crucial steps of increasing revenue via monetization. “Existing research shows that one major reason for failing free to play pricing models is the orientation for technology development, alongside poor content and too aggressive monetization, rather than customer experience.” (Harviainen 2018) So, it can easily be said that designing is also important. “ Good game design and fun gameplay with monetization integrated into the design and gameplay.” (Au 2012) In this thesis, in order to understand the results of the research, monetization methods should be taken into consideration one by one. In this regard, in-game advertising, in-app purchasing, subscriptions and paid games were examined.

3.1 MONETIZATION METHODS

3.1.1 In-Game Advertising

“Advertising in computer and video games is a phenomenon that is emerging swiftly and is described under the term in-game advertising.” (Marolf 2007). So, In-game advertising is one of the monetization strategies which game companies use to boost their game’s revenue. Game developers can make more money and get paid by indicating mobile game ads to game players. There are different kinds of advertising that game developers can use in order to get more revenue for instance rewarded video, interstitial ads and offerwall ads. When they can be defined one by one, rewarded video ads give users clear value exchange that users watch a video ad and receive rewards in return. Interstitial ads engage users with rich, customizable, and appealing ads at natural pauses in app’s flow, assuring

⁸ Only 2.2% of free-to-play users ever pay, <https://www.gamesindustry.biz/articles/2014-04-09-only-2-2-percent-of-free-to-play-users-ever-pay-report>, [accessed 29 Mar 2019].

minimum disruption to user experience while still increasing app revenue. The offerwall is an in-app advertising unit that application developers use to monetize their apps. It acts like a mini-store in an app, listing multiple offers that game players can complete in exchange for getting an in-app reward.⁹ At this regard, all kinds of in-game advertising may compose more mobile game ads revenue or may develop user experience. For example when game developers offer free rewards such as valuable coin like money to track users at the specific levels in the game or to interact with ads, game players who are not willing to pay real money to pass the levels can be more happier. In-game ads can also be used as a means of holding ads to track ads to encourage users to return to the game. In addition to this, ads can also be used by saying to users to interact with a rewarded ad unit that gives them the full amount of soft currency they need to continue playing the game. In this regard, this kind of engagement of this audiences could be turned into profits through advertising and upselling to premium services. (Luton 2013)

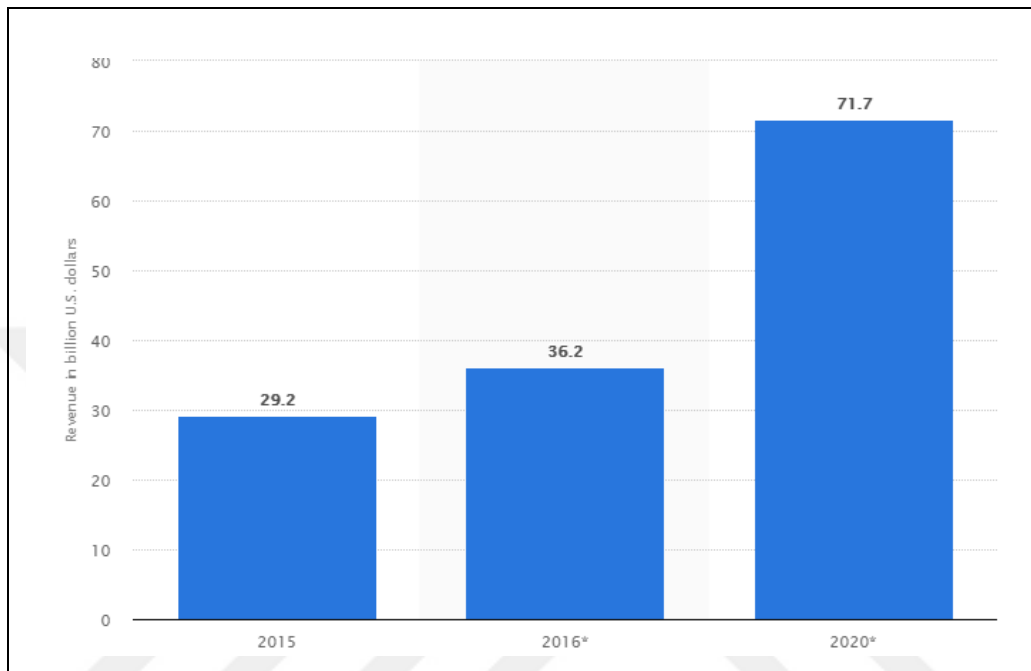
3.1.2 In-App Purchasing

“In-app purchase is a feature through which the application's component can be bought from inside the application with the help of several payment gateways.” (Roy 2016, p.307). According to figure 3.2, expected revenue of worldwide mobile app store in 2020 is approximately 71.1 billion US dollars. According to same data at the source, in 2020, mobile apps are expected to generate 188.9 billion U.S. dollars in revenues via app stores and in-app advertising. It means that mobile game developers or companies can get much more revenue due to in-app purchasing monetization method. Offering personalized and customized items that can be both different mobile game characters and various visual specialities for example colours, icons etc. will be ways of the getting money from users. Gifts, boosts and power-ups, personalization and creativity, play accelerators, collectibles, expansions and trans-media content can be bought directly. Moreover, promotions that are valid just for limited time and holiday specials like christmas, easter, halloween etc., can be shown as examples of in-app purchasing. It also allows to users open the lock of the additional features and specific contents at the game. “They feel good

⁹ In Game Advertising, <https://www.ironsrc.com/in-game-advertising/> , [accessed 31 Mar 2019]

when their skills in playing the game improve or when they beat a level in the game.”
(Tang 2016)

Figure 3.2 :Worldwide mobile app store revenues in 2015, 2016 and 2020 (in billion U.S. dollars)



Source : <https://www.statista.com/statistics/220186/total-global-in-app-revenue-forecast/>

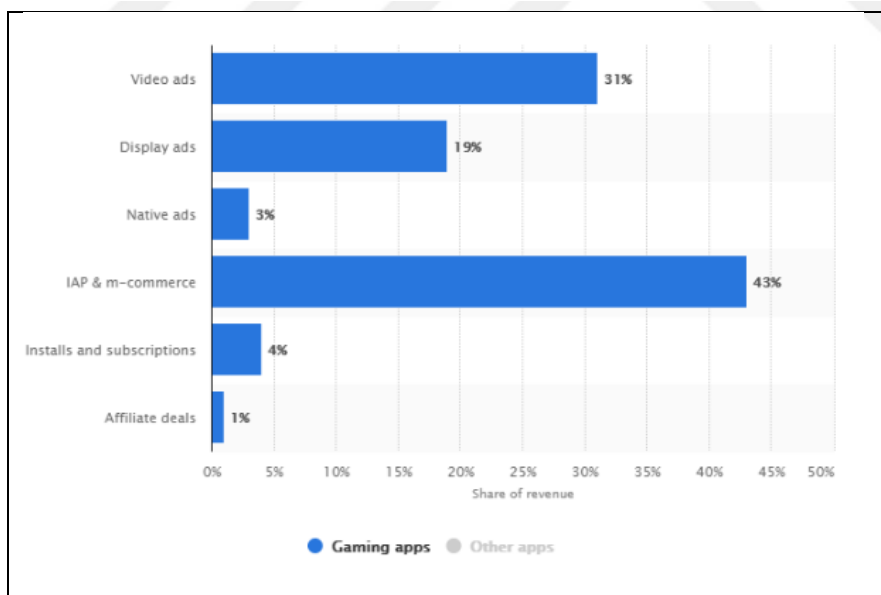
Mobile game developers may get great revenues thanks to in-app purchases. For example Fortnite has hit over \$1 billion in revenue due to in-app purchases.¹⁰ It can be interpreted as enormous revenue. This game offers to mobile game players in-game gifting, skins for vehicles and more. In addition to this, purchase intention is another important thing. “The direct and meditating effect of free-item promotion are positively related to purchase intention. Interestingly, although competence need is negatively related to purchase intention, free-item experience positively meditates the effect of competence need to purchase intention.” (Jang 2017). So, while creating some offers in game, game developers can consider this issue.

¹⁰ Fortnite has hit over \$1 billion in revenue with in-app purchases, <https://9to5mac.com/2018/07/19/fortnite-one-billion-revenue> , [accessed 01 May 2019].

3.1.3 Subscriptions

Subscriptions is one of the other monetization models. It allows users to access certain features or services by paying a weekly, monthly, or annual fee, similar to a newsletter or magazine subscription.¹¹ This model can be used for the players who do not tend to be bored because of the using same game every month. For example, “some of the top-grossing games felt aggressive in their monetization. In *The Simpsons: Tapped Out* aggressive monetization emerged through limited times for purchasing specific items, and forcing to use the scarce hard currency during the tutorial.” (Alha 2016) When the below figure 3.3 is analyzed, It can be said that the share of using subscriptions in worldwide mobile games revenue is not so high. The revenue is coming from mostly in-app purchases and video ads. This graph can be a clue for a game developer who are trying to find the answer of the question of how they can make more money with which monetization method.

Figure 3.3: Distribution of worldwide mobile application revenues in 2017, by channel



Source: <https://www.statista.com/statistics/273120/share-of-worldwide-mobile-app-revenues-by-channel/>

However, it depends on the features of the game. As it is mentioned above, subscriptions can be good choice to get the users who can play the game every month because of the

¹¹App Monetization Using the Freemium Business Model, <https://themanifest.com/app-development/app-monetization-using-freemium-business-model>, [accessed 04 Apr 2019].

characters of the game. Subscribed game players play about 20% more daily when it is compared to before they have subscribed to Monster Strike's MonPass, implying an increase in user engagement.¹² so mobile game developers can see important increase in retention rates. In addition to this, great deals always motivate new game players. Thanks to these developments, ARPU curves of buyers of subscriptions will be sheerer. ARPU reflects average revenue per user. A subscription monetization model presents a superior method to procure consistent and repeating income as opposed to through entire purchases. However, there are only minority shares of such games in the mobile game industry.

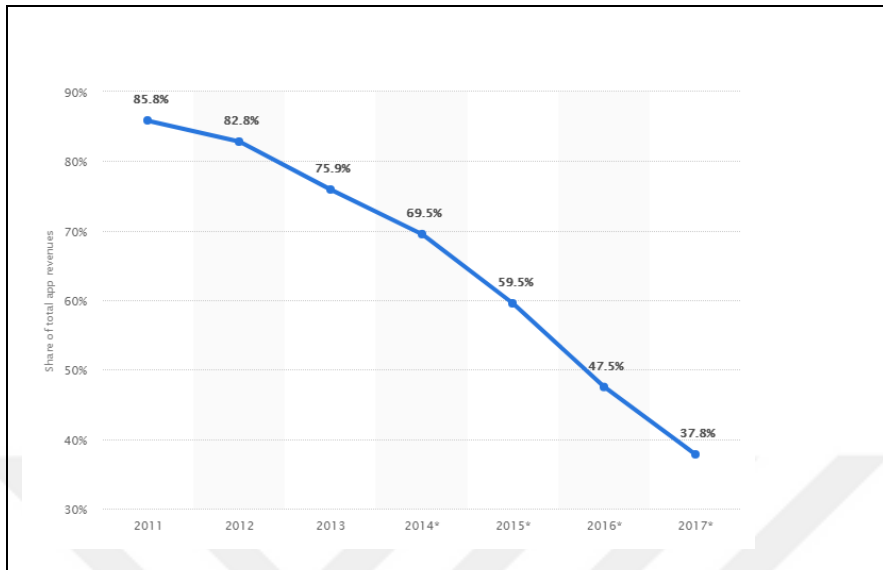
3.2.4 PAID GAMES

Thanks to this monetization model app publisher or developers get paid for each time their apps were downloaded separately. It is one of the basic monetization models that is charging money from users for initial download. Paid apps model is highly transparent and tracking users spending is easy.

According to figure 5; in 2011, 85.8 percent of app revenues were generated through paid downloads. However, when it can looked at the 2017, this ratio is decreased to 37.8 percent. It means that trend is changing and mobile game users do not prefer to pay money to download the app. "While the strategy of offering free versions of paid Apps is popular, it impacts the adoption speed of paid Apps negatively." (Arora 2014)

¹²Grow your games' revenue with subscriptions, <https://medium.com/googleplaydev/grow-your-games-revenue-with-subscriptions-f979efaa3f45> , [accessed 15 Apr 2019].

Figure 3.4: Percentage of paid app revenues worldwide from 2011 to 2017

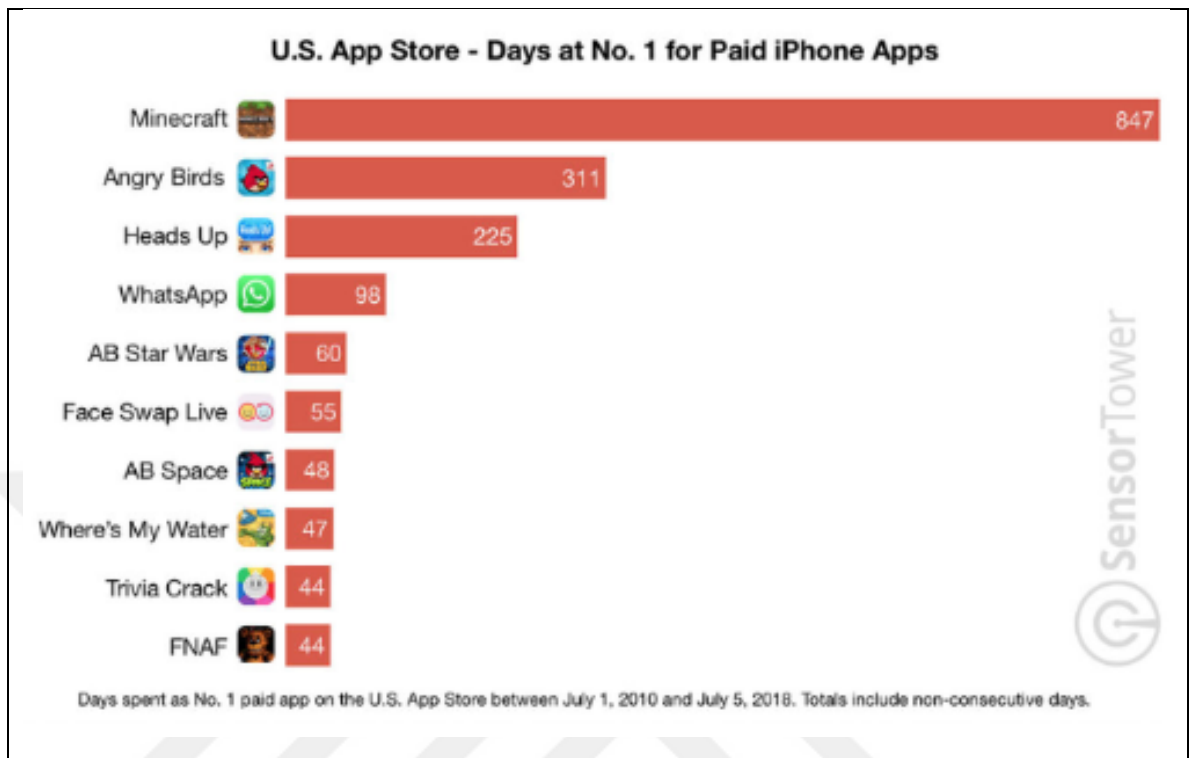


Source : <https://www.statista.com/statistics/271652/worldwide-revenues-from-mobile-apps/>

However, we can not say paid games are not successful or not getting money. According to figure 6 that shows U.S. App Store - Days at No.1 for Paid iPhone Apps, Minecraft has stayed 847 days on top of the paid iPhone apps table. Cost to download Minecraft is \$6.99. In addition to this, it has over 10,000,000 installs at Google Play and totally 2,663,212 people voted and it has 4.5 over 5.¹³ So, according to these details, Minecraft can be attributed as one of the very successful paid games.

¹³ Minecraft, https://play.google.com/store/apps/details?id=com.mojang.minecraftpe&hl=en_US, [accessed 15 Apr 2019].

Figure 3.5: U.S. App Store - Days at No.1 for Paid iPhone Apps



Source: https://play.google.com/store/apps/details?id=com.mojang.minecraftpe&hl=en_US

4. CASE STUDY : SUJI GAMES

In order to find a better answer of research questions, analysing of a mobile game company and comparing its mobile games is going to be effective. In this respect, one of the new mobile game company in Istanbul is going to be examined in detailed and with the help of interview which was handled with game developers of Suji Games, monetization methods and their implementation methods are analyzed.

4.1 GENERAL INFORMATION

Suji Games is a mobile game company based in Istanbul Turkey since 2017. According to interview that is organized with them they are four friends who met in their graduation education. Their names are Ibrahim Kaya, Bener Bozkurt, Umur Akdağlı and Cem Demirpençe. They all wanted to develop mobile games. So, they have developed so many mobile games since 2017 under the name of Suji Games. For example, Misa, Galactic Jump, Deeper, Spinner.io, Hyperball Legends are their famous mobile games. For this thesis, their products are going to be analyzed to gain more information about monetization strategies and how mobile game companies are using them.

4.2 PRODUCTS

Suji Games has so many mobile games that can be interpreted as successful ones. For this thesis, Spinner i.o and Hyperball is going to be compared.

4.3 MONETIZATION METHODS USED BY SUJI GAMES

When the mobile games of Suji Games are examined, it can obviously said that in-game advertising, in-app purchasing and subscriptions are essential monetization methods at the their mobile games. Co-founders said that if a mobile game company wants to make money, it has to find new users that like the game or needs the game players that are playing the game for a long time. Because of this reason, Retention and Conversion Rates of Spinner.io and Hyperball are really important to understand the success of the games. As it is explained before retention rate shows the percentage of users who launched an

application on the following days after downloading an app. So, monetization methods are connected with the retention rates.

4.4 IMPLEMENTATION TECHNIQUES OF MONETIZATION METHODS USED BY SUJI GAMES

According to interview that handled with Suji Games, they are using Unity 3D for the game engine platform. With the help of this Unity 3D game engine and third party software development kits that are integrated with Unity 3D, they are trying to optimize their revenue. When it can be looked at these software development kits that are sets of the developments tools, they are using MoPub as the advertising software development kit, Firebase software development kit which is developed by Google as the analytics, Monetization software development kit which is developed by Unity 3D as in-app purchases. At this point, most critical software development kit for monetization is analytic software development kit. They are using MoPub software development kit in order to show advertising that are coming from various advertising networks. It allows game developers to use just one software development kit instead of achieving integration for all networks separately. They are integrating source codes to game in true way. There are so many advertising networks. Thanks to Mopub mobile game developers can arrange all of them properly. In addition to this, there is another platform which is Waterfall that allows mobile game developers to show best advertising which has best impression and click rate. For example; one advertising is coming from Facebook network and its revenue is 3 USD for 1000 impression. At the same time, one advertising is coming from AdMob and its revenue is 5 USD. Waterfall shows, first of all, AdMob advertising because of the fact that it provides higher revenue to mobile game developer. So, according to this implementation, mobile game players see these advertising. In addition to this, it can be analyzed of integration techniques, first of all, they are integrating advertising ID codes into the source codes of the game for whole platforms that they present their games as below.

```
#if UNITY_IOS
```

```
    interstitialAdUnits = new string[] {  
        "4a272ecb519544df978e85a29fa4de0a" };
```

```

        rewardedAdUnits = new string[] {
            "07bf5d48e2ab4179acd6a93402a9260b" };
        bannerAdUnits = new string[] { "dee1f8b1c1c34f06afacf00fe1121c27" };

#ifdef UNITY_ANDROID || UNITY_EDITOR
        interstitialAdUnits = new string[] {
            "a733a4af43cc4747b511c37ebc4c72ba" };
        rewardedAdUnits = new string[] { "ebaec641e8784357ac19fc6f6ecdb7f9"
        };
        bannerAdUnits = new string[] { "b02b6b983ef94a6e8c6a96b5e782fc60" };

#endif

```

As it is seen above, game developers of Suji Games are arranging interstitial ads, rewarded ads and banner ads product IDs for both iOS and Android game platforms. Moreover, they are regulating configurations of these ad product IDs in order to be used for other networks.

```

var sdkConfig = new MoPub.SdkConfiguration
{

    AdvancedBidders = new[] { MoPub.AdvancedBidder.Facebook },
    AdUnitId = interstitialAdUnits[0],
    NetworksToInit = new MoPubBase.RewardedNetwork[]
    {
        MoPub.RewardedNetwork.Facebook,
        MoPub.RewardedNetwork.Unity,
        MoPub.RewardedNetwork.AdMob,
        MoPub.RewardedNetwork.AppLovin,
        MoPub.RewardedNetwork.IronSource,
        MoPub.RewardedNetwork.Vungle,
    }
}

```

```
}
```

```
};
```

As it is seen above , they adjust different advertising networks such as Facebook, Unity, AdMob (Google), AppLovin, IronSource and Vungle ad in order to use them together or separately. There are also other ad networks which mobile game developers can use however they are trying to take advantage from them. After finalizing this process, game developers need request from MoPub servers for all advertising products that they want to use separately as below.

```
public void RequestBanner()  
{  
    foreach (var banner in bannerAdUnits)  
    {  
        MoPub.CreateBanner(banner, MoPub.AdPosition.BottomCenter);  
    }  
}
```

```
public void RequestInterstitial()  
{  
    foreach (var inter in interstitialAdUnits)  
    {  
        MoPub.RequestInterstitialAd(inter);  
    }  
}
```

```
public void RequestRewarded(){  
    foreach(var rewarded in rewardedAdUnits){  
        MoPub.RequestRewardedVideo(rewarded);  
    }
```

After completing all of the settings, Suji Games show their ads in moments of best performance for users. If game developers need to start with banner ads first, they will set up a game to appear at the bottom when the game is first opened. As long as this game is open, it remains at the bottom of the screen and usually updates itself with new ads from the server in 30 seconds for instance they do not show more than 30 seconds of the same ad to the user. Banner ads are not liked by the developers for disrupting the visual elegance of the game and are the most disturbing advertisement for the mobile game players. Banner ads are technically lost in performance and developers must be technically ready to solve this problem. Banner ads are the lowest in terms of revenue, but they provide a significant contribution to their game's LTV that is life time value of the game. Secondly, when it can be looked at the advertising, interstitial ads are the most used methods for mobile game developers. They show in their games at the end of the episodes or when the players make mistakes and want to start again. One issue we need to be aware of here is not showing interstitial ads to the player frequently. It is very important to capture the value between them. Because of this critical point, game developers of the Suji Games guarantee that the user will only see one time within a time period given by the user with the code they will display below.

```
public bool CheckCanShowAd(DateTime checkTime)
{
    bool retBool = false;
    int diff =
GetDifferencesBetweenLastAdShownTimeInSecondsFrom(checkTime);
    //Debug.Log("Differences : " + diff);
    if (diff >= adFrequency)
    {
        retBool = true;
    }
    else
    {
        retBool = false;
    }
}
```

```

        return retBool;
    }

    public int
    GetDifferencesBetweenLastAdShownTimeInSecondsFrom(DateTime checkTime)
    {

        int retSeconds = 0;

        double check = (checkTime - lastAdShowTime).TotalSeconds;
        retSeconds = Mathf.RoundToInt((float)check);

        return retSeconds;
    }

```

According to information that is getting from Suji Games, they have checked the last time they showed the player each time s/he made a mistake or when s/he was game over before showing the ad. If this time is shorter than their set time, they do not show interstitial ads. In their games they found that by analyzing the data from the tests they performed in their games, which is the most optimized view of the player in only 30 to 45 seconds. When they prolong this period, mobile game developers give up the optimum income, shorten the time, shorten the user and reduce the daily interaction time or cause the user to not return the game by deleting the game. The most important point to be noted here is to catch the optimum income without tightening the player. In games of Suji Games, on average, one user sees 9 to 10 interstitial ads on the first day. This number decreases from 3 to 5 interstitial ads on second day.

Moreover, if it can be mentioned about rewarded ads, rewarded advertisements usually offer as a second chance when the player is game over at any point in the section. When game players are game over they come up with a panel and ask if they want to continue

where they left off. Based on the data from tests of Suji Games, they put this second chance on offer. It means that the mobile game players have no more than 5 seconds to accept this offer and the panel disappears within 5 seconds. If the player accepts this offer, s/he can resume his/her counterpart by tracking an average of 30 seconds. Rewarded ads are optimal and the most acceptable use by players is the second chance. Because the mobile game player accepts advertising tracking in advance and in return will get something valuable. Secondly, it is possible to double the coins or other units won by the player in the game or offer a small amount of in-game product for free. Rewarded ads give the developer maximum gain. Rewarded ads usually get ads from other games or applications. When the player downloads the application or game presented in the ad they watched, the developer gets revenue. In our games, the average of 0.89 rewards per day user is viewed and they try to increase this value to one rewarded video per user per day.

In addition to this, Suji Games usually offers two kinds of in-app purchase products to their users. The first one is the "No Ads" product, where mobile game players can remove the ads that is described above step by step, another is the weekly or monthly membership system which is subscription. If they like after 3 days free trial period in the membership systems, mobile game players can resume or cancel their membership. During this membership, game developers offer their players free daily in-game currency, characters they can use in the game they can't get any other way, and ad-free play. The different characters that are presented to their members do not have the superiority of power and speed compared to the other characters used in the game. Suji Games also want their non-member users to be on equal terms with their other players, so they don't offer a product that will give their mobile game players the advantage of being a member of their membership system. This is completely given for cosmetic purposes with hats, colors, stickers and visual effects.

As it is mentioned earlier for in-app purchases, Suji Games use Unity 3D's Monetization and the in-app purchase software development kit. Firstly, they include the product identities of all their products that they offer to the users in their source code to get the information from google play and apple store servers. Suji Games usually do this when their games first start.

```

public void InitializePurchasing()
{

    if (IsInitialized()) return;

    ConfigurationBuilder builder =
ConfigurationBuilder.Instance(StandardPurchasingModule.Instance());

    builder.AddProduct(noads, ProductType.NonConsumable,new IDs()
    {
        {"com.suji.spinner.noads", AppleAppStore.Name
    }, {"com.suji.spinner.android.noads", GooglePlay.Name}

    });

    builder.AddProduct(premium, ProductType.Subscription, new IDs() {

        {"com.suji.spinner.premium", AppleAppStore.Name },
        {"com.suji.spinner.android.premium", GooglePlay.Name}

    });

    UnityPurchasing.Initialize(this, builder);

}

```

As it is seen, "Premium Membership" and "No Ads" are adjusting the products with product IDs for android and ios for both platforms. Then they set the places where they will give the user the features, services, in-game currency we provide to the user in case

of purchase of the products we offer to the user. Thanks to the code that Unity Monetization and the in-app purchase software development kit provide to us, we can easily get the status of these purchases.

For example;

```
public PurchaseProcessingResult ProcessPurchase(PurchaseEventArgs e)
{
    Debug.Log("unity-inapp-purchase-success : " +
e.purchasedProduct.definition.id);
    Debug.Log("unity-inapp-purchase-reciept : " + e.purchasedProduct.receipt);

    if (String.Equals(e.purchasedProduct.definition.id, premium,
StringComparison.Ordinal))
    {
        Debug.Log("unity-inapp-transaction-complete : " +
e.purchasedProduct.definition.id + " **");
        //Logic
        PremiumCallBack();
    }
    else if (String.Equals(e.purchasedProduct.definition.id, noads,
StringComparison.Ordinal))
    {
        Debug.Log("unity-inapp-transaction-complete : " +
e.purchasedProduct.definition.id + " *");
        //Logic
        NoadsCallBack();
    }
    else
    {

```

```

        Debug.LogWarning("unity-inapp-transaction-failed : " +
e.purchasedProduct.definition.id + " not found!");
    }

    return PurchaseProcessingResult.Complete;
}

```

For instance, if it is looked at the lines of code that has given as an example, game developers can get the result of the purchase made by the users by running the "PurchaseProcessingResult" lines items such as service, feature and in-game currency that game developers offer to the user can be given within these lines of code. However there is an important point here that if the server is not checked for the correctness of this purchase, such use will be inaccurate. Because the accuracy of the purchase is made by the user's own phone and this will make it very easy for the mobile game players to use this service without any money. Let's say mobile game companies have a small team and they cannot approve these purchases with their own servers. At this point, Unity 3D has a validation algorithm that allows mobile game developers to secure their in-app purchases using this algorithm.

Source code lines are as follows;

```

public PurchaseProcessingResult ProcessPurchase(PurchaseEventArgs e)
{
    bool validPurchase = true;
    var validator = new CrossPlatformValidator(GooglePlayTangle.Data(),
AppleTangle.Data(),Application.identifier);
    #if UNITY_ANDROID || UNITY_IOS
    try
    {
        var result = validator.Validate(e.purchasedProduct.receipt);
        foreach(IPurchaseReceipt productReceipt in result)

```

```

    {

        Log("Validator -----> Valid Transaction " + productReceipt.transactionID);

    }
}
catch(IAPSecurityException ex)
{
    Log("Validator ----> Invalid Transaction");

    validPurchase = false;
}
#endif

#if UNITY_EDITOR
    validPurchase = true;
#endif
if (validPurchase)
{
    // *****
}

return PurchaseProcessingResult.Complete;
}

```

Suji Games use the previously mentioned "PurchaseProcesingResult" function, but this time it is being checked using Unity 3D servers to determine whether the purchase process is "validPurchase". As a result of each purchase, the platform servers create an encrypted invoice. After making sure that the invoice has been purchased by sending the Unity 3D game engine to its servers, the service and features you provide to the user by typing the logic into the area marked as " ***** " game developers can give. Now in-app products have been secured.

Figure 4.1 : Subscription Screens of Hyperball Legends and Spinner.io



Source: Spinner.io and Hyperball Mobile Games

If figure 4.1 analyzed, there are the subscription screens for Spinner.io and Hyperball Legends for the two above mentioned games. The important point here is to clearly show all the items presented to the user. It is necessary to ensure that the given characters are displayed in the most attractive way. As it is seen in two different implementations, the title and background colors used are colors close to each other and they are completely decorated with effects to attract the attention of the mobile game player. One has an extra monthly membership option, but it can easily be said that the overall buying tendency of the users is in the direction of weekly membership

Moreover, Suji Games follow the data of day 1 and day 3 retention rate. The retention data which is required for this kind of mobile games are day 1 40-50 , day 3 25-30 and day 7 10-20. In the first tests they made, they start to think about the 7th day retention rate as a team if the 1st day and 3rd day retention rate is in the range they want. How they can improve better, and they're starting to think about how they can keep the game users in the game more often. They're trying to provide to mobile game users with daily and

weekly prizes by adding new characters to new chapters that usually add new content into the game. As long as the player can catch the feeling of progress in the game s/he is playing, his/her interaction with the game becomes more permanent. Retention rates help to game developers to calculate the game's Life Time Value. The simplest of first tests is that Suji Games only test the mechanics of the game because day 1 is for measuring the user engagement. The stronger the mechanics of the game, the more likely we are to keep the player in the game. It is seen below Spinner.io retention rate data.

Figure 4.2 : Retention Rate Data of Spinner.io

	0. Gün	1. Gün	2. Gün	3. Gün	4. Gün	5. Gün	6. Gün	7. Gün	8. Gün	9. Gün	10. Gün
	%100	%45,3	%30,2	%22,4	%17,9	%15	%13,2	%12,1	%10,1	%8,5	%7,7
29 Eki 56.007 Kullanıcı	%100	%48,2	%33,3	%24,5	%20,5	%16,6	%13	%10,7	%8,7	%8	%7
30 Eki 51.001 Kullanıcı	%100	%50,7	%34,1	%26,6	%21,1	%16	%12,5	%10,9	%9,5	%8,4	%7,6
31 Eki 45.958 Kullanıcı	%100	%47,8	%35,4	%25,8	%18,8	%14,7	%12,5	%10,8	%9,4	%8,5	%9,6
1 Kas 36.114 Kullanıcı	%100	%49,1	%32,9	%23,1	%18,1	%14,4	%12,2	%10,6	%9,6	%10	%10,6
2 Kas 50.664 Kullanıcı	%100	%48,9	%31,4	%23	%18,3	%15,1	%12,5	%11,4	%11,6	%11,7	%9,6
3 Kas 95.688 Kullanıcı	%100	%47,8	%27,4	%21	%16,1	%13,6	%11,9	%15,1	%13,9	%9,8	%7,4
4 Kas 99.753 Kullanıcı	%100	%40,1	%27,4	%19,5	%15,5	%14,2	%16,4	%15,2	%10,1	%7,4	%6,5
5 Kas 65.221 Kullanıcı	%100	%43,6	%29,3	%21,6	%17,8	%16,9	%15,6	%12,1	%9,3	%7,9	%7,2
6 Kas 58.862 Kullanıcı	%100	%41,3	%27,8	%21,1	%18,9	%15,8	%12	%9,5	%7,9	%7,1	%6,7
7 Kas 44.052 Kullanıcı	%100	%41,7	%29	%23	%18,5	%14,6	%11,6	%9,9	%8,3	%7,4	%7,5
8 Kas 33.830 Kullanıcı	%100	%43,4	%30,5	%22,5	%17,1	%13,6	%11,4	%9,9	%8,7	%8,3	%8,9

Source: Suji Games

Spinner.io on the dates of the first test Suji Games received an average of 45.3% day 1, 22.4% day 3 and 12.1% day 7 data. Another data they pay attention to is that the number of new users per day is over 10,000 users. This helps game developers to get a sample globally. Before launching the globally, they saw the most accurate data with a daily minimum of 10,000 new users.

Figure 4.3: Retention Rate Data of Hyperball

	0. Gün	1. Gün	2. Gün	3. Gün	4. Gün	5. Gün	6. Gün	7. Gün	8. Gün	9. Gün
	%100	%38,6	%26,2	%20,7	%17	%14,2	%12,7	%11,8	%10,1	%8,8
24 Oca 14.148 Kullanıcı	%100	%45,6	%33,6	%26,6	%19,3	%17,3	%14,9	%13,6	%12,2	%12,4
25 Oca 22.174 Kullanıcı	%100	%42,8	%28,5	%20	%17,1	%15	%13,1	%12,7	%12	%10
26 Oca 29.479 Kullanıcı	%100	%37,8	%21,2	%17,7	%15	%12,9	%12,6	%13,3	%11,2	%7,1
27 Oca 106.049 Kullanıcı	%100	%42,2	%30,7	%25,4	%20,7	%18,2	%18,5	%15,9	%12	%10,2
28 Oca 140.162 Kullanıcı	%100	%42,7	%31	%25	%21	%17,8	%15,4	%13,5	%11,7	%10,6
29 Oca 188.100 Kullanıcı	%100	%42,2	%29,4	%23,7	%20,1	%16,3	%13,5	%12,2	%10,7	%9,5
30 Oca 218.902 Kullanıcı	%100	%39,5	%27,4	%22,5	%17,5	%13,9	%12,1	%11	%9,6	%8,8
31 Oca 210.771 Kullanıcı	%100	%36,9	%25	%19,1	%15,1	%12,8	%11,1	%10,3	%9,1	%8,7
1 Şub 184.446 Kullanıcı	%100	%35,2	%23,1	%17,1	%14,2	%12,2	%11	%10,4	%9,4	%8
2 Şub 197.570 Kullanıcı	%100	%33,7	%19,9	%15,4	%13,2	%11,2	%10,6	%11,3	%9	%6,6

Source: Suji Games

When Hyperball was first tested, we got 38.6% day 1, 26.2% day 3 and 11.8% day 7. The first two days it is tested, they took a small amount of users, and then they started to get a lot of users organically. Although organic users have retired retention rates slightly, they have acquired data close to the metrics which is aimed. As a result of the information received and the tests they have done, the retention of organic users is lower than the ones purchased with advertising. However, when the organic incoming user does not have advertising costs, Life Time Value has a great effect. Another data paying attention here is the organic download rate. While Spinner.io this rate is 0.45, this rate is approximately 0.90.

5. EMPIRICAL RESEARCH AND DATA ANALYSIS

“The most basic way of characterising qualitative research is by describing the kind of data it generates: that is, the data is usually in the form of words in contrast to the numbers generated by quantitative research.” (Green & Thorogood 2018, p7) . Within this respect, in order to find clear and right answers for research question: *which monetization strategy is most suitable and effective for mobile games? And how to integrate monetization models inside of the games?* Both qualitative and quantitative data were collected.

5.1 DATA COLLECTION

In order to get qualitative data for this research, an interview with co-founders of Suji Games was arranged. The purpose of this interview is to understand the perspectives of this company about monetization strategies when they launched a mobile game. In addition to this, quantitative primary data was gathered with a questionnaire that handled with mobile game players in order to understand the opinions of customers who are mobile game players.

5.1.1 Interviews

First part of the data collection was the interviews with the co-founders and at the same time game developers of Suji Games. “Most text books will tell you that interviews range through a continuum, from structured, through semi-structured, to unstructured (or focused) interviews” (Bryman 1988). The structured interview is at the quantitative end of the scale, and mostly it is used in survey approaches. “A considerable range of qualitative approaches use semi-structured and unstructured interviews.” (Edwards & Holland 2013) For the qualitative research, semi-structured and unstructured interview is preferred due to increasing levels of flexibility and without structure. An unstructured interview is a type of interview where open-ended questions are asked. It is a form of interview which gives the interviewer the freedom of movement and jurisdiction, flexible, personal opinions and judgments. The researcher has to constantly reconfigure himself / herself according to the person who is interviewed and to prepare and ask new questions

according to the answer given. The interview may also take place partly in the air of conversation. These interviews are more useful in identifying important variables related to the problem at the initial stages of research. The aim is to make a discovery about a subject and the researcher can interpret his / her responses according to the research target. Because of this reason, unstructured interview is chosen for this thesis.

The interview with Suji Games was handled at their office in Levent thanks to face to face meeting. Four people in total were asked about their monetization strategies with open-ended questions. All people who participated in the interview tried to answer questions as agreed. At the end of the interview, the information about Suji Games and their products, monetization methods that are used by them, retention and conversion rates examples of their games, essential factors that affect their revenue and implementation techniques of monetization methods were shared by game developers of Suji Games. the list of all questions that are asked to Suji Games can be found at appendices

5.1.2 Questionnaire

Questionnaire is a predefined series of questions used to collect information from individuals. ¹⁴The questionnaire was conducted among the mobile game players to gain their feelings and ideas while playing a game. This method may include both open-ended questions and close-ended questions. The attendees of this questionnaire are given a list of predetermined responses from which to select their answer. Closed-ended questions are asked because of easy to measure results in survey researches. At the questionnaire which is used for this thesis, closed-ended questions were asked to respondents and a question option has been added that allows people to select multiple responses from the list of response options in order to understand what kind of mobile games are playing at the same time. This implementation helps to avoid restriction of the answers of the respondents.

¹⁴ Data Collection, <https://www.researchconnections.org/childcare/datamethods/survey.jsp> , [accessed 05 Apr 2019]

When it comes to another important issue for questionnaire research method, detecting the sample which will represent the population well, random sample method was used for this questionnaire. Respondents are chosen from the students of the Bahcesehir University and the workers of the one game company. Questions are sent randomly to e-mail addresses of the respondents. Results were tried to collected thanks to the google survey tool.

5.2 DATA ANALYSIS

5.2.1 Qualitative Data Analysis

As it was mentioned before, at the unstructured interview method, the questions are open-ended, with in-depth data collection. This type of interview is a powerful technique for obtaining rich and valuable data. Questions are asked in the natural flow of interaction. The way in which the interview will go is not predicted. This technique is one of the methods used when there is not enough information about the subject. Because the subject of this thesis include mostly technical information about monetization techniques that are implied by mobile game companies. The interview was spent in the daily conversation mood. Questions at the appendices were determined at the interview at that moment. According to answers of questions, the information was gained and explained in case study chapter. It can obviously be said that in-game advertising, in-app purchasing and subscriptions are essential monetization methods at the the mobile games which are created by mobile game developers. In addition to this, Retention and Conversion Rates of mobile games are really important to understand the success of the games because they are affect the revenue of the game directly. Delivering the right type of ad at the right frequency, and at the right time are also crucial to be successful. Because mobile game players can be bored to see too much advertising. For example at the rewarded ad, mobile game players have no more than 5 seconds to accept the offer and the panel disappears within 5 seconds in mobile games of Suji Games. We can assume that this implementation is used by the other mobile game companies. Because, it is important to note that the player does not get bored and return to the game after a day. It is directly related with the retention rate of the mobile game. In addition to this, when it can be looked at interstitial

ads, mobile game developers need to be aware of not showing interstitial ads to the player frequently. It is very important to capture the value between them. Because of this fact, mobile game companies can guarantee that the user will only see one time within a time period. In addition to this, according to interview which is organized with Suji Games, they are not using only one monetization model. It can obviously be said that the income from one mobile game can be further increased by using not only one monetization method in one game but more than one at the same time. Because of this implementation, mobile game companies may get much more income from each method.

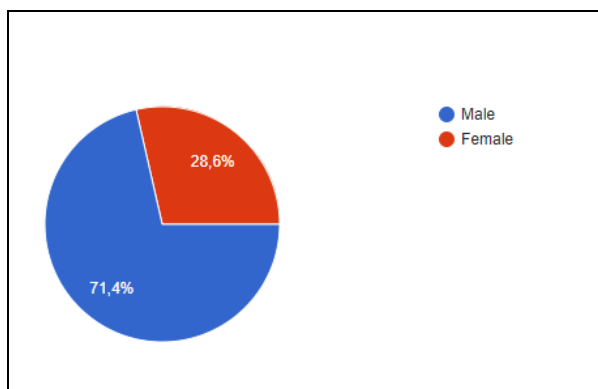
5.2.2 Quantitative Data Analysis

According to questionnaire which is used for this thesis, 10 questions are asked to people who are both students and workers within mobile game industry. Answers came from google survey tools directly. When it can be analyzed the answers of the questions one by one, results can be shown as below;

Question 1: What is your gender?

Mobile game companies need to show their ads to the right audience to earn more money. Because of this reason, target people that are playing mobile game more should determined properly. Thanks to this question, which gender is interested in playing mobile game more or is willing to pay money while playing mobile game. According to graph below, it can easily be said that male choice is selected more than female. Questionnaire is organized with the game design students and workers in a game company. At this stage, result of this question is affected the gender breakdown directly.

Figure 5.1: Result of Question 1

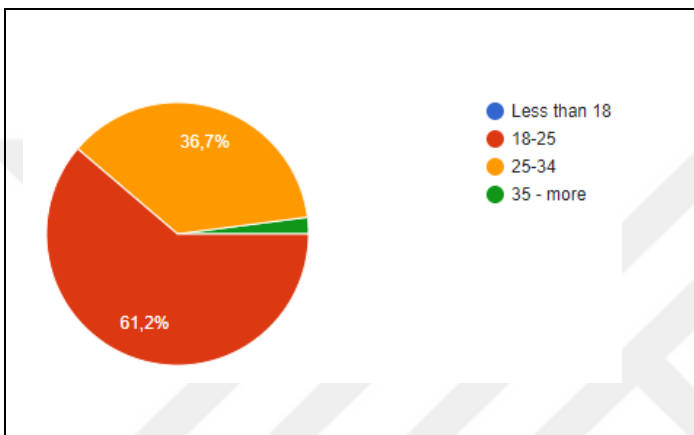


Source: Google Forms

Question 2: How old are you?

Because of the same intent with question 1, in order to have right target this question is asked. Answer of this question explains the choices of age categories. 18-25 and 25-34 were chosen most because of the fact that survey was provided to these age groups mostly. Both university students and workers at the mobile game company are at these age groups. So, result of this question is affected by the population at the university students.

Figure 5.2: Result of Question 2

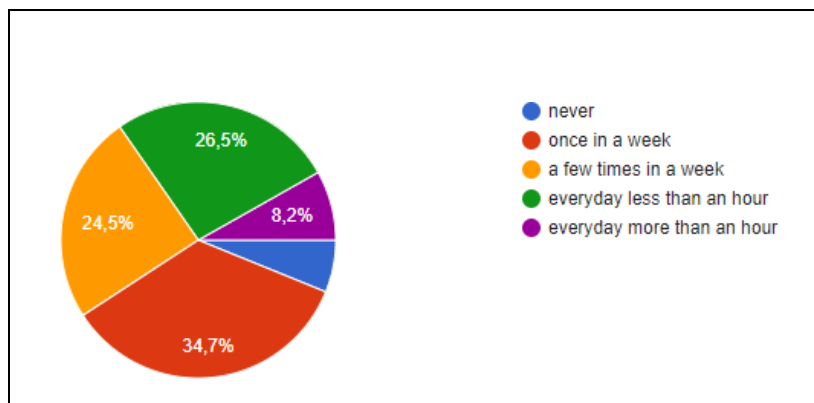


Source: Google Forms

Question 3: How often do you play mobile games?

This question was about the time spent while playing mobile game. It is interesting that each category of the answer was chosen by respondents. However 34.7% of 51 respondents have chosen once in a week.

Figure 5.3: Result of Question 3

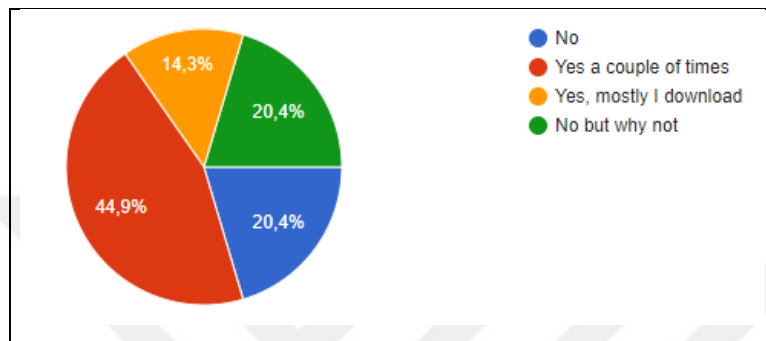


Source: Google Forms

Question 4: Have you ever downloaded paid games from store?

Due to this question, the level of willingness of paying money of respondents is tried to measured. According to this questionnaire, 44.9% of 51 respondents have chosen yes a couple of times. It means that people still pay money to download a game which they are interested in.

Figure 5.4: Result of Question 4

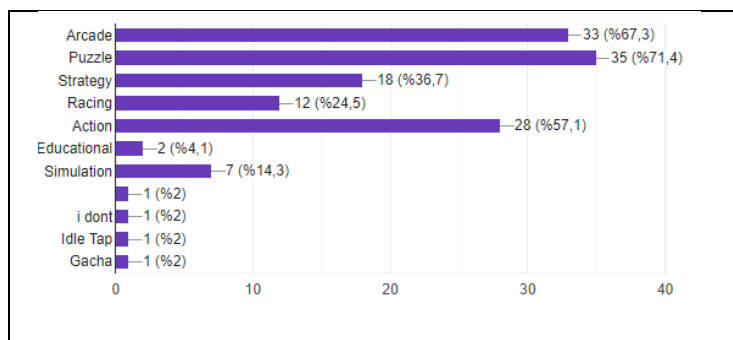


Source: Google Forms

Question 5: What kind of mobile games do you play?

Respondents have the right to mark multiple options in this question to better understand which games they play. In addition to this, one choice is left blank to allow them writing another types of mobile games that are not at the list. Which game is played more by people, more monetization can be used in that game. It can be clue for the mobile game companies. According to result of this question, most of mobile game players prefer to play puzzle, arcade and action games.

Figure 5.5: Result of Question 5

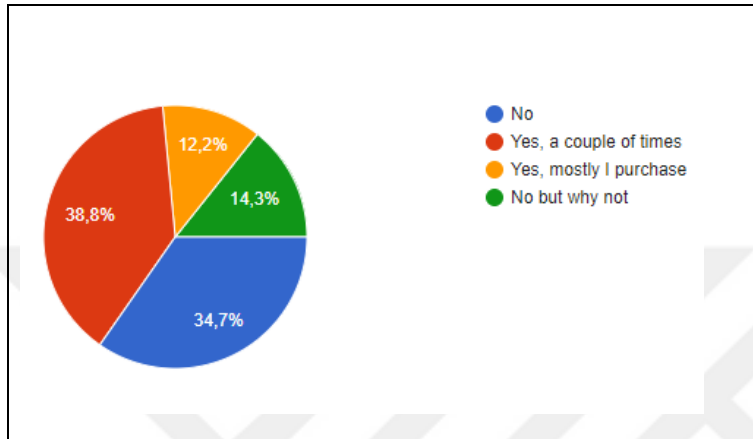


Source: Google Forms

Question 6: Have you ever purchased something while playing free game?

Like the same aim with question 4, willingness of paying money of respondents is tried to measured. However, 34.7% of respondents say No and 38.8% of respondents have preferred to mark yes a couple of times.

Figure 5.6: Result of Question 6

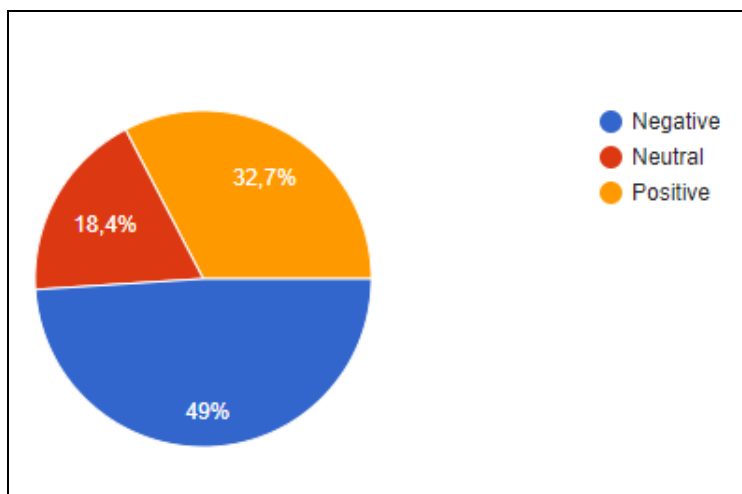


Source: Google Forms

Question 7: How do you feel about paying money to pass new levels while playing a mobile game?

In order to have better understanding of the behaviours of mobile game players, this question is asked to respondents. Most of respondents are negative about passing new levels by paying money.

Figure 5.7: Result of Question 7

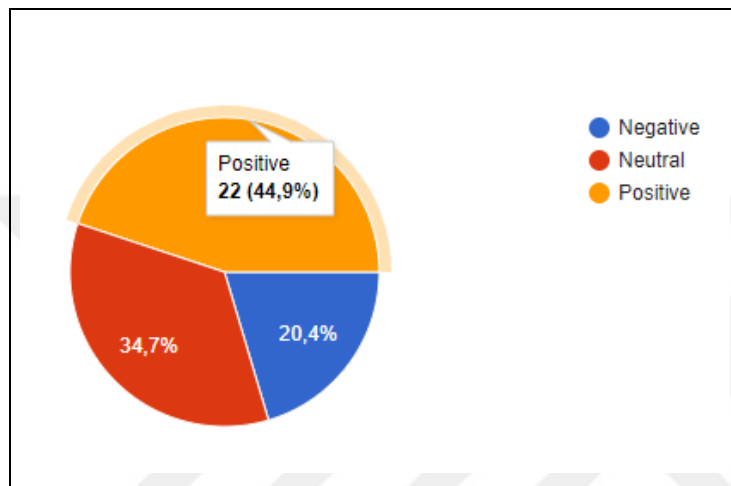


Source: Google Forms

Question 8: How do you feel when you purchased new features while playing a mobile game?

This question is same with question 7, however at this question new features are offering to mobile game players and they are positive to pay money to have new features or characters in a mobile game.

Figure 5.8: Result of Question 8

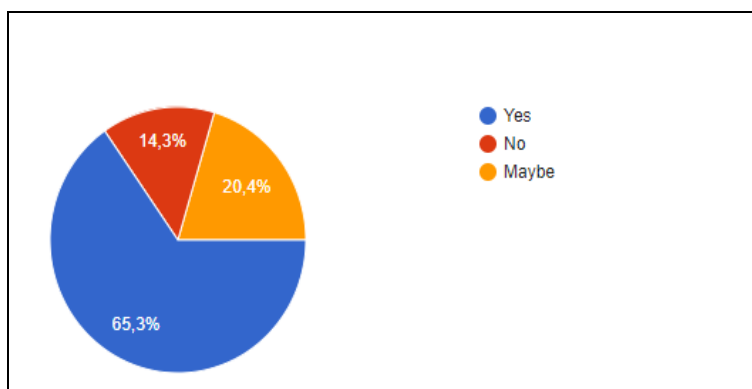


Source: Google Forms

Question 9: Do you prefer to watch a video ad to get some kind of reward?

Because of this question, whether mobile game players is paying money to get reward or watching a video is tried to understand. If a mobile game player do not want or prefer to pay money to get more coins or features, this monetization method can bring more benefit because of the advertising revenue.

Figure 5.9: Result of Question 9

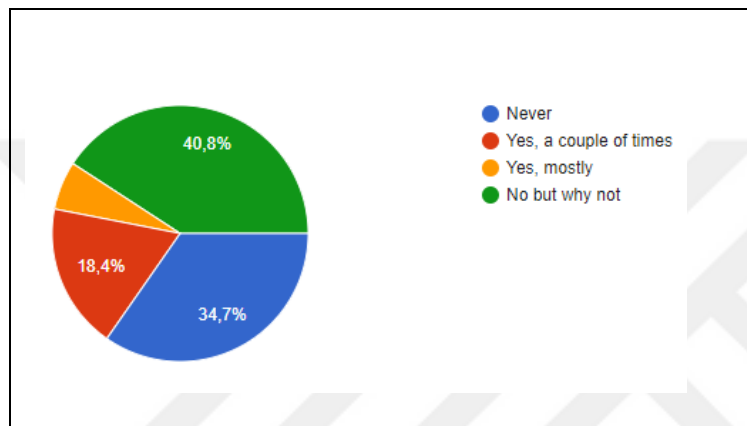


Source: Google Forms

Question 10: Have you ever subscribe some features in a game to get coins once a week/month?

Thanks to this question, the popularity of the subscription was analyzed. As it is mentioned at the subscription chapter, the share of using subscriptions in worldwide mobile games revenue is not so high. According to general answers of this question, mobile game players do not prefer

Figure 5.10: Result of Question 10



Source: Google Forms

6. RECOMMENDATIONS FOR MONETIZATION METHODS

The main aim of this research was to find proper ways to improve monetization strategies and their techniques. Mobile game companies use different monetization methods. It can easily be said that in-game advertising, in-app purchasing, subscriptions and paid game are most used ones. According to answers of the respondents at the questionnaire, each mobile game player has different behavior while playing mobile game and they prefer different kinds of mobile games at the same time. The respondents were asked about their attitudes towards different monetization models for example subscriptions. The mobile game players who are at the 18-34 ages do not prefer so much to subscribe monthly or weekly in a game. However, it can not be said that this model is inefficient. According to figure 4, %4 of revenue is coming from subscriptions. Mobile game companies should analyse this carefully and determine right target to use this monetization methods with others. Then, they should analyse mobile game players behaviours well. For example, how many seconds they watch video? Until which levels they can reach and how many times they see an ad? Do they prefer to close ad? Which subscription method they prefer weekly, monthly, yearly? What kind of contents they prefer to buy? Because creating great content is essential to catch the attention of the mobile game players. Showing too many ads to players are not effective because of decreasing retention rate. And mobile game players mostly prefer to purchase while playing game to have new features not to pass new levels. So, this show one more time the importance of the content that catch the players and selling them some features within the game to increase in-app purchases. In addition to this, so many mobile game companies are using different kinds of software development kits to improve for example monetization, advertising etc. In addition to this, analyzing important rates by testing can be crucial for game developers. Retention rate, impression rate, daily and weekly active users, daily session time, CPM, CPU, CPI, rate of virality, LTV etc. All of these rates have effect on the efficiency of the mobile game. Moreover, it is mentioned at the in-app purchases part it has significant revenue and focusing on the top spenders while creating a game can increase the revenue in total.

7. CONCLUSION

With the help of this study the answers of what are the monetization methods for mobile games, which monetization strategy is most suitable and effective for mobile games, how to integrate monetization models inside of the games, what are the principal factors to maximize ad monetization in mobile games are tried to detected. Both quantitative and qualitative data are collected with the inductive approach. In order to have the qualitative data, an interview was carried out with one of the mobile game companies Suji Games. In addition to this, for the quantitative data a questionnaire was realized with the university students at the department of game design and the workers at a mobile game company in Istanbul. This sample is chosen randomly however in order to assume that all respondents are interested in playing mobile game, related sample at this industry is detected. At the end of the collecting both primary and secondary data, it can obviously be said that in-game advertising, in-app purchasing, subscriptions and paid game monetization methods are most used ones. Each monetization method has different advantages. In-game advertising is used by so many mobile game companies. There are different kinds of advertising that game developers can use in order to get more revenue for instance rewarded video, interstitial ads and offerwall ads. The most important advantage of this monetization method is getting the mobile game players who are not willing to pay money while playing mobile game. Because, according to questionnaire, most of respondents clicked the yes button to question of do you prefer to watch a video ad to get some kind of reward. It means that so many respondents do not prefer to pay money to get coin or another kind of reward. They prefer to watch a video for free to gain some features. So, according to secondary data, video ads and display ads have crucial share of the revenue are coming from a mobile game. When it comes to in-app purchases, according to the secondary data which is getting from statista, it says that %43 of the revenue comes from in-app purchases in US. The behaviours of the mobile game players are changing according to the gaming market of the countries. It affect their attitudes while playing game. In spite of the fact that US mobile game players prefer to buy some features by paying money in game, In Turkey this is a little bit different. At the questionnaire, to question of the have you ever purchased something while playing free game, most of respondents said no. However, the share of those

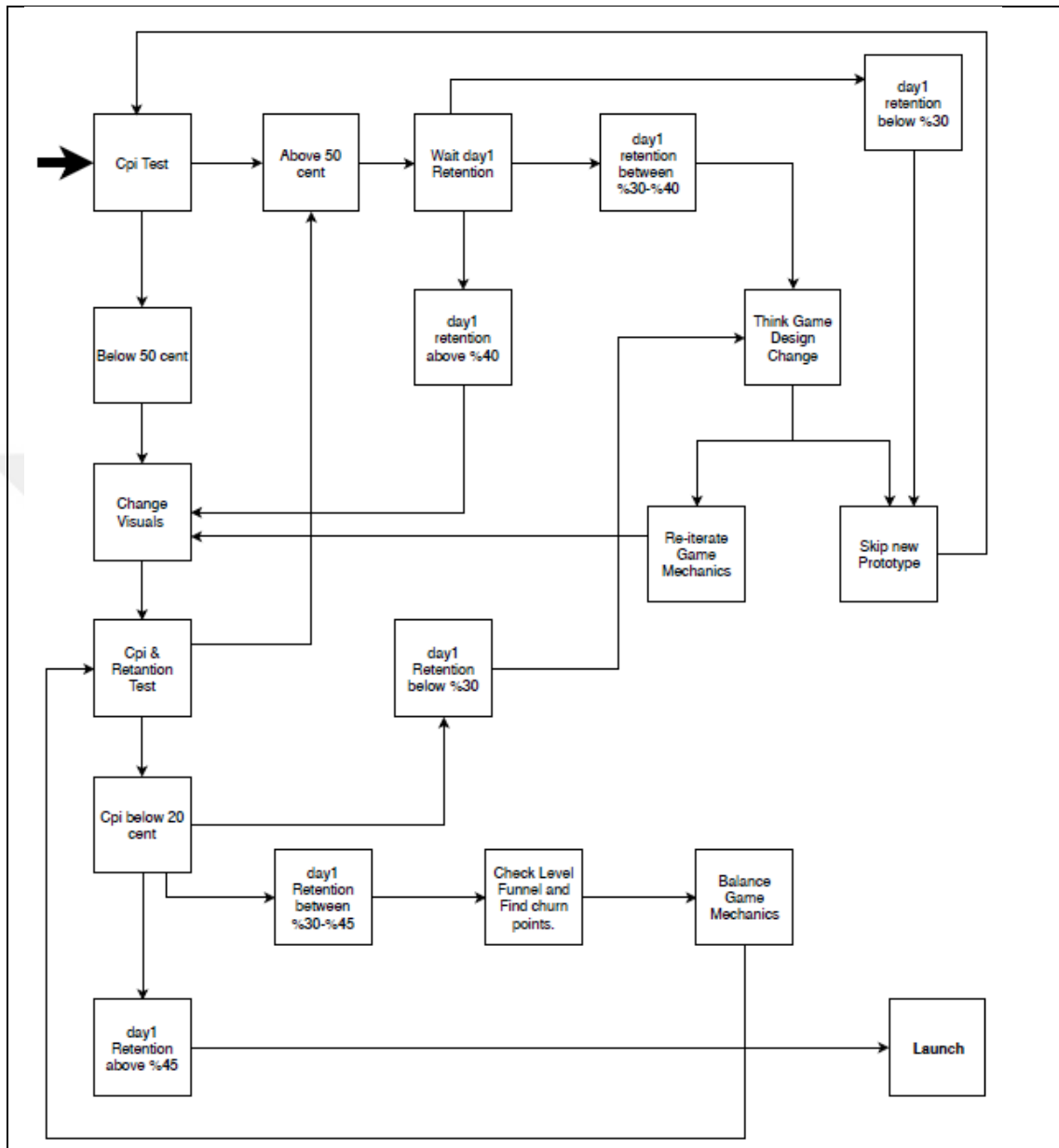
who say yes should not be ignored. This method can be used to keep people who choose yes for this question in the game and to generate revenue through them. When it comes to subscription monetization model, this method is becoming a popular recently in Turkey. It's revenue share is only 4%. Moreover, according to survey, most of mobile game players do not prefer to subscribe weekly or monthly in a game. However, this monetization method can be used with the others at the same time. It does not have any risk for mobile game companies. At this point, the attitudes of the users should be detected. For example, the the overall buying tendency of the users is in the direction of weekly membership. It means that the mobile game company that want to use this method, should focus on the quality of weekly membership subscription model. When it comes to paid monetization model, trend is changing and mobile game users do not prefer to pay money to download the app. Both mobile game companies and players focus on free to play mobile games. According to questionnaire, there are still so many mobile game players who prefer to download paid game app. However, its revenue share is not so high when it is compared to other methods. At this point, mobile game companies can use different monetization methods at the same time. However, they should determine the attitudes of the mobile game users carefully. For example, according to results of the questionnaire, most popular types of mobile games are puzzle, arcade and action. It can be said that the number of the users of this kinds of mobile games is high. So, mobile game companies may generate more revenue at these mobile games. But, according to interview with the Suji Games, it is not true that showing to many ads to mobile game users. Mobile game companies should guarantee that the user will only see one time within a time period given by the user with the codes which are explained implementation chapter in detailed. Otherwise, mobile game users can delete the game after seeing so many ads. The other important point is the essential factors that affect the maximization of revenue. At this point, most crucial thing is the higher impression rate. Because of this reason, most mobile game companies are working with publishers to get more daily active users. In addition to this, serving users the great content is really important. It means that great video ads or interstitial ads and offerwall ads may affect the quality of impression. By delivering the right type of ad at the right frequency, and at the right time, mobile game developers and publishers may maximize their revenue. When it

comes to integration, it can be looked at software development kits that are sets of the developments tools, MoPub is using as the advertising software development kit, Firebase software development kit which is developed by Google as the analytics, Monetization software development kit which is developed by Unity 3D as in-app purchases. At this point, most critical software development kit for monetization is analytic software development kit. Mobile game companies can support their monetization strategies thank to these software development kits. More detailed information was provided at the case study chapter. The other important point is retention rate and and conversion rate. Mobile game company should analyze these two critical rate because of the fact that these rates affect the revenue which is generating through mobile game. Because two-thirds of people stop playing next day. So, retaining the mobile game players is becoming difficult at this stage. The retention data which is required for all kind of mobile games are day 1 40-50 , day 3 25-30 and day 7 10-20. If mobile game companies bring all these critical points together, it can obviously be said that they can get more money thanks to monetization methods. If it can be explained step by step at the below chart will be beneficial. First of all, the game is making ready for testing. Analytical tools and monetization tools are included to get the game ready for testing and measuring the number of downloads. After the game is ready for testing, cost per install (cpi) is tested. When a user costs over 50 cents, the first day retention data is waited. When the retention data is below 30% on the first day, both cpi is high and retention is low, so it is decided to quickly switch to the new prototype. Between 30% and 40%, it is decided to resume the prototype or switch to the new prototype. If it is to continue, the game visuals will be improved and taken again in a test. At the first test result of CPI, if it came under 50 cents indicates that the game is marketable and without the first day retention rate of visual improvement work begins. When the second test is entered, if it is reduced to less than 20 cents and the retention rate of the first day is between 30% and 45%, the user behaviors obtained with the help of the analytical tool are analyzed to determine the points where the user stops playing. The data obtained from these analyzes are applied to the game and made ready for the next test and the retention is repeated until the first day retention is above 45%. In other words, the test loop continues until CPI below 20 cents and retention rate of more than 45% is achieved. Once these values

are captured, the game is ready to launch. If the CPI and first day retention rate do not reach the desired levels during these tests, the user data in the analytical tool is analyzed and a decision is made to continue the game or to switch to a new prototype. In games which have an average CPI and first-day retention rate, if a desired value can not be reached as a result of 2 or 3 iterations, a new prototype is quickly passed. Ideal values as shown in the flow chart below 20 cent CPI and 45% above the first day retention rate. This is interpreted according to the data obtained from the tests before the launch. After the game launches globally, with the increase in the number of users ,both CPI values increase and retention values decrease on the first day. Therefore, finding the best values before launch ensures optimal game life and revenue.



Figure 7.1: Flow Chart of Gaming Process



REFERENCES

Books

- Alomari, K. M., Soomro, T. R., & Shaalan, K. (2016, August). Mobile gaming trends and revenue models. In International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems (pp. 671-683). Springer, Cham
- Au, W. J. (2012). Game design secrets (Vol. 168). John Wiley & Sons.
- Beg, I., Van Looy, J., & All, A. (2014, October). Evaluation of the game development process of a location-based mobile game. In European Conference on Games Based Learning (Vol. 1, p. 26). Academic Conferences International Limited.
- Bryman, A. (1988) Quantity and Quality in Social Research , Unwin Hyman ISBN 0043120407, 9780043120408
- Choi, D., & Kim, J. (2004). Why people continue to play online games: In search of critical design factors to increase customer loyalty to online contents. CyberPsychology & behavior, 7(1)
- Edwards, Rosalind & Holland, Janet (2013) What is Qualitative Interviewing, Bloomsbury Academic , eISBN 978-1-8496-6802-6
- Fields, T., & Cotton, B. (2011). Social game design: Monetization methods and mechanics. CRC Press.
- Gavalas, D., & Economou, D. (2010). Development platforms for mobile applications: Status and trends. IEEE software, 28(1),
- Green, Judith & Thorogood, Nicki (2018) Qualitative Methods for Health Research SAGE Publications ISBN:978-1-4739-9710-3
- Marolf, Gerald. Advergaming and In-game Advertising Omniscryptum Gmbh & Company Kg., 2007 ISBN: 3836402858, 9783836402859
- Paavilainen, J., Korhonen, H., Alha, K., Stenros, J., Koskinen, E., & Mayra, F. (2017, May). The Pokémon GO experience: A location-based augmented reality mobile game goes mainstream. In Proceedings of the 2017 CHI conference on human factors in computing systems (pp. 2493-2498). ACM.
- Periáñez, Á., Saas, A., Guitart, A., & Magne, C. (2016, October). Churn prediction in mobile social games: Towards a complete assessment using survival ensembles. In 2016 IEEE International Conference on Data Science and Advanced Analytics (DSAA) (pp. 564-573). IEEE.

Penny de Byl (2015), Holistic Mobile Game Development with Unity , Focal Press,
ISBN: 978-0-415-83923-5
Roy, Avisekhar (2016), The Android Game Developer's Handbook , Packt Publishing
ISBN: 978-1-78588-586-0



Articles

- Abend, Gabriel. "The Meaning of Theory." *Sociological Theory* 26 (June 2008): 173–199; Swanson, Richard A. *Theory Building in Applied Disciplines*. San Francisco, CA: Berrett-Koehler Publishers 2013.
- Aguado, J. M., & Martínez, I. (2014). Feeding digital omnivores: The impact of mobile media in digital entertainment. *The Routledge companion to mobile media*
- Alha, K., Koskinen, E., Paavilainen, J., & Hamari, J. (2016, August). Critical Acclaim and Commercial Success in Mobile Free-to-Play Games. In *DiGRA/FDG*.
- Annanperä, E., Yli-Kantola, J., Sauvola, T., Heinonen, S., & Siira, E. (2018, May). Testing methods for mobile game development a case study on user feedback in different development phases. In *2018 IEEE 6th International Conference on Serious Games and Applications for Health (SeGAH)* (pp. 1-8). IEEE.
- Arora, S. (2014). To free, or not to free: the impact of free versions, average user ratings, and App characteristics on the adoption speed of paid mobile Apps (Doctoral dissertation).
- Askelöf, P. (2013). Monetization of social network games in japan and the west.
- Drachen, A., Lundquist, E. T., Kung, Y., Rao, P., Sifa, R., Runge, J., & Klabjan, D. (2016, September). Rapid prediction of player retention in free-to-play mobile games. In *Twelfth Artificial Intelligence and Interactive Digital Entertainment Conference*.
- Harviainen, Tuomas & Somasundaram, Jukka Ojasalo & Kumar, Nanda (2018) Customer preferences in mobile game pricing: a service design based case study ,
- Hsiaoa, Kuo-Lun & Chenb, Chia-Chen , (2016) What drives in-app purchase intention for mobile games? An examination of perceived values and loyalty?
- Jang, M., Lee, R., & Yoo, B. (2017, December). Why Do You Need to Buy Virtual Items?: Investigating Factors Influencing Intention to Purchase in Mobile Games. In *Workshop on E-Business* (pp. 87-93). Springer, Cham.
- Kuusisto, M. (2014). Evaluating Free-to-play Monetization Mechanics in Mobile Games: Case: Improvement proposal to Supersonic-game.
- Luton, W. (2013). Free-to-play: Making money from games you give away. *New Riders*.
- Tang, A. K. (2016). Mobile app monetization: App business models in the digital era. *International Journal of Innovation, Management and Technology*, 7(5), 224.

Viljanen, M., Airola, A., Pahikkala, T., & Heikkonen, J. (2016, September). Modelling user retention in mobile games. In 2016 IEEE Conference on Computational Intelligence and Games (CIG) (pp. 1-8). IEEE.

Winter, F. (2017). Marketing Aspects in the Game Design Process of Free-To-Play Mobile Games. In Conference Proceedings Trends in Business Communication 2016 (pp. 189-194). Springer Gabler, Wiesbaden.



Other References

App Monetization Using the Freemium Business Model, <https://themanifest.com/app-development/app-monetization-using-freemium-business-model>, [accessed 04 Apr 2019].

Data Collection, <https://www.researchconnections.org/childcare/datamethods/survey.jsp> [accessed 05 Apr 2019]

Fortnite has hit over \$1 billion in revenue with in-app purchases, <https://9to5mac.com/2018/07/19/fortnite-one-billion-revenue> , [accessed 01 May 2019].

Grow your games' revenue with subscriptions, <https://medium.com/googleplaydev/grow-your-games-revenue-with-subscriptions-f979efaa3f45> , [accessed 15 Apr 2019].

Guide of Top Mobile Game Categories , <https://citrusbits.com/guide-of-top-mobile-game-categories/>, [accessed 04 Apr 2019].

How Many Gamers Are There? , <https://gaimin.io/how-many-gamers-are-there/>, [accessed 29 Mar 2019].

How To Monetize Mobile Games In 2019, <https://blog.tenjin.com/how-to-monetize-mobile-games-in-2019/> [accessed 05 Apr 2019].

Inductive or Deductive ,https://saylordotorg.github.io/text_principles-of-sociological-inquiry-qualitative-and-quantitative-methods/s05-03-inductive-or-deductive-two-dif.html, [accessed 10 Apr 2019].

In Game Advertising, <https://www.ironsrc.com/in-game-advertising/> , [accessed 31 Mar 2019]

Minecraft,https://play.google.com/store/apps/details?id=com.mojang.minecraftpe&hl=en_US, [accessed 15 Apr 2019].

Monetize, <https://www.investopedia.com/terms/m/monetize.asp> , [accessed 04 Apr 2019].

Mobile Game Monetization Tips for Maximizing Revenue, <https://www.smaato.com/blog/mobile-game-monetization-strategies/>_[accessed 06 May 2019].

Mobile Games , <https://www.techopedia.com/definition/24261/mobile-games> , [accessed 29 Mar 2019]

Only 2.2% of free-to-play users ever pay, <https://www.gamesindustry.biz/articles/2014-04-09-only-2-2-percent-of-free-to-play-users-ever-pay-report>, [accessed 29 Mar 2019].

Retention Rate, <https://thetool.io/> , [accessed 04 Apr 2019].

The Mobile Game Monetization Guide, <https://instabug.com/blog/mobile-game-monetization/> [accessed 01 May 2019].

Video Game Industry Statistics, Trends & Data 2019, <https://www.wepc.com/news/video-game-statistics/#mobile-gaming> , [accessed 30 Mar 2019].

33 Ways to Monetize a Website, <https://websitesetup.org/33-ways-to-monetize-website/> [accessed 05 Apr 2019].

APPENDIX

INTERVIEW QUESTIONS

- 1) Can you give us brief information about you and how did you come together to develop mobile games as a team?
- 2) What kinds of mobile games do you develop?
- 3) Which monetization methods do you use to get money from your mobile games?
- 4) Can you give two mobile games as an example that make you much more money?
- 5) What are retention rates of these two mobile games?
- 6) What do you think about essential factors that impact your mobile game revenue?
- 7) How do you integrate monetization models into your mobile games? Can you share the source codes of this practices with us and give the information about implementation steps?