Mattias Muhonen

MOBILE IN-APPLICATION PURCHASING: A CONSUMER PERSPECTIVE

UNIVERSITY OF JYVÄSKYLÄ
DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS
2015

TIIVISTELMÄ

Muhonen, Mattias
Mobile in-application purchasing: a consumer perspective
Jyväskylä: Jyväskylän yliopisto, 2015, 64 s.
Tietojärjestelmätiede, pro gradu -tutkielma
Ohjaaja(t): Salo, Markus

Tutkimuksen tarkoitus on selventää applikaatioiden sisäistä ostamista mobiililaitteilla (in-application purchasing) kuluttajan näkökulmasta. Applikaatioiden sisäisessä ostamisessa on monia tekijöitä, jotka erottavat sen perinteisestä elektronisesta kaupankäynnistä ja uutena ilmiönä sitä ei ole vielä laajasti tutkittu. Applikaatioiden sisäinen ostaminen on muodostunut suosituimmaksi ansaintamalliksi mobiiliapplikaatioissa, joten on syytä selvittää kuinka kuluttajat sen kokevat. Applikaation sisäisessä kaupankäynnissä myytävät tuotteet ovat täysin virtuaalisia, maksutiedot on tallennettu markkinapaikan järjestelmään, tuotteen toimitus tapahtuu välittömästi ja freemium-mallin mukaisesti tuotteita voidaan usein kokeilla mobiiliapplikaation ilmaisversiossa ennen ostamista. Nämä tekijät vaikuttavat kuluttajan kokemukseen sekä luottamuksen että ostosten helppouden kautta, tämän takia tavoitteena on selvittää miten kuluttajan ostoprosessi etenee applikaation sisäisessä ostamisessa ja mitkä tekijät vaikuttavat siihen.

Tutkimuksen teoreettinen viitekehys muodostuu pääasiallisesti mobiilikaupankäynnistä, josta saatavien tekijöiden vaikutusta tutkitaan applikaatioiden sisäisessä ostamisessa. Koska kyseessä on kuluttajan näkökulman selvittäminen, tutkimuksen empiirinen osio on suoritettu teemahaastatteluilla, joista saatavia tuloksia verrataan siihen miten näiden oletetaan olevan teoreettisen viitekehyksen mukaan.

Tulokset osoittavat, että kaikki mobiilikaupankäynnistä löytyvät käsitteet eivät suoraan sovellu applikaatioiden sisäiseen ostamiseen ja applikaatioiden sisäisten ostosten luonne itsessään kääntää mobiilikaupankäynnistä löytyneiden tekijöiden vaikutuksia täysin päinvaistaisiksi esimerkiksi hinnan suhteen. Tulokset osoittavat, että applikaatioiden sisäinen ostaminen seuraa pääsääntöisesti perinteistä kuluttajan ostokäyttäytymistä mutta jotkin sen osista ovat applikaatioiden sisäisessä ostamisessa huomattavasti pienemmässä roolissa kuin mitä on perinteisesti ymmärretty. Applikaation sisäisten ostosten luonteen vuoksi erilaisten tuotteiden vertailu on huomattavasti pienempää sekä kuluttajan kokema riski vähentynyt. Erityisesti hedonisissa applikaatioissa kuluttajat tekevät impulsiivisia ostoksia helposti ja ne saattavat jäädä kaduttamaan kuluttajaa ostoksen jälkeen.

Asiasanat: applikaatioiden sisäinen ostaminen, mobiiliostaminen, kuluttaja, ostokäyttäytyminen, freemium

ABSTRACT

Muhonen, Mattias
Mobile in-application purchasing: a consumer perspective
Jyväskylä: University of Jyväskylä, 2015, 64 p.
Information Systems Science, Master's Thesis
Supervisor(s): Salo, Markus

The aim of this study is to clarify what in-application purchasing on a mobile device is, what is the in-application purchasing process and what are the factors affecting it from the consumer's perspective. As a new phenomenon it has not been extensively studied so there exists a gap in current knowledge about how in-application purchasing is experienced. Furthermore it has established itself as the most prominent earning logic in mobile applications so the factors that affect it and how the consumers experience it should be studied. In-application purchasing differs from traditional electronic commerce and mobile commerce in many ways. The products are entirely virtual, the consumer's payment information is stored in the market place, the products are delivered instantaneously and products can often be tried in a free version of the application before purchasing. These factors affect the consumers experience via trust and ease of use. Therefore the goal is to clarify what the consumer buying process is in in-application purchasing and what are the factors that affect it.

The theoretical framework is formed mainly on mobile commerce from which the affecting factors are gathered. As the aim is to clarify this phenomenon from the consumer's perspective the empirical part of this study is done with theme interviews. The results of the interviews are compared to the results found in previous literature to explain their effects in the context of in-application purchasing.

The results show that not all the factors found in mobile commerce literature directly translate to in-application purchasing and that some of their effects are completely reversed due to the nature of in-application purchasing. The results show that in-application purchasing mostly follows traditional consumer buying behavior but some of its stages are in diminished role. Due to the nature of in-application purchasing the comparison of different products is much diminished in hedonic applications and the feeling of trust is increased due to the instant delivery of the product and being able to try it in the free version of the freemium application. Especially in hedonic applications consumers easily do impulsive purchases which they may regret afterwards.

Keywords: in-application purchasing, mobile purchasing, consumer, buying behavior, freemium

FIGURES

TABLES

CONTENTS

1 Introduction

In-application purchasing, the sale of virtual products within mobile applications, has bloomed in freemium mobile applications. Selling virtual premium content within applications has become the most popular monetizing model due to its success. According to Distimo (2014) in-application purchases generated 81 percent of revenue in the US in November of 2013. All of the current top applications and most grossing applications utilize in-application purchases along with freemium (Distimo, 2013; AppAnnie 2013). Although it has clearly been very profitable there exists a negative side to it such as children doing unauthorized purchases (Federal Trade Commission, 2014) and the misleading of consumers stating that the application is free yet charging money for the actual use (European Trade Commission, 2014).

The aim of this study is to clarify how the in-application purchasing process happens and what factors affect it and how. As it is a new phenomenon it is not extensively studied, therefore the affecting factors will be drawn from electronic commerce and mobile commerce. Electronic commerce has established itself and has been widely studied as well as mobile commerce. Although these two have been well defined in the information systems field and their affecting factors studied they do not directly translate to in-application purchasing because of its specificity. The feeling of risk and issues with trust have been and still are the main issues in ecommerce (McKnight, Choudhury & Kacmar, 2002; Pavlou, 2003; Pavlou & Gefen, 2004) and their effect in mobile transactions have also been studied (Mallat, 2007; Wei et al., 2009; Gu et al., 2009; Shin 2009). In in-application purchasing the products are purely virtual, the purchase technology utilizes saved credentials enabling a very simple checkout procedure and the products are delivered instantly. These, among others, factors can have an alleviating effect on the factors that have been shown to increase the feeling of risk and trust in electronic and mobile commerce.

1.1 Research questions

The aim of this study is to clarify in-application purchasing from the consumer's perspective. Therefore the following research question is set

- What is the in-application purchase process?

Since in-application purchasing differs from ecommerce and mobile commerce the previously found affecting factors may not directly translate to it which gives us the second research question

- How and what factors affect the in-application purchase process?

As the purpose is to clarify in-application purchasing the empirical part of the study will be conducted as semi-structured interviews based on the factors that can be found from previous mobile commerce literature.

1.2 Structure of present thesis

In the introduction the reason why in-application was chosen as the subject of this study is explained along with the research questions and a short description of the thesis' structure. The second chapter handles the main theories behind consumer buying behavior as well as ecommerce and mobile commerce to describe the theoretical backgrounds of the thesis. In the third chapter the theoretical lens for the empirical part is explained. Factors that were found to affect mobile commerce are presented with their original definitions as well as how they were handled in the mobile commerce literature.

The fourth chapter describes the empirical method that was chosen for the thesis as well as why it was chosen. The results of the study will be explained in chapter five and finally in chapter six the results will be compared to previous studies.

2 Evolution of commerce

As a new phenomenon in-application purchasing has not been scientifically explained. To offer a better view on what it in fact is, a brief look back in to the history of commerce is in order to better explain the origins and reasons behind it. In the following chapter the consumer buying behavior will first be explained to explain why and how commerce is done from the consumer's perspective. Then electronic commerce will be briefly explained to clarify the beginnings of commerce done in an electronic medium followed my mobile commerce to explain why these transactions are done on a mobile device.

After the origins of in-application purchasing are clear the phenomenon itself will be explained. Since no scientific definitions were found this explanation will rely on the definitions and limitations that the offering marketplaces set upon it. As these definitions and limitations are aimed at developers they are quite technical in nature, therefore the explanation will handle in-application purchasing as a technology rather than a phenomenon. The most prominent business model in mobile applications that use in-application purchasing is freemium, hence freemium will be explained along with virtual consumerism to clarify the environment where in-application purchasing is done.

The aim of this part of the study is to clarify how in-application purchasing came to be, what it is, how it is used and why it is used. In the end of chapter two, there will be a short conclusion to offer a quick overview on the following findings.

2.1 Consumer buying behavior

Consumer buying behavior has been studied extensively from Mehrabian and Russel's (1974) stimulus-organism-response model to the three stage models of Schiffman and Kanuk (2000) and Frambach, Roest and Krishnan (2007). Currently the main model used is the five stage model of Kotler and Keller (2009) which pertains to the same main points as Solomon's (1999) five stage model. The five stages are problem recognition, information search, alternative evalua-

tion, purchase decision and post-purchase evaluation as shown in figure 1 (Kotler & Keller, 2009.).

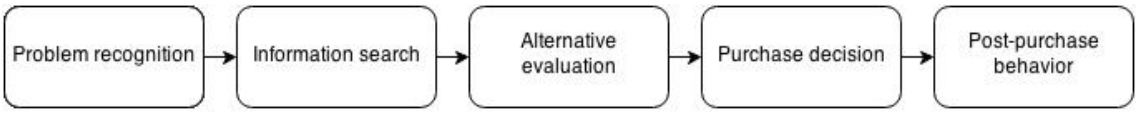

Figure 1 The five stages of consumer buying behavior (Kotler& Keller, 2009)

In the problem recognition stage the consumer realizes that there is a difference between the actual and the ideal state of things. Once the difference is realized the consumer will start to seek, or receive passively, information about products that will help to eradicate the difference and achieve the desired ideal state. In the alternative evaluation stage the consumer will compare different products and start to eliminate those products that are inferior to others. Once the best option has been chosen the consumer will make the purchase decision and buy the product. The process does not end with the purchase but continues with post-purchase behavior: the consumer will evaluate his decision and the products delivery as well as the product itself. (Kotler& Keller, 2009.).

According to Solomon (1999) the problem that the consumer is trying to solve can be one of three types: difficult problem, limited problem and a usual problem. The level of the problem is affected, among other things, by the price and familiarity of the product. For example when purchasing something that is seen as inexpensive the consumer feels less risk and therefore the need for comparing different products is diminished since the consumer will not suffer great losses even if the product is unsatisfactory. And when the product is something that he regularly buys, like groceries, the consumer will usually select the brand that he is familiar with. In addition to these alleviating factors Kotler and Keller (2009) state that to speed up the decision making process the consumer can make heuristic shortcuts. For example the consumer may decide to buy something from a known brand just because he is familiar with it even though there might be better products available. They also state that there might be external factors that affect the purchase decision such as opinions of others and situational factors. Even though the consumer might have decided to purchase a certain product if he hears ill of it from his friends he might decide not to purchase it. Situational factors may comprise from unexpected unrelated costs that cause the consumer to not afford the product.

2.2 Electronic commerce

The Internet has become a part of most people's everyday life and it is widely used for many day to day activities such as communication, information seeking and playing games. The term ecommerce means all the electronical information and goods exchange that happens between two parties using the internet (Chaffey, 2009). The main differences between regular brick-and-mortar commerce and ecommerce are the lack of a physical dimension and richness of

information (Kotler & Keller, 2009). The lack of tangibility, not being able to try or touch the product and giving personal information to the internet are perceived to be the main negative influences on trust which has been widely regarded as the main hindrance of ecommerce. (McKnight, Choudhury & Kacmar, 2002; Pavlou, 2003; Pavlou & Gefen, 2004.).

Agreeing with Kotler and Keller (2009) Chen and Barnes (2007) state that the main difference between brick and mortar buying behavior and ecommerce buying behavior stems from the richness of information and the lack of tangibility. In addition to the stores site the internet is full of product information readily available to the customer but the product cannot be physically touched or tested. In addition to the lack of tangibility there isn't a seller present answering possible questions and the customer does not receive the product instantly after the purchase. The product cannot be touched or tested and must be paid before receiving it without certainty that the product will ever be delivered cause the customer to feel great risk. Furthermore the largest contributor to the feeling of uncertainty and risk is due to the fact that the customer must give out personal information, such as an address and credit card information, over the internet without knowing how securely they are stored. The internet's security, trustworthiness of the company and technologies used on the stores site are the main reasons why ecommerce is not used. (Chen & Barnes, 2007.)

Ha and Stoel (2009) explicate on the technology side of ecommerce utilizing the technology acceptance model (TAM), see chapter 3.3 for an explanation on TAM. They state that, according to the technology acceptance model the user will adopt new technologies based on how useful and easy to use they perceive it. In ecommerce trust, enjoyment and the quality of the site can also be added as affecting factors. Trust relates to the user having to give out personal information without certainty of its security. Enjoyment stems from finding pleasure in browsing interesting products and comparing them and quality is dependent on how well the site offers this information to the user. The quality of the site also affects the users feeling of trust, well functioning sites with clear and easy to use functionalities and paying process signal the user that the site can be trusted.

Bridges and Florsheim (2008) also found that a fast well functioning website increases the user's willingness to purchase. Satisfying utilitarian needs, such as finding the product quickly and offering a fast and easy to use payment process, increase the "flow" the user experiences on the site driving him towards the purchase. In addition to utilitarian needs there are also hedonic needs such as enjoyment that some users seek when browsing for products on a website. Satisfying these hedonic needs by creating a stimulating fun-to-use website increases the flow that hedonic users experience. There is a negative side, however, to creating such an enticing website that snares the user in. Satisfying these hedonic needs may increase pathological internet use and therefore have negative consequences on the user's life which in turn may cause them to give negative reviews of the website or start avoiding it altogether. This negative aspect combined to the fact that satisfying hedonic needs does not increase the willingness to purchase as much as well working utilitarian functions indi-

cate that website creators should give more attention to utilitarian functionality such as navigation and ordering a product.

2.3 Mobile commerce

In essence mobile commerce is ecommerce done on a mobile device. Goods and services are exchanged electronically on a personal device regardless of time and place. In this chapter mobile commerce will be explained via definitions found in literature followed by an overview of factors that have been found to affect mobile shopping.

Dahlberg, Mallat, Ondrus and Zmijewska define mobile payments as "payments for goods, services and bills with a mobile device (such as a mobile phone, smart-phone, or personal digital assistant) by taking advantage of wireless and other communication technologies". Wu and Wang (2005) define mobile commerce as "any transaction, either direct or indirect, with monetary value implemented via a wireless telecommunication network". In addition Mallat (2007) defines mobile payments as "the use of a mobile device to conduct a payment transaction in which money or funds are transferred from payer to receiver via an intermediary, or directly, without an intermediary". As in-application purchases are done with a mobile device, using the Internet and via an intermediary (marketplace) it is clear that in-application purchases are mobile commerce transactions. Dahlberg et al. (2007) also state that "a mobile payment is carried out with a mobile payment instrument such as a mobile credit card or a mobile wallet". This, however, does not directly transfer to this study as the payment method in in-application purchasing is direct billing from the customer's already existing credit card.

Mallat, Rossi and Tuunainen (2004) explicate the beginnings of mobile payments. The early usage of mobile payment included different payment solutions for smaller micro transactions and larger macro transactions. The most common way of handling mobile payments was that the user ordered a product, like a train ticket, with his phone and the ticket prize was added to the user's mobile phone bill. Another way of handling mobile payments was to bill the user's credit card. In this method the user could pay for whatever he was buying by receiving a call at the moment of purchase and confirm the purchase with a PIN-code. (Mallat, Rossi & Tuunainen, 2004.)

Lu and Su (2009) studied the factors affecting mobile shopping and state three major obstacles that the user can experience: poor connections, limited functionality of the device and the possible need to function under time constraints. These three factors all contribute to the user feeling stress and uncertainty about using a mobile device for transactions. There is a risk that the transaction might fail due to a broken internet connection. Many demanding tasks must be done on a device that has very limited screen space and low processing power. And, for example, when buying train tickets the user might be in a hurry which further increases the feeling the stress. Therefore users that are more familiar with technology have higher confidence in using a mobile device

and are therefore more likely to do mobile transactions. The user's skills alone, however, do not ensure a good mobile transaction experience; there are two main requirements for the functionality of the system. Lu and Su (2009) call these system existence and system reliability. The customer must know that a mobile commerce system exists and that it is readily available to be used and that the system works and can be trusted.

Much like Bridges and Florsheim (2008) studied the factors affecting both utilitarian and hedonic users in ecommerce Yang (2010) studied factors affecting utilitarian and hedonic users in mobile commerce and states that in the context of mobile shopping these utilitarian needs are flexibility of use, consideration of time and place, personalization and shopping effectiveness. Hedonic needs are satisfied through the joy of communicating with others or interacting with multisensory shopping service functions and features. His results concerning the availability and reliability of the service are congruent with Bridges and Florsheim's (2008) study indicating that ease of access and use increase the quality and enjoyment of using mobile commerce services. However, in a mobile commerce context Yang (2010) found that in mobile commerce hedonic attributes and functionality had a stronger effect on the intent to use which is the opposite of Bridges and Florsheim's (2008) findings in the context of ecommerce.

2.4 In-application purchasing as a technology

In-application purchasing, or billing, is a way to sell virtual content within a mobile application. All major mobile platforms (iOS, Android and Windows Phone) currently offer this functionality for developers to implement in their applications. In all three the transaction is handled by the marketplace leaving only the task of creating the products and implementing the purchases for the developer. (Android, 2014; Apple, 2014; Microsoft, 2014)

Apple names four categories of in-application purchase items that can be sold: content, functionality, services and subscriptions. Furthermore the items must belong in to one of the following categories: consumables, non-consumables, auto-renewable subscriptions, free subscriptions and non-renewing subscriptions. (Apple, 2014.) On the Android platform the products are only divided to two types: standard in-app products and subscriptions with the only difference being that the first is sold as one-time billing and the second is sold as recurring automated billing (Android, 2014.). On the Windows Phone 8 –platform in-application products are plainly described as digital content that can be sold within the application (Microsoft, 2014.).

Besides limitations on what type of products can be sold all platforms have limited in-application items to only one app and purely digital products. None allow in-application items to be divided or shared between separate applications nor do they allow the sale of real-world items. (Android, 2014; Apple, 2014; Microsoft, 2014)

All platforms offer APIs, application programming interface, for in-application stores where the actual transaction is handled by the marketplace where the users' billing information is held. The only difference in the methods between the three is that in the Android and Windows Phone 8 –platforms the actual product information is located on the developers servers and on the iOS –platform it is on Apples servers. (Android, 2014; Apple, 2014; Microsoft, 2014). The following list presents the main attributes of the in-application purchase method as per the aforementioned platforms.

- The mobile phone platforms offer the developer an API to implement in-application purchasing.
- Only virtual content or subscriptions can be sold via in-application purchasing. Real world items cannot be sold using in-application purchasing.
- The developer has to provide the marketplace a list of products that are to be sold in the application.
- The products sold are limited to the application they are sold in, they cannot be sold elsewhere or shared between applications.
- The application has to provide the way to purchase products i.e. have a buy-button.
- Payments are handled by the platform's marketplace.

2.5 Freemium

The term freemium was coined by Fred Wilson (2006) in his blog as a combination of free and premium. Freemium is used to describe a software earning logic in which a limited version of the product is offered to the users for free and an unlimited premium version, or premium content, can purchased. There are different ways to differentiate the free version from the premium version, these differences are collected in table 1. In addition to differences in freemium in a general sense there are additional differences to be found in the mobile market where freemium has become the most popular monetization logic, see table 2.

According to Niculesu and Wu (2011) and Semenzin, Meulendijks and Seele (2012) freemium can be divided to feature-limited and time-limited models. In the feature-limited model the free version has only limited functionality whereas the full premium version has full functionality. In the time-limited version the full version application can be used for free for a certain time, also known as trial, and there is no free version. Both can also be used in a hybrid model where one version is offered for free with an option to upgrade and another one is offered for free with all features but limited time. (Niculescu & Wu, 2011; Semenzin, Maulendijks & Seele, 2012). Nicuslescu and Wu (2011) also compared the profitability of five different business models: charge for everything, feature-limited freemium, time-limited freemium, simple seeding and complex seeding. Charge for everything is the most traditional business model and as stated in its name nothing is free, only the full version is available and

must be purchased. In the simple seeding model the product is first given to a certain percentage of the market for free and then distributed only by purchase. In the complex seeding model a percentage of the market receives the product for free and the product is sold throughout the products lifecycle. Their results showed that the charge for everything model, feature-limited freemium and time-limited freemium are the most profitable models. In addition they also found that from the society's perspective freemium is always preferred as it offers the product for a larger audience for free.

Vannieuwenborg, Mainil, Verbrugge, Pickavet and Colle (2012) explicate the freemium-models used in mobile applications. They found three models that are commonly used; the in-application purchase model, advertising model and freemium model. In the in-application purchase model the application itself is free and additional content can be bought within the application. In the advertising model the application is free but contains advertisements to generate income. The freemium model contains free users who have access to a free version and premium users who have access to a premium version. The free version has limited functionality and potentially advertisements whereas the premium version has full functionality and no advertisements. Liu, Au & Choi (2012) elucidate that in the mobile applications market freemium consists of a free version that usually includes an offer to premium functionality or content. The offer can be to upgrade to a premium version with no ads or more features, to buy virtual items or additional content through in-app purchases.

Table 1 Attributes defining the free version and premium version

		Free	**Premium**
1	Niculescu& Wu (2011)	feature limited, time-limited, hybrid	full features, no time limitation
2	Semenzin et al (2012)	feature-limited, time-limited, hybrid, advertisements	no limitations, no advertisements, enhanced customer support
3	Liu, Au & Choi (2013)	advertisements, limited functionality, limited content	no advertisements, more features, virtual items, additional content
4	Vannieuwenborg et al (2012)	limited functionality, potentially advertisements	full functionality, no advertisements, additional content, accelerate progress

The success of freemium is evident in the mobile markets according to recent statistics. AppAnnie (2014) statistics show that all ten of the top mobile games for iOS and Android in 2013 utilized the freemium model with in-application purchasing as well as eight out of the ten top applications outside games, see table 2. Distimo's (2013) statistics show that nine out of the ten top grossing applications on iOS and all ten top grossing applications on Google Play utilized in-application purchasing, see table 3.

Table 2 Top applications of 2013: Worldwide iOS& Google Play Revenue (AppAnnie, 2013)

Rank	Games	Outside of Games
1	**Puzzle and Dragons**	**LINE**
2	**Candy Crush Saga**	**Pandora Radio**
3	**Clash of Clans**	**Zoosk***
4	**Hay Day**	**Badoo**
5	**The Simpsons: Tapped Out**	**Comics****
6	**The Hobbit: Kingdoms**	**Skype***
7	**Slotomania**	Pages
8	**Megapolis**	**MLB.com At Bat**
9	**Pokopang**	**WhatsApp Messenger****
10	**Kingdoms of Camelot: Battle**	Grindr
	Use in-application purchasing	*in-app purchases iOS only **in-app purchases Google Play only

Table 3 Top 10 Grossing Apps 2013 (Distimo, 2013)

Rank	App Store (iOS)	Google Play
1	**Clash of Clans**	**Candy Crush Saga**
2	**Candy Crush Saga**	**Puzzle & Dragons**
3	**Hay Day**	**LINE: Free Calls & Messages**
4	**Puzzle & Dragons**	**WindRunner for Kakao**
5	**The Hobbit: Kingdoms of Earth**	**LINE POP**
6	**Kingdoms of Camelot: Battle of the North**	**CookieRun for Kakao**
7	Minecraft – Pocket Edition	**LINEPokopang**
8	**Modern War**	**Anipang for Kakao**
9	**The Simpsons: Tapped Out**	**Baseball – Pride**
10	**Big Fish Casino**	**LINE WIND runner**
	Use in-application purchasing	

What is noticeable about the freemium models used in the top applications that almost all of them use the accelerated progress described by Vannieuwenborg et al (2012). The user's progress is limited with time-delays set to actions forcing the user either to pay or wait for the action to become available again (Vannieuwenborg et al., 2012.). All of the applications promote continuous use by allowing the player to upgrade game items or use the application otherwise without the game actually reaching a point where no more actions can be done or more content available. Most do not even utilize advertising as a revenue stream in their applications. It is possible that the lack of interrupting advertisements enhance the user's experience and perceived enjoyment which in turn affects the intention to buy in-application content or items positively.

2.6 Virtual Consumerism

In Lehdonvirta's (2009) exploratory study he defines virtual goods as mass-produced virtual assets that are frequently bought and sold like conventional

consumer commodities. Virtual item purchase drivers can be divided by functional attributes, hedonic attributes and social attributes. Functional attributes are either performance related, increase game character's power, or add functionality like new abilities. Hedonic attributes are divided thusly: visual appearance and sound, background fiction, provenance, customizability, cultural references, branding and rarity. The division between hedonic and social attributes is difficult due to the fact these attributes are affected by both hedonic and social factors, therefore the aforementioned attributes can be seen as both hedonic and social attributes.

Guo and Barnes (2009) researched virtual item purchase drivers by interviewing focus groups with different "game ages" i.e. how long they had been playing games. The drivers, outside virtual world factors, that they found were: perceived playfulness or enjoyment, character competency, effort expectancy, performance expectancy, social influence, personal real resources, virtual item resources (rarity), habit and trust.

Perceived playfulness, or enjoyment, had a positive effect on purchase intention: if the player enjoyed playing the game he was more willing to purchase upgrades. Low character competency drove players to upgrade their equipment to avoid being bullied by other players. New equipment was also purchased to satisfy their esteem need. In regard to effort expectancy the players perceived the virtual world transaction systems easy to use compared to web based transaction platforms. They also stated that the virtual world transaction platforms were easy to use and therefore reported a good performance expectancy from them. Social influences were mentioned the most in the study, the respondents stated their decision making is strongly influenced by others. Personal real resources i.e. time and money affected the purchase intentions directly, some of the respondents simply did not have sufficient funds to purchase virtual items but had enough time to spend in the virtual worlds to earn items via finishing tasks. Those virtual item resources that were rare were more easily purchased with real money. Surprisingly trust was not seen as an important factor influencing the purchase decision. (Guo& Barnes, 2009.).

The main driver for virtual item purchases in hedonic virtual worlds and games is enjoyment (Guo & Barnes, 2011; Guo & Barnes, 2012; Park & Lee, 2011; Lim & Seng, 2010; Mäntymäki & Salo, 2011). According to Guo and Barnes (2011) the main drivers for purchases were participation enjoyment, character advancement and customization, expectations about ease of use and performance, and perceived value of virtual items which all affected the player's enjoyment positively. Furthermore Guo and Barnes (2012) found that besides enjoyment also social status and effort expectancy affected virtual item purchasing positively. Effort expectancy means the player's perception of how easy the in-game store is to use. Good search functionality, product information and purchase methods affected the purchase intention positively. In fact, the researchers simply state that to maximize sales the transaction platform should be integrated in to the game, be easy to use and clearly state the offered value and benefits to the players.

Mäntymäki and Salo (2011) studied the effect of continuous use to purchasing behavior in social virtual worlds. They found that perceived enjoyment

affected continuous use positively and that continuous use has a positive effect on purchasing intention. Continuous use doesn't however ensure the user's purchase intention and it is dependent on other users in the social setting. Lim and Seng (2010) also found a correlation between the amount spent in a virtual world and willingness to purchase; those that spent more time in the virtual world were more willing to purchase items in it.

2.7 In-application purchasing overview

In the previous chapters the origins of in-application purchasing were explained as well as the phenomenon itself from a technical perspective along with some insight into the consumers experiences and actions in it. As a conclusion it can be said that in-application purchasing has taken the best practices from electronic commerce and simplified the consumer buying process quite a bit. Saving the consumers payment information in the system and delivering the product instantaneously have alleviated the issue of trust that has been and still is the most prominent issue in electronic commerce. The freemium -model enables the consumers to actually use the product on some level before making a purchase decision further alleviating risk related to the product. However, there are some aspects that may be seen as negative; the need for the product is artificially created with the difference between the free and premium product, some products that are sold are designed to be consumed forcing continuous purchasing. The buying mechanism is also very well embedded into the applications use causing accidental purchases especially for children who are not fully aware of what they are doing as stated in the introduction.

There are multiple properties that differentiate mobile transactions and in-application purchasing from traditional electronic commerce platforms such as webstores. To gain a better understanding of these properties and affecting factors mobile commerce literature will next be handled more extensively in chapter three. The affecting factors found in the mobile commerce literature will also form the theoretical basis for the empirical part of this study.

3 Mobile commerce literature

As in-application purchasing has not been well studied the theoretical basis of this thesis is formed on mobile commerce literature which encompasses all mobile transactions. The selected studies were chosen because they studied either the adoption or use of mobile commerce. Since the majority of these studies are based on existing theories, explaining adoption of innovations and predicting behavior, the factors that have been studied to affect mobile commerce are drawn from them. To gain a view of these factors they were collected in table 4 where their origins as well as studies they were used in are marked. To further explain how these factors relate to mobile commerce their original definitions are explained together with the original theories they were drawn from followed by how they were handled in the mobile commerce literature.

In addition to the factors found from previous theories there are factors that were based on electronic services and ecommerce literature. These factors were likewise collected into table 4 and their definitions are also explained as well as how they relate to mobile commerce. Trust towards the technologies and seller has been and still is the most prominent issue in electronic transactions. In in-application purchasing the transactions are handled by the marketplace and therefore trust in this study will be based on institutional trust, trust towards the organizing transaction mediator, drawn from ecommerce literature.

Table 4 Direct and indirect factors affecting the adoption and use of mobile commerce

	Factor	Original Source of the factor	Used by
1	Perceived ease of use	TAM	Wu & Wang (2005) Luarn & Lim (2005) Yang (2005) Khalifa & Shen (2008) Chen (2008) Aldás-Manzano et al., (2008) Wei et al., (2009) Gu et al., (2009) Shin (2009) Kim et al., (2010) Schierz et al., (2010)
2	Perceived Usefulness	TAM	Wu & Wang (2005) Luarn & Lim (2005) Yang (2005) Chen (2008) Khalifa & Shen (2008) Aldás-Manzano et al., (2008) Wei et al., (2009) Gu et al., (2009) Lu & Su (2009) Shin (2009) Kim et al., (2010) Schierz et al., (2010)
3	Compatibility	DOI	Wu & Wang (2005) Mallat (2007) Chen (2008) Yang et al., (2012) Aldás-Manzano et al., (2008) Lu & Su (2009) Kim et al., (2010) Schierz et al., (2010)
4	Perceived Self-Efficacy	SCT	Luarn & Lim (2005) Khalifa & Shen (2008) Gu et al., (2009) Shin (2009)
5	Relative Advantage	DOI	Yang et al., (2012) Mallat (2007)
6	Social influences	TPB	Wei et al., (2009) Shin (2009)
7	Perceived cost	*	Wu & Wang (2005) Luarn & Lim (2005) Mallat (2007) Wei et al., (2009) Yang et al., (2012)
8	Perceived Risk	**	Wu & Wang (2005) Mallat (2007) Chen (2008) Yang et al., (2012)
9	Perceived Security	***	Shin (2009), Schierz et al., (2010)
10	Mobility	*	Mallat (2007)

			Mallat, Rossi Tuunainen & Öörni (2009) Kim et al., (2010) Schierz et al., (2010)
11	Use context	*	Mallat (2007) Mallat, Rossi, Tuunainen & Öörni (2009)
12	Trust	***	Mallat (2007) Wei et al., (2009) Gu et al., (2009) Shin (2009)

*Drawn from mobile services literature

**Drawn from ecommerce

***Drawn from electronic services and ecommerce literature

3.1 Diffusion of Innovations

Rogers (2003 p.36) describes the diffusion of innovations as follows "an innovation is communicated through certain channels over time among the members of a social system". From the innovations user's perspective there are five stages in the adoption of an innovation. In the first stage the user acquires knowledge of the innovation i.e. becomes aware of it. In the second stage the user forms an opinion of the innovation. In the third stage the user decides whether he will or will not use the innovation. The fourth stage consists of the implementation process of the innovation, the user starts using the innovation. In the final fifth stage the user seeks confirmation for his decision to use the innovation. (Rogers, 2003.).

According to Rogers (2003) the innovation itself can be described by six different factors: rate of adoption, relative advantage, compatibility, complexity, trialability and observability. Rate of adoption quite simply means the relative speed at which the innovation is being adopted by new users. Relative advantage means the gained economical profit or social prestige that can be gained by using the innovation. Compatibility means the degree to which the innovation is consistent with the user's lifestyle and needs. Complexity is proportional to the difficulty of adopting the innovation, more complex innovations are more difficult to grasp and start using. Trialability signifies how well a limited version of the innovation can be tried before adoption. Observability represents how well the results of the innovation are visible to others. (Rogers 2003.).

The diffusion of an innovation can be divided into five stages according to the five types of innovation adopters. The first type is innovators who are eager to try out new things, they are the starters of the diffusion process. Early adopters follow after innovators and start to use the innovation once the innovators start to spread information about it. Early majority are the users who are

deliberately looking for innovations that fit their needs and start to use them. Late majority are the users who are skeptical towards innovations but nonetheless start using them once the early majority has accepted the innovation. The last group is called laggards, who start to use the innovation at some point when the innovations is not considered an innovation anymore but just another product or way of doing things. (Rogers, 2003.).

The adoption or rejection of an innovation also has consequences (Rogers, 2003). In-application purchases have caused some critique due to the fact that mobile games now require constant payments to play the game (Cohen, 2013; Baekdal, 2014). It also seems that as a result of in-application purchasing a new freemium model has been formed in the mobile game industry. The top grossing applications no longer have two versions (free and premium) as traditionally suggested but only a single version without ads that is restricted in progress forcing the player to pay if he is not willing to wait for hours or even weeks. Vannieuwenborg et al (2012) have noted this and explicate that in-application purchases are used to accelerate progress. In the early stages in-application purchasing also suffered from poor restrictions, children were able to purchase game items via in-application purchasing which caused outrageous phone bills to their parents (Federal Trade Commission, 2014).

Rogers (2003) also describes a centralized diffusion system that pushes innovations from experts to users. As in-application purchasing is developed and enabled by the marketplace operators and software producers (Apple, Google, Microsoft) they can be seen as such experts pushing the innovation to both developers and users. Nearly all modern smart phones come with pre-installed application market software where the user can purchase applications and get applications that utilize in-application purchasing. Therefore these operators can be seen as such experts that are pushing the innovation to all new smart phone users.

3.1.1 Compatibility

Rogers (2010) defines compatibility as ”the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters”. Compatibility can exist with cultural beliefs, previously introduced ideas or needs. Better compatibility does not, however, always lead to improved adoption rate. For example in a Colombian peasant community farmers over fertilized their potatoes because spraying the fertilizer over the potatoes was too similar with watering. The compatibility with a previous idea affected the adoption positively but then lead to incorrect use of the innovation. (Rogers, 2010.). In the mobile application markets the idea of paying for virtual products has been around as long as mobile application marketplaces have existed. So it may be assumed that there exists compatibility between the mobile payments for applications and in-application purchasing since both are done with the same purchasing mechanism in the market.

In regard to needs Rogers (2010) states that sometimes change agents may seek to generate the need for an innovation. As mobile applications came more common and marketplaces were established the first mobile payment methods

were created for purchasing applications. In-application purchasing followed quite possibly to offer developers an easy way for mobile commerce. The situation now, at least in mobile games, is that more and more applications are utilizing in-application purchasing in freemium creating the need for customers to start using it. The need is also pushed to the users via free applications which then constantly push the user to purchase something by limiting the applications use. This forced need has spurred the European Trade Commission to start an action for consumer protection in games that utilize in-application purchasing. The ETC has contacted Apple and Google to inform them that to protect consumers "games advertized as free should not mislead consumers about the true costs involved" and that "Consumers should be adequately informed about the payment arrangements for purchases and should not be debited through default settings without consumers' explicit consent" (European Trade Commission, 2014.).

Wu and Wang (2005) define compatibility as the "degree to which engaging in online transactions is perceived as being consistent with the potential user's existing values , beliefs, previous experiences and current needs". Schierz et al., (2010) define compatibility as follows "Perceived compatibility encompasses the reconcilability of an innovation with existing values, behavioral patterns , and experiences.". Both are congruent with the original definition by Rogers (2003; 2010). Mallat (2007) approaches compatibility from the user's perspective "the consumers' ability to integrate them (mobile payment systems) into their daily life is an important aspect". Yang et al., (2012) also approach compatibility from the user's side "when an individual can well integrate the new payment services into his or her daily life, the compatibility of mobile payments with the individual's present lifestyle and habits is expected to influence his or her intention to adopt it". So in mobile payments, as well as in-application purchasing, compatibility can be seen as the fit of the payment method to the user's habits and lifestyle.

3.1.2 Relative advantage

Rogers (2010) defines relative advantage as "the degree to which an innovation is perceived as being better than the idea it supersedes". The type of advantage is determined by the nature of the innovation. Economic advantage can be gained by technological advances that lower production prices. Social advantages can be gained by owning a product that few others have.

Mallat (2007) explains relative advantage of mobile payments via ubiquity. Payments can be made regardless of time and space sparing the buyer from physically moving. Yang et al., (2012) also count ubiquity, as well as convenience and efficiency, as a relative advantage over traditional payment. In-application purchases are also ubiquitous as they can be done anywhere at any time. And as the products can be purchased directly from the application that user is engaged in and executed utilizing existing credentials in the payment system it can be said that in-application purchasing is also quite convenient and efficient.

3.2 Theory of Planned Behavior

The theory of planned behavior extends on Fishbein and Ajzen's (1975) theory of reasoned action and is designed to explain the effect that broad attitudes and personal traits have on factors that affect the intention to do a behavior under complete volitional control. These factors are attitude toward the behavior, subjective norm and perceived behavioral control. Attitude means the degree of favorability for the action in question. Subjective norm means the social factors or pressure to perform or not to perform the action. Perceived behavioral control means the perceived ease or difficulty to perform the action. These three interact with each other and create the intention to act as seen in figure 2. In addition to the interactivity of these three factors perceived behavioral control also affects the intention directly. For example if two persons have the same attitude and social pressure but one of them has a higher perceived control, sense of his ability to achieve the behavior, he is more likely to go forward with the behavior. (Ajzen, 1991.)

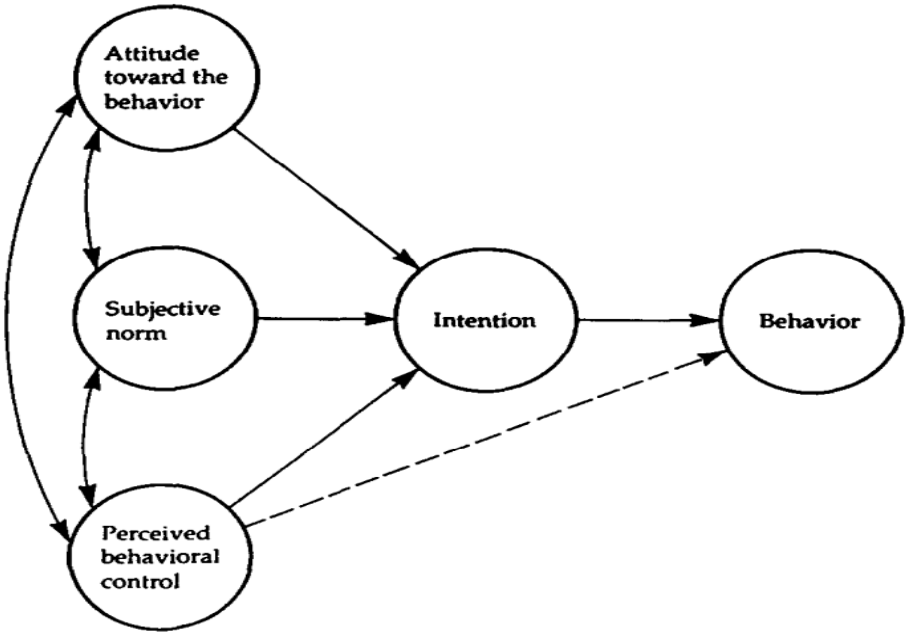

Figure 2 Theory of Planned Behavior (Ajzen, 1991)

3.2.1 Subjective norm

Ajzen (1991) defines subjective norm as "the perceived social pressure to perform or not to perform the behavior". This definition, however, does not define the source of the social influence and takes only pressure, which can be seen as a negative aspect, into account. Wei et al., (2009) define social influence as "individual's belief about whether significant others thinks that one should engage in the activity". They further explicate that according to the innovation diffusion theory social influence can be divided into mass media such as news papers and interpersonal influence such as friends. Shin (2009) also uses the definition "the person's percep-

tion that most people who are important to him think he should or should not perform the behavior in question". In addition Rogers (2010) also describes an opinion leadership position where one person can have a significant effect on others to adopt and innovation. In the context of in-application purchasing there seem to be multiple factors that affect the subjective norm. The marketplace and application developers of course want to gain revenue and therefore advertise their applications in media and their products within the application. In regards to media there are also independent magazines which review different applications. And of course there is also the aspect of significant others, friends, who can affect the buyers decision directly and reviews on the marketplace which represent the opinions of unknown others.

3.3 Technology Acceptance Model

The theory of technology acceptance, TAM, was formed by Davis (1985) to explain user's acceptance of new information systems. In essence it is used to explain how the system's attributes affect the user's perception of the systems usefulness and perceived ease of use. These two factors in turn affect the attitude towards the system from which the actual use follows, see figure 3.

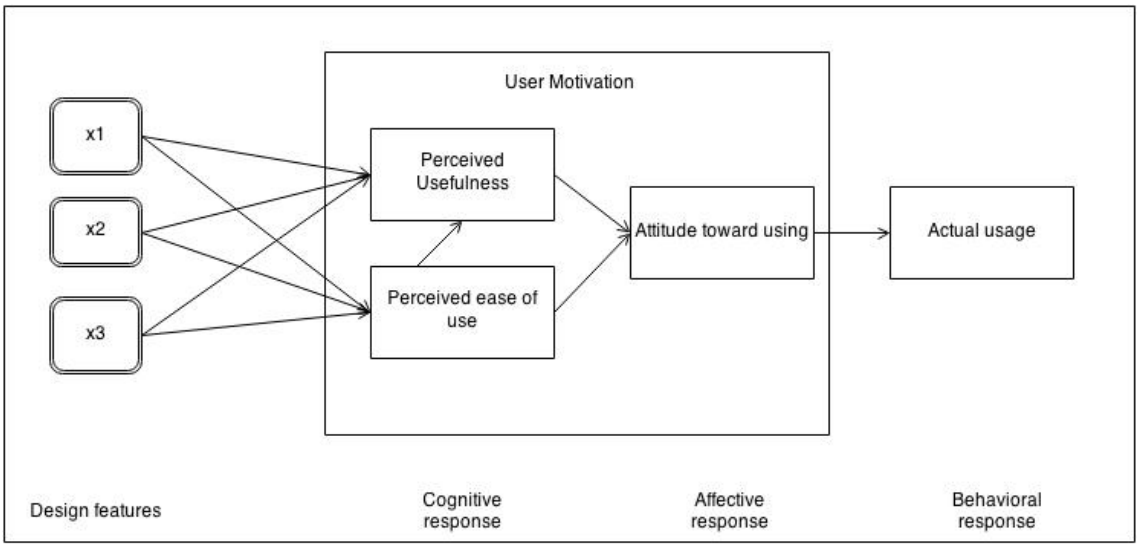

Figure 3 Technology Acceptance Model, Davis (1985)

3.3.1 Perceived usefulness

Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1985; Davis 1989). According to Davis (1989) perceived usefulness, in an organizational context, affects the attitude positively if the user feels that the use of the system will help him to perform better at his job. In fact the concept of perceived usefulness is

derived from the meaning of the word useful: capable of being used advantageously.

3.3.2 Perceived ease of use

Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1985; Davis 1989). According to Davis (1989) effort is not an infinite resource and is divided among the various activities a person is doing. Therefore if the utilization of a system requires less effort, the threshold of use is consequently lowered. This in turn affects perceived usefulness; if the system is easy to use it is more likely to be useful. Davis (1989) also states that the self-efficacy theory supports the importance of perceived ease of use and explicates that the concept of self-efficacy is analogous to perceived ease of use.

3.4 Perceived self-efficacy

Perceived self-efficacy stems from the social cognitive theory and in essence means a person's perception of his ability to perform a task. Self-efficacy has a direct effect on one's goal setting and pursuance of the goal. Higher self-efficacy means that a person is more confident in his abilities to complete a given task and it enables the person to set higher goals to himself. (Bandura, 1993.). Bandura's (1993) theory handles self-efficacy in cognitive development and functioning in a school setting. Gu et al. (2009) use base self-efficacy to Compeau and Higgins' (1995) study where they applied self-efficacy to information systems use creating the concept of computer self-efficacy. They divide computer self-efficacy into three dimensions: magnitude, strength and generalizability. Magnitude means the amount of self-efficacy: higher magnitude signifies a higher evaluation of one's abilities to complete a task. Strength of self-efficacy signifies the confidence one has about his abilities. Generalizability reflects on the ability to apply skills to complete tasks in different setting. High generalizability means that the user can use different types of systems and applications.

Luarn and Lim (2005), Khalifa and Shen (2008) and Shin (2009) based their link to self-efficacy in their studies via Venkatesh (2000), Venkatesh and Davis (2000) and Venkatesh, Morris, Davis and Davis (2003). These three sources all focus on extending upon TAM to better explain the use and adoption of information systems. The latest Venkatesh et al. (2003) formulates a Unified Theory of Acceptance and Use of Technology which also draws upon Compeau and Higgins' (1995) study to explain how the users' perception of his own skills affects the acceptance and use of information technology.

3.5 Trust

Mallat (2007) states that "the importance to trust is highlighted in electronic and mobile commerce because of the spatial and temporal separation between buyer and seller when buyers are required to give delicate personal information". In in-application purchasing there is no spatial separation as the seller often does not have a brick-and-mortar shop and everything is done electronically from the users own device. It could be said that the seller is always with the buyer in a digital format. The issue of feeling risk when giving personal information still remains though it may be alleviated by with institutional trust. The transactions are handled by very large companies which may increase the feeling of security when doing in-application purchases. And as the transaction are handled utilizing credit cards that are issued by quite large and known companies or entities some institutional trust may be coming from there as well.

According to McKnight, Choudhury and Kacmar (2002) trust is important to overcome uncertainty and engage in trust-related behaviors such as giving personal information. One key factor that affects the intention to participate in trust related behaviors is institutional trust. McKnight et al. (2002) define institutional trust as "the belief that needed structural conditions are present to enhance the probability of achieving a successful outcome in an endeavor like e-commerce" referring to the Internet. Pavlou and Gefen (2004) define it as "buyer's perception that effective third-party institutional mechanisms are in place to facilitate transaction success" in the context of online marketplaces. Online marketplaces are mediators between buyers and sellers where product information is exchanged and transactions made between the buyer and seller (Pavlou & Gefen, 2004).

Institutional trust can be divided into situational normality (McKnight et al., 2002) and structural reassurances (McKnight et al., 2002; Pavlou & Gefen, 2004). McKnight et al. (2002) state that situational normality simply means the consumer's or buyer's belief that the transaction environment is working properly. Structural reassurances refer to third party factors that fortify the consumer's belief to successful transactions. Such factors are for example legal recourses, regulations and certificates. Legal recourses and regulation refer to for administration with legal power such as state regulators and third party certificates to credit card companies and other associations that may recommend the service. (McKnight et al., 2002; Pavlou & Gefen, 2004.).

3.6 Perceived cost

Wu and Wang (2005) state that equipment, access and transaction fees add to the price of mobile commerce compared to traditional ecommerce. They also state that even though the services might work poorly the consumer still has to pay for them. Luarn and Lim (2005) define perceived cost as "the extent to which a person believes that mobile banking will cost money". Mallat (2007) explicates that in

mobile commerce these transaction costs are added to the products price thus making it more expensive than traditional methods. Yang et al., (2012) also define costs as the monetary expenses that are caused by mobile equipment, access costs and transaction fees. In a modern information society, however, smart phones and mobile internet are commonplace so the technologies and connections that facilitate mobile commerce are already in place. And the transactions are charged from existing credit cards there are no additional transaction fees either.

3.7 Perceived risk and security

According to Wu and Wang (2005) customers are anxious about numerous risks related to online transactions. Traditionally risk is related to product quality and fraud but with online services the customer also worries about receiving the product and their information used illegally. Therefore in online transactions perceived risk is more complex and pertains to factors like time and money as well as social and psychological factors. (Wu & Wang, 2005). Mallat's (2007) study also revealed that consumers were concerned about others using their mobile device to do unauthorized purchases and the lack of transaction records. Chen (2008) defines perceived risk simply as "extent to which the prospective user expects m-payment to be risky". Yang et al., (2012) explicate that risk is a non-monetary mental cost that the user must be pay when utilizing electronical transactions.

In in-application purchasing, depending on the freemium-model, the consumer may use the product in some form before paying for premium content of functionality. Thus the risk associated with the product is reduced since the consumer is usually well aware of what the product is. The products are also delivered instantly via the Internet and as they are charged from the consumer's credit card they can be sure that transaction records are kept. And as these purchases require the user, if he wills, to enter a password before the purchase is handled the risk of unauthorized purchases is diminished. Furthermore the purchases are handled by a trusted third party, the marketplace which diminishes perceived risk through institutional trust.

3.8 Mobility and use context

The ubiquity of technology and advancement of mobile networks has enabled the use of information systems everywhere and anytime (Mallat, Rossi, Tuunainen & Öörni 2009; Kim et al., 2010; Schierz et al., 2010). Mallat et al., (2009) and Kim et al., (2010) state that consumers have always been mobile as they have been forced to move physically to shops and that mobile transactions have reduced this need to visit physical shops. In addition they explicate that usefulness describes the benefits of technology in general whereas mobility focuses on

the advantages of mobile technology. Schierz et al., (2010) address mobility from the user's perspective. They postulate that the user's own mobility increases mobile commerce use as these services are available to the user on the move. They found that personal mobility affects the attitude towards use significantly.

As mobile services can be used anywhere at any time the concept of use context has become relevant. If there are better options for the consumer to achieve the desired transaction such as a computer at home or cash in a store it is not likely that the user will use a mobile device. (Mallat et al., 2010.) In contrast to better alternatives the use of mobile commerce can also be driven by situational factors such as long queues, hurry and unanticipated need (Mallat, 2007).

In mobile commerce these two factors are heavily intertwined. Mobility allows the use of mobile commerce regardless of time and space which in turn create the opportunity to use it in different use contexts. It is clear that both the mobile nature of mobile commerce and the mobility of the user are intertwined and affect each other positively. Use context as described above, however, does not fully translate into in-application purchasing because there are no alternatives, in-application purchases can only be done within the application on a mobile device. And as the products are purely virtual and intended to be used only on a mobile device there are no such problems as queues, hurry or unanticipated need. Use context will, however, be included in this study to clarify whether there a certain situations, such being bored on the road, where in-application purchases are done.

4 Empirical research

In-application purchasing is quite specific in nature and its roots are in ecommerce and mobile commerce which are well studied. Still the phenomenon itself is quit new and the effects of the restrictions set upon it and other factors are not well known. The purpose of this study is to gain a better deeper understanding of the consumers buying behavior in in-application purchases as well as to map the causes and effects within the buying process. Although ecommerce and mobile commerce literature have offered a good theoretical base for the empirical part of this thesis there are still some differences seen between them. The products sold are purely virtual and delivered instantly which eradicates the problem of distance between the seller and buyer alleviating the feeling of risk relating to the products delivery. In the freemium model the product can be tried and used before deciding to purchase which eases the customer's doubts about product quality. To better understand how the consumer experiences in-application purchasing, how the buying process happens and what factors affect the buying process interviews were selected as the data collection method for the empirical part of this thesis.

4.1 Semi-structured interviews

According to Hirsjärvi and Hurmes (2001) as well as Hirsjärvi, Remes and Sajavaara (2009) some of the reasons to do interviews are emphasizing the subjectivity of the interviewee, the research is about a phenomenon not well researched, the results will be placed in to a larger context, the results are known to explain multiple facets of a phenomenon, there is a need to clarify the results and that there is a need to gain a deeper understanding of a phenomenon. The aim of this thesis is to gain a deeper understanding of the phenomenon called in-application purchasing from the consumers perspective. The results are expected to explain multiple factors that affect in-application purchasing so that in can be explained as a whole and placed into a larger context of electronic consumerism. Therefore it is clear that interviews will fit the aims of this study well.

Hirsjärvi, Remes and Sajavaara (2009) divide interviews into structured interviews, theme interviews and open interviews whereas Myers and Newman (2006) state that among others there are structured interviews, unstructured or semi-structured interviews and group interviews Hirsjärvi, Remes and Sajavaara (2009) explicate that structured interviews follow a form where the questions and their order are strictly set. In a theme interview, as stated in its name, there are set themes which the interview will follow without a strict order or set questions to ask. In an open interview even the subject can change and it closely resembles a normal conversation. Furthermore the interview can be done with an individual, a pair or with a group. Pair and group interviews take more time but are useful to collect information from interviewees (like children) that are reluctant to talk. (Hirsjärvi, Remes and Sajavaara, 2009.).

According to Hirsjärvi, Remes and Sajavaara (2009) and Newman (2006) a structured interview follows a beforehand made script whereas a semi-structured interview follows an incomplete script leaving a need for improvisation. In comparison to other qualitative data collection methods Hirsjärvi and Hurmes (2001) state that an interview is more open to interaction than a survey. There is a chance to motivate the interviewee, the order of subjects can be changed, questions can be more loosely interpreted as well as answers further explained and an interview can give answers to phenomenon that do not yet have objective tests.

In-application purchasing is related to ecommerce and mobile commerce, therefore the factors that were found to affect them are assumed to affect in-application purchasing as well. In order to clarify the effects of these factors as well as gain a fuller description of the consumers buying behavior in in-application purchasing these factors must be included in the empirical part of this thesis. Therefore semi-structured interviews were selected as the data collection method, themes will be formed on the basis of previous literature and their effects on the consumer will be clarified with interviews. Furthermore as the goal is to explain in-application purchasing as a whole the interviews will be done one-to-one to gain individual results from varying types of users which can then be combined. Since in-application purchasing is still a new phenomenon not well researched it is possible that unexpected information may come up in the interviews. The fluidity and improvisation that semi-structured interviews allow will enable this unexpected information to come up in the interviews.

To battle the problems that may come up in qualitative interviews Myers and Newman (2006) approach it through a dramaturgical model. In the dramaturgical model qualitative interviews are seen as dramas where, for example, the actors are the interviewer and the interviewee and the stage is the setting where the interview takes place. In the dramaturgical setting they define seven guidelines for qualitative interviews:

1. Situating the researcher as actor
2. Minimize social dissonance
3. Represent various “voices”
4. Everyone is an interpreter

5. Use mirroring in questions and answers
6. Flexibility
7. Confidentiality of disclosures

The first guideline insinuates that the interviewer should explicate his "role" i.e. explain his backgrounds because the results of the study are formed through his perceptions. According to the second rule the interviewer should liken himself to the interviewee to avoid the interviewee's discomfort. The third rule pertains to finding different subjects and avoiding elite bias. All interviewees interpret the matter at hand via their own perceptions and values as implied by the fourth guideline. The fifth guideline states that to better understand the interviewee's view on world the interviewer should focus on and use the terms and language of the interviewee. In interviews that are not rigidly scripted there is room for improvisation which, according to the sixth guideline, allows the interviewer to search for surprises that may arise in the interview and chase them. The final and seventh guideline pertains to keeping the collected material secure and if needed to check on facts. (Myers & Newman, 2006).

According to the guidelines of Myers and Newman (2006) the researcher situated himself as an actor who is interested in how the interviewee sees in-application purchasing and how it is used. To minimize social dissonance the interviewer aimed to use similar language and expressions that the interviewee used as well as dress accordingly if the interviews were done face-to-face. Background information, such as income and money spent on in-application purchasing, was also asked after the interview to alleviate social dissonance as well as to refrain the interviewee from thinking too much about costs. To represent the "various voices" described in guideline three the sample was formed from various personalities of different ages and life situations. Mirroring was used on multiple occasions when presenting further questions on a given topic or asking for a better explanation on a previous answer. Given the flexibility of semi-structured interviews the dialog flowed fluently between different themes mostly following the five stages of Kotler and Keller's (2009) consumer buying behavior model. The recordings and transcripts are stored electronically in a password protected computer to ensure confidentiality and security.

4.2 Structure of the interview

In accordance with Hirsjärvi and Nurmes (2001), Myers and Newman (2006) and Hirsjärvi, Remes and Sajavaara (2009) the semi-structured interview method was chosen for data collection to further explain the phenomena of in-application purchase in a framework of factors found in previous literature. As stated in the previous chapter the themes will be based on factors found from previous literature. These factors were ordered into five themes according to their nature:

1. perceived ease of use / usefulness / relative advantage
2. compatibility / mobility / use context
3. Perceived cost / risk / security
4. social influences
5. self-efficacy

The first theme contains factors that are related to the actual use of the in-application purchase technology and how the user feels about it as a buying mechanism. The second theme is related to the users buying habits and how well it conforms to his lifestyle as well as possible situational factors. The third theme contains factors related to the somewhat negative or trust related aspects of in-applications purchasing. After organizing the factors into the first three categories social influences and self-efficacy were left. As these two were not related to any of the previous themes both formed their own theme.

The five themes were tested in two preliminary interviews where it became apparent that interviewees could not relate self-efficacy to in-application purchases. The original definition explains that self-efficacy is the user's confidence to be able to perform a task with a system (Bandura, 1993). In in-application purchasing the task itself is simply to push a button to buy a product. Because of how easy this operation is and the fact that having done in-application purchases was a requirement for the interviewees they could not understand how they would not be able to do it therefore rendering the concept of self-efficacy irrelevant in this thesis. For studies that handle the acceptance and use of new technologies this factor could well be used. For example to explain the insecurities that older people feel about their own skills when trying to use new technology.

In mobile commerce literature perceived costs are seen as added costs to the product that are caused by using the mobile payment mechanism (Mallat, 2007; Luarn & Lin, 2005). As stated in the literature part of this thesis this factor does not fit well to a modern information society and it became apparent that in mobile commerce the price is often seen as a positive factor. One of the first two interviewees stated that books in digital form are in fact cheaper than buying physical copies. Even though the prices range from a few euros to up to a hundred euros the interviewees stated only buying cheaper products that cost less than 10 euros and the low costs were mentioned as a purchase driver. Therefore perceived costs in this study are not congruent with the original mobile commerce definition but signify that the costs are seen as a positive factor, signifying that the users are usually solving what Solomon (1999) describes as a usual problem. The original goal was purely to clarify the in-application purchase process via the effects of the factors found in previous literature but as the preliminary interviews were quite short, twelve and sixteen minutes, the five stages of the Kotler and Keller's (2009) consumer buying process were added to the interview to give more substance to the interview forming the nine final themes of the interview. In addition to the themes the interview was started by asking the interviewee to explain in-application purchasing in his or her own words. The purpose of this question was to orient the interviewee to the subject of the interview and clarify what in-application purchasing is in their opinion

as well as in this thesis. One final question was added to the end: was there something in particular that the interviewee had thought about or noticed during in-application purchasing. The aim of the last question was both to enable unexpected information to come up and to be able to go back to a theme if the interviewee had thought about something new to add. The final structure of the interview followed the five stages of Kotler and Keller's' (2009) buying behavior process with the four mobile commerce themes added in between different stages, see attachment 1.

4.3 Data collection

Interviewees were found utilizing Facebook groups and asking the researchers friends if they knew someone, not acquainted with the interviewer, who could be interviewed. The preliminary interviews were done in August 2014 and the actual interviews in January and February of 2015. The interviews were done either face to face or via Skype and all were recorded and transcribed. Interviews lasted on average 29 minutes, ranging from 21 to 36 minutes. The transcripts were inserted into a qualitative data analysis software, QDA Miner Lite, for easier analysis. Most interviewees were quite open and helpful, trying to describe their actions and thoughts well and fully whereas some were somewhat hesitant and gave quite short concise answers. Those with fewer purchases were better able to describe the whole process of in-application purchasing whereas those with more purchases were a more fruitful source in regards to the mobile commerce factors. The applications that had been most used by the interviewees were Clash of Clans and Candy Crush Saga, which was not surprising since both are in the top 10 of most grossing applications as seen in tables 2 and 3.

After initial analysis it became apparent that some factors were not sufficiently investigated. These were group pressure, stemming from social influence, and semi-accidental purchases that were brought up by the interviewees. Follow-up interviews were done to gain further explanations of these factors, especially semi-accidental purchases. Group pressure was brought up by two interviewees therefore they were further questioned about this factor. Three different interviewees brought up semi-accidental purchases which they regretted afterwards, they were questioned further about what caused these accidental purchases and why they were regrettable.

To ensure validity the interviewees were selected to represent as large as possible spectrum of the in-application purchasing user base ranging from a 19 year old student to 37 year old working professional. The only requirement was that the interviewee must have utilized in-application purchasing at some point. The background information of each interviewee is presented in table 5 and some statistics of the sample are presented in table 6. The background information was collected after the interview to avoid possible tension from forming between the interviewer and the interviewee since rather personal information such as income is asked, see attachment 2. The background information was

asked to clarify how much the interviewee does in-application purchases as well as present the opportunity to detect relations between the backgrounds and in-application purchasing behavior such as high income enabling larger expenditure.

Table 5 Background information of the selected sample

	Age	Gender	Occupation	IAP purchases per month	Estimation of total IAP purchases
1	30	Female	Teacher	<5e	15e
2	33	Male	Salesman	5-10e	100e
3	32	Male	Unemployed	<5e	10e
4	26	Male	Handyman	<5e	20e
5	27	Male	Developer	<5e	70e
6	30	Female	Sales manager	<5e	10e
7	25	Female	Student	<5e	6e
8	19	Male	Student	<5e	30e
9	30	Male	Coder	5-10e	200e
10	25	Male	Student	<5e	20-30e
11	37	Male	Project manager	30-40e	700e
12	31	Female	Production AD	<5e	10e
13	28	Female	Customer delivery supervisor	<5e	10e

Table 6 Sample statistics

Average age	**28,6 years**
Male	**61,5%**
Female	38,5%
2000-3000e income per month	**69%**
0-1000e income per month	23%
3000-4000e income per month	8%
<5e purchases per month	**77%**
5-10e purchases per month	15%
30-40e purchases per month	8%
Average of all IAP purchases	**92,77e**
Average interview length	29min

4.4 Analysis

According to Hirsjärvi and Hurme (2001) there are four main points to analysis: it often starts during the interview, analysis is done "close" to the material and its context, reasoning is either abductive or inductive and that there are many different techniques for analysis. Analysis starts during the interview when the researcher starts to form connections and assumptions about the information

that is being gathered. Keeping close to the material means that analysis is done from the gathered textual data and often the data is kept in a text format instead of forming numerical data as in quantitative research methods. In abductive analysis there are ready assumptions or theories that the researcher tries to verify and in inductive analysis assumptions and theories are drawn from the data. Lastly, there are various techniques to analyze the data and there is no one true technique that suits the research better than others. Hirsjärvi and Hurmes (2001) also state that for easier analysis interviews should be transcribed on a computer and possibly input them into a qualitative data analysis program. The data can then be organized into themes and categories according to the research problem, previous factors or themes, theories or models or the researchers own intuition and imagination.

In accordance with Hirsjärvi and Hurmes (2001) the analysis started during the interview process, similarities between different interviewees were noted as well as those factors that seemed unique to each interviewee. Keeping these similarities and unique differences in mind different themes or factors were handled more closely to further clarify whether these similarities were true and how unique the differences between interviewees truly were. Each interview was transcribed on a computer right after the interview or as close as possible and these transcriptions were imported into a qualitative data analysis program. With the help of the program the transcripts were color coded into categories that corresponded with the themes and factors found in previous literature. One additional theme was added for the semi-accidental regrettable purchases. No fixed unit length was set to the coding and any text that had some relevance to a theme was marked as data belonging to that theme. There were also no restrictions, if the data was thought to belong to multiple categories, such as perceived risk and trust, it was marked to belong to multiple categories. To make sure that all available data was analyzed the goal was also to have all of the text coded.

After all interviews were transcribed and coded all the instances of each theme was retrieved from the text and analyzed and synthesized to form a description of the theme from the consumer's perspective. The analysis consisted of comparing different answers and searching for similarities as well as differences between them to clarify what is the majority opinion of the matter. The analysis was done in three parts. First the consumer definition of in-application purchasing was formed and the five stages of Kotler and Keller's (2009) buying behavior were analyzed to clarify what is the in-application buying process. Secondly the five stages were synthesized into a general full description of in-application purchasing to clarify how the users in fact do the purchases that they described. Lastly, the third part was analyzing the four themes which were based on mobile commerce literature to clarify how they affect the in-application purchasing process.

5 Results

In this chapter the results of the interviews will be presented starting with the consumer definition of in-application purchasing. Second the results for the five stages of Kotler and Keller's (2009) buying behavior will be presented. Then to deeper clarify the specific factors affecting in-application purchasing the results of the four themes based on the factors found in mobile commerce are presented.

5.1 In-application purchasing consumer definition

All interviewees were quite familiar with in-application purchasing and therefore could describe quite accurately what it as. The vaguest description was

> "purchases happening inside a (mobile) game"

and the most accurate in relation to how in-application purchasing was defined by the marketplaces

> "you have an application or game or service and you buy more features or functionality or, in games virtual items".

Almost all descriptions were quite neutral as seen in the previous quotes. Two interviewees, however, had a negative tone in regards to the applications: the basic version was presented to be free but to get everything that you actually need or want you have to pay for it.

> "..it's seemingly free but to get full functionality it turns into a paid app.."

> "Usually the free version is stripped from functionality."

As explained in the chapter about freemium the free version is usually limited somehow and that you have to pay for premium content of functionality. Per-

haps the consumers felt entitled to the premium content without paying or the division between free and premium was not a good fit for them. The purpose of this thesis was, however, to clarify the in-application purchase process and therefore this matter was not pursued any further. As a conclusion it can be said that the consumers are well aware of what in-application purchasing is and that their view of it corresponds well to the marketplaces description "buying virtual items, added functionality or more content in applications".

5.2 Problem recognition

The first stage of the consumer buying process is problem recognition, the consumer realizes that he needs or wants something. Various reasons came up in the interviews which spurred the buying process. Four interviewees reported the same reason that started the buying process; running out of content and being told to buy more.

> "..the content is the deciding factor, if you want something you pretty quickly buy it…I notice that I have to make little purchase to get this thing"

> "Usually you want to take a little shortcut, most games that sell something you either have to wait or pay…it comes apparent pretty quickly, the buying interface is there in every view"

> "you want progress and the app tells you, or it's always there that if you want to progress buy this"

The second prominent starter for the buying process was social influence or word of mouth. Hearing about the app or the items that can be purchased in the app from friends or on the Internet were reported to have started the buying process.

> "everybody else was buying it"

> "I heard about it online"

Other reasons to buy that the interviewees reported were advertisements, need, being bored, paying for a good product and wanting quicker progress in a mobile game. Surprisingly advertisements, which are usually heavily relied on in freemium apps, were not in a larger role as an initiator.

5.3 Information gathering

Two major sources for information rose up in the interviews; the reviews in the market place and the Internet. Most interviewees stated that they search the Internet for more information on the app as well as customer experiences.

> "I always google the app and try to find information on the internet"

> "first I check their website and then I might look up some reviews on different forums"

The reviews on the marketplace also had a significant effect especially regarding critical knowledge about the apps performance on certain devices.

> "I check the reviews to see if the app has problems on some devices, there might be some issues that even the producers of the app don't know about. There are some apps that don't work at all on some devices and usually the producers don't say anything about it."

This probably pertains to the fact that there are too many devices to test the app on, especially on the Android platform. Therefore the producers are not aware of issues on some devices having to leave the responsibility to the consumer.

Internet and the reviews were mentioned as the main source for information. The product is, however, purchased in an application so the interviewees were asked about the information in the application itself and what kind of role it has. Surprisingly the role of product information in the app was only a minor factor in the information gathering process. Most stated that the information is very limited.

> "usually there isn't much information in there"

> "there's usually as little information as possible"

One of the interviewees, the one with most money spent on in-application purchases, said that the application has sufficient information about the product.

> "usually it's said in the app what you can and can't do with the product and if you want more information then you can look it up on the internet"

And then the second most purchased stated that he doesn't really gather information.

> "I rarely gather any information…maybe it's like that I try it out or that I just want to know what it is that I have to pay for"

It seems that simply purchasing the product and then trying it is may be a part of the information gathering, even though it happens after the actual purchase. The fourth source for information that came up was the application itself. The

interviewees reported a sort of salient information that you get just by using the application.

> "well you get it (information) in the app, I mean if you buy more levels or something"

> "If I like the app it's all the reference that I need"

Four sources came up in the interviews: the internet, the reviews and information on the marketplace, the information in the application and the use of the application itself. Especially in mobile games where the progress is limited i.e. you have to wait or pay the user is well aware of what he is paying for since the product is accelerated progress for an action that he is already doing.

5.4 Alternative evaluation

When asked about how they evaluate different products most interviewees started reflecting upon how to choose the best application and there did not seem to be much comparison done between different products in a given application. This might be due to the limited nature of in-application products especially in games which are clearly more popular than other types of applications. The games that the interviewees had played mostly sold in-game currency that you then used to buy things in the game leaving only the choice of how much to buy or deciding what is the best price-value relation.

> "pay x amount and you get this much, pay 2x and you get this much"

> "there isn't really much to compare, you can only get that in the application or usually there are no other options other than maybe price"

> "I don't really compare, just buy according to what you need in the game and try not to buy too much"

When deciding on whether to pay for premium functionality one interviewee said that she had asked a friend if it's worth it.

> "I knew he had it so I asked him if he was happy about it and if it's worth it"

Another factor was how the product was presented in the application.

> "I chose the one that I was most interested in...it was graphically nice, I liked the picture that was there"

Product comparison seemed to be in a somehow diminished role or just somehow not something that the interviewees had done that much. Or then the results indicate that to begin with there simply is not that much to compare.

5.5 Purchase decision

As the purchase decision is the most critical point of the purchasing process the answers tended to include multiple factors that were previously discussed during the interviews. The main factors that rose up were price and the relation between price and value. Most interviewees reported buying products that cost five euros or less which alleviated the importance of the purchase reducing the need to carefully consider the purchase.

> "The decision comes from knowing that even if I have to regret the purchase I'm not losing much."

> "it costs just 90cents so it's quite easy to decide, if you want it you just buy it"

In case of more expensive purchases like subscriptions the interviewees stated that the decision was thought about more.

> "Is the ten euro app worth it, I think about it a lot more than something that's two euros."

> "If the purchase was bigger or a commitment to something long term. Like a one year license and it was relatively valuable then I would really think about it."

The purchase decision was also described as impulsive but yet thought out.

> "It's an impulsive decision but I essentially know what I'm paying for."

> "If I get the idea that I want it then I pretty quickly just buy it without thinking about it that much...I have some kind of an assumption what the product is going to be and then depending on my mood I might buy it."

Continued use was also mentioned as a factor in willingness to buy. Having already invested time in using the application increased the willingness to pay for it or to buy additional content.

> "When you commit to using an application and then there are some improvements you're pretty much ready to buy it."

> "The more time you use in it the more money you can spend on it."

> "If you notice that you're already spending time on it and that its fun so you're willing to invest in it."

It is also notable that most freemium apps are constantly showing the purchase option for buying in-game currency and also suggesting other items to the player. One interviewee specifically stated that after all available content has been played through the decision to purchase is pretty much already made and

when the application informs that more content is available the purchase can be done.

> "There's no trigger, once you've gone through the content and you notice that it's not enough you buy more...Often the app tells you that okay you've run out of content and 'what about buying more we have this offer'."

> "Usually it's that you want to take a shortcut, often you have to either wait or pay so that way I usually spend money...If it's not said there (the time limitations) then it comes apparent pretty quickly, the user interface (to purchasing) is always there."

Another interviewee stated that she caves in to buying. Be it an offer or just the presence of the purchase functionality or both in combination.

> "It's good, and bad of course, that often the games have offers like you'll get a hundred coins for three euros when it normally five euros so you easily cave in."

Upon further explanation this was mainly due to the fact the she was used to seeing the product at some price and suddenly it was offered cheaper.

> "It's not that the offer is always there but if you're sort of used to seeing that it costs like six euros and suddenly its three euros you almost have to buy it."

In essence the purchase decision even though reported as impulsive was formed upon evaluating the price and value of the product. As stated in the information gathering chapter the user is often familiar with what the product is simply by using the application which it is sold in. This combined with continuous use and constantly seeing the purchase interface seems to increase the willingness for additional purchasing.

Interestingly three interviewees reported doing purchases that they regretted afterwards. Upon further questioning it became apparent that these purchases were done in a moment's heat when the need to play was high. Even though they did not find the game to addicting they did at moments feel a higher need to play and were more willing to pay to get to more content.

> "sometimes there are moments when you want to play and are more willing to pay, even if it just enables a few more actions"

They reported that at the moment the sum that they were spending did not feel like much but once the moment had passed they felt that the purchase was unnecessary and regretted the purchase. Two out of these three were those who had spent the most money on in-application purchases which may indicate that these impulsive purchases which cause regret may be an indicator of some type of addiction.

5.6 Post-purchase behavior

Seven out of the thirteen interviewees stated that they thought about the purchase afterwards mostly evaluating their choice and thinking about how pleased they were with the purchase. Four reported that due to the small amounts that were spent they didn't really think about the purchase afterwards stating that they only spent amounts they were willing to lose.

> "Sometimes you might think that okay the app was shit but okay you spent only two euros on it so you didn't lose much."

> "I don't really think about afterwards. Especially when it's only small sums you don't really know how to be sorry about it."

Interestingly those who said that they didn't think about the purchase afterwards only stated that they didn't feel negatively about the purchase. None of the interviewees reported being exceptionally happy about any purchases whereas three interviewees reported having negative thoughts after almost every purchase.

> "Sometimes I think that 'oh well there goes another five euros to a mobile game' but in the end it's so little that it doesn't really matter"

> "I always feel a little disappointed but then I think that okay it was such a small sum that it doesn't matter. "

> "Well right afterwards I regret it. When I get the notification email I usually realize that this wasn't really necessary."

This is an extremely interesting phenomenon since these users continued to do these purchases even though they clearly regretted them afterwards on multiple occasions. There was a strong connection between regret and reporting that in-application purchases were almost too easy. Those three that reported regret as well as one other interviewee stated that in-application purchasing was almost too easy. Upon further questioning the root cause for these semi-accidental purchases was a momentary need to play a mobile game. In that moment the interviewees simply wanted to play the game and were therefore more willing to spend money on it to gain more content. After the moment's heat, however, they quickly realized that if they had just waited they would have gotten to the content they were after. Even though the interviewees denied being addicted or even having a continuous habit to buying there seems to be a connection between these in-the-moment purchases and larger expenditure on in-application purchases. Two of the three that reported regretting these purchases were those that had spent the most money on in-application purchasing.

5.7 Social influences

Almost all interviewees stated that the advice and opinions of others do affect their purchase decision, often quite strongly. Only one interviewee said that opinions of others don't matter and that his own opinion of the product is the only one that matters.

> "Doesn't affect at all… I've used the product myself and decided that it's worth paying for that's when I pay for it."

Most reported positive effects such as being more willing to buy if others recommended it. Negative information, however, was not often mentioned. In fact only one interviewee brought up social influence affecting the purchase decision negatively.

> "if someone says that they bought something and it was stupid or didn't work out I know not to do the same"

In addition to social pressure and the opinions of significant others the interviewees said that the reviews on the marketplace had an effect. These reviews can be seen as opinions of unknown others which can affect the purchase decision. Every interviewee said that they read the reviews and some searched the internet for more user experiences.

> "If the applications or products are similar then I will get the one with more reviews"

> "The reviews, user experiences on the marketplace and other forums, I would say that they have a significant effect."

> "If I'm really interested I might search for more reviews (in addition to the marketplace) on the internet"

Group pressure was also brought up by two interviewees. Group pressure manifested itself in a mobile game with a social integration where players could see how others progress in the game and therefore compare how others were doing in regards to their own progress. The game also occasionally requires that that the players cooperate and play as a team, therefore they felt that if they were lagging in progress they were hindering the others as well. These two interviewees were concerned that if they did not do similar purchases that others they would be left behind in progress and therefore be seen as bad players.

> "I don't buy much. Just occasionally and even then only under group pressure."

> "the first time I bought something it was because of group pressure"

> "I want to keep up (with others)"

> "I don't want to be lagging"

The fact that everyone else were doing these purchases also made them seem more acceptable and allowed the interviewees to change their opinion about purchasing.

> “I’ve been kinda stubborn in not buying but since the others were buying I felt like I could allow myself to buy too”

> “I think that these kind of purchases are quite pointless but since the others were buying it didn’t seem so stupid”

So group pressure was found to stem from have two separate effects, an intrinsic need to stay on par with others and making the purchase seem more acceptable since others were doing it too.

5.8 Perceived ease of Use, Usefulness and Relative Advantage

All interviewees stated that in-application purchasing is in their opinion very easy and see it as better than traditional ecommerce methods such as filling forms and entering information.

> "yeah it's really easy, just a few clicks and you're done"

In fact for some it even seemed to be too easy enabling purchases that were not well thought through as stated in the purchase decision chapter. Purchases were done without clarity almost by accident because the steps to purchase are so easy. All but one interviewee said that if they had to fill forms they probably would not buy as much.

> "If I had to fill out forms I would have one more chance to think about the purchase and probably would not go through with it"

> "The easiness surely plays a big part... If I had to enter my credit card information every time I probably wouldn't by as much."

> "Well people are lazy, like me, so it's nicer to do it this way (IAP) then go filling some mail order coupons."

Clearly in-application purchasing was seen as easy to use and better than traditional ecommerce solutions. One interviewee in particular thought that in-application purchasing is very good payment method and thought that it would be useful in other contexts besides mobile applications and virtual items.

> "If it was possible I would use in-application purchasing more, like paying for groceries in the shop. The store could have their own app and I get the price with NFC or something and just click ok to pay"

As a conclusion in-application purchasing was seen as extremely easy to use and thought as better than traditional ecommerce solutions. As the process of buying is so easy it seems that it accommodates impulsive buying quite well, especially for products that are seen as cheap which do not require more careful consideration.

5.9 Compatibility, Mobility, Use Context and Habit

All interviewees stated that in-application purchasing was well compatible with their lifestyle. They always have their mobile device with them which they utilized for multiple functions and therefore felt that doing purchases on a mobile device was well suited for them.

> "The mobile is always with you on trips and such so it should be so that you buy the stuff there where you use it."

> "I'm on my mobile all the time so yes you usually use it to solve problems...like usually you think when you have a problem that there's probably an app for it"

As far as mobility goes the interviewees reported that being able to do things on the go was considered to be a positive factor

> "Sometime when on the road I might buy some games to kill time."

> "Well if I'm like away from home and I'm bored I've sometimes thought that I might pay for something small so yes it has affected."

Being away from home and being bored was most often mentioned as a use context for in-application purchasing. Mostly hedonic applications were mentioned in this context, obviously to solve the problem of being bored. Only one interviewee, the one with most purchases, mentioned having a habit of mobile purchasing.

> "A few times a month I check what's there and if I might buy something"

This mostly pertained to buying mobile games but also for buying additional content as in-application purchases. Like the factors in the previous chapter mobility seems to be positive factors affecting impulsive buying in certain use contexts i.e. being bored.

5.10 Perceived Cost, Risk and Security

As stated in the purchase decision chapter price was often mentioned as a positive factor, low costs did not require careful consideration and purchases were

done quite impulsively. Price was also mentioned in a sort of gamble when the user wasn't sure about the products quality or fit for his or her needs.

> "I can spend the few euros and if it sucks then that's fine. It's so little that I don't really mind losing it."

Low costs also alleviated the feeling of risk. As individual purchases were considered cheap, a few euros, there would have to be multiple accidental or unauthorized purchases to do actual monetary damage.

> "You have to do quite a bit of purchases to get the sum up"

All interviewees stated that they did not really feel risk when doing purchases and that they trusted in-application purchasing. Some reported feeling risk when entering their credentials to the market place for the first time but did not feel risk after that in subsequent purchases.

> "I was worried when entering the credentials like is this really safe"

> "I was a little skeptical at first because I had to enter my credit card number like what's gonna happen"

When doing the actual purchases and using in-application purchasing with the saved credentials all but one of the interviewees felt secure and were not worried about the purchase failing or that their personal information would go in to wrong hands. The feeling of security stemmed from using the in-application technology their selves and the security measures that were implemented.

> "I've used it and found that it works, I trust that it works."

> "You have to enter your password before doing purchases so I don't feel like there are any security issues."

> "They check my account information every now and then so I feel like they know what they are doing"

> "I get the confirmation to my email right away so I know that if something suspicious happens I'll know about it right away."

The one interviewee that sometimes felt risk in doing purchases stated that this was due to poor connections and fearing that the payment process would somehow fail.

> "I don't usually trust my connection, I only trust it if I have Wi-Fi...I'm afraid that the connection will fail"

In addition to actual security measures the interviewees also reported feeling secure because of the popularity of the platform that they use and trusting the company handling the payment.

> "I mean so many others use it (Android) and I haven't heard anything bad so it must be secure."

> "It's a big company so I'm sure that they put quite a bit effort into security."

Only one interviewee reported feeling a little risk because of the size of the company handling the payment. This was founded on the level of information that the company gathers.

> "I mean they collect so much more information compared to like a start-up"

This particular interviewee felt that all services were equally risky and if some data was to be stolen the bigger companies would have a lot more personal information to yield.

Most interviewees also stated that even if something was to happen they were sure that they would be somehow compensated for losses.

> "I trust in common justice like if something was to happen I would get the money back."

> "The credit card companies are a middle man, I mean if you didn't do the purchase yourself you're not responsible for it"

> "I think that buying with credit cards is quite safe nowadays "

In essence the interviewees had given risk some thought at some point or had felt risk when first adding their credentials to the market place. Due to the security features in place, institutional trust and justice in general the users felt safe utilizing in-application purchasing.

6 Discussion

In this chapter the results of the empirical study will be explained. First the research questions and their answers will be presented followed by table 7, where all the factors and their results are presented for a quick review. Then each factor will be separately handled with a fuller explanation on how the findings from the empirical part correspond with the original definitions found in mobile commerce literature.

6.1 Answers to research questions

What is the in-application purchase process? The main difference between conventional purchasing and in-application purchasing is the difference in the product and how the buying process is started. In in-application purchasing the products are very specific and are designed to solve problems that are artificially created, which are often used to artificially start the buying process. In Kotler and Keller's (2009) model of consumer buying behavior the process starts from problem recognition, the consumer himself realizes that there is a need that some products may fulfill. Whereas in in-application purchasing the consumer is clearly informed of a certain product that will solve a specific problem that the user has to deal with, crossing the gap from free to premium. This phenomenon is especially prominent in free to play mobile games which often sell virtual currency to overcome certain limitations like wait-times on actions. Due to the limitations set to the product the information gathering and alternative evaluation steps are also much simpler if not erased totally in in-application purchasing. However when making decisions between the premium versions of similar applications these steps are more prominent and follow Kotler and Keller's (2009) model more closely. As a conclusion it can be said that the in-application purchasing process does mostly follow the same steps as described in Kotler and Keller's (2009) consumer buying behavior. The alternative evaluation stage and post purchase stage, however, are diminished due to the unique

attributes affecting in-application purchasing, limitations set on the product and utilizing the freemium model.

How and what factors affect in-application purchasing? The factors that had the largest effect in in-application purchasing were perceived cost and perceived ease of use. Even though the product prices range from a few euros to over a hundred most purchases were under five euros therefore alleviating the feeling of risk and need for further pontification on whether to buy the product or not. The simplicity and ease of use had a large impact on the speed of the purchase decision, the actual purchase process only requires a few taps on the mobile device therefore enabling very quick and impulsive purchases. All factors that came up in the mobile commerce literature were found to affect in-application purchasing, driving the consumer to trust the payment mechanism and give the sense of instant gratification with instantaneous product delivery. However, not all effects were positive. Most consumers felt that if the buying process was more demanding they would not do as many in-application purchases and some may even regret almost, if not, all purchases they do. The nature of in-application purchasing revolves around artificially created need to purchase virtual items which then are instantly consumed quickly returning the consumer to the original state of having to do a purchase. Although in this study no one reported having an addiction to playing mobile games or doing in-application purchases there were some indicators to some level of obsession or need to do these purchases from time to time. This may be caused by having the user hooked on the application creating a sort of moments heat, which combined with the easiness of the purchase drives the user to do a purchase which he later regrets.

Table 7 The effects of in-application purchasing factors

	Factor	**Result**
1	Perceived ease of use	The IAP technology was seen as very easy to use and therefore perceived ease of use was found to have a positive effect on willingness to purchase.
2	Perceived Usefulness	Does not perfectly translate to IAP in the original definition but can be seen to have a positive effect.
3	Relative Advantage	IAP was seen as better than traditional ecommerce solutions and was found to have a positive effect on willingness to purchase.
4	Compatibility	IAP was found to be well compatible with the user's lifestyle, mobile devices are almost always with the user the idea of doing purchases with it was seen as positive factor.
5	Mobility	The mobility of the user corresponded with the mobility of IAP. Mobility had a positive effect on willingness to purchase.
6	Use context	The original definition does not translate into IAP but certain situational factors were found to have a positive effect on willingness to purchase.
7	Habit	IAP was not found to be a habit purely in the sense of doing purchases. Mobility combined with certain user contexts, however, was found to produce a habit of using a mobile device, indirectly affecting IAP positively.

8	Perceived cost	The mobile commerce definition does not translate to IAP. The results show the opposite effect, price was seen as positive factor.
9	Perceived Risk	The risk factors found in previous literature are present in IAP but their effect is diminished due to the unique properties of IAP.
10	Security	IAP was found to be a secchroure transaction technology. Consumers trust that it works and unauthorized or illegal are prevented.

6.2 Problem recognition

According to Kotler and Keller (2009) in the problem recognition step the consumer realizes that there is a difference between the actual state and the ideal state of matters. To close this gap he needs a solution to the problem that exists between these two states.

In freemium mobile applications the free version can be thought of as the actual state and premium version as the desired state. The problems that were recognized as the initiators of the buying process in in-application purchasing were wanting more content, faster progress, social influence and advertisements. Wanting more content and gaining faster progress were found to be both intrinsic and extrinsic, the user realized himself that he wanted something more or the application in question notified the user that more can be bought. Social influence was also found to be an initiator, the users heard about good products from friends or other sources and then decided to check the product out to see if it could help them. Advertisements which are heavily relied on in freemium applications were found not to be a significant initiator for the purchase process, some interviewees even stated that ads had no effect for them or even being annoyed by them.

6.3 Information gathering

Kotler & Keller (2009) state that the in the information gathering step the consumer starts to collect information about possible products either actively or passively. This was also the case in in-application purchasing. The results show that users search information actively from the market place as well as on the internet. As the main idea of freemium is to offer the user a free version to try the application before deciding on purchasing, information was also gathered passively. Passive information gathering can be seen to be in a more prominent role in hedonic applications such as games, if the users enjoy using the application they are willing to buy items or expedite progress without any information search.

In utilitarian need based applications the users often find more information actively before deciding to purchase the premium version, especially if there are alternative applications. This was due to the nature of the applications, often costing more than hedonic apps and forcing the user to commit to using the application for an extended period of time. In both hedonic and utilitarian apps the users usually check the reviews that can be found on the market place to find how others feel about the app and if there are about issues that the application may have with certain devices.

6.4 Alternative evaluation

In the alternative evaluation step the consumer compares different products that he has found to be able to solve the problem he is having (Kotler & Keller, 2009). Again there was difference to be found between hedonic and utilitarian applications. The most prominent freemium model found in hedonic mobile games was delayed progress, the player has to either pay or wait. In these applications the only product is faster progress, therefore limiting the alternative evaluation severely. Often the product is in-game currency that can be used to expedite actions that the user may choose and the user only has to decide how much money he is willing to spend. In utilitarian applications such as calendar applications the users compared different applications and their premium versions when deciding what to get. An important motivator for this was to find whether some application offers all the needed functionality for free.

In alternative evaluation in-application purchasing is somewhat muddled. Users may be purchasing the aforementioned in-game currency where there are no alternatives. In utilitarian applications the premium product, which is purchased in the free version, the alternative products are formed from totally separate applications therefore causing the alternative evaluation to more closely follow the original Kotler and Keller's (2009) definition.

6.5 Purchase decision

After considering all the options the consumer will decide on what the best choice is and then buy it (Kotler & Keller, 2009). When deciding between different items or applications this definition is valid but in hedonic free-to-play pay-or-wait applications alternative evaluation is greatly diminished and purchases were done impulsively on the spot. The most prominent factor in these cases was the price value ratio. After using the application collecting information about it passively the user is well aware of what it is that they are paying for and only left the choose whether to buy or not.

The option to buy is always shown to the user and as the purchase mechanism in in-application purchasing is so easy to use that some of the users simply went through with the purchase without really thinking about it. This was

due to the fact that at the moment the users simply wanted to use the application, in this case a mobile game, and to gain more content they did not feel that the sum being spent was an issue. In some cases the applications tells the user that he has ran out of content and should buy more if he wishes to continue using the applications. In these cases the consumer has to evaluate only how much he enjoys using the application and choose whether to pay for continued use of to stop using the application. In these situations the purchase decision differs from Kotler and Keller's (2009) explanation, the consumer has already made his purchase decision depending on the will to continue using the application and goes forward with the purchase when the opportunity is presented.

One main reason why the decision to purchase is made is price. As most purchases are under 10 euros these decisions seem to solve what Solomon (1999) describes as usual problems. These usual problems are easy to solve for the consumer, low price is seen as an alleviating factor negating the feeling to carefully consider the purchase: the consumer is willing to lose the small amount of money that is being spent.

6.6 Post-purchase behavior

Kotler and Keller (2009) state that the purchase process does not end in the purchase decision but continues with evaluating the choice that was made, the delivery of the product and the product itself. Since the delivery is instant in in-application purchasing the evaluation of it is nonexistent. Again in freemium the user is able to evaluate the product in the free version, therefore the evaluation of the product is often done before the actual purchase decision. Most often the consumer can only evaluate his decision and even even then the sum of the purchase is usually so small that there isn't even a need to evaluate the purchase at all on a deeper level. This pertains mostly to hedonic applications whereas in utilitarian applications the product is evaluated more closely, as well as the purchase decision. This is due to the fact these applications are often more costly and require the user to commit to using them for a longer period of time.

The results do, however, show one interesting phenomenon in in-application purchasing regarding the consumers actions post-purchase. In hedonic impulsive purchases the consumer was often disappointed after every or almost every purchase but yet continued doing these purchases. Those who did these repeated bad purchases did not however report it being an addiction or even a habit. Robinson and Berridge (2000) state that in drug addictions there are compulsive behaviors to use and acquire drugs on the expense of other activities. From this perspective the behavior of doing dissatisfying purchases in itself is not an addiction when it's not done compulsively on the expense of other activities. Chou and Hsiao (2000) studied internet addiction in college students and define addiction as something that causes irritability when not available, need to use more and more and trying to stop but reverting back to previ-

ous behavior. In this sense there can be seen a connection with playing mobile applications. The user wants to play the app, is annoyed that his progress or playtime is somehow limited and then continuously does in-application purchases to be able to keep on playing. This is somewhat supported by Mäntymäki and Salo's (2011) study on continued use which was found to increase the willingness to buy virtual items. In this sense there might be a connection with being addicted to a mobile game or playing in general and these continuous "bad" purchases.

6.7 Social influences

According to Ajzen (1991), Wei et al. (2009) and Shin (2010) social influences can originate from sources such as friends as pressure or opinions to perform or not to perform a task. The opinions of friends were highly valued in in-application purchases especially when deciding whether to purchase a premium version of an application that the user is going to use for an extended period of time. In addition to the opinions of those that are important or close to the user the reviews on the marketplace were also taken into account as well as other reviews found on the internet. These opinions from unknown sources were not seen as important as those from known and trusted sources but were more commonly taken into account and used to find information about possible issues with certain devices.

In addition to influence the consumer may feel group pressure. This pressure was found to stem from the consumers on need to stay on par with other users of the application in his social circle. This was especially prominent in mobile games where the progress of others could be seen in that social circle. The fact that others were buying products in the application also made them seem more acceptable to the consumer and therefore increased the willingness to purchase.

6.8 Perceived ease of use, Usefulness and Relative Advantage

According to Davis (1985; 1989) perceived ease of use is "the degree to which a person believes that using a particular system would be free of effort". The results show that in-application purchasing is perceived as very free of effort, the process is so simple that users sometimes did impulsive purchases without any effort almost by accident. Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1985; Davis 1989). In-application purchasing is not as much a task that must be performed than a facilitating function to complete purchases. Therefore there were no significant results to show how in-application purchasing could be seen to enhance ones job performance. It can be postulated, however, that as in-

application purchasing was perceived to be so easy to use and effort free it could enhance ones job performance indirectly facilitating easier purchases.

Rogers (2010) defines relative advantage as "the degree to which an innovation is perceived as being better than the idea it supersedes". The results clearly show that in-application purchasing was seen superior to traditional ecommerce payment solutions and that it increased the willingness to purchase. Saved credentials enabled the users to skip steps like filling forms that were seen as somewhat tasking making the process smoother and faster for the user. On a side note it was discussed that different payment methods are slowly aggregating into things such as mobile wallets and NFC payments and that in-application purchasing could be seen preferable to credit cards for paying for things like groceries.

6.9 Compatibility, Mobility, Use Context and Habit

Rogers (2010) defines compatibility as "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters". In-application purchasing was found to be well compatible with the user's lifestyle and needs. The users are accustomed to using their mobile device so it only makes sense to do purchases on the same platform that the product will be used on. Likewise mobility is seen as a positive factor, as the mobile device is almost always with the user again it makes sense that the purchases can be made at will anywhere and at any time. Mobility and ease of use were found to be major drivers for in-application purchasing enabling easy access to desired products regardless of time or place.

Although in-application purchases were mainly not done habitually the results show that some users may habitually check the marketplaces for new content or do purchases in use contexts such as being away from home and being bored. Compatibility, mobility and use context together can be seen to drive consumers to do in-application purchases especially impulsively. Using their mobile device is well suited for them and purchases can be done anywhere at any time so when a situation rises where the user might need some entertainment the go-to solution is often to check if there is something interesting available for them either for free or purchase. In cases where the user wants to play a specific game which utilizes the wait-or-pay freemium model the user may be driven to regrettable purchases just to satisfy his needs momentarily.

6.10 Perceived Cost, Risk and Security

Perceived costs were seen as additional fees or surcharges that were added to the products prize when using mobile transaction methods (Wu & Wang, 2005; Luarn & Lim, 2005; Mallat, 2007; Yang et al., 2012). In a modern information society where business is done in an electronical format there are no additional

costs to the product. It is common that mobile devices are connected to internet all the time and that the internet is being utilized constantly for various functions such as email and messaging. Therefore the costs that are caused by data transfers are not seen as additional costs to a product but as a product itself. In in-application purchasing the payment method usually utilizes existing payment options such as credit cards and therefore there are no additional costs coming from additional payment options or methods. And as the products are virtual there aren't any real-world alternatives to consider apart from books and cd's which are usually cheaper when bought as a virtual product instead of physical. Therefore perceived costs are not an issue as stated in mobile commerce literature but in fact quite the opposite. In-application purchases mostly cost less than ten euros, therefore the products are seen as cheap and price is perceived as positive or unimportant factor. This is congruent with Solomon's (1999) definition of usual problems. When solving these usual problems the consumer does not have the need to carefully consider the purchase as it doesn't cost much, the consumer spends what he is willing to lose even if the product is unsatisfactory.

Risk has generally been regarded as fear of product quality, fraud and not receiving the product (Wu & Wang, 2005). In mobile commerce the fear of someone else doing unauthorized purchases and lack of transaction records have added to the feeling of risk (Mallat, 2007). In in-application where the product is delivered instantly the fear of not receiving the product has been eliminated and issues with product quality are greatly diminished because the product can be tried before purchasing in the free version of a freemium application. In in-application purchasing the transaction can be set as password protected which eliminates the risk of unauthorized purchases. The user also receives a receipt in an email right after the purchase and the transaction is marked in the users' credit card history. Security measures such as occasionally checking the users' credentials also reduce the risk of misconduct. Some risk is felt when first entering the credentials to the store but after using the in-application technology for a while the user quickly begins trusting it.

McKnight et al. (2002) define institutional trust as "the belief that needed structural conditions are present to enhance the probability of achieving a successful outcome in an endeavor like e-commerce" referring to the Internet and the marketplaces functionality. Pavlou and Gefen (2004) define it as "buyer's perception that effective third-party institutional mechanisms are in place to facilitate transaction success". As in-application purchases are done via marketplaces that are run by quite large companies that are well known to the user they also trust that sufficient measures have been taken into account to ensure that the transaction technology works. Some may feel that a mobile connection cannot be trusted and therefore do purchases only when on Wi-Fi. The credit card company was also seen as a trust enforcing third party. These companies keep track of all transactions and provide the possibility to negate purchases that were done without the card holder's content.

7 Conclusion

The aim of this study was to define what in-application purchasing is and how the consumers experience it. In-application purchasing in essence is a faster more concentrated platform for electronic commerce. The products are purely virtual and delivered instantaneously to satisfy the artificially created need for them. To explain what the consumer experience is the following research questions were set: What is the in-application purchase process? How and what factors affect the in-application purchase process?

The in-application purchase process closely follows the traditional five stage models of consumer buying behavior but due to its nature some of these stages are in a diminished role. More of the information is collected passively by using a free version of the application, often there are no alternatives to compare and small purchases negate the need to evaluate the purchase afterwards.

The affecting factors that were studied in the empirical part were drawn from mobile commerce literature. All factors were found to affect in-application purchasing on some level. Some factors, however, did not directly translate between these two due to the fact that the mobile commerce literature mostly handles physical products such as train tickets utilizing additional payment options causing additional fees to the consumer. Whereas in in-application purchasing all products are purely virtual and payments are done with existing methods such as credit cards. The main factors were found to be perceived costs and perceived ease of use. Perceived costs in mobile commerce were defined as additional fees whereas in in-application purchasing perceived cost signified the low prices of the products therefore being an positive factor alleviating the feeling of risk and need for consideration on whether to purchase the product or not. Perceived ease of use was found to have both a positive and negative effect. The simplicity of the purchase mechanism allowed the consumers to do purchases quickly and easily which was seen as a positive effect but it also allowed hasty impulsive purchases without due consideration leaving the consumer to regret the purchase afterwards.

The results are limited in nature as all interviewees were Finnish. Therefore they do not necessarily apply on a global scale between different cultures.

The in-application purchasing field is also somewhat muddled between premium content and premium versions of the applications. As these both are purchased with the same mechanism some of the results might not apply to both, especially in case of subscriptions, which are more expensive and require a certain level of commitment to the application. And as all the affecting factors were drawn from mobile commerce literature there may well be factors that were not present in this study.

In the future it is recommended to limit the scope of in-application purchasing either with product types or some division between hedonic and utilitarian applications. For example focus could be set on either small hedonic purchases such as in mobile games or subscriptions to cloud storage services, which are more utilitarian in nature and require a commitment to the service. The regrettable accidentals purchases that some interviewees presented seem very interesting, verging on addiction, and would likely prove to be fruitful subject of research.

SOURCES

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50,* 179-211.

Aldás-Manzano, J., Ruiz-Mafé, C. & Sanz-Blas, S. (2008). Exploring individual personality factors as drivers of M-shopping acceptance. *Industrial Management & Data Systems, 109*(6), 739-757.

Apple (2014). Getting Started with In-App Purchase on iOS and OS X. Downloaded 20.4.2014 from https://developer.apple.com/in-app-purchase/

App Annie (2014). App Annie Index: 2013 Retrospective. Downloaded 15.4.2014 from http://inbound.appannie.com/2013-retrospective-report

Bandura, A. (1993) Perceived self-efficacy in cognitive Development and Functioning. *Educational Psychologist 28*(2), 117-148.

Bridges, E. & Florsheim, R. (2008). Hedonic and Utilitarian shopping goals; The Online Experience, *Journal of Business Research, 61*, 309-314.

Chaffey, D. (2009). *E-business and e-commerce management (14th edition).* Harlow: FT Prentice Hall

Chen, L.-D. (2008). A model of consumer acceptance of mobile payment. *International Journal of Mobile Communications, 6,* 32-52.

Chen, Y-H., Barnes, S. (2007) Initial trust and online buyer behaviour. *Industrial Management & Data Systems, 107*(1), 21-36.

Chou, C. & Hsiao, M.-C. (2000). Internet addiction, usage, gratification, and pleasure. *Computers & Education, 35*, 65-80.

Compeau, D. R. & Higgins, C. A. (1995). Computer Self-Efficacy: Development of a Measure and Initial Test. *MIS Quarterly, 19*(2), 189-211.

Cyr, D., Head, M. & Ivanov, A. (2006). Design asethetics leading to m-loyalty in mobile commerce. *Information & Management, 43,* 950-963.

Dahlberg, T., Mallat, N., Ondrus, J. & Zmijewska, A. (2007). Past. present and future of mobile payments research: a literature review. *Electornic Commerce Research and Applications, 7,* 165-181.

Davis, F.D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 319-340.

Davis, F.D. (1985) A Technology Acceptance Model for Empirically Testing New and End-user Information systems: Theory and Results. Dissertation. Massachusetts Institute of Technology.

Distimo (2013). 2013 Year in Review. Downloaded 23.4.2013 from http://www.distimo.com/publications

European Trade Commission (2014). In-app purchases: Joint action by the European Commission and Member States is leading to better protection for consumers in online games. Accessed 3.3.2015 at http://europa.eu/rapid/press-release_IP-14-847_en.htm

Faraj, S. & Sambamurthy, V. (2006). Leadership of Information Systems Development Projects. *IEEE Transactions on Engineering Management, 53*(2), 238–249.

Federal Trade Commission (2014, January 15th). Apple In. Will provide full consumer refunds of at least $32.5 million to settle FTC complaint it charged for kids' in-app purchases without parental consent. Accessed 15.5.2014 at http://www.ftc.gov/news-events/press-releases/2014/01/apple-inc-will-provide-full-consumer-refunds-least-325-million.

Fishbein, M. & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.

Google (2014). Billing Overview. Accessed 20.4.2014 at http://developer.android.com/google/play/billing/billing_overview.html

Gu, J.-C., Lee, S.-C. & Suh, Y.-H. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications, 36,* 11605-11616.

Guo, Y & Barnes, J.,S. (2012). Explaining purchasing behavior within world of warcraft. *Journal of Computer Information Systems, 52*(3), 18-30.

Guo, Y & Barnes, J.,S. (2011). Purchase behavior in virtual worlds: An empirical invvestigation in Second Life. *Information & Management 48*, 303-312.

Guo, Y. & Barnes, J., S. (2009). Virtual item purchase behavior in virtual worlds: an exploratory investigation. *Electronic Commerce Research, 9*(1-2), 77-96.

Ha, S., Stoel, L. (2009) Consumer e-shopping acceptance: Antecedents in a technology acceptance model. *Journal of Business Research, 62*(5), 565-571.

Hirsjärvi, S. & Hurme, H. (2001). *Tutkimushaastattelu – Teemahaastattelun teoria ja käytäntö.* Helsinki: Yliopistopaino.

Hirsjärvi, S., Remes, P. & Sajavaara, P. (2009). *Tutki ja kirjoita* (15. uud. painos). Helsinki: Tammi.

Kim, C., Mirsumonov, M. And Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior, 26,* 310-322.

Khalifa, M. & Shen. K., N. (2008). Esplaining the adoption of transactional b2c mobile commerce. *Journal of Enterprice Information Management, 21(*2), 110-124.

Kotler, P., Keller, K. L. (2009). *Marketing management* (13th edition). New Jersey: Pearson/Prentice Hall, cop.

Lehdonvirta, V. (2009). Virtual item sales as revenue model: identifying attributes that drive purchase decisions. *Electronic Commerce Research, 9*(1-2), 97-113.

Lim, R. & Seng. E. Y. (2010) Virtual Goods in Social Games: An Exploratory Study of Factors that Drive Purchase of In-Game Items. *The 9th International Conference on e-Business (iNCEB2010)*. November 18-19, 2010.

Liu, C. Z., Yoris, A. A. & Choi, H. S. (2012). An empirical study of the freemium strategy for mobile apps: evidevce from the Google Play market. *Thirty Third International Conference on Information Systems.* Orlando, 2013.

Lu, H.-P. & Su, Y.-J. (2009). Factors affecting purchase intention on mobile shopping web sites. *Internet Research, 19(*4), 442-458.

Luarn, P. & Lin, H.-H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior, 21,* 873-891.

Mahatanankoon, P., Wen, H. J., Lim, B. (2005). Consumer based m-commerce: exploring consumer perception of mobile applications. *Computer Standards & Interfaces, 27,* 347-357.

Mallat, N. (2007). Exploring consumer adoption of mobile payments - a qualitative study. *Journal of Strategic Information Systems, 16,* 413-432.

Mallat, N., Rossi, M., & Tuunainen, V.,K. (2004). Mobile banking services. *Communications of the ACM, 47*(5), 42-46.

McKnight, D.H., Choudhury, V. & Kacmar, C. (2002). Developing and Validating Trust MEaseures for e-Commerce: An interactive typology. *Information Systems Research, 13(3)*, 334-359.

Microsoft (2014) In-App Purchase for Windows Phone 8. Accessed 20.4.2014 at http://msdn.microsoft.com/en-us/library/windowsphone/develop/jj206949(v=vs.105).aspx

Myers, M., D. & Newman, M. (2006). The qualitative interview in IS resserach: Examining the craft. *Information and Organization 17*, 2-26.

Mäntymäksi, M. & Salo, J. (2011). Teenagers in social virtual worlds: Continuous use and pruchasing behavior in Habbo Hotel. *Computers in Human Behavior, 27*, 2088-2097.

Niculescu, M. F. & Wu, D. J. (2011). When Should Software Firms Commercialize New Products via Freemium Business Models. Under Review.

Park, B.-W. & Lee, K. C. (2011). An Empirical Analysis of Online Games' Perceptions of Game Items: Modified Theory of Consumption Values Approach. *Cyberpsychology, Behavior, and Social Networking, 14*(7-8), 453-459.

Pavlou, A. P. & Gefen, D. (2004). Building Effective Online Marketplaces with Institution-based Trust. *Information Systems Research, 15(1)*, 37-59.

Robinson, T. E. & Berridge, K. C. (2000). The psychology and neurobiology of addiction: an incentive-sensitization view. *Addiction, 95(*8s2*)*, 91-117.

Rogers, E. M. (2003). *Diffusion of Innovations* (5th edition). New York: Free Press.

Rogers, E. M. (2010). *Diffusion of Innovations* (4th edition). Accessed 22.5.2014 at http://www.google.fi/books?hl=fi&lr=&id=v1ii4QsB7jIC&oi=fnd&pg=PR15&dq=diffusion+of+innovation&ots=DKSoyPQl8T&sig=waG_ZsPwYQm-_zptzDETJAsu13g&redir_esc=y#v=onepage&q=diffusion%20of%20innovation&f=false

Schierz, P. B., Schilke, O. & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications, 9,* 209-216.

Semenzin, D., Meulendijks, E. & Seele, W. (2012). Differentitation in Freemium: Where does the line lie? *Lecture Notes in Business Information Processing, 114,* 291-296.

Shin, D.-H. (2009). Towards an understanding of the consumer acceptance of mobile wallet. *Computers in Human Behacior, 25,* 1343-1354.

Solomon, M. R. (1999) *Consumer behavior: buying, having and being* (4th edition). New Jersey: Prentice Hall

Vannieuwenborg, F., Mainil, L., Verbrugge, S., Pickavet, M. & Colle, D. (2012). Business models for the mobile application market from a developer's viewpoint. *16th International Conference on Intelligence in Next Generation Networks,* (171-178).

Venkatesh, V. (2000)

Venkatesh, V., Morris, M. G., Davis, G. B. & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View

Wei, T. T., Marthandan, G., Chong, A. Y.-L., Ooi, K.-B. & Arumugam, S. (2009). What drives Malaysian m-commerce adoption? An empirical analysis. *Industrial Management & Data Systems, 109(*3), 370-388.

Wilson, F. (2006). My Favorite Business Model. Accessed 10.5.2014 at http://avc.com/2006/03/my_favorite_bus/

Wu, J.-H. & Wang, S.-C. (2005). What drives mobile commerce? An empirical evaluation of the revised technology acceptance model. *Information and Management, 42,* 719-729.

Yang, K. C. C. (2005). Exploring the factors affecting the adoption of mobile commerce in Singapore. *Telematics and Informatics, 22,* 257-277.

Kiseol Yang, (2010), Determinants of US consumer mobile shopping services adoption: implications for designing mobile shopping services, *Journal of Consumer Marketing, 27*(3), 262 – 270.

Yang, S., Lu, Y., Gupta, S., Cao, Y. & Zhang, R. (2011). Mobiloe payment services adoption across time: An empirical study of the effects of behavioral beleifs, social influences and personal traits. *Computers in Human Behavior, 28,* 139-142.

ATTACHMENT 1 INTERVIEW THEMES

Explain in-application purchasing in your own words

1. Where do you get the idea to purchase something

2. How do you collect information about products

3. How do you compare different products

Social Influences
How do the opinions of others affect your decision, what sources are there

4. How do you decide whether to do the purchase or not

Perceive EoU / Usefulness / Relative Advantage
- How does IAP differ from 'traditional' payment methods
- How wasy it is to use?
- What advantages/benefits does it have?

Compatibility / Mobility / Use Context / (HABIT)
How does IAP conform yto your lifestyle?
How does mobility affect your purchase decision?
In what type situations do you usually do IAP?
Is it a habit to do IAP or even an addiction?

Perceived Cost / Risk / Security
What risks do you feel when doing IAP
Do you feel that it's secure?

5. Do you think about rou purchase afterwards

Anything special that you have noticed while doing IAP

ATTACHEMNT 2 INTERVIEWEE BACKGROUNDS

Name:_____

Age: _____ Gender: [ ] male [ ] female

Profession: _____

All IAP purchases total :_____

In-application purchases on average per month:
[ ] alle 5e/month
[ ] 5 - 10e/ month
[ ]10 - 20e/ month
[ ]20 - 30e/ month
[ ] 30 - 40e/ month
[ ] yli 40e/ month
If you chose the last option how much:_____

Income on average per month:
[ ] 0 - 1000e/ month
[ ] 1000 - 2000e/ month
[ ] 2000 - 3000e/ month
[ ] 3000 - 4000e/ month
[ ] yli 4000e/ month