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FREE-TO-SWITCH? CONSUMER SWITCHING BEHAVIOR IN FREEMIUM MOBILE GAMES

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ABSTRACT

Mobile games utilizing the freemium business model have become increasingly popular in mobile app stores and can be incredibly profitable for their developers and publishers. In the mobile environment, switching to a new game is easy due to games being free to download and trial. Despite this, consumer switching behavior in the context of mobile games has not currently been studied. Developing an understanding of consumer switching behavior would be helpful for service providers to recognize the effect of switching-related factors in game design. This could have implications for customer retention and acquisition. The objective of this study is to identify the factors correlating with consumer switching behavior in the context of freemium mobile games. The study is conducted as a literature review and followed by a qualitative survey applying the critical incident technique interview method. According to the essential findings of the study, the factors influencing consumer switching behavior in freemium mobile games can be divided into social, business model specific, game design specific, and engagement specific factors. In addition, partial switching behavior in the form of trialing behavior and combining behavior is found to play a role in it and extend the widely accepted push-pull-mooring framework.

Keywords: consumer switching behavior, freemium, business models, mobile games, mobile applications, trialing behavior, combining behavior

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Freemium-liiketoimintamallia hyödyntävät mobiilipelit ovat erittäin suosittuja sovelluskaupoissa ja hyvin tuottavia niiden kehittäjille ja julkaisijoille. Mobiiliympäristössä uuteen peliin vaihtaminen on kuitenkin helppoa pelien ollessa ilmaisia ladata ja kokeilla. Kuluttajien vaihtokäyttäytymistä ei kuitenkaan ole tutkittu mobiilipelien kontekstissa. Vaihtokäyttäytymisen ymmärtäminen auttaisi kehittäjiä ottamaan vaihtoon vaikuttavat tekijät huomioon freemium-mallin toteutuksessa ja pelin suunnittelussa ja siten parantamaan asiakaspysyvyyttä ja -hankintaa. Tämän tutkimuksen tarkoitus on löytää, mitä nämä vaihtokäyttäytymiseen vaikuttavat tekijät ovat freemium-mobiilipeleissä ja miten ne näyttäytyvät kuluttajien vaihtopäätöksessä. Tutkimuksen toteutustapa on kirjallisuuskatsaus ja kvalitatiivinen kyselytutkimus, jossa sovelletaan critical incident technique -menetelmää. Tutkimuksen keskeisten tulosten mukaan kuluttajien vaihtokäyttäytymiseen freemium-mobiilipelien välillä vaikuttavat tekijät voidaan jakaa karkeasti sosiaalisiin, liiketoimintamallikeskeisiin, pelisuunnittelukeskeisiin ja sitoutumiskeskeisiin. Näiden lisäksi vaikuttavana ja yleisesti hyväksyttyä push-pull-mooring-viitekehystä laajentavana tekijänä havaitaan osittainen vaihtokäyttäytyminen kokeilu- ja yhdistelykäyttäytymisen muodossa.

Asiasanat: kuluttajien vaihtokäyttäytyminen, freemium, liiketoimintamallit, mobiilipelit, mobiilisovellukset, kokeilukäyttäytyminen, yhdistelykäyttäytyminen

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1   INTRODUCTION

Since their inception in the early mobile phones, mobile games have become a multi-billion-dollar industry. In 2020, mobile games were responsible for 58% of total digital game industry revenue of almost 140 billion USD. Additionally, games that are free for users to play accounted for 78% of the total. (Superdata, 2021). In 2021, the mobile game industry is expected to reach over 100 billion USD in total revenue (Liu et al., 2020). Freemium mobile games can be considered one of the most significant fields of the entertainment industry today.

Freemium as a term is the combination of free and premium and is used to refer to a business model where the initial offering is provided to the user free of charge but includes an option to purchase paid premium features to extend the offering (Deubener, Velamuri & Schneckenberg, 2016). Freemium is the main business model found in mobile application marketplaces, with games being the primary example. In games, the freemium business model (also called free-to-play) can be implemented by offering virtual items sold in-game to provide additional value for the player and revenue for the game provider. (Hamari, Hanner & Koivisto, 2017)

Consumer switching behavior means the phenomenon and process of consumers replacing a previously used product, service, or service provider with another (Nykänen, 2014). In information systems research, switching behavior is examined in various information technology contexts, such as the switching of IT devices, applications, and also games. (Salo & Makkonen, 2018). Switching behavior in information systems research can be viewed as a continuation of technology adoption, which is an extensively researched paradigm in the field of IS. Understanding consumer switching behavior would allow for enhanced customer retention and acquisition for providers of various services. (Nykänen, 2014)

Many switching studies utilize the push-pull-mooring framework (Nykänen, 2014; Salo & Makkonen, 2018), a theory portraying switching as an interplay between three types of factors: push factors pushing one away from the origin, pull factors attracting them toward a destination, and moorings that either facilitate or inhibit switching (Bansal, Taylor & James, 2005).

In mobile, switching is characteristically simple for users, notably due to competitive dynamics in the app market and the seemingly low switching costs as most apps are free for users to download and try (Salo & Makkonen, 2014). However, game switching can be more complicated, namely, due to the time, energy and experience spent playing the game, and thus players do not want to abandon the current service (Hou, Chern, Chen & Chen, 2009). Despite digital games being a relatively popular subject of research as well as the growing interest in consumer switching behavior, as well as the complexity of both mobile and game switching, no studies focusing on freemium mobile games currently exist.

The goal of this study is to identify the factors that influence consumer switching behavior in freemium mobile games to do the groundwork for future studies on the subject. The research question of the study is:

Which factors influence the switching behavior of consumers in switching from one freemium mobile game to another?

The PPM framework is utilized to classify and understand the relations between the influencing factors. As the specific factors and antecedents of switching in mobile games are generally unknown in the literature, the study is argued to have relatively significant importance to IT switching behavior studies. In practical terms, the study may allow mobile game providers to deepen their understanding of what affects game switching and plan accordingly to compete with other industry players.

The study is carried out with a qualitative research method, the critical incident technique (CIT). A literature review on the subject matter is first presented, introducing the relevant concepts to the study. In the following second chapter, the mobile environment and the overview and characteristics of mobile services, apps, and games as well as the competition in the app market are presented. The third chapter analyzes the business models in mobile ecosystems, especially the ubiquitous freemium model. The fourth chapter focuses on the origins and modern topics of switching behavior research. The main theory of the study, the push-pull-mooring framework is also presented. In the fifth chapter, the research method is introduced and the existing literature in IT and game switching are used to develop a research model. Additionally, the data collection and analysis processes are presented. The sixth chapter presents and categorizes the results collected first in detail and then a summary of them. In the seventh chapter, the results are discussed and implications for future research and practice are drawn. Finally, the concluding remarks, limitations of the study, and future research topics are given in the ninth chapter.

In the literature review, Google Scholar, and Association for Information Systems Electronic Library (AISeL) were used to search for relevant papers. The search terms used included "consumer switching behavior", "service switching", "mobile services", "freemium", "mobile games", "mobile apps" and combinations of the terms listed. The papers were chosen based on their quality and applicability to the study as long as they were accessible for free, written in English,

and otherwise relevant. More emphasis was placed on papers published in information systems journals.

2 THE MOBILE ENVIRONMENT AND MOBILE GAMES

In this chapter, a brief look at mobile services and games and the surrounding literature is taken. Because switching is related to markets and competition, the general competitive environment of mobile applications is analyzed. In the game context, it is important to understand the basics of hedonic value and a couple of pivotal mobile game concepts, servitization of games, and online communities.

2.1 Mobile services and apps

Mobile services have become pervasive in our everyday lives. From buying train tickets to playing games, most of us use mobile services on our smartphones every day. The term 'mobile service' encompasses a wide range of different services that can be accessed on a mobile device of some kind, generally irrespective of time or space-induced limitations (Heinonen & Pura, 2006). Thus, what conceptually differentiates mobile services from other types of digital services is the ability to use them on the go.

2.1.1 Service research context

Services and service research have been receiving significant attention in the literature. Vargo and Lusch (2004) introduced service-dominant logic (SDL) – a way of thinking about the concept of markets and value creation with intangible services in the focus. The traditional view of marketing is the goods-dominant logic (GDL), where operand resources i.e., goods are seen as the primary units of exchange and value is the value in exchange, in other words, the price. The customers are also operand and are not thought of as active actors. (Vargo & Lusch, 2004)

In SDL, goods are used to facilitate the value creation process, where value is created in use by the customer, who determines what the value of the service

is. Objects of exchange are typically operant resources that can be applied to create value, but no goods have it inherently. The service is co-produced by the customer. (Vargo & Lusch, 2004)

To exemplify SDL, in the case of mobile services, the mobile device is not considered the valued object but simply the means to offer services and make value propositions for the customer. These have been crafted by a service provider who has applied and integrated their operant resources to create, for example, a mobile service. The customer then chooses the service and determines through using it the value it creates. All in all, SDL seems particularly applicable in illustrating the mobile services context.

2.1.2 Mobile service classification

Heinonen and Pura (2006) present a classification for mobile services using four distinct matrices, which are:

1. Type of consumption (hedonic vs. utilitarian use)
2. Context (temporal vs. spatial criticality)
3. Social setting (social interaction vs. social environment)
4. Relationship (frequency of use vs. type of customer relationship)

For instance, a typical freemium mobile game service would be hedonic in nature of consumption as it is used for entertainment. It would mostly lack spatial criticality as it can be played anywhere but might have temporal criticality in the case of online multiplayer gaming. Spatial criticality can be an issue as well if the service requires constant mobile connectivity to function (Heinonen & Pura, 2006). The social setting could have high social interaction in groups in multiplayer and low social interaction alone in a single-player game. The relationship between the service provider and the user is more continuous than discrete as the user is registered and identifiable. Frequency of use could be spontaneous if the service is used when a suitable moment arises, such as traveling or sitting in a waiting room. Mobile games are commonly designed to utilize "dead time" for short but frequent sessions (Evans, 2016). However, the frequency of such sessions could also suggest a more analytical use, especially if this is required to progress effectively in the game.

2.1.3 Competition in the app market

These days, mobile services are typically delivered via downloadable mobile applications (henceforth 'apps') which in turn are commonly available at an app store platform. The two most significant platforms, Google Play on the Android operating system and Apple iOS's App Store both contain over two million apps competing in various types of services (He, 2018). Releasing a new app to the market has become easier and cheaper and the market has grown rapidly over the past decade (He, 2018) - a change that is largely attributed to the launch of the App Store in 2008 (Liu, Au & Choi, 2014).

This growth has led to a high degree of competition in the app market. Unsurprisingly, there have been efforts to understand how the market functions in terms of supply and demand sides as well as value creation from either the consumer's or the supplier's perspective (He, 2018).

One notable issue that stems from this competition is the omnipresence of so-called copycat apps, which are made to imitate popular and successful apps, in either deceptive or non-deceptive manner. This issue persists, especially in games. (Li, Singh & Wang, 2014; Civelek, Liu & Marston, 2018.). According to Li et al. (2014), higher quality, non-deceptive copycats can effectively compete with the original app with features and usability, whereas the existence of lower quality deceptive apps can boost the downloads of the original app. This would suggest that the quality of the app and, by extension, the service does matter when it comes to coming out on top of the app market. Even if competing apps are not explicitly stated to copy each other, alternative apps for most purposes are often readily available (Salo & Makkonen, 2018).

Attention has been drawn to app visibility in the marketplace (He, 2018), for example on top apps lists and recommendations for users (Salo & Makkonen, 2018). Appearing in a top list positively influences an app's demand (He, 2018). Recommendation systems help with recommending users' apps based on their preferences and behavior. A problem associated with app recommendation systems is the so-called "cold-start", in other words, the challenge of recommending apps that have just entered the marketplace to users. Users can thus have difficulty finding relevant apps. (Lin, Sugiyama, Kan & Chua, 2013).

Another topic related to app visibility is update cycles. Continuously updating the app has the benefits of improved visibility and higher user commitment (He, 2018), but carries a risk of dropping support for older devices and losing users in the process (Salo & Makkonen, 2018). Therefore, update cycles can affect user retention as well.

Competition has also resulted in app providers changing their business models to differentiate (Brockmann, Stieglitz & Cvetkovic, 2015). The freemium business model and, more broadly, freemium strategy is one such development (Liu et al., 2014). The mobile app market is increasingly competitive due to rapid growth, which has forced app providers to adopt various strategies to differentiate.

2.2 Mobile Games

Mobile games are overwhelmingly the largest category of mobile apps (Deubener et al., 2016). Mobile games are a subtype of digital games. Digital games are defined by Kirriemuir and McFarlane (2004) as an entity that works by changing digital information displayed to players based on an input given by them under programmed rules. As mentioned by Stenros (2017), the concept and definition of the term 'game' is not clear-cut and varies significantly from researcher to researcher.

Digital games are only considered to be mobile games if they are played on a mobile device, typically a smartphone or a tablet. The definition does not include games played on handheld consoles. (Hsiao & Chen, 2016) However, some definitions include games played on any wireless device (Liu & Li, 2015; Jeong & Kim, 2009). In this study, only games primarily designed for mobile phones and tablets are considered mobile games, as this seems to be the more common definition and consensus.

Digital games are typically understood to provide mainly hedonic value to the user, although in some instances, utilitarian value can also be observed such as in educational games (Storgårds, Tuunainen & Öörni, 2009).

2.2.1 Hedonic value & systems

Services based on hedonic value are services that have inherent enjoyable value for their users as opposed to utilitarian, goal-oriented services (Heinonen & Pura, 2006). In other words, if consumers are motivated by hedonic value, they are drawn to the service by wants for emotion-based, imaginative, and enjoyment-oriented motives, or simply fun. Utilitarian motives on the other hand are related to needs in a task-oriented and cognitive way, typically a "means to an end" approach. Consumers can choose services based on both utilitarian and hedonic aspects in mind (Storgårds et al., 2009).

Hedonic information systems have been a subject of discussion in Information Systems research, especially concerning user acceptance of systems (Van der Heijden, 2004), which is a topic that can be seen as the origin of switching behavior research. Van der Heijden (2004) writes about the perceived ease and enjoyment of use of information systems as hedonic factors of user acceptance and mentions that particularly in hedonically inclined systems, such as digital games hedonic factors are unsurprisingly stronger than utilitarian factors, such as perceived usefulness. Perceived usefulness has traditionally been some of the most important factors in terms of user acceptance. (Van der Heijden, 2004).

However, information systems are not strictly hedonic or utilitarian but can also be dualistic. According to Hamari and Keronen (2017), much like social networking services are often regarded as having the properties of both hedonic and utilitarian services, this should in many cases apply to games as well. In the data, they observed that usefulness plays a relatively big role in explaining playing intention even in hedonically oriented games.

To conclude, hedonic and utilitarian values in information systems are more complicated than one might initially think. Games, in particular, cannot be considered purely hedonic and thus utilitarian motives, like usefulness, should be considered in the study.

2.2.2 Servitization of games

Over the recent years, there has been a general trend of shifting from product-like games to service-like games in the game industry (Neely, 2021). This has caused games to be continuously updated with new content and features over

their lifecycle. A crucial step in this development has been the diminishing role of the boxed product, games becoming purely digital instead and delivered in downloadable format online. (Vaudour & Heinze, 2019) As mobile games are played on already networked and connected devices, it is natural that they have turned into this type of digital delivery in the form of apps.

What is interesting about this change in how games are viewed, provided, and consumed are its implications. The ability to keep developing and adding to a game after its release has enabled new business models to create value. Servitized games are typically not monetized with a one-time fee. Instead, revenue is generated over longer timescales in various ways. (Vaudour & Heinze, 2019) An example of this is microtransactions, small payments of real money in exchange for items, cosmetics, gear, etc. in the game - a cornerstone of many freemium games. (Neely, 2021; Vaudour & Heinze, 2019.)

Servitization of games has been called Game as a Service (GaaS) referencing Software as a Service, a model where software can be used directly on an external server (Vaudour & Heinze, 2019). However, studies seem to disagree with what the GaaS model is. Vaudour and Heinze (2019) for one refer to GaaS as a business model, in other words, games are developed, delivered, and played in a service format, as described earlier in this chapter. Choi and Chen (2019) use GaaS to refer to cloud gaming, or games played directly on a cloud server with the use of video streaming. Cloud gaming is also referred to as Gaming as a Service, using the same GaaS acronym (Soliman, Rezgui, Soliman & Manea, 2013). Due to this confusion in terminology, this study refers to this phenomenon as the servitization of games, as it is similar to servitization typically used in the manufacturing context (Dubois & Weststar, 2021). Servitization can be understood as adding services as an addition to product-based offerings, or more broadly as shifting away from product dominant logic to service-dominant logic (Dubois & Weststar, 2021).

Modern mobile games are often released with the knowledge that they will be developed after launch. The launch version may lack features and polish that will be added based on collected data and player reactions. (Lehtonen & Harviainen, 2016) Releasing unfinished apps is representative of the app market in general, stemming from the need to bring apps to the market as quickly as possible (Salo & Makkonen. 2018). It is not surprising that this applies to mobile games as well, although in games this might be even more closely related to not having a full understanding of what the players might like and if the game will become popular. To illustrate, as of 2016, the Finnish mobile game developer Supercell had canceled 14 and released only four games that were considered worthy of further development based on reactions from the player base among other factors (Lehtonen & Harviainen, 2016).

In a conclusion, games have moved toward a service delivery model for a multitude of reasons that are in many ways similar to servitization in other industries, including other apps. For example, Spotify delivers music as a monthly subscription service. Service models can allow games to be relevant for longer and generate a steadier flow of revenue (Vaudour & Heinze, 2019). At the same

time, concerns have been raised about the exploitativeness of servitized games' revenue generation (Vaudour & Heinze, 2019; Neely, 2021). All these points could potentially manifest in consumer switching behavior.

2.2.3 Online communities

Due to them being played on networked and connected devices, mobile games can implement online features in their design. Games can allow players to compete, collaborate and communicate. This may be further encouraged by game developers by introducing online community mechanics to the game. For example, in Supercell's Clash Royale players can form clans and receive benefits from helping other members and being helped by them, as well as the social aspects in the form of chatting with fellow players. (Lehtonen & Harviainen, 2016)

Communities and social aspects of online games have received some attention in research. Choi and Kim (2004) found that social interaction in online games is part of an optimal experience which is a reason for players to keep playing the game. They suggested that this can be encouraged by game design that facilitates interaction by providing places and tools for communication between players. Clans in Clash Royale (Lehtonen & Harviainen, 2016) can be considered an example of this in mobile games. In a similar manner to Choi and Kim's (2004) study, Lehtonen and Harviainen (2016) also argue that the sense of belonging in an in-game community has a positive effect on player retention and is an important part of the overall experience. The communities are used by the developers as tools for design, as observing the interaction, behavior and the large amount of data created by them is useful for developing new features and adjusting the game to provide optimal experiences for the players.

Additionally, mobile game communities often form outside of the game. Players can form so-called communities of practice on internet forums or discussion platforms that bring people with the same interests together, motivating players to keep playing and interacting with the community (Britt & Britt, 2020). This suggests that out-of-the-game communities may also play a role in terms of player retention.

In short, the formation of mobile game player communities both in-game and outside of the game seems to create an incentive for players to keep using the service which might anchor them in the game. In addition, communities have the benefit of data collection to be used in-game design and optimizing the player experience.

2.3 Engagement and addiction

In the context of this study, an important subject in the field of game research and design is the engagement and addictiveness of mobile games. Addictiveness of video games and information technology at large has received significant attention in psychology research, such as with social media addiction (e.g.,

Andreassen et al. 2016), as well as in-game studies in terms of gameplay addictiveness (e.g., Harrigan, Collins, Dixon & Fugelsang, 2010). To understand the factors that cause players to keep playing a certain game, it is necessary to briefly discuss the relevant findings in the literature. However, the psychological implications are beyond the scope of the study and therefore the focus is kept on game design research.

Particularly relevant to the study is the mobile game engagement-addiction dilemma, in other words, the quandary between the design of mobile games to be as engaging as possible, while their use nears addiction and the harmful effects it may have on the users (Yang & Gong, 2021). According to the study by Yang and Gong (2021), engagement and addiction to mobile games are influenced by social presence and telepresence. Telepresence in this context means the user feels immersed in the game's world, while social presence refers to the feeling of belonging socially to the game's community of other users and their virtual presence in it being perceived as immersive. Telepresence and social presence are in turn impacted by the game's user interface and its efficiency to facilitate interaction with the game seamlessly, as well as the game's affordance, or its enablement to allow users potential to achieve such actions as accomplishments and social interaction.

Overall, as discussed in the previous section, online communities and the social aspect of mobile games seem to influence mobile game engagement and addiction and therefore may imply an impact on how likely users are to move away from the current service. The other aspects, such as the user interface and affordance concerning mobile game immersion may also play a role in their behavior.

2.4   Mobile game marketing

Another aspect of mobile games relevant to the study is their marketing, especially advertising on social media platforms, for example. As marketing is vital to acquiring new customers in the saturated mobile game market (Mago, 2020), so it is important to discuss the topic.

First, the distinction between mobile marketing and the marketing of mobile games should be made. Mobile marketing can be defined as any marketing toward consumers utilizing a mobile channel (Salo & Karjaluoto, 2007). This includes marketing in games themselves, such as mobile in-game advertising, defined simply as an advert or brand presence in mobile games (Salo & Alajoutsijärvi, 2008). On the other hand, advertising mobile games can naturally take a multitude of forms and are not limited to mobile channels. These can include banners, videos, and playable or interactive ads, for instance, which can also be placed in-game. (Mago, 2020) In the context of the study, advertising of mobile games themselves is the more interesting topic, however, the in-game marketing aspect of other services and products should be considered as well. As in-game

advertising can be implemented in various ways, it could for example cause annoyance for the user.

In mobile game marketing, misleading ads for mobile games utilizing fake gameplay are a common practice in particular. These ads use gameplay footage that is often detached from or otherwise nonrepresentative of the actual game or gameplay that they promote. (Mago, 2020) An example of this is the "Pull the Pin" ads as examined by Mago (2020), which may use elements of the promoted game while representing the gameplay as a pin-pulling puzzle unlike how the majority of the game actually functions, in most cases. According to Mago (2020), the effect of fake gameplay ads may cause negative backlash from the players disappointed in not finding the advertised gameplay in the game, leading to negative reviews on the app storefront. However, they may be effective in getting new players to try the game.

In conclusion, marketing seems to be quite integrated into the mobile game field, being included in the games themselves, as well as marketing games using interactive and other creative methods. Fake gameplay ads are an especially interesting phenomenon regarding the switching behavior topic of the study.

3 BUSINESS MODELS IN MOBILE

The freemium business model is a pivotal concept for the study, and it is therefore important to understand what business models are, how they differ from revenue models, and how freemium is implemented in mobile apps, especially in games.

3.1 Defining business model

A business model at its core is a systemic representation of how a business creates value through activities and how its components are connected (Zott, Amit & Massa, 2011). Zott et al. (2011) argue that the interest in business models is not only in value capture but more so in value creation, which would imply that businesses are seen as more proactive in today's markets, possibly even redefining what value will end up meaning. Revenue generation, while an integral part of business models, is just one function of a broader conceptualization (e.g., Jensen, 2013; DaSilva & Trkman, 2014.). According to DaSilva and Trkman (2014), business models have nevertheless been getting mixed up with other concepts, such as revenue models.

A revenue model represents how a business generates revenue from sources, thus concerning value capture instead of value creation (DaSilva & Trkman, 2014). Revenue models are therefore more in-depth representations of revenue, stating the specific sources and their relations from which the value is captured. For example, a mobile game company utilizing a freemium business model may have a revenue model where value is captured from virtual item sales, advertisers, merchandise, etc. Some other examples would include pay-per-use, software licensing, and rental in the context of Software as a Service (SaaS) providers (Ojala, 2012).

3.2 Freemium and freemium strategy

Freemium is a business model (e.g., Deubener et al., 2016; Hamari, 2015; Beltagui, Schmidt, Candi & Roberts, 2019) that can be considered the most essential especially in the mobile environment (Deubener et al., 2016). It has gained traction since Fred Wilson first used the term in 2006 as a combination of the words free and premium, however, it is noteworthy that similar models have existed in the software business as early as the 1980s (Wagner, Benlian & Hess, 2014). The freemium business model has multiple subtypes, but in principle, it means the combination of free and paid (i.e., premium) elements in a product or service (Deubener et al., 2016). In other words, the base service is provided free of charge, but additional paid elements are used to generate revenue (Hamari et al., 2017).

At first glance, freemium may sound like a revenue model. However, as stated by Deubener et al. (2016), the freemium model includes views of both value creation and capture. The separate free and premium offerings are concerned with how the service creates value serving as value propositions, while for value capture the service can have several different profit mechanisms (Deubener et al., 2016). Despite this, freemium is not always treated as a business model in research. Exemplifying the confusion of business models vs. revenue models, freemium has also been treated as a revenue model in the literature (e.g., Luo, Zhang & Li, 2018; Wagner et al., 2014). This might be caused by the relative novelty of the concept, or the possibility of examining freemium from a value capture perspective, for example as an alternative to a pay-per-download strategy in the app market (e.g., Luo et al., 2018). In this study, freemium is considered a type of business model.

The freemium business model divides the customers into two separate groups within the same service, that is free or non-paying and premium or paying customers (Deubener et al., 2016). Typically, the ratio of free to premium customers is as low as 95% to 5%, and so it comes as no surprise that a considerable effort has been put into researching how free customers could be converted into premium customers (Wagner et al., 2014). The players who spend considerable amounts of money on the premium offerings in a game are often called "whales" (Britt & Britt, 2020). The amount of money spent on a single game by one whale alone can be so high, that focusing on these players can be more profitable than building the business model around the mass of players that spend much smaller sums of money (Britt & Britt, 2020). This would suggest that there are different approaches to designing the freemium model, either focusing on a few large "whales" or many small "fish", or some combination of the two. One of the key benefits of the freemium model is that a free service is easy for customers to adopt and try before possibly spending money on the service, and free customers are also considered to bring value in the form of an easier increase in network effects (Deubener et al., 2016). Therefore, it is important to remember that in any case, the value brought in by the whales cannot exist without the network effects created by the overwhelming mass of players.

Deubener et al. (2016) present a typology for freemium business models used in mobile applications. They found that apps can be placed in a matrix depending on the variability of their revenue streams and the balance of their value proposition (free and premium offerings). Revenue streams can be fixed and predictable, like in subscription-based freemium apps such as Spotify, or dynamic and variable in apps with more eccentric premium elements. Balancing the free and premium offering on the other hand refers to how much difference the two types of the offering have. Some apps only offer free trials with most of the offerings being premium, while others offer most for free and premium offerings add to that in the form of paid benefits. This carries more financial risk, as the app can be used by and large for free without suffering as much loss in value. (Deubener et al., 2016)

Most freemium mobile games fall into the variable revenue streams and converging free and premium offerings, or risk-seeking conformists, as titled by Deubener et al. (2016). Games typically have various premium elements that are significantly harder to predict and offer the entire game for free, selling elements that are perceived valuable by the player, thus adding value to the base service experience. Next, the application of the freemium model in mobile games is examined more closely.

3.3   Freemium mobile games

Freemium has become the dominant method of revenue generation in mobile games (Civelek et al., 2018). As discussed in the chapter on servitized games, freemium business models facilitate a game's delivery in a service format by allowing it to generate revenue over a longer period. Free-to-play is a term that is often used for freemium games within the industry (Hamari et al., 2017). While it directly communicates that playing itself is free for the user, it also implies that there are paid elements in the game. Consequently, the term "pay-to-win" can be used to mock free-to-play games that are seen to utilize unfair monetization systems (Neely, 2021). Monetization in free-to-play games is how the "premium" part of freemium is achieved, which typically means exchanging in-game virtual items for money (Hamari et al., 2017). As mentioned earlier, the small payments in the game are called microtransactions.

Microtransactions, also called in-app purchases (Hsiao & Chen, 2016) are the essential way freemium games are monetized (Roethke, Adam & Benlian, 2020). The virtual content that real money is exchanged for can take a multitude of forms. Some common ones are items with either game-wise beneficial properties, like abilities, or cosmetic items that allow the player to personalize their avatar, for instance (Hamari et al., 2017). To further illustrate, some games allow the player to buy "speed-ups" or similar to bypass restrictions related to progress in the game (Neely, 2021) or "skins", purely decorative in-game objects that change the visuals of an in-game character or object (Vaudour & Heinze, 2020). In this sense, virtual items can be seen as utilitarian or hedonic from a progression or

decorative perspective, respectively. In summary, if an item can be perceived by the player as having value, it can be offered as a microtransaction.

Microtransactions can also be related to other than directly purchased items, like virtual currencies, which in turn can be spent on virtual goods (Hsiao & Chen, 2016). These in-game currencies can in some cases be earned by playing the game and, in some instances, be transferred back into real currencies and sold to other players (Macey & Hamari, 2019). "Loot boxes" that are opened by the player for a random chance of getting a virtual item from a predetermined selection are another commonly purchased virtual object (Roethke et al., 2020; Vaudour & Heinze, 2020). This type of monetization is used to create an artificial scarcity system for in-game items, establishing an in-game economy of virtual goods (Koeder & Tanaka, 2017). According to some researchers, this draws many similarities to gambling and its implications, such as addiction or other behavioral problems (Macey & Hamari, 2019). Thus, the presence of in-game transactions and economies have been scrutinized from both ethical (Neely, 2021) and regulatory (Koeder & Tanaka, 2017, Macey & Hamari, 2019; Neely, 2021) perspectives. It should be noted that microtransactions are by no means unique to freemium games, as many full-price games also employ them as an additional monetization strategy, where they are often viewed more critically than in freemium games (Neely, 2021).

The game can also be monetized with in-game advertising, in which case the purchasable premium offering is the removal of advertisements (Vaudour & Heinze, 2020). As previously discussed in the chapter on mobile games, in-game advertising may be implemented in various ways. Due to the removal of ads being offered as a feature, it is safe to assume that the ads are seen as a hindrance or annoyance by some users. Thus, the effect of in-game advertising on switching should be considered. In terms of freemium strategy, this monetization type is very clearly indicative of focusing on many smaller streams of revenue, instead of a "whaling".

Some games are monetized with the twinned premium model (Deubener et al., 2016) where free and paid versions of the same game are provided separately (Luo et al., 2018). However, it should be pointed out that researchers seem to disagree on whether separated offerings count (Luo et al., 2018) or do not count (Deubener et al., 2016) as freemium.

4   SWITCHING BEHAVIOR

Switching behavior is an essential part of the topic of the study. It and its theories explain how switching processes happen in humans and what affects this process. In this chapter, the origins of switching behavior in human migration research are presented. The push-pull-mooring framework of switching behavior and a literature review of switching research in the context of mobile apps and games are conducted.

4.1   Early theories on migration

Switching can be defined as migrating from one entity to another (Nykänen, 2014). In the field of human demographics and statistics, migration has been studied extensively in terms of the movement of people and peoples. In 1885, Ernest Ravenstein presented his laws of migration, drawn from migration movements in the British Isles. These laws contained such observations as migrants preferring shorter distances and greater economic centers and migration movements producing currents or trends for future developments for economic centers. (Ravenstein, 1885). He later expanded his laws in 1889 with data collected from several other countries (Ravenstein, 1889). According to Lee (1966), Ravenstein's laws have served as the basis for future migration theories despite receiving criticism at the time of their introduction.

   Lee himself developed his theory on migration in 1966, presenting a model where the origin and the destination of the migration have their own positive and negative factors, with intervening obstacles such as distance in between. Lastly, personal factors like perception and intelligence affect the decision to migrate.

   Three years later in 1969, the push and pull factors of migration were published by Donald Bogue defined as the negative factors pushing migrants away from their origin and positive factors pulling them to the destination (Bogue, 1969, 753-54 according to Moon, 1995). Bruce Moon (1995) expanded Bogue's research

with moorings, mediating factors that have the unique ability to influence migration by binding the migrant to either the origin or destination. This gave birth to the push-pull-mooring (PPM) framework which was then brought to consumers' service provider switching context by Bansal et al. (2005).

4.2   PPM framework in consumer switching

According to Nykänen (2014), the PPM framework is the only relevant consumer switching framework in information systems research. As noted, PPM in consumer switching did not originate in the IS field but has been adapted from marketing research which is ultimately derived from migration research. Bansal et al. (2005) studied the applicability of the PPM framework for explaining consumer switching behavior in a general service context, discovering that PPM is well suited for the task. Since their study, it has been referenced in a multitude of consumer switching behavior papers from marketing, service, and IS research fields.

In this sense, the paper by Bansal et al. (2005) can be considered the most influential from an IS perspective. Many of the information technology switching papers analyzed by Salo & Makkonen (2018) have applied the PPM framework in studies related to social networking sites, web browsers, games, and other IT services. Therefore, the PPM framework can be considered a well-suited theoretical foundation for the study since freemium mobile games are IT services used by consumers. In addition, Hou, Chern, Chen, and Chen (2011) suggest that in games, the migration from a virtual world to another more closely resembles the traditional concept of human migrations, which could mean that the PPM framework is even more accurate in a game context.

Again, the PPM framework is relatively simple, consisting of only three elements: push, pull, and mooring factors. Next, each of the three factors is presented and illustrated in a service switching context.

Push factors are factors that influence switching behavior by having a negative effect at the origin and thus driving the consumer away from it. Some general examples include high cost, low value, and low commitment to the service. (Bansal et al., 2005). Bansal et al. (2005) found that the push factors are the weakest of the three, as they can be effectively mitigated by the moorings. In other words, consumers may not want to switch even when they are dissatisfied with the current service if they feel anchored to it.

Pull factors on the other hand are located at the destination, attracting the consumer with its positive characteristics (Bansal et al., 2005). Bansal et al. (2005) found just one concept from the service research at the time that could be considered a pull factor, alternative attractiveness. This is of course a very general idea that could be used to summarize the concept of pull factors as a whole. This is also pointed out by Nykänen (2014), who sees it as a fundamental limitation in many cases, where more specific pull factors from the destination could be more closely examined for richer information.

Mooring factors are factors that have a dualistic effect on switching behavior: they can hinder the switch by anchoring the consumer to the origin or facilitate it by drawing them to the destination (Nykänen, 2014). Moorings are not strictly located at the origin or the destination. They are related to the psychological, social, habitual, spatial, and temporal dimensions of the switching context (Bansal et al., 2005). For instance, attitude toward switching, social setting, and switching costs can be inspected as moorings. Moorings can often be understood only as mitigating factors that act to hinder or inhibit the switching process, ignoring their facilitating effect (Nykänen, 2014). This can be considered a limitation, as moorings can have the strongest effect on switching out of all of the three types (Bansal et al., 2005). Push and pull factors alone are not enough to get a full view of a switching decision (Bansal et al., 2005). The existence of mooring factors thus makes the otherwise simple PPM model more interesting and complex, accounting for variables that would not be considered without them.

4.3   IT switching behavior and the mobile environment

The topic of IT switching behavior has gained some attention in information systems research. The term is used to refer to users switching from one IT product or service to another. (Bhattacherjee, Limayem & Cheung, 2012). Digital games naturally fit the category, and it is, therefore, important to analyze the characteristics of IT switching.

The notable characteristics of IT switching include partial switching. This means that users may not replace or even seek to replace a service completely, but in actuality use many similar services concurrently for different purposes, for example (Bhattacherjee et al., 2012). Switching in IT and mobile contexts undoubtedly differ from many others in service switching by being more straightforward (Salo & Makkonen, 2014). There are typically no contracts to be signed or costs for using many similar services at the same time. In the case of instant messaging services, users may for example use one service for work-related purposes and another service in their free time as well as depending on the service used by their different social circles (McKenna, Mäkinen & Tuunanen, 2021). It is not unreasonable to assume that partial switching occurs in mobile games also, although games may have fewer contextual factors as the work vs. leisure use factor is missing. However, in any case, users can indeed play multiple mobile games concurrently. Therefore, it should be noted that the switch may not always happen even if the user adopts a new service.

Trialing behavior has been observed by Salo and Makkonen (2018) as a phenomenon occurring in IT switching as a predecessor to the actual switching behavior. Particularly occurring with mobile apps, trialing behavior means testing out one or several alternative substitutes simultaneously without yet making a conclusive decision to switch. Trialing is enabled by multiple factors, including app market recommendation systems recommending potential alternatives and low switching costs in mobile switching in general. (Salo & Makkonen, 2018)

Related to trialing behavior and partial switching is the concept of combining behavior. Combining behavior refers to the user permanently adopting several distinct services or apps that can be used to complement each other, whereas trialing behavior is only a temporary phase (Hu, Zhao, Luo, Gupta & He, 2021). Hu et al. (2021) suggest that combining behavior is more common in hedonic than in utilitarian apps due to users constantly seeking new experiences.

Generally, switching behavior in the mobile environment has currently not been extensively studied. Studies by Salo and Makkonen (2018) and Hu et al. (2021) show that both trialing and combining behavior seem to be quite prominent in mobile app switching.

In short, switching behavior in the context of information technology is typically less straightforward than in traditional service provider switching, and on mobile, this might stand even more true.

4.4   Switching behavior in games

As stated, switching behavior studies in the context of freemium mobile games have not yet been conducted. However, studies by Hou et al. (2009) and Hou et al. (2011) analyze switching behavior in massively multiplayer online role-playing games (MMORPGs), and Liu, Li, Kostakos, Xu, and Heikkilä (2016) study switching behavior in social network games. While freemium and mobile elements of games were not scrutinized in these papers, they are useful in understanding switching behavior in games. All three studies consider the push-pull-mooring framework from a quantitative perspective.

Push effects are not significant factors in explaining switching decisions in online games (Hou et al., 2009; Hou et al., 2011). Hou et al. (2009) theorize that this is largely explained by the mitigating effects of mooring factors as players do not wish to lose experience and virtual items collected in the game, and thus seem to tolerate stronger push effects and may opt to simply play the game less instead. Liu et al. (2016) find that pull factors themselves affect push factors negatively, as alternative attractiveness was found to influence the satisfaction and perceived quality of the current game. Some more specific push effects are listed by Hou et al. (2011): low enjoyment, low customer service, and perceived number of players were identified, albeit having a weak effect on switching.

Pull factors are aggregated in all three studies as alternative attractiveness, which is found to be a relatively strong predictor of switching behavior in online games and SNGs (Hou et al., 2009; Hou et al., 2011.; Liu et al., 2016). As stated, according to Liu et al. (2016) the presence of attractive alternative games makes players devalue the current game and encourages switching. Hou et al. (2011) provide some insight on what the alternative attractiveness consists of in online games. The strongest effect was observed with higher levels of enjoyment and customer service as well as low prices. Interestingly, the free-to-play model is suggested as being an attractive pull factor as opposed to mostly subscription-based models of MMORPGs (Hou et al., 2011).

Moorings have the strongest effect on game switching behavior (Hou et al., 2009; Hou et al., 2011). As mentioned above, they are effective at mitigating push factors. Switching costs are especially strong inhibitors as loss of in-game virtual items, experience, and even time and money spent due to switching are also considered by players to be switching costs (Hou et al., 2009; Hou et al., 2011). This can be an effective way to retain existing customers (Hou et al., 2011), and can be considered to apply directly to freemium games with similar in-game item mechanics as well. Liu et al. (2016) and Hou et al. (2011) found that users who have experience of previous (successful) change, i.e., previous switching experience are more likely to have higher switching intentions, which is an example of a switching facilitating mooring effect. Other moorings in games include the need for variety, another personal factor that encourages switching as some players are more willing to move on after feeling unsatisfied with the current game. Personal mooring factors seem to be more effective at predicting switching behavior than social ones, such as social relationships, for instance, the presence of friends in a particular game. (Hou et al., 2011). Interestingly, even in MMORPGs that have large amounts of players on a single server, as well as guilds and other social activities, social relationships were not found to affect switching behavior as much as personal mooring factors in the study by Hou et al. (2011). Social relationships were not specifically mentioned in the research model of Liu et al. (2016), however, in SNGs, they could be more relevant due to the social media context. According to Hou et al. (2011), changing a social group might still inhibit switching, acting as a mooring factor and adding switching cost.

5   EMPIRICAL METHOD

In this chapter, the research model and methodology, as well as data collection and analysis processes are presented. The overview of the study's objective is first looked at, after which the research model utilized is presented and discussed from the chosen PPM factors' perspective. This is followed by discussion and reasoning on the chosen research methodology, and the explanations of the data collection and analysis processes.

5.1   Overview

The objective of this study is to understand the factors that affect consumers' switching behavior process in freemium mobile games. As this topic has never been investigated, an empirical study is required to understand the principles of these factors. Similar studies have been conducted before but in a different context or time. As freemium mobile games are different from MMORPGs, SNGs, and general mobile applications in both their design and user experience, the study has the potential to expand on the groundwork laid by the studies of Hou et al. (2009, 2011), Liu et al. (2016) and Salo and Makkonen (2018). Mobile devices and games have also seen rapid development over the past ten years, potentially challenging the traditional concept of a mobile game and making a shift to a freemium service-oriented delivery model and app market competition. Therefore, the need for an empirical study can be argued.

5.2   Research model

Based on the findings from the literature, a research model (FIGURE 1) was crafted to aid in recognizing the relevant factors and aid with the design of the study. Therefore, no hypotheses were drawn from it. The model summarizes the PPM factors that have currently been identified to potentially affect freemium

mobile game switching in the literature. The factors included in the research model were used as a basis for the empirical study and especially the questions directed to the research group. The study aims to verify the findings and develop more comprehensive results of switching behavior in the freemium mobile game context to answer the research questions.

In addition to the PPM factors, partial switching behavior was added. Partial switching behavior in mobile games has not been studied, warranting its inclusion in the research model and the study. The goal is to develop a general understanding of how partial switching behavior presents in a freemium mobile game context to serve as a platform for possible future studies. The topic of partial switching in games was considered important in understanding the steps users take in the switching process, potentially enabling meaningful and interesting comparisons to the partial switching studies by Salo & Makkonen (2018) and Hu et al. (2021).
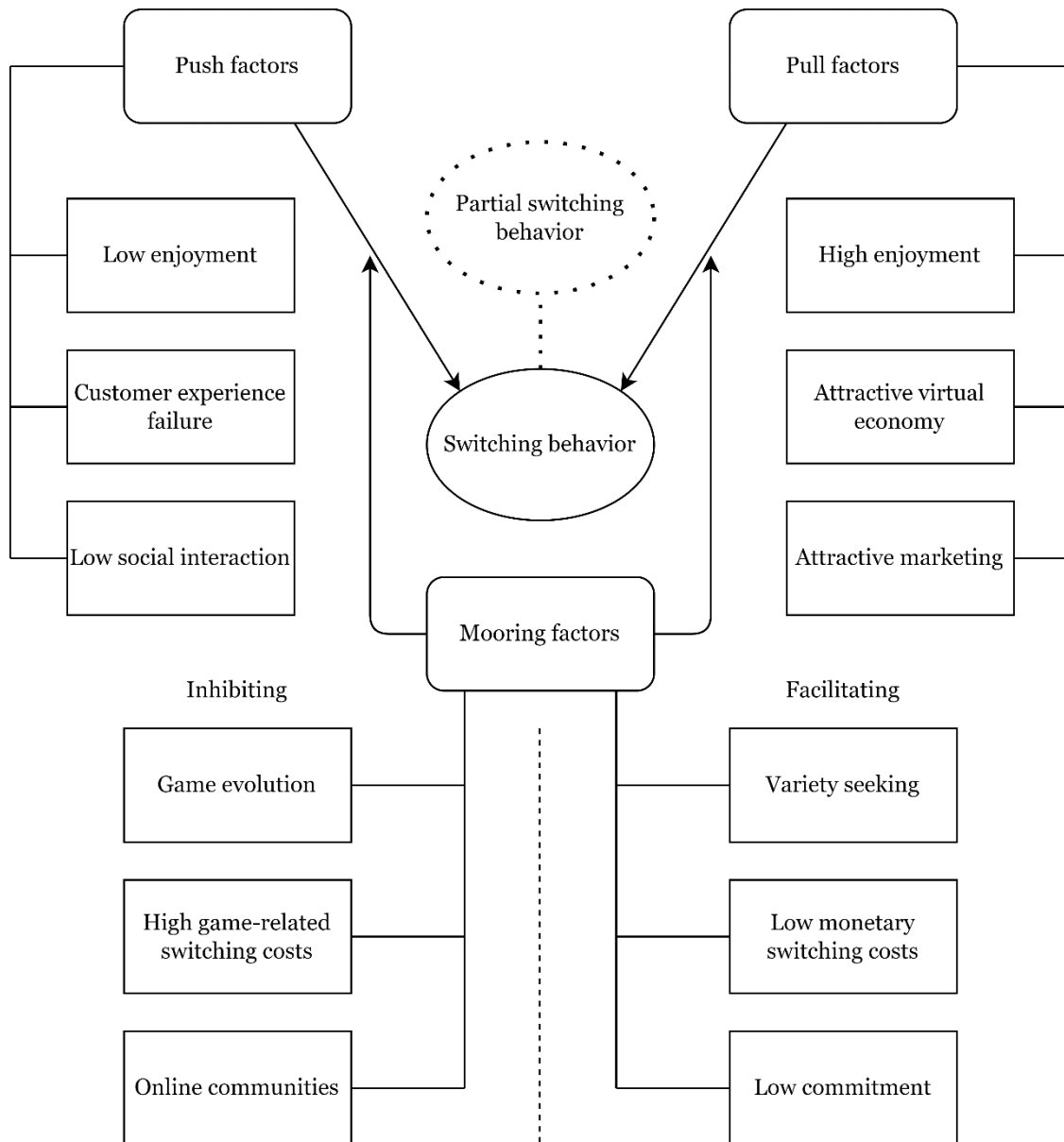
FIGURE 1 Consumer switching behavior in the freemium mobile games research model

Next, the push, pull and mooring factors included in the model are further discussed and explained.

5.2.1 Push factors

The push factors have been consistently found to be the least important factors in consumer switching, in both service provider and game contexts. However, since the goal of the study is to identify the factors that affect switching, it is important not to ignore them. Related to social elements in online games, the low perceived number of players can push users away from the game. This factor may not apply as strongly to freemium games, as community features are typically optional (Lehtonen & Harviainen, 2016). However, as Lehtonen and

Harviainen (2016) argue, online communities add value and are an important feature in the complete game experience. Online competitive features could be inaccessible if the number of players would drop sufficiently low, and if the player values chatting or other interaction in-game or in the out-of-the-game community, would this potentially lower social enjoyment. Therefore, low social interaction can manifest as a push factor.

Dissatisfaction with customer service is mentioned as a push factor by Hou et al. (2011). There are likely no reasons why this factor would not apply to freemium mobile games. Players can still interact with the provider's customer service and face issues such as getting locked out of their account etc. In a mobile environment, app providers often drop support for older versions of mobile operating systems, sometimes dismissing users that would otherwise want to use the app on their older systems (Salo & Makkonen, 2018). These issues could point to a broader concept of customer experience failure as a potential push factor.

Lastly, a low level of enjoyment has been identified to have a pushing effect. As a push factor, it refers to a quality in the origin and should not be confused with variety seeking. As freemium mobile games have been shown to constantly evolve and expand, low enjoyment could be caused by undesired changes in the game. Enjoyment can also be linked with the social features and how the freemium business model is implemented, for example, unfriendly community or frustrating microtransactions, or even in-game advertising. It is included in the research model to allow the respondents to express more general reasons that affect their switching intentions in the form of a low level of enjoyment.

The push factors are thus divided into low social interaction, customer experience failure, and low enjoyment experienced in the current game.

5.2.2 Pull factors

Pull factors in previous studies were aggregated to alternative attractiveness, which has been the case since Bansal et al. (2005) released their paper on service provider switching. Some more specific pull factors mentioned were the free-to-play model itself and lower prices.

The first pull factor is an attractive virtual economy in another game. The game being free to download is naturally not assumed to play a factor in the switching of two free-to-download games, but as free-to-play models include complete virtual economies, some features of them could have a pulling effect. It is possible that prices or random chance rates for virtual items, for example, could be found more attractive in another service. There have also been concerns about ethics and fairness with monetization systems in freemium games, such as microtransactions as a method of circumventing intentionally frustrating mechanics (Neely, 2021). A game perceived as being fairer and more ethical in its freemium business model implementation could thus be seen as more attractive.

Enjoyment is another identified pull factor in the research model. According to Hou et al. (2011), higher enjoyment causes players to participate more in playing the game and seek an optimal experience doing so. This may be another factor that can be actively bolstered by the developer, as optimizing the customer

experience is what data collection from the players largely aims to do and thus lead to higher enjoyment and a more attractive alternative.

The presence of attractive alternatives has been found to negatively affect the perceived satisfaction with the current service (Liu et al., 2016), meaning that marketing and advertising should not be ignored when talking about pull effects. Mobile game advertising is quite widespread in social media and other web pages and varied, as it can be implemented in many forms, as well as in the games themselves, as shown in the literature review. Misleading marketing was also shown to exist. As the main goal of marketing is attracting new customers, it is implemented in the research model as a potential pull factor.

The pull factors are thus higher perceived enjoyment, attractive virtual economy, and attractive marketing in the alternative game or games.

5.2.3 Mooring factors

According to prior research, mooring factors contain the strongest switching influencing effects in both games and services in general. It is therefore important to place more emphasis on them if the goal is to explain switching behavior in free-to-play games as conclusively as possible. The moorings thus receive special attention in the model as they have been split into two - the inhibiting and facilitating moorings - to consider the two different functions following concerns by Nykänen (2014) that the moorings are too often considered only as switch inhibiting.

The game improvement inhibiting mooring factor comes from the game servitization phenomenon, which allows for games to be developed and delivered continuously over a long period. As mobile developers often listen to player feedback regarding the future directions and features of the game (Lehtonen & Harviainen, 2016), developers may have the chance to answer to the players' needs in the game development process. This makes it possible to anchor players in the game they are already playing by providing new updates and features, making switching to another game potentially less appealing.

High game-related switching costs refer to the mooring factor identified in previous studies, that causes players to be less likely to switch to another game after amassing virtual experience and property or spending money on it. As the game-centric switching research shows, switching costs in games can be quite high and seem to be understood as the most important mooring factor. Hou et al. (2009; 2011) found this to apply in MMORPGs, where the amount of experience and virtual property acquired can be significant and act as the switching cost mooring factors. Naturally, the strength of the switching cost mooring could vary depending on the game genre, but freemium games that are often monetized by microtransactions and virtual property sales can be assumed to contain the same effect. Therefore, it is natural to include high game-related switching costs in a freemium mobile game context as well.

Online communities could potentially have an inhibiting effect on players, as suggested in the literature review. Despite this, current research regarding game switching does not find strong evidence of this being the case, but as

research is yet quite limited, more research may be needed on the subject, especially in a freemium mobile game context. It is not unreasonable to assume that not wanting to leave the community surrounding the game could effectively mitigate the switching intentions of a user by adding switching costs, as pointed out by Hou et al. (2011). Belonging to a beneficial or motivating community of the game may thus cause players to be less likely to leave it, leading to inhibited switching intentions, warranting its inclusion in the model.

The switch inhibiting moorings thus include the effect exerted on the player through the game's improvement through continuous development, high switching costs related to losing in-game property, and not wanting to leave the current online community.

In terms of switch facilitating mooring factors, the research model includes the effect of variety seeking. This factor was identified in the literature in the study by Hou et al. (2011), referring to the individual need for a variety of new offerings in the game market.

Low monetary switching costs, i.e., the possibility of trying other freemium games for free is another facilitating factor, as it is easier to switch between freemium games than games with upfront costs. It is included in the model to test this hypothesis and derive additional insights.

Finally, low commitment is the factor considering the switch facilitating effect of the player not feeling committed to the game they are currently playing or switching in general. Low commitment to the current service had been identified in the study by Bansal et al. (2005), where it was classified as a push factor. In the research model, it has been placed in the facilitating moorings, as it may also be understood to be related to low commitment regarding switching attitude and its factors, therefore not necessarily located at the origin. Naturally, this factor may also yield push factors as a result, which is taken into account.

To summarize, the switch facilitating moorings are a variety seeking of new offerings, low monetary switching costs due to the omnipresence of the freemium business model, and low commitment to the current game or as an attitude toward switching.

5.3   Research method

Next, the research methodology chosen is discussed. In short, the method chosen to be applied against the presented research model is the qualitative method critical incident technique.

Broadly speaking, research methodologies can be divided into quantitative and qualitative methods. According to Lune and Berg (2017, 12) "quantitative research refers to counts and measures of things, the extents, and distributions of our subject matter: how large a thing is, how many of them there are, or how likely we are to encounter one". Qualitative research, on the other hand, is more likely to investigate the meanings and other elusive characteristics of objects that quantitative research measures (Lune & Berg, 2017, 12). Lune and Berg (2017, 12)

state that there exists a bias that favors quantitative research as more scientific than qualitative research, which suggests "confusing the study of imprecise subject matter with the imprecise study of subjects". Qualitative research may thus have to be conducted more rigorously to derive meaningful analytical results (Lune & Berg, 2017, 12).

A qualitative approach was deemed as the most appropriate methodology for the study. This was due to the need to identify new factors that could influence the switching behavior process in freemium mobile games, and thus give the interviewees a chance to voice their own experiences of the matter. This is supported by Lune and Berg (2017, 20). As mentioned, freemium mobile game switching has not been studied in the known literature, making it more difficult to employ quantitative methods effectively.

The specific qualitative research method chosen for the study is the critical incident technique (Flanagan, 1954). The critical incident technique (CIT) is a qualitative interview method that is based on critical incidents, which refer to individual events that the interviewee perceives as exceptionally positive or negative to the phenomenon (Gremler, 2004). To illustrate, an example of a positive critical incident could be achieving the top ranking on a game's server and a negative loss of a user's player account due to a service failure.

The critical incident technique was originally developed by the psychologist John C. Flanagan as a method to study job requirements and behaviors (Flanagan, 1954). Later, the same method has been applied to service research topics like customer satisfaction and service quality (Butterfield, Borgen, Amundson & Maglio, 2005). According to Gremler (2004), CIT is an important and rigorous qualitative research method in service research.

According to Gremler (2004), CIT is well suited for researching less-known phenomena. Due to there not existing any known previous studies on freemium game switching behavior in the literature, the method can be deemed appropriate. Gremler (2004) also points out that CIT is especially well-suited for topics that contain critical events, such as service failure, specifically mentioning service switching research as one such example. CIT has even been used in previous game research to study genuine experiences (Kari, Arjoranta & Salo, 2017). Gogan, McLaughlin, and Thomas (2014) argue that CIT is useful for examining topics that converge with marketing research. As mentioned, service switching has a relatively long history in marketing science including such papers as Keaveney (1995) and Bansal et al. (2005), etc.

CIT has several advantages over some other research methods. It creates rich, unprejudiced, and concrete data and allows it to be narrated by the interviewee in their own words and gives them the chance to report the data that they feel is the most relevant (Gremler, 2004). CIT allows the respondent to recall critical incidents that they already find relevant accurately and with ease (Kari et al., 2017). These features make CIT friendly for the respondents of the study and give them the flexibility to answer freely. It is thus suited well for studying game switching where various answers can be given, and respondents don't have to follow a rigid framework. CIT itself does not have to be rigid either but can be

applied differently in different contexts, particularly in subsequent studies (Gremler, 2004).

5.4 Data collection

The data was collected using an online survey questionnaire form containing mainly open-ended questions derived from the research model. Additionally, relevant data about the respondents' experience and purchasing tendencies in freemium games were collected.

The survey as a research method is essentially the same as a standardized interview that uses a fixed set of questions to which the interviewee will answer without the interview branching or adjusting (Lune & Berg, 2017, 68). It was chosen for the study to facilitate a large enough sample size to bring out as many diverse responses as possible and to allow interviewees to answer the questions at their own pace from home. As previous studies have shown that only a small number of players spend significant amounts of money on freemium games, large sample size was deemed necessary to allow at least a few such people to participate and present their viewpoints. This in turn was desirable to allow the analysis of money spending habits and their effect on switching. The COVID-19 pandemic at the time of the study could have made interviews in-person unappealing for some people, possibly affecting the sample. The standardized interview will evoke a similar and thus comparable response from each respondent (Lune & Berg, 2017, 68). The standardized interview was also deemed to be applied due to the survey containing mainly simple questions about the personal experiences of the interviewees and the desired information that they were interviewed about was sufficiently clear. Lune and Berg (2017, 68) argue that for these types of questions and situations, a standardized interview is an appropriate choice. In addition, the survey could be conducted entirely anonymously. This allowed respondents to perhaps write about experiences that they otherwise would not have been as willing to disclose, as there could be a fear of stigma about playing certain types of games or the amount of time spent on mobile games in general, for example. In conclusion, the standardized questionnaire can be argued to be an appropriate choice to use for collecting the research data.

The survey contained a total of 22 questions. The first four questions considered the respondent's experience, switching, playing, and money spending habits. The other 18 questions were open text field questions. The questions were derived from the research model and categorized into negative, positive, and both facilitating and inhibiting switching experiences mimicking the PPM framework. All research model elements were asked about individually and one question about other experiences that the respondent might want to add was included for each of the four categories. Additionally, two questions about trialing and combining behavior respectively were presented.

The survey was conducted online using Google Forms. The link to the survey was sent to all students of the IT faculty of the University of Jyväskylä,

Finland in May of 2021. 59 of the responses were acquired from this email list during the three weeks that the survey was open. Two responses were additionally recorded from outside the university using the researcher's contacts. The vast majority of the respondents were thus students at the University of Jyväskylä. The sampling method chosen was thus a "convenience sample", as described by Lune and Berg (2017, 38-39). Although this approach can be considered risky (Lune & Berg, 2017), it was concluded that university students are well suited for providing information about freemium mobile game switching when they have first-hand experience in it. Other samples may not have been as likely to provide as much data as fast. Also, since the data collected can be considered preliminary as no previous studies have been conducted, convenience sampling was deemed appropriate. (Lune & Berg, 2017, 39)

Therefore, the prerequisite for answering the survey was that the respondent had at least some experience in freemium mobile games. The survey was conducted completely anonymously, which was communicated to the respondents. A monetary incentive, a chance to win a €20 gift card to an online store was offered should the respondent wish to participate in the raffle by giving their email address in a separate survey, making it so that any contact information could not be directly connected to the survey results. This extra attention to anonymity was deemed necessary to allow the respondents to answer as honestly as possible, even though the information collected was not particularly sensitive, but was deemed to potentially influence the answers given, as previously mentioned.

A total of 61 responses were collected. Over half of the respondents had more than 4 years of experience playing freemium mobile games, while 18% had 2-4 years, 16% had 1-2 years, and 15% had less than a year of experience.

23% of respondents had no experience with switching between freemium mobile games. 36% of respondents reported that they switch between freemium games less frequently than once per year on average. 23% of respondents switch freemium mobile games once or twice per year, 10% more frequently than twice a year, and 8% say that they switch continuously.

Over half of the respondents reported that they play only one freemium mobile game at a given time on average. 21% of respondents play 2 at a time, 7% 3 at a time, and 8% more than 3 at a time. 10% of respondents do not currently play freemium mobile games.

57% of respondents never spend real money on freemium mobile games. 41% make purchases sparsely or less frequently than once per month. Only one respondent reports making purchases regularly or more than once a month. This result is in line with the previous reports on freemium business model purchasing behavior.

5.5   Data analysis

The works of Gremler (2004) and Lune and Berg (2017) were applied in the analysis of the survey data. Firstly, the data was exported from Google Forms and

refined by removing useless answers from the dataset. Only answers that contained zero valuable information were removed, for instance "-". This was done to acquire leaner data and thus make its further processing easier. After this, the only responses left to the dataset were critical incidents and were treated as such, moving them on to content analysis. According to Gremler (2004), CIT studies utilizing content analysis methods are the most prevalent, in which case the critical incidents reported by the respondents are interpreted as factual.

As described by Gremler (2004), the critical incidents were then scrutinized to form classifications based on their content, which were formed inductively from inspecting the data as a whole. This is the approach usually taken in content analytical CIT studies (Gremler, 2004). To this end, coding was utilized.

The data was imported to Atlas.ti and its tools were used to apply codes to categorize the information and systematically seek similarities in the responses (Lune & Berg, 2017, 90). Due to limitations, only one coder could be utilized and therefore extra attention was put to only applying codes that seem to occur naturally as suggested by Lune and Berg (2017, 90). During the coding process, notes and memos were taken from each observation made to ensure these observations would be saved. The coding and note-taking process were done iteratively on the entire dataset to make sure all the data was accounted for. The resulting codes and research notes were then categorized to form more generalizable groupings instead of the 14 that were derived from the research model. These groupings were iteratively shuffled back and forth until a clear picture including all significant findings was achieved, resulting in four-factor categories, each divided into push, pull, and mooring factors. Trialing and combining behavior were not included in these groups as they were deemed to exist separately from the PPM effects themselves. The resulting four categories and the partial switching behavior findings are next presented as the results of the study.

6   RESULTS

Next, the four categories of factors identified to influence consumer switching behavior in freemium mobile games are presented. The resulting categories are the following:

1. Social factors
2. Business model factors
3. Game design factors
4. Engagement factors

To briefly summarize the four categories, the social factors include factors inherent to the social surroundings of the player. The business model factors include the factors related to the game's freemium business model and marketing. The game design factors include factors that are integral to the game's design itself beyond its business model. Finally, the engagement factors include the highly personal factors related to the commitment that the player experiences to the game.

Each category is further divided into push, pull, and mooring factors. In addition, the results from trialing and combining (partial switching) behavior questions are presented separately after the four main PPM categories.

6.1   Social factors

First, the social factors are the switching factors related to the social surroundings of the player. This includes, for example, the presence of friends or communities and their interactions. A significant number of distinct social push, pull and mooring factors were identified from the responses given by the study's respondents.

6.1.1 Social push factors

Social push factors were found to influence the switching behavior of the respondents in various ways. Several negative social experiences were reported to act as a push factor, driving them away from the game they had currently been playing. In-game, social interaction with strangers can be difficult for varying reasons.

> "It is hard to create connections to other players, which makes building good teams difficult."

> "Pokémon GO and corona, the interaction ended almost completely."

Respondents reported negative social behavior (language, aggressiveness, not following community or societal rules, bullying, etc.) affecting the experience negatively.

> "Teammate acts hostile with others and thinks he/she is better than everyone else."

> "BM [bad manners] behavior especially in Clash Royale."

> "There was some negative action as some players played according to the community originated Rules of Engagement, but others did not."

Many respondents reported that games have rewards for social interaction, such as communities (clans, guilds), but these may have a negative impact as players that are not able to participate in social behavior may feel left out. Games were reported to necessitate social interaction for progressing in the game, which respondents sometimes found irritating. The game may not have sufficient features to facilitate social interaction, making the game difficult to play. Social features may be competitive (attacking other players etc.) which does not appeal to some.

> "As a single player, it saddens me that a part of the game gets left inexperienced, and progressing is slow [because of social features]."

> "Sometimes it is annoying when some action requires "help" from friends, but I am not interested in bugging people due to games."

> "The endgame challenges were very MMO raid-like, but the game lacked helpful interaction possibilities to deal with the level's boss mechanics. Therefore, the most difficult content could not be completed without an existing party in a voice call."

> "Especially in Forge of Empires the constant raiding and downright hampering by fellow players is really obnoxious."

Also, communities may necessitate active participation, which some respondents see as pressuring and encouraging negative behavior.

"If the game has guilds or such, my own inactive playing may cause negative interaction like bad-mouthing, deprecating, or threatening."

It should be noted that many respondents found the lack of any social interaction in freemium mobile games positive, while it was also commonly thought of as an integral part of the game's value.

"I only think it is good if the game has no interaction between players."

"In some games, social interaction creates the game's value almost entirely. In Clash of Clans, if you do not belong to a clan and discuss with people within it, you will not be able to play the game for long. Alternatively, there can be social interaction in real life, such as in Pokémon GO. If no friends are playing it, you will not want to play it alone."

In terms of strictly freemium game-based factors, social pressure was reported to increase the pressure to spend more real money on the game.

"When I was playing Pokémon GO more actively, I felt social pressure to spend roughly €10 on the game per month just to keep up with others."

6.1.2 Social pull factors

Social relations and features were reported to have a pulling effect on respondents that valued social interaction in freemium mobile games. Many of the respondents had experienced a want to switch to a different game due to the social environment and interaction present in it.

"Gameplay was social in comparison to the lousy time-killing games I sometimes play."

"If the communities I belong to start to play a game I might see myself playing, almost certainly I will start playing it as well."

"When my friends have started to play the game and actively invite me to play with them."

Another pull factor related to social interaction was the game's reviews and recommendations. The written reviews and review scores of the game on app storefronts. Two respondents mentioned choosing a game for trialing after checking how positive the player reviews are. Friend recommendations were also mentioned by several respondents.

"I go to the app store, quickly check the review stars, and browse through the written reviews, and download."

"…I typically choose some game based on which looks the best and does not have negative reviews."

"Friend recommendations have a lot of influence, especially if the game can be played together."

6.1.3 Social mooring factors

The social surroundings may also act as a mooring factor in switching behavior, in either an inhibiting or facilitating role. Many respondents reported having social connections and interactions in communities both in-game and outside of the game, such as in Discord or other similar messaging/voice-over IP services that make it harder to switch to another game. Friends and family were also common reasons, and several respondents mentioned having gained or deepened friendships from playing socially.

> "Two of my good friends were playing the game at the same time and it was fun to discuss, so I did not feel a need or want to switch the game."

> "Over 2-3 years, my team and alliance partners have become friends."

> "Good networks and relationships motivate me to continue playing the game."

Social moorings can also have switching facilitating effects. Hearing about the experiences of other people and other games on social media or friends had a facilitating effect on some respondents. In other words, the switch can be facilitated by finding an interesting game in the social environment.

> "Hearing, reading, and seeing the experiences of other people, such as on YouTube, help choose a game to get invested in."

For some respondents, friends playing a certain game can facilitate switching to it, especially for players who see it as a prerequisite. One respondent even stated to only play games that their friends also play.

> "I exclusively play games that my friends also play."

> "The fact that my friends have started playing a certain game and are actively inviting me to play with them [makes it easier to switch to another game]."

6.2 Business model factors

The second PPM category is the business model factors. These factors consider the general business decisions and activities, such as marketing and customer care, but more specifically the game's value creation with the freemium model and how it reflects customer switching intention. Again, push, pull and mooring factors were identified from the survey responses.

6.2.1 Business model push factors

The respondents reported several business model-related incidents that can be classified as push factors, driving customers away from the current game due to in-game economics and its implementation.

Many respondents felt that in-game purchases often give too much advantage to paying customers, which causes negative experiences, especially in competitive, i.e., PvP (Player versus Player) context, as this is considered unfair. Additionally, several respondents mentioned that progressing in a game may be slow, difficult, or arduous for players who choose not to make in-game purchases. A paywall or a situation where the player does not want to continue playing without spending money is seen as negative. Competitive games are not the only ones that may have negative incidents related to the game having too much advantage for paying customers.

> "The endgame was strongly PvP focused, and the game made sure to make it as difficult as possible for non-paying players to keep up with paying players."

> "Constructing buildings started to take weeks. The money would have solved the issue, but I would have had to spend hundreds or even thousands of euros to get the buildings done. I think games like this are pure extortion and so I stopped playing them, never to return."

> "I'm annoyed when the game forces me to spend money to progress or progressing becomes significantly slower without paying."

> "At a certain point, the game becomes very difficult or tedious, unless an exorbitant amount of money is spent."

> "Sometimes the paywall makes the game experience negative. In this situation, I quit the game and possibly switch to another one."

However, at the same time, many respondents find real money does not have enough value to justify making in-game purchases. The value that can be achieved by spending real money may not reflect the time that could be spent to reach the same goal for free. Additionally, even choosing to pay may not guarantee success, like in games with gambling ("gacha") elements. Interestingly, even when paying for guaranteed success in these games, it may take away the value that would have otherwise been achievable.

> "The game's microtransactions are unfathomably expensive compared to how easy it is to get the items for sale by simply playing the game."

> "In the gacha business model, getting the desired item is never guaranteed."

> "I once spent money on Fate/Grand Order's gacha system and thought it was unsatisfactory. Guaranteed gacha takes away the satisfaction of grinding."

Another push factor was related to microtransaction marketing, namely constant special offers that can feel redundant and even condescending. Special offers may cause negative critical incidents for players who have already purchased for the normal amount of money.

> "In-game currency is almost always on some kind of special sale and only sparsely priced normally. This psychological pricing has sometimes annoyed me because it makes buying the currency easier, even though I could do without it."

> "Typically, "Special offers just for you" feel like redundant cash-in, as the deals are poor and I'm over 13 years old."

> "I bought a virtual item package, but the same package was later available for a much larger discount"

The constraints applied to freemium mobile games were artificial in the opinion of some respondents. These include restricted resources that are needed to play the game, such as life points or time limits.

> "I was frustrated when the game had a too strict limit for life points, which ran out and the game asked the player to either wait x-number of hours or pay to continue."

> "In Pokémon GO, I was annoyed when my item and Pokémon inventories were full all the time which felt like the game forced me to buy more space, and so I did not feel like playing anymore."

Microtransactions may also simply be too expensive, or the player may not value virtual property or mobile games themselves enough to make any purchases.

> "Many games sell absurdly expensive products, especially since we are talking about essentially inane items."

Negative experiences from customer relationship management were identified as another potential push factor in freemium mobile game switching. However, relatively few respondents reported these issues, likely due to contacting customer service being arguably a relatively rare occurrence. Respondents typically did not have much or any experience interacting with the game provider. A significant number of negative experiences were nevertheless reported.

Inadequate customer service in general, including slow response times, passiveness in urgent matters, and unhelpful answers were reported to cause negative incidents. Some customer service tools were found unlikely to provide needed assistance. In particular, chatbots and support forums implemented by the developer had caused negative experiences.

> "The game no longer supported my phone. Customer support did nothing and told me I should get a new phone."

> "The developer's chatbots are not very helpful."

"Slow response time."

"With a certain service provider my information had been leaked, but the company's customer support was passive, and the issue would not be solved, despite it being evident that the leak had happened and my account hijacked."

"Many games have their support forums, but I am not interested in browsing them due to them having disturbing behavior by the players amidst appropriate tips."

6.2.2 Business model pull factors

Several pull factors in the business models of other freemium mobile games were identified. Respondents reported finding freemium model implementations with "fairer" elements attractive features in their switching process. Many such features were in direct opposition to the push factors previously illustrated.

Lack of paywalls, guaranteed gacha, generous rewards, and limiting paid features to cosmetic items was among the features that respondents found fair. Also, several respondents preferred games that allowed them to play well or achieve everything available without paying. Competitive games that were considered balanced between paying and free players were generally appreciated.

"I'm mainly interested in the fact that the game has no paywall."

"The game has an atypical special purchase opportunity every few months, where the player can select the desired item without randomness."

"The game is sufficiently fairly balanced between paying players and those that play for free, that you do not have to worry (about paying players having the advantage)."

"Games whose freemium features affect only cosmetic things are more preferable to games that lock essential features behind paywalls and waiting times."

"The game Steppy Pants was more fairly priced, and it also felt like everything could be achieved without paying at all."

Respondents mentioned finding buying in-game currency more appealing than buying in-game items, as it makes it possible to choose how they wish to use the resources and at which stage of the game. Conversely, bought virtual items may lose their value in later stages of the game. Therefore, games with a freemium business model focused on in-game currency rather than items may be more attractive. Generally, business models with more value for the money spent were mentioned to feel more attractive.

"If you buy item packages, they will quickly lose their value as the game progresses and the items will not keep up with the game's development.

On the other hand, diamonds or in-game purchase methods can be utilized at any point in the game.

> "For example, the rhythm game BanG Dream! gave better value for real money and a fair amount of in-game currency to the point that real money was not even needed, in comparison to the game Hypnosis Mic: Alternative Rap Battle that I was playing back then."

The ability to make a one-time payment to remove ads from the game was also mentioned as an attractive feature by a few respondents.

> "I try to find games where you can pay €1 to €2 to reduce the number of ads."

Marketing and advertising were found to have some pull effects, especially getting the customer's attention, and stimulating trialing. Respondents reported situations where pleasant and high-quality marketing in video format caused them to start playing a game. Advertising may also be attractive if it is more information-based, containing new features and content available in the game.

> "Clash of Clans released a video commercial that I thought was good and attractive. I started playing right away and rewatched the video many times."

> "Advertising regarding new content, such as new card sets in Hearthstone and new Pokémon or missions in Pokémon GO."

Many respondents described mobile game advertising to be deceptive, advertising features that are not present in the game or otherwise giving inaccurate or false information. Even deceptive advertising can cause trialing and therefore pull effects, but this may be short-lived if the game does not meet the expectations of the customer. Several respondents found this type of marketing annoying and have learned to ignore it.

> "Many games market themselves with false videos and images that have nothing to do with the game. These bogus ad videos are often tempting but I have learned to ignore them because the actual game will not correspond to them."

> "The games are advertised with puzzle-solving minigames. One time I tried them and in truth, the advertised minigames form only around 5% of the game experience."

In-game advertising of other games by the same publisher can cause pull effects and frequent switching between them.

> "I have switched many times between different Candy Crushes. The game contains ads for the same company's games and consequently, I switched to another very similar game."

6.2.3 Business model mooring factors

As expected, most respondents found the ability to trial the game for free to facilitate switching. Free trial is naturally an inherent feature in freemium games so it should not have implications for switching between freemium games. Some respondents explicitly stated that they would not consider trialing mobile games if they had to pay for them beforehand, as free trials are an industry standard. Despite this, paid mobile games with microtransactions do exist, although these would not be classified as freemium games due to the upfront cost to even try the game.

> "I doubt I would even download mobile games if they were not free to try out. As this is the standard on the mobile game market, it is always more difficult to download them if I have to pay beforehand without knowing the game's content thoroughly in advance."

> "It is easier to try mobile games that are free to download than those that one has to pay for."

Additionally, real currency spent or on a freemium game's microtransactions or otherwise linked to it had acted as a switch mitigating mooring factor for some respondents. Respondents felt that spending real money makes switching to another game less likely. One respondent mentioned in-game currencies that can be exchanged for real money, which may be present in some games. Spending money on freemium features might thus have a "sunk cost" type effect on switching.

> "Generally, if I have spent real money on a game, it decreases my willingness to switch."

> "If I have paid for the game or its features, I may stick to playing it for longer than I otherwise would."

> "A little, especially, if possible, in-game currency exchangeable for real money is considered, such as Upland."

6.3 Game design factors

The third category, game design factors, are the PPM factors related to the game's design decisions and outcome regarding its mechanics and gameplay experience. The PPM game design factors under this category could not be explained with the freemium business model alone, warranting separating them from the previous category.

6.3.1 Game design push factors

Updates and new content that the game may receive had caused push effects in certain respondents. Some respondents found the rate that new content gets added unappealing, making the game more difficult to play. Updates may also sometimes change the game too much, decreasing the player's interest in it.

> "I primarily want that new content is not constantly added to games so that they will not grow harder to play. Items that are available for a limited time decrease my drive to play."

> "Sometimes added features have changed the game. It will not feel the same and my interest in playing will decrease."

Another game design-specific push factor was the arduousness of playing the game. Respondents described freemium mobile games that required constant attention, even at night. This may cause the game to have harmful implications on the player's sleep schedule and by extension, health. Games that start feeling like too much work may not always be found fun in retrospect, and instead, motivate the player by handing out rewards and hooking the player.

> "If you want to finish the game, you must be playing or keep track of the situation constantly. If I had been playing alone, this would have meant setting up a night watch. Therefore, it is more common to play as a group or as a friend. At some point, it started to feel forced and caused me to leave the game behind."

> "In some games, certain mechanics take a specific amount of time. Getting something done or completing a task may take place at nighttime. I remember waking up for the game to complete a task in time. It probably was not smart because sleep is important. I think this goes to show that these games are addicting."

> "Pokémon GO has been built so addictingly (for example, playing a certain amount in a specific time to get a reward) that afterward, I have noticed that playing the game was not even fun."

6.3.2 Game design pull factors

Attractiveness is a general umbrella term for pull effects, but in this instance, it is used to refer to game design features that the respondents considered appealing in terms of enjoyment in other freemium mobile games. There were naturally many such features due to individual preferences.

Respondents reported several features that they find appealing in terms of general enjoyment of other games. Players found, for instance, better playability and overall higher quality, such as graphical fidelity attractive in competing games. The novelty of starting a new game as well as a unique gameplay concept were also factors for some.

"Due to graphics and easy controls, Crossy Road, for instance, was really good."

"Playability was better, and the game was more interesting."

"World Flipper: a completely unique game concept (flipper-RPG)"

"In the beginning, everything often seems appealing, but switching back happens after just a few days."

In competitive games, respondents found skill-based games with fewer "pay to win" features more attractive, as described in business model factors. Conversely, others would seek games with no competitive elements at all. Overall, fairer competition or no competition at all was generally

"The gameplay is primarily based on skills and purchases influence other aspects of the game"

Similarity can also be a pulling factor. The current game can have a similarity with other games but lack attractive game design features that the other game has. If this is the case, the other game may be seen as more attractive. Games that belong to a familiar franchise can have a similar pull effect on players.

"I tried Raid: Shadow Legends and noticed it resembled War & Magic a lot, but other players cannot kill your progress which is very good."

"Genshin Impact is from the same developer as Honkai Impact 3rd and similar in style, but the open world and has no PvP, which suits my tastes much better."

6.3.3 Game design mooring factors

Several switch inhibiting moorings were identified from the results of the survey. Firstly, new content and updates added to the game were commonly described as inhibiting the switch from happening, which could also have push effects as described earlier. However, most respondents found new content added to the game appealing and kept them playing the same for a long time. Especially events, competitions, challenges, or general progress in the game were described to keep the player interested in the game.

"New content is always interesting. For example, when new units and buildings get added to Clash of Clans, I can get more interested in it and decrease my willingness to switch the game."

"The game has events almost monthly which give you extra rewards by completing missions. It has also managed to hook me because I want to see my "society" evolve."

In competitive freemium mobile games, new content can also add competition or make changes to the game's competitive ecosystem, which were found to keep

some players interested in it for a longer period. Updates can also add new features to unlock and add new content for players that have completed all existing content, which has kept some respondents playing their current game.

> "[The game's evolution] has decreased [my willingness to switch]. PvP mode, which is my great passion in Pokémon games, has been added to the game over the years."

> "Updates keep the game fresh and prevent the game from being "solved", meaning that it does not freeze into one specific meta, which would lead to battles relying solely on RNG (random number generation) instead of different tactics."

> "When new features are added to Clash of Clans, I will be further from the perfect village, so I will have to play more to unlock the features."

Additionally, the game can be improved quality-wise, add new story chapters, make the game easier to play, or increase the gameplay challenge. The game's constant evolution may even be required for some players to keep playing it for a longer period. A constantly developing story may keep players invested in it engaged for a long time.

> "Essentially all games that I still play are based around constant development, but Granblue Fantasy has changed the most after I started playing it. It has become almost unrecognizable compared to the version four years ago due to constantly increased quality improvements and new content."

> "On the other hand, sometimes gameplay has just become easier by improved navigation, for example. In this case, you are more likely to play the game."

> "All games that I have played for a long time consistently add new story chapters, which acts as an inducement to play."

> "The game becoming more difficult at a suitable rate keeps me interested."

Secondly, losing in-game virtual property, time, or progress in the switch to another game was found by many respondents to be the most important factor inhibiting switching to another game. This ties into game design, as it is a design choice to implement collectible property etc. in the game. Some respondents considered losing the time that they had spent with the game and gained experience and achievements as a switch inhibitor. Others put more emphasis on the real currency spent on the game inhibiting switching as described in the context of business model moorings. Loss of progress had inhibited switching for respondents, especially if significant progress had been made.

> "I have spent many hundreds of hours on Clash of Clans; therefore, I would not want to switch away from it."

"Time invested in the game is the strongest factor for me to stick with the same game. As long as there is new stuff to play, I would rather seek it from the game that I have already invested my time and earned virtual experience and property."

"Yes, for example, it would be difficult to switch from Hearthstone to another digital trading card game due to the already gathered collection."

"Yes! I do not want to switch when the character has been leveled for months."

"This is exactly the reason why I have not switched the game. I feel like I have earned so many accomplishments in the game that I do not want to throw it all away."

"This applies to basically every game - if I have progressed far enough, it irks me to waste the progression and start from scratch if the game is switched. The longer the game manages to make me commit, the more likely I am to keep playing it."

"When I have progressed far and know the game well, I have been inclined to progress further still and not switch, because I do not necessarily want to learn the gimmicks of a new game all over again."

Notably, not all respondents had a deep appreciation for virtual property or progress, or they simply did not consider the switch to cause a loss of in-game resources in the first place. The inhibiting effect of the owned virtual property had been overridden by push factors, like when the game had become boring for several respondents.

"I do not think of virtual property as particularly important if the game is otherwise not engaging, so this has not affected me."

"I do not see mobile games as valuable as the games I play on a console or a computer, for instance. The games I am interested in can usually be started again without losing much at all. Gacha games are different, but even in those I can achieve collecting the previously accomplished property again by playing smartly and methodically unless specific items or characters are time-limited."

"This has not affected me. In the games I play, property and experiences do not disappear anywhere if I switch away from it and I can always return later."

"When I stop playing a game, the reason is practically always the fact that I do not like it anymore and the time spent on the game starts to feel wasted before switching already."

A switch facilitating or inhibiting game design-centric mooring factor identified in the study is the game's hardware requirements. Several respondents brought up the game requiring too much storage, not supporting the operating system

release, or being too demanding to run on the respondent's device. These factors can prevent the switch from happening, for example, if the new game cannot be installed due to its size. Likewise, less demanding system requirements could facilitate the switch. The game's requirements are intrinsically related to its design, such as 2D vs 3D graphics as a design choice.

> "At one point, I was interested in playing Among Us, because my friends were frequently playing it, but my phone did not have space to download anything. I suppose I could have deleted Clash of Clans, but in the end, I like it more than Among Us."

> "The memory size on my phone is usually the reason that I do not switch games very often."

6.4 Engagement factors

Lastly, the engagement factors contain the PPM factors related to the level of an individual's commitment to the game. These factors are characterized by subjective incentives such as motives, wants, and interests that affect the player's engagement in a game.

6.4.1 Engagement push factors

Some engagement-centric push factors were reported by the respondents. Difficulty to progress in the game was reported to cause an increased likelihood of switching. If the game was perceived to progress slowly or was difficult at the beginning, the low level of engagement caused some respondents to switch immediately. However, slow progress or new content can lower the engagement level even for long-time players if it unpleasantly changes the game. Naturally, slow progress is strongly linked to the game's design, but as it has a significant impact on engagement at the trialing stage, it was introduced as an engagement factor.

> "Yes, for example in Pokémon GO I did not get very far, so it was easy to switch away."

> "Sometimes I have downloaded games and tried them for an hour or so and concluded that they progress too slowly, are difficult to use, or otherwise do not suit me. In these instances, switching has been fast with a low threshold."

> "In the game Empires & Puzzles, the progress has been so slow that I have stopped playing it altogether. In it, the new content has even alienated me from the game."

Moreover, the player may simply experience a lack of motivation or interest to continue to play the game, due to various other subjective reasons. In this case, the game was reported to have failed to create or uphold the engagement required to keep playing.

> "If the game is not interesting or I completely lose motivation, I can easily stop playing."

> "Often when I switch a game, it means that I have become tired of the game or have not played it after trying. I switched the game Hypnosis Mic: Alternative Rap Battle away, because I lost my interest and only sparsely opened it."

6.4.2 Engagement pull factors

Several respondents reported finding casual games with a low level of depth attractive to switch to due to the low commitment required. This was also related to similarity, as described in game design pull factors. Casual games were found to be easy to substitute with another similar game.

> "For example, some puzzle or Candy Crush type games where I just get stuck at some point, are very easy to switch to another game with the same gameplay logic in a slightly different package."

> "With many hyper-casual games, this [type of switching] has happened."

6.4.3 Engagement mooring factors

Several switch inhibiting and switch facilitating mooring effects were identified based on the study.

The respondents listed many different engagement-centric reasons for not switching from the current game. The "hook" or addictiveness of the game and willingness to improve at the current game was mentioned by two respondents. Two other respondents had experienced switch inhibition by not wanting to learn a new game all over again, rather staying with the current game. Learning processes thus seem to inhibit switching in the respondents.

> "The game's addictiveness and the will to get better at it [prevent switching to another game]."

> "Simple and addictive games with some kinds of achievable items or accomplishments endure more playing for longer."

> "Learning a new game [prevents switching to another game]."

> "The fact that I have advanced far in the game, and I know it well. In this case, I have been willing to advance even further and not switch, because I may not care to learn the tricks of a new game all over again."

Switching may also be inhibited by the player not wanting to begin the arduous playing process of collecting resources and experience ("grinding") in another game. This is in opposition to not wanting to engage in the learning processes, instead of placing emphasis on the workload faced in the new game.

> "I simply do not wish to bother with starting grinding in another game again, especially on a mobile platform."

For some players, there is a drive to complete the current game before a switch to another game can be made, inhibiting the switch from happening. Naturally, as games are often constantly updated, the sufficient state of completion could be highly subjective.

> "My want to complete my current game, Forge of Empires [prevents switching to another game.]"

Two respondents also mentioned an attachment to the current game or its franchise, regarding the characters or the game's theme as preventing switching to games that do not fulfill this connection.

> "My game switching is also prevented by the fact that I get attached to the game characters present in the game. For example, in Pokémon GO, I want to get and train my favorite Pokémon and make them as strong as possible. As another example, in BanG Dream! I get attached to the game characters, and therefore want to get the new cards and included outfits for these characters."

> "For myself, there is no theme as interesting as diving into the Pokémon nostalgia of my childhood."

Other engagement-related moorings were reported to facilitate switching processes. Firstly, lack of commitment to the game was a major factor in facilitating switching to another game for the respondents. Several respondents mentioned a low time or resource commitment as a factor. However, one respondent also mentioned that realizing that they had spent too much time on the game facilitated switching.

> "Yes, if I have not played the game for a long time, switching is easier. If I have spent many hours playing the game, I feel like I have accomplished something, and switching may be harder."

> "I have often been quite committed until I realize that I am spending way too much time on this game and then stop playing games altogether until I run into new interesting games."

A low level of interest or engagement in mobile games in general also made switching easier for some respondents.

> "Mobile games are meant only for killing time and I am not committed to them in any way. Jumping between games is not a problem. Sometimes a

> game might stay on my phone for years without me playing it, but at times I may randomly open it."

Secondly, many respondents found the simple need for variety as a switching facilitating factor. This was especially prevalent in simple or repetitive games or games with already familiar mechanics, as described in the engagement pull effects.

> "Yes! The old game got boring, and I just felt like trying something new. The new game was coincidentally good, too."

> "Switching to other games or at least trying them has been caused by a need for variety to some extent. Games often start to get slow if you are not ready to buy speed-up items or time-limited boosters."

Similar games or games with familiar elements may be easier to switch to even for players seeking variety.

> "I started playing the game Arcana Tactics because I was fed up with the similarity of the games at the time, and therefore tried looking for a game that had similar elements as the old games I played without being similar in terms of game mechanics as the current games."

Achieving set goals made one respondent feel empty and caused a need for variety that eases the switching process.

> "Yes, if I have accomplished my goals in the current game and experienced an empty feeling due to a missing motivator."

> "The content has been largely completed and there is no update in sight."

6.5 Trialing and combining behavior

Trialing and combining behavior were investigated in the study to determine their role in freemium mobile game switching. The respondents were thus asked one question about both behaviors and if they recognize them in their behavior as well as how they manifest. Closely related to these concurrent switching behaviors is the nature of switching in freemium mobile games, as not all respondents considered changing games as switching in the first place.

6.5.1 Trialing behavior

Trialing behavior in freemium mobile game switching was described by 17 respondents. A common way to trial games was by downloading several games that were either similar (e.g., genre), randomly selected, or otherwise interesting, and then comparing them. The respondents reported comparing features such as the mechanics, business models, art style, reviews, progress in it, and general

interest, typically with two or three alternative games. Most respondents mentioned selecting one game out of the alternatives that they continued playing for longer. The trial period, when mentioned, was reported to last long enough to get a grasp of the game's mechanics, etc. after finishing the initial tutorial phase. This type of trialing behavior was named **comparative trialing**.

> "I compared The Simpsons: Tapped Out and a SimCity game, testing which had more fun and creative ways to build a city."

> "Yes, for example in terms of racing games [I tried] Asphalt 8 and Real Racing 3. I played both, checked which fit my requirements better, and chose one of them. Real Racing 3 was too based on microtransactions and not as casual, so I ended up choosing Asphalt."

> "I do not remember which games I tried, but I ended up with the game Arcana Tactics after trying a few games during one day. After finding around 2-3 interesting games, I simply installed them all and started playing one of them. When I had at least finished the game's tutorial and got to see how the game functions, I started playing the next one. In the end, I noticed I was interested in only one game and removed the other alternatives."

Other respondents described trialing just one game at a time for an indefinite period instead of comparing several alternatives. The games tried are not necessarily seen as alternatives. This other trialing type was named **individual trialing**.

> "I try a game after seeing an ad, download it and try it for a while to see if it seems nice. If there are too many ads or the game's concept is bad or progress is slow, I stop playing and remove it from my phone."

> "I have not [tried several alternatives], I trial one game at a time, trialing may of course take 10 minutes or one month for example.

> "I may try games, but I do not see them as alternatives to each other."

6.5.2 Combining behavior

Combining behavior in freemium mobile games in the form of playing two or more games concurrently at the moment was reported by 23 respondents. The respondents reported combining mobile game offerings to be able to choose a game that fits their needs at each time. It was typical for a player to have one game that was considered more important in terms of progression or accomplishment. Respondents reported playing some games simply for spending time or playing while engaging in some other activity, like watching videos or lectures. Mobile games could thus be combined with various activities and not just other mobile games. This combining behavior type was named **contextual combining**.

"A game, such as Pokémon GO, can be the one that I play more and, in a goal-oriented way. The other maybe just for spending time, such as a Candy Crush type puzzle game."

"I play Pokémon GO and Hearthstone. Pokémon GO is more of a daily game for me, whereas Hearthstone is a more casual game for free time."

"I have played Cooking Diary for over a year and at the same time Nono-gram.com or TileMaster. I play Cooking Diary more actively, often listening to, for example, podcasts or YouTube videos at the same time. I play Nono-gram and TileMaster less often when I want to take it easier and focus on something else, such as a lecture."

Other respondents reported playing several different freemium mobile games daily or with varying activeness between several games. Completing daily tasks and rewards in each game was a commonly cited reason. Games with automated features were reported to be played simultaneously to progress in several games at the same time. This other simultaneous combining was named **concurrent combining**.

"I am playing both Pokémon GO and Pokémon Master EX for a longer period, a little of each per day. I turn either game on when I feel like doing the daily missions in the game."

"I play around four games. Generally, one of them is the most important so to speak, in other words, I play it multiple times per day or more than the others. Other games I play for the daily rewards or with friends. With these four games I have a personal routine that changes a little based on which game, if any, I am currently most interested in."

"At the moment, I play six games actively and daily, spending 10-30 minutes on average per game, much more if one of them has a special event that I want to complete. Due to automated features, I often play two or three simultaneously."

6.6   Summary of the results

To summarize the results of the study, the identified factors influencing switching behavior in freemium mobile video games can be categorized into the social, business model, game design, and engagement factors. Each category can be further divided into push, pull, and mooring factors per the PPM theory of switching. In addition, trialing and combining behavior was found to be present in the context of freemium mobile games. The results are summarized in FIGURE 2.

The social factors include PPM effects related to the player's social surroundings. Negative social experiences in games and communities and unappealing reward systems for social interaction, social pressure to partake, or negatively perceived social features, in general, were identified as push factors. Pull

factors include appealing social interaction perceived in other games, friends, or communities already playing a certain game, and the game's appealing review score or written reviews on an app store platform. Switching mooring factors include the inhibiting effect of existing communities and the facilitating effects of experiences of others and requiring friends to be playing a game before the switch can be considered.

The business model factors contain the PPM factors related to value-creation, promotion, and customer relationships. A large number of push factors were identified, specifically an unfair advantage for paying, little value for real money, obnoxious marketing of microtransactions, artificial constraints, generally expensive freemium features, and unsatisfactory customer service. The pull factors included a business model that was perceived as fairer, in-game currency-focused monetization, more value for the money spent as well as truthful, appealing, and relevant marketing of games. The ability to try new games for free was a switch facilitating mooring factor. Switching could be inhibited if real money had been spent on the current game.

The game design factors include the more specific switching effects intrinsic to freemium mobile video games beyond the business model itself. The push factors identified are an unappealing rate of updates and the arduousness of playing. The pull factors include attractive game design features, fair competition, and similarity. The inhibiting mooring effects were identified as content updates and events, changing the competitive ecosystem, improving the game over time, sunk time, and achieved progress and virtual property. Hardware requirements could act as both inhibiting and facilitating mooring factors.

The engagement factors are the switching effects concerning an individual player's commitment to the game. The identified push factors include slow or difficult progress and low motivation to play. The pull factors are low required commitment and similar logic to other low commitment games. Switch inhibiting moorings include addictiveness, willingness to improve, not wanting to start learning or grinding a new game, wanting to complete the current game, and attachment to the game's theme. Moorings that facilitated switching were found to include low commitment, low time or resource commitment, low interest in mobile games, need for variety, similarity, and achieving personal goals.

Additionally, both trialing and combining behavior were found to manifest in freemium mobile game switching. Trialing behavior could take the form of comparing several alternatives as well as trialing a game individually. In terms of combining behavior, different games could be chosen for different situations or moods. One game was typically the main game, being more important than the other, supplementing games. Many games could be played concurrently to complete the daily tasks or similar in each. Games with automated features could also be played simultaneously.
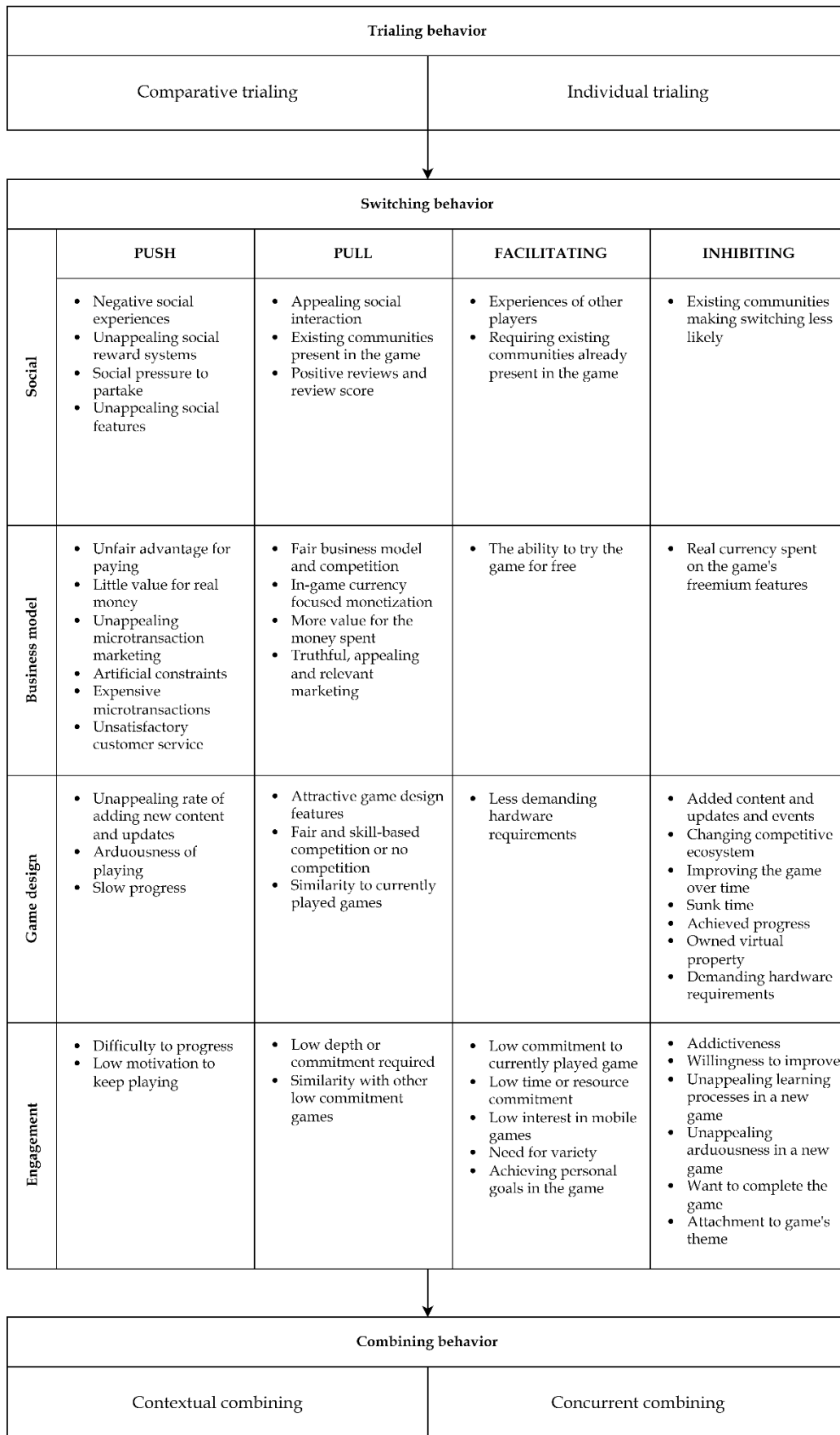
Trialing behavior	
Comparative trialing	Individual trialing

Switching behavior				
	PUSH	**PULL**	**FACILITATING**	**INHIBITING**
Social	• Negative social experiences • Unappealing social reward systems • Social pressure to partake • Unappealing social features	• Appealing social interaction • Existing communities present in the game • Positive reviews and review score	• Experiences of other players • Requiring existing communities already present in the game	• Existing communities making switching less likely
Business model	• Unfair advantage for paying • Little value for real money • Unappealing microtransaction marketing • Artificial constraints • Expensive microtransactions • Unsatisfactory customer service	• Fair business model and competition • In-game currency focused monetization • More value for the money spent • Truthful, appealing and relevant marketing	• The ability to try the game for free	• Real currency spent on the game's freemium features
Game design	• Unappealing rate of adding new content and updates • Arduousness of playing • Slow progress	• Attractive game design features • Fair and skill-based competition or no competition • Similarity to currently played games	• Less demanding hardware requirements	• Added content and updates and events • Changing competitive ecosystem • Improving the game over time • Sunk time • Achieved progress • Owned virtual property • Demanding hardware requirements
Engagement	• Difficulty to progress • Low motivation to keep playing	• Low depth or commitment required • Similarity with other low commitment games	• Low commitment to currently played game • Low time or resource commitment • Low interest in mobile games • Need for variety • Achieving personal goals in the game	• Addictiveness • Willingness to improve • Unappealing learning processes in a new game • Unappealing arduousness in a new game • Want to complete the game • Attachment to game's theme

Combining behavior	
Contextual combining	Concurrent combining

FIGURE 2 Results of the study

7 FINDINGS AND DISCUSSION

In this chapter, the research question of the study is answered based on the results. Additionally, the implications of the results of the study for both research and practice are discussed.

7.1 Answering the research question

The research question of the study was:

Which factors influence the switching behavior of consumers in switching from one freemium mobile game to another?

The research question had been largely unanswered in the previous literature, as the past game-related consumer switching studies by Hou et al. (2009, 2011) and Liu et al. (2016) had considered MMORPGs and social networking games, respectively. Neither of these was completely representative of the freemium mobile game environment, despite having notable similarities.

It can be assumed that some of the results in the previous game switching studies are relatively applicable to a freemium mobile game context. MMORPGs are also service-like games and can also employ the freemium model. The presence of in-game items and other virtual property is particularly similar to freemium mobile games. SNGs on the other hand have been shifting to the mobile environment for a while already (Park, et al., 2014), which is logical due to the connectedness of mobile devices and their general popularity of them. As SNGs typically emphasize sociability and network effects, making them arguably well-suited for mobile devices.

However, neither of the aforementioned studies took mobile devices and apps into account, and therefore the mobile app switching study by Salo and Makkonen (2018) proved instrumental. A significant contribution of the study was the introduction of partial switching behavior in the form of trialing apps before switching. Additionally, the studies by Hou et al. (2009, 2011) were

considered particularly dated, as the game industry has moved and keeps moving at a rapid pace, especially in mobile. The study was thus built to answer the research question by taking into account the previous game studies, the modern mobile app environment, freemium business model, and utilizing the well-established PPM framework to document the findings and make them comparable with past literature. Previous studies had been conducted with both quantitative and qualitative methods. The critical incident technique was chosen for its applicability with service research and switching behavior, rich data-providing capability, and executability.

To answer the research question, in summary, the factors influencing the switching behavior of consumers when switching between freemium games are divided into the social, freemium model, game design, and engagement-related factors. Regarding social factors, the social experiences, the game's social features and communities in and out of the game affect switching. The fairness of the freemium model, its implementation, the amount of money spent on the game, and the game's marketing and customer support affect switching behavior from a business model perspective. The game design factors include the game's update rate, arduousness to play, the competitive ecosystem, similarity to other games, hardware requirements, time spent, and progress achieved. In terms of engagement specific factors, rate of progressing in the game, level of commitment required and achieved, need for variety and completion as well as learning processes affect the switching process. In addition, a trialing period where the user tries one or several alternatives may take place. The user may also combine freemium mobile game offerings depending either on the context of use or combine them simultaneously.

7.2 Implications for research

Next, the implications of the results of the study from a scientific point of view are discussed. A total of five implications can be drawn from the results, in addition to the previously discussed results of the study.

7.2.1 PPM framework applicability

The PPM framework has been found to act as a solid base for switching research and can therefore be used to position and classify the switching factors as either push, pull, or mooring effects. However, the results from earlier mobile switching studies (Salo & Makkonen, 2018; Hu et al., 2021) expand the switching models with partial switching concepts, trialing, and combining behavior, which is especially relevant from the freemium and mobile perspectives of the research question. As the PPM framework originates in human migrations and traditional service research where switching is more permanent and definitive, it should not be considered the end-all theory to explain switching behavior in mobile services.

Partial switching behavior in the form of both trialing and combining can be seen to be relevant due to the ease of switching freemium mobile games. Unlike in mobile device switching, as studied by Nykänen, Tuunainen, Piispanen, and Tuunanen (2015), a user may not switch one game entirely to another but may instead choose to use multiple mobile games at the same time. The user may not even see it as switching, but instead "starting and stopping" the games independent of each other. This notion was brought up in the survey by one respondent. The PPM framework is therefore not a comprehensive view on the whole subject, as its roots are in migration research where a switch would naturally be a more well-defined occurrence. Of course, a person migrating from one geographic location to another would not have the opportunity to live in several locations at the same time. This concept may have applied in many other services or product switching contexts, but in mobile applications, a clear distinction between switching and concurrent use is more difficult to make. This limitation in current switching research is also brought up in the mobile messaging app context by McKenna, Mäkinen, and Tuunanen (2021). In this case, the user could choose an appropriate mobile app for each messaging context. However, the traditional switching model could be slightly more applicable in freemium mobile games, as games typically require a larger time and effort investment, with games often aiming for the user to play them as often as possible. Also, the PPM framework was especially helpful in identifying and categorizing the findings. All points considered, the identified PPM framework-based factors with extensions on both ends in the forms of trialing and combining behavior can be assumed to provide an accurate enough picture of the freemium mobile game switching to answer the research question.

Mobile services, especially freemium, are characterized by low switching costs and opportunities to test and even combine different offerings. Therefore, the partial switching concepts meaningfully extend the PPM framework for the freemium mobile game context. These concepts are discussed next in the following chapter.

7.2.2 Partial switching in freemium mobile games

The results regarding partial switching topics, both trialing and combining behavior, were quite interesting. Trial periods comparing several alternative games or trialing a single game individually were reported to take place in the study's context. According to Sotamaa, Tyni, Toivonen, Malinen, and Rautio (2011), first impressions are crucial in free-to-play games, as they must be immediately captivating to avoid losing potential players in the early stages of use. This further supports Salo and Makkonen's (2018) notion of a lack of commitment and dissatisfaction threshold in mobile switching and this had suggested that trialing should happen in freemium game switching as well. This was now confirmed by the study's results, possibly acting as a gateway for further research on the subject.

Two different types of trialing behavior were identified, comparative and individual. Games are a particularly interesting topic in the sense of comparative

trialing, as games can be much more complex to fully take in by the user when compared to simple, utilitarian applications. As app markets are crowded with a myriad of games with varying degrees of similarity, and comparing several at the same time is effortless, competition for the players' first impressions must be fierce. Respondents mentioned playing through the game's tutorial in the trialing phase, which raises the question of how captivating a tutorial explaining the game's mechanics can truly be? Designing a captivating tutorial section is thus an interesting topic with significant overlap with the practical environment.

Combining behavior is another interesting partial switching topic. It was found that combining behavior can take place in freemium mobile games either by choosing a game for the context or by engaging in several games at the same time. If contextual combining is discussed first, it was reported that a user might choose to play a game when doing something else, suggesting that mobile games are not necessarily combined with other games or even apps. The convenience of playing a mobile game of course varies, but the presence of the device and the game on it are intuitively a significant factor for a user to engage in it even amid another activity. This may present an interesting topic in how the uniqueness of mobile games affects learning results if a user plays them during a lecture, for example. In this instance, the effect could be detrimental, but there is a chance that some students may benefit from the stimuli that a game could provide. Of course, choosing a suitable game for each situation is another topic, as users may want to choose a simple game to kill time on public transport, or an action RPG for relaxing after work, for instance. More studies could be conducted on this subject as well.

Concurrent combining of many games on several devices at the same time due to their automated features is another identified form of combining behavior in mobile games. In this case, several similar games are combined to be played simultaneously and thus more efficiently. Idling, or progressing in a game while doing actively nothing is a game dynamic in so-called idle games (Cutting, Country & Cairns, 2019) that has seen some research over the past couple of years. As some games do not require constant attention from the player, the way the user is engaged is fundamentally different from what has traditionally been understood as engagement (Cutting et al., 2019). Many such games can thus be played simultaneously and the implications of such behavior on switching would be an interesting subject to study more extensively.

In conclusion, combining behavior can take some quite interesting variations in the freemium mobile game context, while trialing behavior on the other hand seems to be a more general process of testing various kinds of apps before making a switching decision. Despite this, both topics are seen as possible future research avenues in mobile game research as well as video game research at large.

7.2.3 Arduousness and effort of playing

Another implication of the study is the arduousness and effort of playing mobile games the way they are designed. The respondents described situations in which

effective progress in the game necessitated interacting with it many times during the day, and even waking up during the night to complete tasks.

Mobile games may necessitate frequent interaction from the player to accomplish this goal, interestingly relating to the idle game described earlier, as short but frequent interaction is typical for these types of games (Cutting et al., 2019). This type of interaction was reported to cause push effects when playing the game would start to feel like too much effort. Naturally, parallels to mobile game addiction can also be drawn. When it comes to switching behavior, although only push effects were directly implied, the switch inhibiting effect of the game creeping into the player's daily life and schedule can be considered likely.

Unlike in most other switching behavior topics, in mobile games, the effort of using the service may be a relevant issue to study and a factor to consider in subsequent studies. The nature of switching in arduous games that e.g., necessitate frequent interaction, waking up during the night, and sharing the account with a group of friends to progress optimally could be very different from switching a simple puzzle game for occasional time-killing, despite both being classified as freemium mobile games. For example, the game becoming a part of the player's daily routine could develop a strong switch inhibiting mooring effect.

7.2.4   Time, money, and progress

Time spent on the game, money invested in microtransactions, and progress achieved (including virtual property) were identified as some of the most cited switch inhibiting mooring effects in the study. Players who have made such investments in one game seem to be less likely to want to switch the game for another, as this would cause them to start again from zero. Naturally, the extent to which this affects different players would vary. Not every respondent saw switching the game as losing the virtual property, for instance.

Hou et al. (2009) theorized in their study that moving to another game has high switching costs even if there is no money involved in the switch due to the experience and property gained. This was now tested in a freemium mobile game context, and it was confirmed that even when only a small number of players spend money on mobile games and the switch is completely free in the traditional sense, the switching costs still exist and are significant. The game-specific switching costs especially set freemium mobile games apart from other mobile apps, and therefore a need for more research is evident. For example, the role of monetary investment in inhibiting the switch is likely to be different for "whales" in comparison to other users.

In addition, the specific types of switching costs should be inspected in closer detail to determine their role in the switching process. Case studies in different types of games could help specify the parts they play in them. Time invested could inhibit switching in puzzle games, while the progress made could play a stronger role in RPGs, for example. Switching costs themselves could also be inhibited by some factors, such as achieving goals in the game or a lack of new content. A need for further quantitative research is therefore identified.

7.2.5   Communities behind switching decisions

Although previous research has not identified strong evidence for social factors affecting switching decisions, there seems to be some in freemium mobile games. The respondents described many situations where they had e.g., switched due to friends playing the same game, social media communities forming around the game and acting as a mooring factor, and various experiences related to in-game social interaction.

In many games, social interaction seemed to form a significant portion of the total value offering. As mobile games have become more intricate over the years, some games even necessitated social interaction for effective progress-making and teamwork. Therefore, the value of social interaction in mobile games could see more research in the future. Naturally, related topics are the concepts of value co-creation and co-destruction, from which the latter has been investigated in Pokémon GO by Lintula, Tuunanen, Salo, & Kari (2017). Additional studies in various games could provide more insight on these subjects.

Despite previous literature not finding a significant relationship between social interaction and switching intentions, the results of this study suggest that the topic should be studied in more detail. Especially low-level communities, such as groups of friends seemed to have an effect as a pull factor, whereas in-game and out-of-game communities may play a more important role regarding the switch inhibiting moorings. Therefore, interesting avenues for future research concerning mobile game communities and switching behavior may form.

7.3   Implications for practice

As freemium mobile game switching has not been studied in the literature in the past but is undoubtedly essential for mobile game providers, the developers and publishers of such games can be assumed to possess in-depth knowledge about it, as well as access to significant amounts of data explaining switching behavior. Despite this, three practical implications can be inferred from the results of the study. However, no definitive recommendations can be made based on the results of just one study, and therefore the recommendations are given as ideas for developers to potentially test in a real scenario.

7.3.1   Designing social interaction

Continuing with the theme of social interaction and communities around the game analyzed previously, implications for designing social interactions in freemium mobile games are next discussed.

Firstly, it is important to mention that based on the results, it was clear that different players appreciate different levels of interaction in a game. Some players wanted more interaction and better tools for it, while others expressed discontent with the social pressure to participate and send invitations to friends on

social media, for instance. There is also the question of forming communities of practice in-game vs. out of the game on various platforms, as well as if the game is designed to be played socially, such as "raiding" in MMORPGs or more individually, as the requirements and desired level of in-game interaction will naturally vary. However, here are some general guidelines for social interaction design in freemium mobile games.

Social interaction required for completing in-game tasks should be considered and a suitable level determined to make sure the players do not feel pressured to "harass" (as one respondent put it) their contacts on social media, for example. The want for game providers to use existing social networks to procure more players can be understood but based on the results it is perhaps better to leave recommending the game to the players themselves, with the possibility of utilizing integrated sharing features, for example. Social interaction in terms of in-game feature completion is likely better to be left for the in-game friend lists and groups to make the interaction more natural.

The results also point to the direction of designing the players to gain benefits from social interaction, while avoiding the whole game depending on it. Overdependence on social features may result in progressing in the game becoming difficult for players that do not wish to participate in it but having no incentive for social features can naturally result in diminished value offering for players that are there for multiplayer and other social game dynamics.

7.3.2 Business model recommendations

The freemium business model is another integral defining feature of freemium mobile games, and therefore several implications regarding its implementation and other business model intricacies can be made.

The results pointed out that players do not consider the value provided by microtransactions in mobile games worth the money, but at the same time, some consider that they give too much advantage to the players who spend money on them. As only a small percentage of players spend large amounts of money on microtransactions, balancing the freemium model to be fair for the non-paying customers and appealing to the "whales" can thus be difficult. As the whales are the big spenders, a game developer might gravitate towards serving their needs. If the revenue is mostly generated by the whales as in some cases 0.15% of the player base generates half of the revenue (Tomić, 2018), the gains from balancing the freemium ecosystem get average players to spend slightly more money may not be worth the effort. Therefore, treating the vast majority of the player base as mainly providing network effects to the service, while the big spenders pay most of the revenue and the free players' share of upkeep and other costs seems to be a common strategy.

Still, there was significant demand for "fairness" in the survey. These include limiting the advantage the player gains from microtransactions, such as only allowing the purchase of purely cosmetic items or offering decent value for smaller purchases for the players who are not whales. Another characteristic that might be considered fair was avoiding artificial constraints such as "paying for

time" (Tomić, 2018), in other words limiting the player's ability to progress by introducing a limited resource that is spent to play the game unless more is purchased. Refraining from deceptive marketing and developing the customer service sector, as well as compensating for potential problems generously could also be used to counter possible service failures identified in the survey. A focus on fairness of the game is thus encouraged to be experimented with, as this could result in a more positive reputation and word of mouth for the game, which can be considered beneficial due to the identified social dimension of freemium mobile game switching.

A more balanced freemium model could also have the potential to anchor more players in the game by the ways of mooring effects. If a fairer business model results in more players purchasing microtransactions and less restricted progression allows for the faster accumulation of virtual property, the switch inhibiting mooring effects may be stronger at an earlier stage for a larger number of players.

7.3.3 Engaging the players

Lastly, a few implications related to the engagement of the player base can be made. These implications include some game design-specific recommendations as they were found to relate to engagement.

Content updates are a defining feature of games delivered in-service format, and it is, therefore, important to discuss it in terms of developing the game to retain the existing players more effectively. The results revealed that large content updates had been overwhelming for players in the past, decreasing interest and thus manifesting as push effects. Improvements to the game's quality and added content in the form of events for example were found appealing by the respondents. Specifically, usability improvements, the continuation of the game's story, and added challenges were mentioned as such improvements. This might suggest that smaller, more incremental updates, possibly delivered more often than larger content updates, could hold the potential to engage players in a way that does not feel overwhelming. Large updates were mentioned to change the game too much and too suddenly, whereas the game-changing radically over a long period was seen as a positive development.

Another commonly cited feature regarding engagement in PvP-focused games was competition and the game's competitive ecosystem. It was reported that the eventual formation of the meta-strategy or meta, meaning the established community-sourced norm to play the game most effectively (Lee & Ramler, 2017), would be shuffled in the updates, allowing for new strategies to be created. For the players seeking such gameplay dynamics, this would likely be an interesting development and anchor them to the game. Taking the previously mentioned small updates vs. large updates discussion into account, it is also possible that the same principle applies to meta shuffles as well. It could be more appealing for the players to introduce smaller changes to the competitive ecosystem to avoid overwhelming them with a complete shuffle. Naturally, monitoring the

player reactions to the update cycles can be argued to be crucial to determining a suitable strategy through experimentation.

Variety seeking was identified as a prominent switch facilitating mooring factor in freemium mobiles. Since players may switch from the simple need for variety, especially if the game's development ends or the updates are not considered satisfactory, it should be discussed in what other ways the game provider can counter players switching away from their game. Providers may naturally publish sequels, spin-offs, and other games to retain their existing player base while offering variety for the players that want it. Switching within the same service providers is also mentioned by Hou et al. (2011), where it is likened to human migrations within the same city, as opposed to moving between countries. In this context, Hou et al. (2011) bring up the possibility of a sequel of a game having the option to retain some of the virtual property gained in the previous game, thus encouraging current players to make the switch to the sequel instead of switching to a different game provider's service. In terms of variety seeking, a game provider could combat this type of switching by introducing a shared resource between a variety or selection of different games. In this case, players seeking variety could more easily switch between the games of the same provider and utilize already existing resources in the new game.

Another implication of the study worth mentioning was the high number of very personal factors when choosing a game, including the game's theme, nostalgic connection, unique gameplay concepts, etc. These notions exemplify the great amount of variety in mobile games, and naturally games in general. Individual preferences thus play a big role in determining the games a user might be interested in. The same may not be true for all switching concepts, particularly those that are not hedonic, as the emotion-based value of hedonic systems is naturally individual. One implication that can be drawn from this is the value of knowing the user base or target group and designing a game that appeals to them hedonically through these shared individual preferences. In this sense, the time and effort put into designing attractive monetization systems, marketing, and social interaction would be meaningless if the core service and its hedonic value provided were insufficient. Therefore, a "game first" approach can be recommended.

Finally, as the ethics in freemium games and their monetization strategy and gambling-like gameplay mechanics have been discussed in the past literature (Neely, 2021) and as similar concerns were raised in the survey, it is important to briefly note this aspect from a practical standpoint as well. A high level of engagement through frequent interactions throughout the day seems to be a fairly common strategy to get the player to return to the game over and over, and questionable microtransactions may be implemented, for example, the inability to purchase exactly the amount of virtual currency needed for an item, forcing the player to buy more than necessary (Tomić, 2018). There is a point to be made about engaging design where addictive design elements are avoided, for example avoiding situations that would make the player want to wake up at night to play. A recommendation to game providers to explore such ethical design is thus

made, likely increasing the perceived fairness of the game by the players while to some extent lessening the likelihood of governmental interventions and regulation.

8 CONCLUSIONS

This final concluding section summarizes the main points of the study. The limitations of the study are also discussed. Additionally, the key topics for future research are given to further extend the literature on freemium mobile game switching behavior and answer other potential questions raised during this study.

8.1 Summary of the study

In this study, the topic of consumer switching behavior in freemium mobile games was presented for the first time. It was first analyzed through a literature review from the perspectives of research on mobile applications and markets, digital games, business models as well as migration and switching research, particularly on mobile application and video game switching behavior. From this literature, a research model could be constructed. This model was not a definitive illustration of switching behavior in free-to-play mobile games and needed a qualitative research approach to gain more insight on the subject. As studies on the subject had not yet been conducted, a high likelihood of coming across findings not yet present in the current literature was deemed to exist. Therefore, based on the research model, a qualitative structured interview was designed by applying the critical incident technique (CIT). The survey was used to collect data, which was then analyzed and categorized according to the PPM framework. The results were presented in detail in the social, business model, game design, and engagement factors, as well as the partial switching concepts, trialing, and combining behavior. From the results, a total of five implications for research and three implications for practice were identified and discussed. The following paragraphs will now briefly summarize the key findings of the literature review and the qualitative study.

To summarize the main points of the freemium mobile game switching context, firstly, the ever-growing popularity of mobile games is largely attributed to the increased ubiquity and performance of mobile devices and the introduction

of application market platforms. This has led to mobile games growing in scale and changed them from the occasional time-killing fun that is shipped as an extra feature with the device to a remarkably profitable global business. Some mobile game companies and startups have become business unicorns in the mobile game market that is estimated to exceed 100 billion USD in value. The relative ease of getting to the market and potential profits have caused the mobile app and game market to become highly competitive. The search for network effects has made freemium the dominant mobile business model by its ease of gaining new users. The switching costs for the user are seemingly low, and the users have virtually limitless opportunities to test and choose their preferred services. However, games are different from many other service switching contexts in that the affecting antecedents are not only related to simple variety and hedonic enjoyment but also various other factors. The loss of one's experience and items when switching a game is an identified mitigating mooring factor that likely does not exist in many other contexts. Freemium mobile game switching is also affected by in-game and out-of-game communities, social interaction, implementation of the freemium business model itself, marketing of alternatives, and the game's design and engagement of the player.

To summarize the key scientific implications of the study, five implications were drawn from the results. The first scientific implication considered the applicability of the PPM framework in the context of freemium mobile games. It was concluded that while PPM is not completely unsuitable for the context - and arguably more so than in many other modern service switching topics - there is a need for more nuanced perspectives. These concerns may be answered in part by the addition of trialing and combining behavior, both of which were demonstrated to be present in freemium mobile games.

The second implication considered these two partial switching concepts in more detail. Trialing behavior research can find many interesting topics from the freemium mobile game context, such as the app market competition, the similarity between games, and the lack of commitment in the early stages of trialing as well as the freemium model's low switching costs themselves allow for effortless trialing of alternatives (comparative trialing). The captivating design of the game's early stages is especially interesting in this regard. In terms of combining behavior, the identified types of contextual and concurrent combining were both unique to freemium mobile games, making various future studies possible. As games can be played on mobile devices virtually everywhere, suitable games can be chosen based on the context and combined even with other value offerings. Concurrent combining is made possible by automated features and can thus be manifested as playing several games simultaneously and more efficiently. Both are thus introduced to the research on mobile games.

The third implication was the push effect of arduousness and effort that was identified in playing freemium mobile games in an objective-oriented manner, completing tasks, and interacting with the game frequently. This could have the effect of turning the game into too much effort to play efficiently, even necessitating behavior that could be likened to an addiction.

The fourth implication was the mooring effects of time, money and progress achieved that seemed to be the strongest predictors of switching in past studies and were now identified in a freemium mobile game context.

The fifth implication was the effects of communities on switching behavior. The social environment and communities had not been strong predictors of switching in past studies, but according to the results, the situation might be different in freemium mobile game switching.

Next, the three implications for practice included general suggestions for game developers to test in their games. The first implication was the design of social interaction, where the recommendation was given to balance the required social interaction to fit the game in question, provide the appropriate tools for social playing when needed, and avoid required interaction to appeal to players that would not wish to engage in it.

The second practical implication was the recommendations for the business model of a freemium mobile game. It was suggested to balance the business model for the desired effect. As the fairness of the business model was important in the study, the recommendation to explore fairer ways to establish the monetization was made, such as with cosmetic-focused monetization, non-artificial constraints, and generous compensation, as well as mooring the players with a fairer business model.

The third practical implication focused on engagement. A suggestion to focus on smaller but frequent updates instead of large, potentially overwhelming and too sparse updates was made. Breaking the metastrategy in PvP-focused games was another suggestion, an incremental method in this too could result in fewer players getting overwhelmed. In terms of variety, it was suggested to create shared resources in a wide variety of games from the same provider to encourage players to stay instead of switching to another provider. Individual factors of the player base and the quality of the game itself were recommended to get top priority. Lastly, the ethics of freemium games and avoidance of creating addictive behavior was made.

To conclude, consumer switching behavior in freemium mobile games is quite a multifaceted and interesting phenomenon due to the presence of heavy mobile competition, social factors, ubiquitous but varied freemium business model, and the sheer complexity of the games and also the consumers themselves. The study's main contribution to theory is applying the push-pull-mooring framework and partial switching theories in freemium mobile game switching and thus filling a gap in switching literature, creating a base for more in-depth studies on the subject. In practice, the results may help game developers and publishers to improve their games for customer satisfaction, retention, and sustainability.

8.2 Limitations

The study is not without its limitations. Firstly, the generalizability of the results should be questioned as they have been studied only within the context in question. As has been stated multiple times, freemium mobile games have virtually endless variety. Therefore, it is not likely that all findings can be used in all types of mobile games or other games in general.

The second limitation considers the data collection and analysis processes. The chosen data collection method, which was a structured questionnaire, allowed for more and more varied responses but did not allow for the branching of the questions to further investigate the respondents' experiences. Therefore, the results work as primary investigations on the subject, but further findings should be explored in future studies before making definitive conclusions. The content analysis process was limited by the inexperience of the researcher and may not be as reliable as possible, as no assistant researchers were available to triangulate the results.

Thirdly, the respondents of the survey were not very diverse in terms of demographics. All respondents, except for two, were students of the IT faculty of the University of Jyväskylä. All respondents were Finnish. Therefore, the results may not represent different nationalities or groups. The playing, switching, and money-spending habits, for example, could vary drastically in other countries and age groups, which may imply differences in the results of potential future studies. To illustrate, children that play freemium mobile games may not have the same opportunity to spend money on microtransactions and working adults may not have as much time to play games as the students that were represented in the study. Similar points can be made regarding different countries. The generalizability of the results is therefore limited in this respect as well.

8.3 Future research topics

As mentioned, when discussing the implications for research, many of the topics are yet unexplored in the current literature. Switching behavior stands as a relatively novel field, particularly when it comes to games and mobile settings. As such, a plethora of potential avenues for future research remain.

The first future research topics are therefore consumer switching behavior studies in different contexts or viewpoints. As the field of game research contains a lot of variety, it would be interesting to see studies done in other game contexts as well. The switching behavior of consumers in games commonly played as esports is one potential direction, as it entails a large time commitment from players to be more competitive, and therefore it is likely that these games are switched similarly to traditional services. This would be particularly useful in determining the role of competitive ecosystems in switching behavior. If the community

around the game is especially tightly knit, the effect of communities may also prove worth investigating further.

Another switching behavior study could include different mobile contexts, not necessarily related to games, but different categories of apps. Qualitative case studies focusing on the switching behavior of social media, financial, or productivity applications might possess a potential for novel findings relating to the subject. The study by Salo and Makkonen (2018) could easily be utilized as a springboard for these studies.

Naturally, the topic of freemium mobile game switching could also be extended with future studies focusing on the specific relationships between the factors influencing the players' switching behavior identified in this study. A quantitative follow-up study could be conducted to bring more insight into the issue and determine which factors are the most influential in freemium mobile game switching. The results can, for example, be compared with the earlier studies by Hou et al. (2009, 2011) to examine the special properties of mobile game switching compared to MMORPGs that they had studied.

Partial switching can also be considered deserving of more in-depth analysis, as it has been found to extend and develop the old PPM framework and could thus be useful in applying to different contexts, which may not have an as clear-cut view of switching from one origin to one destination. Especially the combination behavior of value offerings in these situations could yield interesting results.

To conclude, the research on switching behavior in various IT service contexts is still limited. Especially mobile services contain many interesting opportunities for future studies in areas that have not seen scientific presentation despite their ubiquitous practical application and presence. With these closing remarks, future researchers are encouraged to delve deeper on the subject and discover novel findings.

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