Improving the length of customer relationships on mobile computer game business

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Abstract. Long lasting customer relationships have proven to be beneficial to the success of a company. The computer game business has traditionally been about developing a game product, and then selling it to the customers, but today games apply different marketing strategies such as subscription, or free-to-play model, which changes the role of a customer. The Existence, Relatedness and Growth (ERG) theory provides a model to assess how the customer could be understood, and why game companies should implement features that support growth of customers' presence in their products. In software engineering and information system development the customer can be held in close distance when developing a product. In this article we compare five game companies to find out how they understand their customers, how they build customer relationships and let customers to grow their online identity. The results show that the growth is still in minor role, but there exist plans to improve business model to include customer growth. Customers are important for every company and they work in semi-close co-operation with the gamer community.

Keywords: computer games, customer relationship, customer-driven innovation, ERG

[THIS IS A FINAL CAMREADY VERSION]

1 Introduction

Building computer games is not only a decision of selecting the right technologies and drawing fancy user interfaces and characters, it also requires other areas of expertise such as design and marketing. The software development side has been studied, for example, from information system, psychology, management, computer science and sociology side [1]. Computer games are a mixture of storytelling – similar to movies, community management and software application. When developing such an application, the suitable technology is only one part of the entire system. If the game application aims for long lasting customer relationships, the developers need to think also business models [2] and sociological and psychological needs of users.

Not many games are played after ten years since their release. However, there are success stories which defy the normal life cycles of the game products; for example the World of Warcraft (WoW, released 2005) has managed to maintain a constant customer base, especially if compared to the likes of Final Fantasy XI (XI released 2002), or Lord of the Rings Online (released 2007) which are comparable in the genre and brand recognition. There seems to be different strategies in game development in handling the customers to get such steady customer base. Constantly updating the strategy and gamers' ability to build identity inside WoW is different from other mentioned games, since they either have been financially appalling, or have experienced constant decline in user numbers.

In this research we studied five computer game companies and what their CEOs and game designers think about the role of their customer in their business and in their mobile games. We also wanted to study how customers' game experience is compared to the real-life experience. To achieve this we used Existence, Relatedness and Growth (ERG) theory [3] to map the game environment to real-life environment.

The research questions are *"How is the role of customers understood in a mobile game business?"* and *"How do customers build their identities in mobile games?"*. This work is also a continuance study on our previous work [2], which studied the business models and revenue models of the game companies. The computer and console gaming industry has 30-40 years of history and customer experiences, but the mobile game business is less than 15 year old, especially if considering only the ability to sell third party products in mobile devices, and discounting the purpose-built handheld consoles. The very high growth rate has made it important software industry to both global economy and scientific research.

In the field of information systems and software engineering it is considerably easy to benefit from customers in product development, especially when compared to ship or house building. This can be achieved, for example, by having continuous discussion with customer (e.g. feedback in app stores) or by building analytical tools inside the product that can then report, for example, how customers use the product and what are the bottle necks.

2 Related research

It seems that computer games and customer relationship are not very thoroughly studied topic, since only a handful of articles discussing the related areas were discovered, and they all were written after year 2000. Although the topic is new, Henfridsson and Holmström [4] reported already in 2002 a study where a computer game company included customers in their development process before release of a product. They built community for gamers and received ideas, bug reports and votes for different features. In addition, Desouza et al. [5] argue that industries are moving from the customer-focused innovation to the customer-driven innovation. They use a case of a computer game company as an example on how innovations are gathered from their customers – the players. In a literature review conducted by Bogers et al. [6] how users are utilized as innovators was studied. Besides being sources of innovation and design, they can also act as innovators. Von Hippel [7] continue by

describing how innovative users are often the ones who are early adopters of new things. He also argues how these early adopters may value the process of innovation just because of the enjoyment it brings to them.

Jung et al. [8] present a study on how intention to play is dependent on the user-centric design, technological capability and product capability. Fang and Zhao [9] had a similar study where they argue that player, gaming technology, social influence and perceived ease of use affect the intention to play. The ease of use element is also discussed by Jung et al. [8], when they state that technological capability helps to make games that are easy to use.

Lewis & al [10] analyzed how Zynga's 'Ville-game family (e.g. FarmVille) engage and retain customers. They study these games from the viewpoint of behavioral economics and behavioral psychology, and found out how these games use many motivational techniques such as progress bars, several in-game resources, bonuses and "altruistic" social actions to engage customers and gain concrete income from them.

Although computer games are build with technological solutions, the technology itself does not provide entertaining experience for gamers nor does it provide income for the developers [11], [12]. In general, game development is somewhat different from the conventional software development as it includes parts such as graphical aspects, story design and sound work which are closer to the domain of movie business rather than software world. Also computer game industry business models have changed significantly over the years: the business has moved from pay-to-play to free-to-play, where revenues are not directly related to the units sold, but instead from advertising and in app purchases from the product [13].

2.1   Virtual identity

Extensive research has been carried out how people interact and develop their presence in online communities [14–16], and Hsiao & Chiou [17] argues that communities generated by computer games are also online communities.

In some cases, when purpose is strong enough, the computer game does not necessarily have to have a special techniques for building identity. This can happen, for example, in a game that focuses on very narrow field (e.g. very realistic war simulations on small unknown conflicts or technologically constricted games like text adventures) of gamers. Some gamers are respected more than others, they might become game rule policy makers or to give help to newcomers. Niche games can also grow to become widely played when the community around the game is dynamic and has the tools to play around. This happened with Minecraft that was programmed as a hobby project but the developer let the gamers to do modifications and build communities, videos, tools and many other things around the game [18]. Minecraft is an illustrative example on how amateur creativity can nourish and give a game positive publicity [18].

Research has discussed how different sized communities work with different methods and goals [17]. This makes it important to design the communal and social aspects from the beginning.

Part of the process is getting recognition. Several studies [19], [20] have been conducting research on how members find recognition as an important part of being in online community. They build their online presence and even do self-marketing. Recognition can even increase member's self-esteem. Getting recognition builds one's role and helps in process of building online identity.

2.2 Business model elements in game organizations and processes supporting customer relationship

In our previous study [2] we discovered how the role of customer is defined in the computer game organizations. All the elements of the business models are not directly related to customers, but elements like customer relationship and customer segment can be seen as parts that include customers. These elements were not seen the most important ones in our computer game startup study [2]. Other elements can also be seen as connected to customers indirectly. For example, in the end customers fund the games and validate the results of the innovation process.

Usually in business the aim is not to serve everyone as it is not economically feasible approach, but to concentrate on strengths such as one's own niche, understanding the markets [21] and trying to engage more potential users to be in dialogue with the game developers and also with each other. Still, a game surpassing the intended target audience or gathering customers from every demographic is not unheard of; some famous digital games such as Angry Birds or FarmVille are basically played by everyone. The concept of business model combines all these elements and tries to provide for company a view on how the business is run, ie what value is provided for whom and what is got in return [22].

3 Research process

This study follows multiple case study method based on frameworks presented by Gable [23] and Eisenhardt [24]. We followed seven steps: defining the strategy, reviewing the literature, developing the case study protocol, conducting a pilot case study, conducting a multiple case study, developing a conceptual model and interpreting the findings. Our research questions, presented in section one, determine the overall strategy. Section two sheds light on the related literature. The case study was based on two interview rounds where the first one discussed more general topics of computer game business and the second one focused deeply on the role of a customer. Data was collected through series of interview rounds where one or two researchers interviewed company representatives such as lead designers, owners, and developers. The companies for these interviews were selected from our pool of existing research partners, and supplemented with contacts from business conferences and trade fairs. The amount of interviewees fluctuated between one to three people based on who the company decided to send, based on the given outline of topics that would be covered in the interview. Typically one interview lasted one

hour, and included approximately 20-25 semistructured questions which allowed also open discussions. The questionnaires are available at http://www2.it.lut.fi/GRIP

The transcriptions were then coded and analyzed following the principles of Straussian Grounded Theory analysis [25] with open, axial and selective coding. Based on this work, the conceptual models presented in the Sections 4 and 5 were defined. Principles derived from [23], [26], [27] were utilized to guarantee the validity. Our choices included selection of interviews to data collection method, coding as data analysis method and utilizing several researcher in the interview, analysis and writing process to avoid bias.

3.1 Theories used to analyze needs of customers

To analyze human needs, motivation and satisfaction, science has developed a variety of methods. There are Maslow's hierarchy of needs [28] Herzberg's two-way theory [29], Alderfer's ERG (existence, relatedness and growth) theory [3] and technology acceptance model (TAM) from Davis [30] – to name a few. Although all these are used in research, we decided to concentrate on ERG theory, as it is simpler than Maslow's hierarchy of needs and argued to be more reliable [3].

In the ERG theory three categories of human needs are used [3]: Existence is the lowest level and it includes the basic physiological and material desires. Relatedness, the second level, includes relationships and sharing of thoughts. The second level cannot be achieved without mutuality. Growth is the highest level and includes desires to be creative and productive. The model is build in a simple format so that it can be utilized quite fast also in industrial environment and be useful to companies improving their customer relationship. We selected ERG so that it would be most beneficial also to computer game industry.

3.2 ERG in digital environment

Kim [31] described the hierarchy of needs in both offline and online environments, into which we added the computer game part. It is worth noting that in online or in game environment the needs are not the same as offline, but work on the same principle. For example, offline we do not need system access, but online and in games it is the first requirement. Vice versa online we do not need food as a physical concept, but offline nutrition is needed. Table 1 illustrates these issues.

Table 1: Needs of different ERG levels and different systems. Based on [3], [31].

Need	Offline (Alderfer 1973)	Online (Kim 2000)	Computer game

Existence	Food, sex, health and protection from weather and crimes.	System access. Protection from hacking and personal attacks.	Access to the game – knowledge about the game and device to run it. Protection of personal information inside the game and inside the marketplace.
Relatedness	The ability to love, feel belongingness to a community. Ability to receive respect and contribute to society.	The ability to build one's online identity. Belongingness to a community and its sub groups. Ability to contribute and be recognized for those contributions.	Ability to build one's identity inside game, i.e. to be able to build character throughout the game. Ability to contribute and interact with different gamers and be recognized for those contributions.
Growth	The ability to be creative and fulfill one's potential	The ability to take role in the community and take advantage of opportunities by improving skills and learning new things.	The ability to take role in the game community and take advantage of opportunities to be able to contribute to game development and learn new skills.

As lower level needs must be fulfilled before higher ones can be achieved the basic features, presented in Table 1, need to be in place in advance. After these essential components are working it is possible to start developing of relatedness and growth features to computer games. As ERG theory has only three different parts its understanding does not require learning a lot of new ideas, but just to understand the hierarchy levels and the fact that lower level needs advances higher level ones. For example, when the criteria for existence level have been met developers can start to think how they can give gamers a way to relatedness inside the game.

3.3 Case organizations

In our study we have five computer game organizations. Some organizations have a catalogue of games, some are developing their first product. The priority platform indicates the focus platforms, for which the companies design and develop their products. The products may be later migrated to other platforms if the product is successful or commercially interesting in another platform. Based on this definition, Case A is a PC and game console company, cases B, D and E mobile game developers and Case C browser-game developer, although every organization has launched at least one product on mobile platform. Table 2 illustrates key figures of the organizations.

Table 2: Case organizations

	Case A	Case B	Case C	Case D	Case E
Years in business	More than 5	3	3	3	Less than 2
Organization size*	Large	Medium	Medium	Small	Small
Priority Platform	PC, game consoles	Mobile devices, PC	Browser, mobile devices	Health-care environment, mobile devices	Mobile devices

Number of released products	More than 10	2 released, 2 under development	2 released, 1 under development	Various health-care projects done	Developing its first release
Ways to collect gamer feedback	App stores, reviews, social media, early prototype testing by players	Facebook, app stores	Facebook, Twitter, Blog, app stores, own feedback channel	Customers can write memos, give oral feedback or take photos	Facebook, Twitter
Ways to collect analytical data	Nothing right now, statistical analysis in the future	Use of 3rd party tool to collect statistics inside the game to see how gamers play the game	Statistics are collected inside the game to see how gamers play the game	No direct access to data but only through health-care professionals	Statistics are collected inside the game to see how gamers play the game

* Small is less than 10 persons working for the game product, medium is 10 to 50 persons and large is more than 50 persons, including outsourced work hours and developers of the bought assets.

4 Customers role and possibilities in computer games

The identity building inside game is not a new concept. Games like Quake (1996) and Half-Life (1998) let gamers to customize the game character in multiplayer session and thus build identity via personal 3D-model parts and textures. Newer games, such as StarCraft II (2010), engage gamer more and more via online multiplayer options and give players badges, after certain missions have been complete. The more badges, the more customizing options.

The growth level has been achieved in many games through modability. For example with 1993 hit game Doom players had the possibility to start building their own maps and thus contribute to the game community. With modern games the the modding tools provided ways to develop whole new games thus providing players a method to grow their presence in the game community.

The mobile gaming is still new and rapidly growing area of industry, and these relatedness and growth issues have not been implemented in most of the game – although exceptions like Clash of Clans (2012) or Candy Crush Soda Saga (2013), which for example utilized players combined effort, exists.

4.1 Who is the customer?

As the revenue models, especially in mobile gaming, have changed from direct selling to free-to-play concept [13], where revenue is gained from in-app-purchasing and advertising as the game itself is provided free-of-charge. This introduces the dilemma is the customer the player of the game, or the advertiser who generates income?

The general view in this study was that the players are the real customers although not all of them are generating revenue. For example, Case C identifies game

players as their customers and describe how they focus their game development on ideas from this audience. For Case C it is the key point of their business to have a working relationship with customers, in practice meaning that the organization listens and actively collects input from their customers. For Case C there exists two kind of players: those who use the in-app-purchases, and those who just play with the free features.

"We live from the masses. We are doing multiplayer games. Players need to have other players as enemies; whether they are paying players or not. Thus it is very important for us that we have a lot of players. The paying customer is important, but non-paying are also crucial." -CEO, Case C.

Case B sees game players as their customers and they have build online presence where players can communicate their thought concerning the game. They have found it difficult to respond to feedback when it is written in a system that gives no possibility for answer. It creates frustration among developers as they would like to reply, but are unable.

"The Apple's appstore system is a bit nasty in sense that we cannot give feedback through it. If someone asks a question there we have no way to answer." -CEO, Case B.

All the case organizations consider players as their customers – with the exception of Case D, which lists the health-care organizations as their customers. All the players were seen as important whether they are paying or not. Mainly the reason is that the games require mass of players, and sufficient player base can only be reached when the non-paying gamers are also treated as importantly as the paying ones. In other business models, such as the pay-to-play-model for console games, this consideration is not as relevant; everybody pays to use the software, so all players are also automatically customers.

4.2 Customers role in game development

Our earlier study illustrated the role of customer relationship as it was described as one of the key elements a computer game business model is built on [2]. All the cases have thought the data collecting process and have built ways to collect data from the gamers. Reviews in app stores and gaming websites are important sources of feedback. Also direct feedback in social media is considered useful and Case C has even build its own channel to get direct feedback. As Case D is doing serious games their data collection process is different. They get memos and photos from customers and can be in oral communication with them. This is not widely available with other cases, which make games for global markets.

"We have a feedback system where a patient can give daily feedback on how the exercise has been and he or she can give oral or written feedback or take a pic and ask help. But no real content creation exists." -CEO, Case D

"We have our own feedback channel where gamers can put their reports to. Our game has link to that. Then of course the reviews in app stores where we cannot answer but we get feedback from the comments. We have Facebook pages and game pages from where we get some comments." -Lead designer, Case C.

Besides direct feedback from gamers, cases have ways to collect analytical data from games. They get data to show for example how much different levels are played, what brings the game to an end and how long game sessions last. Case A did not have analytical modules installed, but they were planning to do so in the future. Case D could only get data through health-care organizations.

The collected data is mainly used to improve the game and gaming experience to be more entertaining. This can be done by for example removing too difficult places from game levels.

Virtually all the cases use statistical analyzes of some level of knowledge how the gamers use to play, for example, what are the most played parts, where they get stuck and what features are most used. The Case B had dialogue with players and they also spent resources to analyze their own games to identify how players feel toward newly introduced features, whether or not they use them, or if some parts are too difficult or easy.

"We have used Flurry Analytics. We follow where players die in different levels and thus we can analyze whether some sector is too hard if too much players have difficulties" -CEO, Case B.

"Statistics tell us how the game is played. Whether players get stuck, do they like the game, how long they play... The collected data leads the game design – especially in free-to-play world." -CEO, Case E.

Our cases report to value players and their opinions and feedback. Still the actual player contribution to game development is narrow. None of the case companies supported user-generated content (e.g. levels, characters, items). The only reported cases were Case A, which allowed gamers to make their own maps in their previous games, and Case C, which used graphics drawn by one of the fans of their game. It seems that players cannot take active – participating – role in the development process but their current role is to give feedback and ideas. We can argue that customers are taken into account in the innovation process but customer-driven innovation is not met. From all the Cases only A and C could be categorized in customer-centric innovation, but the rest are still working in the customer-focused innovation.

There is a difference between the single player and multiplayer games. In a single player game it is easier to let gamers to create content, but in multiplayer games the game content, for example levels, need to be well balanced and cannot include cheats that would benefit one gamer over others.

"In single player game it is ok to do mods and share them to other players but in our case it is not possible as the players could create a cheat mode and gain benefit over other players." -Lead designer, Case C.

4.2.1 Existence

The existence level is easy to achieve as computer game industry is moving towards digitally distributed games. This makes games available for everyone who has the device that can run the game. When talking about mobile games, many of them are made with technical solutions with cross-platform development options, which allows the concept of developing the same game for different operating

systems. The revenue model can be different between platforms, even if the game itself remains the same, like Case B has done.

"Both of our first two games started as pay-to-play and they had also in-app-purchases options from the beginning. Now the both are also pay-to-play -- the first game was free in the middle - but we put it back to paid one when we released the second game. In few weeks we will offer the games with free-to-play model. ... 60-70 percent of revenue comes from in-app-purchases." -CEO, Case B.

For both the Cases B and C the problem is not the access to the game, but the knowledge of the game. In our previous study, marketing was ranked as the second most important element in the business model among start-up computer game companies [2]. When one releases a game in mobile application store, it is just one app within thousands of rivals and to make the potential players aware of the new game is harder. To raise awareness of a game among the gamers is not easy tasks and it seems that computer game start-ups are aware of this [2].

"Apple's promotion are very important. If you get your game to 'New and noteworthy" it raises revenues and after that it will take it high for a while. Or if you get Editor's Choice it is even better." -CEO, Case B.

"We have been going with the idea that we are unknown – invisible – and we don't have marketing know-how. The first games are exported to different countries via a publisher, who then gives us the coverage" -CEO, Case C.

To have a protection of personal information is harder, but as mobile games are targeted towards casual gamers, personal information is not always required. We have nevertheless witnessed security breaches in many services like when Sony lost PlayStation network user account data to external sources. It seems that privacy is getting more and more important and that is why our case organizations have also thought about it – although it has not been the most important issue. None of our case organizations was acutely worried that their systems might leak data. 3rd party services are used to handle money transfers, and no meaningful personal information is collected. Companies were confident they have no security problems in their business practices.

"We do not store credit card information but use well-known third party service providers, such as PayPal." -Lead designer, Case C.

"Of course we need to have some kind of disclaimer to tell what data is collected but we are not interested on individual players. We have no way to identify a specific player. … Individuals are not important but the mass data. … Advertisers would not even benefit from our data. No one but us is interested in how 14 % of gamers get stuck on level 18." -CEO, Case E.

We consider localization to be on existence level as gamers are unable to play a game if they do not understand the language. All our case organizations localized their games to various languages, most important being English, German, French, Russian, (Brazilian) Portuguese and Korean. Interviewees commented that although English is widely spoken, the situation is not the same in every country.

"It can be noted when we haven't made localization to some appstore description and when the localization is done later there is a spike [in downloads]." -CEO, Case B.

4.2.2 Relatedness

After the foundation of existence have been reached, and players have access to the game and they feel secure, the developers can start to work on providing features that give the feeling of relatedness. Our case organizations use achievements, which give the player one to three stars from each level they pass based on certain criteria. If this is used in a game where one cannot share this achievement with other gamers, it really is not enough to call the interaction to reach relatedness level. If the achievements can be shared, then the feature support the relatedness of among gamers. For Case D the achievements were around exercising and health-care professionals could see how patients are advancing.

"In a way we have achievements as the game will tell how many training exercises you have done in a row and applauds the person." -CEO, Case D.

Cases A and B use integration to social media instances so that gamers can build game profile for example in Facebook and communicate it with friends. Case A also lets gamers to chat with each other inside the game. This is different from for example Case C, which sees that in-game chat could be misused so they were only planning to build emotion based chat, that would not need any form of moderating.

"At the moment we do not have chat in our games. We have thought about it but not implemented as it will bring the problem of moderation. Players could shout obscenities that could bring problems. We are probably not implementing any clear chat." -Lead designer, Case C.

Building an identity inside a game could be started by letting the players customize their game character. Only Case C has implemented this feature, and even it was in small scale. Case E had the idea to utilize this feature in the future, and Case B argued that it did not fit to their previous games, which were story based around existing characters. They also mentioned that a game under development will include characters that will allow customization.

"Player can do some customization. He or she can for example select what kind of armor the game character has. It has both the action aspect and the visual aspect." -CEO, Case B.

In computer games one form of interaction is gamers competing against each other. Cases A and C have been building multiplayer games where players are against other real individuals. When the game requires gamers to be online at the same time, it means that there needs to be large number of players to play the game. This has been challenging to Case C

"Our philosophy has been that player will get an opponent in quick response. If no human player is available an AI will play against the player. Now we are actually implementing system where AI will play actual player account when real player has not logged in lately." -Lead designer, Case C.

Case E is concentrating on the single player games, and Case B has also been building single player game, but is now developing in parallel a game including interaction and competition between gamers.

"[This new game] has been developed based on social interaction. It is more social than Clash of Clans. The aim has been that player stay in the game if they feel like being part of a community. We aim that everyone does one's bit." -CEO, Case B.

4.2.3 Growth

After achieving the feeling of relatedness, players aim for growth. On one hand, short mobile games do not necessary have features for supporting this kind of action, but on the other hand larger games such as StarCraft II, have build in features enabling gamers to engage themselves with other gamers; to build teams and arrange tournaments. Mobile games, for example Clash of Clans, have introduced these team building concepts also to games where playing session is shorter.

Cases D and E had no real plans to provide features that would enable gamers to grow their presence in games. Especially CEO of Case D did not see it happening in the near future as the main aim for their product was to heal patients. Case E had some ideas which could be provided at some point, but as they were just releasing their first product, they did not have resources to implement anything non-critical.

"[User generated levels and map editor] have been thought but we would need someone to program it, develop the UI and we would need to have server backend to provide all the content. Right now we don't have the resources. We need to concentrate on what we have." -CEO, Case E.

CEO of Case B described how their forthcoming mobile game will rely heavily on social aspect and require gamers to co-operate to achieve success in the game. Instead of playing as an individuals, gamers build a role in the community, and can lead the group if chosen so.

"On regular intervals there will be decision on whether the group will continue with the old leader or is there going to be new one on the lead" -CEO, Case B.

Similar ideas were presented by Case C as they wanted to extend their mobile game to include clans and four level leader hierarchy in them.

"We are designing a system to fit multiplayer concept where individuals in clan could exchange objects. The clan could also work together and play against another clan." -Lead designer, Case C.

4.3   Summary of findings

The observations lead us to consider that mobile gaming is gaining features from the bigger games to support growth of gamers' identities. The first mobile games 15-20 years ago were just simple games designed to small screen, but today mobile games are as important market segment as the dedicated game consoles. This has also created a need for improved methods to immerse gamers in the game. However, as identified also in the previous study analyzing business models and factors in the business activities [2], the role of a customer – gamer – is still not one of the main concerns driving the business decisions. The customer concerns are not considered important in the game development process, but inside the game product, gamers have some ways to build identity and get recognized. Example of this is that several games from our case organizations include various features that can be categorised with the ERG theory. Table 3 describes these features.

Table 3: Features in games in different levels (* denotes features which are in developed, but not released at the time of the interviews)

	Case A	Case B	Case C	Case D	Case E
Existence	Games available on various formats on various platforms; games are localized to different languages (5+)	Games available on most popular platforms and publisher doing marketing;games are localized to different languages (10+)	Promotion by platform owner; security by using existing money transfers services; games are localized to different languages (10+)	Devices and games available through health-care institutions; games are localized to different languages	Games are available through app stores; no personal information is collected or stored; games are localized (ca 10)
Relatedness	Achievements; integrated to Facebook and other social media to identify oneself and invite friends and interact with them; gamers can communicate through in-game chats; competing against other gamers	Achievements; communication through 3rd party service with friends; competing against other gamers*; tasks that can be completed only with help of other gamers*; game character can be customized*	(Achievements);game character can be customized; competing against other gamers; emotion based chat*	Achievements: how much exercising has been done	Achievements; game character can be customized*
Growth	Maps in the previous games	Gamer groups have a leader who will be re-elected on constant intervals*	Four different levels of leaders in a clan*	None identified	None identified

In the interviews, the game company representatives described how they value players and want to be in touch with them. Yet, it seems that they are not letting their customers to contribute to the actual game development process. This behavior differs from the "open source spirit" which can be characterized as the "customer-driven development", meaning that our case organizations are mostly customer-focused, not customer-driven. Players' feedback is valued and it can change the game design over time, and statistics from games are used to improve games, but it seems that gamers are still in quite passive role with the product.

5 Discussion

All our case organizations have found a way to meet the existence level as access, localization and security part, but the knowledge has been more problematic. As a solution for this all the organizations mention marketing and advertising, which

increases the awareness of gamers. It seems that especially designers of young organizations do not see it important to build features to support growth, or even relatedness. This is partly explained by the haste of getting the products to the market, since when the business starts to get in shape, the designers can also put more effort to design features for the growth. Yet we still argue that mobile games are just getting the features of social interaction that console and Internet games have had for years. On of the biggest difference is the time spend with the game as mobile games can be played when one is waiting for her coffee but console games require more time spend with the product. This makes it easier for console game developers to build features for support relatedness and growth. New first person shooters have in-game voice-chats to be used when playing. The designers of a short mobile game have to develop a method of communication that can be used in seconds with few thump swipes. Still, in the end we believe that mobile games are gaining these features and gaming sessions are also getting longer.

Mobile games are basically played by anyone. This is a big difference from the 80s when gaming was considered "a bad nerdy hobby". Game designers have to also take care that the game supports both casual gamers and the hard-core players who spend hours per day in the game.

5.1 ERG and customers

Customers are seen as part of the business model [2] but to be able to generate revenue from gamers there needs to exist working game and business logic that transform gamers playing to profit. This is especially important when the free-to-play model is utilized, since there are business reports (e.g. [32]) which indicate that only less than three percent of the player population actually pays for the product, and less than half a percent of players actually generate serious income. At the same time, almost half of the users who ever install the product, only open it less than five times.

Even if majority of the players are just free-riders, maintaining and increasing the player population is the strategy which makes or breaks the free-2-play games. In this article we have presented how ERG theory can be utilized to help the design to support long lasting customer relationship within the game and thus improving the possibility to generate more revenue via retaining players and providing them with more meaningful tasks.

As we utilized three level ERG theory, it is also noteworthy how it has similarities to customer-focused, customer-centric and customer-driven development of computer games. We argue that moving from existence to the relatedness and growth levels requires also moving from customer-focused design to customer-centric and then further to the customer-driven design. To engage gamers in games it is important to let them fulfil their objectives, and allow them to build their identities and generate content. By providing techniques for players to grow their online identity, developers also provide a way to build lasting customer relationships as the user has the interest to stay with the game. This should be noted already when business is designed and a business model is being build. When games include online identity for gamers it binds the gamer deeper into the game, possibly increasing the

retention rate for players. Besides business model these issues need to be designed into game and business logic.

5.2 Limitations of the study

Qualitative studies are not without their threats and limitations. For example, Robson [33] in his classification and explanation identified three main types of threats: researcher bias, observational bias and reactivity. The researcher bias is considered to be the most dangerous as it represents a situation where researchers aims to enforce their own ideas and opinions. In this study the researcher bias was taken into account by conducting the data collection in cooperation with another research group and the data analysis and the actual writing process included three researchers, so that no one could push their own agenda. The data collection setups and instruments were also designed by at least two researchers. The interviewed organizations represent different sizes, release platforms and maturities of organizations, and interview sessions included several different stakeholders in the companies thus decreasing the interviewee bias. Although all the case companies are located in Finland they work mainly in the global markets and represent wide scale of industry practitioners. Yet, there still might be some underlying peculiarities imposed by the business culture, local education system or authorities. Additionally, the results presented here present the viewpoint of the game developers on the customer roles and participation. Because of privacy issues, the actual customers were not available for this study.

Qualitative studies have their own limitations in the applicability of the results. Whittemore, Chase, & Mandle [34] argue how the objective of qualitative studies is to describe chain-of-evidence what the studied phenomenon represents. However, the observations perceived are only applicable in the context of the observed phenomenon. If these results are interpreted outside the original scope they should only be applied as recommendations or suggestions.

6 Conclusion

In this article it was presented how different sized and aged mobile game companies focus on their customers in information system development and software engineering. The results indicate that mobile game development is not providing as much possibilities to gamers to build their virtual identity than games that are played with dedicated consoles or PCs. The ERG (existence, relatedness and growth) theory provides a way to analyse how customers can build their virtual identity. As the lower level needs to be first achieved it provides game developers a framework to consider when moving from customer-focused development to customer-driven development where customers can be crucial part of the game development process. The aim is to build longer customer relationships that provide steady income. This would also benefit the mobile developers in the long run, since the current business

model of free-2-play heavily depends on the acquisition of player population, since only fraction of the player base actually buys the in-game products, and even smaller number in meaningful volume.

This study raises questions and recommendations on how to design mobile games in the future, when the markets are saturated and gamers are expecting same options for building virtual identity in all platforms. However, more research is required to compare the growth of mobile gaming to the conventional PC and console gaming.

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