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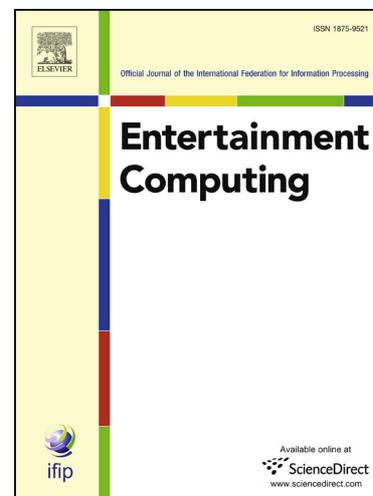
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## Transposing Freemium Business Model from Casual Games to Serious Games

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## Transposing Freemium Business Model from Casual Games to Serious Games

### Abstract

The casual game sector represents one of the fastest growing segments of the video game industry with successful business models. The Serious Games (SG) sector on the other hand is far behind with lower business benefits. This study explores how the casual game business models can be transposed into the SG sector, focusing on the freemium business model. We analyse the freemium business models in relation to four components: value proposition of the games, user's segmentation, available distribution channels and revenue streams. After the theoretical analysis, the empirical analysis is completed through end-users survey (n=237) and the analysis of three companies. Based on the end-users survey and the company analysis, the paper introduces key findings in relation to the four components of the free trial and freemium model and their transposition to the SG sector. Findings from the study include the opportunity to transpose the casual games freemium business model into the SG sector in order to allow the development of the SG sector through optimizing their potential revenue streams.

Keywords: casual games, serious games, business model, freemium

## 1 Introduction

Serious Games (SG) sector is growing but is far behind the casual games industry in terms of revenues. Gao and Mandryck [1] define casual games as “games that players can learn easily and access quickly, using simple rules and special game mechanics”. The casual games are revolutionizing the traditional image of the videogame industry, introducing non-violent content [2] that enlarge their audience to “men and women, young and old” [3].

According to Juul [3], one of the successful attributes of casual games is their ease-to-use, “players need not possess an intimate knowledge of video game history or devote weeks or months to play”. A second aspect that makes casual games as one of the fastest growing sectors in the video game industry, engaging a large number of players worldwide [4] is having successfully developed business models to transform the end-users play/engagement into revenues. Casual games are currently based on two business models: the free trial and the freemium model. Free trial games are downloadable games, usually wrapped within ‘the try before you buy’ model, where the players can play a trial version of the game for free during a certain time. The second type is called freemium, in which the users play the game for free. The freemium model generates revenues by indirect service, such as the purchase of virtual goods within the game environment.

With the perspective that SGs are not as widespread in the public domain as casual games, this paper investigates the casual games freemium business model and its relevance to the SG sector. The next section analyses the SG market and its current business models. The following section 3 provides the general background on casual gaming. Section 4 describes the methodology employed in the study reported by this paper, followed by the analysis of the outcomes in section 5. Section 6 correlates the findings and discusses how SG can implement a similar business model. Section 7 concludes the paper and discusses the scope and limitations of the study as well as possibilities for further works.

## 2 Casual Games and SGs – the markets and business models

In this section, we discuss the market for SG and casual games in terms of the components of a business model: *value proposition of the games, user’s segmentation, available distribution channels and revenue streams*, identified by Osterwalder and Pigneur [5] and [6]. The final subsection will summarise the differences between the two markets and explain the potential of the casual games market for SG.

### 2.1 Value proposition

Casual games are generally described as games for everyone, which are easy to learn, play, access and require low level of involvement [2]. According to a survey conducted by *PopCap* in 2006 [7] and a later research by the Interactive Software Federation of Europe [8], the main motivation of the players is for stress relief, mental exercise, fun, or relaxation. SGs, on the other hand, are digital games designed with the primarily objective to teach, educate and train while entertaining [9]. They encourage players to adopt many of the skills required in the 21<sup>st</sup> century: problem solving, systems thinking, information tracking and resourcing, collaborative information sharing, leadership, teamwork, communication [10], designing smarter cities through SG such as *CityOne* [11] or increasing player’s awareness regarding issues related to flood policy and Government expenditure [12].

Of high importance for the value proposition of the game will be the game design. Trefry [13] identifies the following casual games design elements as important for the players:

- *Clear rules and goals*
- *Players needs to be able to quickly reach proficiency*
- *Casual game play adapts to a player's life and schedule*
- *Game concepts borrow familiar content and themes from life*

These will be even more essential for SGs design with an aim to achieve learning outcomes. In addition, Gagne et al. [14] provides the following instructions:

- *Inform learners of the objective and provide learning guidance*
- *Stimulate recall of prior learning*
- *Provide feedback and assess performance*

The main design challenge for SGs will remain the incorporation of fun and learning principles. Failing to achieve this balance will either make the game boring and therefore, players will lose interest [15] [16], fail to achieve the intended learning outcomes or both.

## **2.2 User's Segmentation**

Casual games tend to be developed for everyone [17]. Existing research highlights the impact on females aged 30 and above [2]. Considering user's demographics offered by Alexa- a website providing traffic information for instance, the main audience of two of the largest publishers in the casual games industry - Big Fish Games and GameHouse are females aged 18-35 and 55-64 [18] [19]. Another major publisher, Funkitron, on the other hand, attracts mainly males between the age of 18 and 34 [20]. Zynga, one of the key developers on Facebook, is most popular among females at the age between 18 and 24 [21]. This diversification among the players' demographics and the different interests of these groups suggest opportunities for the developers for a number of niche markets.

In contrast, the market for SG can be described as predominantly Business to Business (B2B) market in which the games are developed for schools, companies, governments or any institution that can provide the necessary funding. Although not as widespread, SG titles within the Business to Customer (B2C) market exist and they are targeted at various customer groups [15]. For example *Wolfquest*, a game about ecology and the live of wolves, was designed for children at the age 9 and above. However, the core audience consists of wolf enthusiasts [10]. SGs can also be designed for niche markets such as games for children with extremely low or high achievements [10]. Games that can be integrated into their learning process and help them receive more practical experience can significantly increase in popularity [22]. SGs are designed also for older users, aged 55 and above, as for example *HappyNeuron* (by SBT), designed to stimulate player's memory and brain [15].

## **2.3 Available distribution channels**

According to Osterwalder et al. [23], one of the building blocks of a successful business model involves the various distribution channels that a company will use to reach the users. The company can use their own website, various gaming websites or even social platforms, such as Facebook in order to distribute the game to the correct user group [6]. Game's developers can specialize in a particular platform, which will then shape their opportunities to distribute the game to the consumers.

Casual games can usually be downloaded from major portals like Yahoo! Games, Google Play or Apple App Store, from publishers' websites (Big Fish Games, GameHouse, or Funkitron) or directly from the

developer's website [24]. Social games delivered through social networks are relatively unexplored research topic since they have recently become popular, mainly after the development of Zynga's game "Farmville" in 2009 [25].

As SGs distribution is commonly very targeted and not as widespread, marketing will play a crucial role for the distribution of games. Reviews on video game sites, different contents, updated screenshots of the game, or even press releases on the company's website can be very beneficial for word-of-mouth marketing [10]. Distributing SGs via gaming portals can vastly increase reach and popularity of the game if the portal has already garnered enough traffic [10]. The PLAYER project for instance intended to promote entrepreneurship education for young people was distributed through Facebook and had enjoyed around 3000 register players [26].

#### **2.4 Revenue Streams**

Casual games developers will usually combine several revenue streams to monetize their games. Two main models are try-before-you-buy (users can download stand-alone version of the game and play it for one hour) and the freemium model (the game is free and players can purchase in-game goods). Other possible revenue streams include subscription, advertisements, affiliate programs, pay for play or pay per minute [27]. Revenue flow through advertising materials can be achieved using web banners, advergaming or short videos between different levels of a free online game [27]. Another option for developers is to allow users to earn virtual money if they complete surveys, watch adverts, subscribe to magazines or even making a purchase from shops such as Body Shop, Adidas or Puma. The amount of money will vary with the offers/subscriptions that the users complete. The developer of the game will receive a fee from all the purchases that the player of that game had made.

Video games provide an environment for product placement – the association of a game with a well-established brand. For example, Walt Disney has developed a number of games and other products that are based on their famous film characters [28]. Other games are based on popular American TV series such as House or CSI: City of crime, developed by Ubisoft or Ice Age (Gameloft). Another type of product placement, used in Need for Speed (Racing game by Ubisoft), involve the placement of billboards in the game, which represents advertisements from real-life companies. Also in social network games (Monopoly Millionaires or Solitaire Blitz) players are presented with virtual goods representing the Toyota brand. The product placement approach can be even more beneficial for SGs as it presents an incentive for involvement and initial investment from the brand to be placed within the game.

Revenues in the B2C sector can also be obtained through traditional Brick and Mortar purchases, in-game advertisements, licensing or downloads against a fee. Another interesting approach is creating a community, which allows the players to add additional levels, characters or updates [15]. Examples of such model include Little Big Planet [29] or Scratch [30].

#### **2.5 Casual vs. Serious Games**

The main strength of the casual game sector apart from being one of the fastest growing markets in the gaming industry is that it reaches to a wide demography. The low development costs and the existence of many well-established publishers, different distribution channels and revenue streams attract a number of entrepreneurs on the market. Especially within the freemium model companies are enabled to experiment with the game's design to attract new potential players and boost game innovation.

In contrast, SGs development by nature is highly interdisciplinary and it requires rigorous pre-production process to ensure that serious outcomes and entertainment are balanced, and that the intended intervention is justified pedagogically and/or by subject experts. The needs for different fidelity that determines the quality of the games varies in terms of cost related to the subsequent technical production. The development of SGs can exceed one Million dollars and the costs increase with the number of levels, quality of the graphics and the various software engineering techniques such as games response time [31]. Thus, low budget SGs with fixed scenarios can lead to shorter game play and even boredom in some of the players [32]. Therefore, the ability to keep close to the users and be able to personalize content to sustain interest in player communities is crucial. Furthermore, Laamarti et al. [16] outlines social factor and the ability of the player to collaborate with others as a success factor for SGs.

A freemium model can be beneficial for SGs companies not only as a monetization technique but also to explore the preferences of their potential users. This will allow developers to target more precisely their audience and focus on its community to create games for this community. Such models would be appropriate for SGs similar to casual games such as *FarmVille*, *CastleVille* or *Astro Garden* – games providing a virtual environment where users can play together as “neighbours” and enhance their game skills through quests and sharing their knowledge with their groups of “neighbours”.

### 3 Freemium model for casual gaming

Freemium games are games, where users can play without paying any money and can purchase virtual goods to enhance their performance. Tyni and colleagues [33] emphasise that the model requires significant development work for effective creation of believable characters and usable virtual goods that users are prepared to purchase. The need for advanced research is also required for the implementation of an effective data mining and optimization techniques. These will then be used for the creation of new goods or levels and thus, extending the lifecycle of the game. Thus, the model necessitates a strong alignment between game’s designers and developers, the marketing team and the client base.

#### 3.1 Demand for virtual goods

Virtual goods are built into a game as part of the game dynamics and narratives. In-game virtual currency earned by players allows them to purchase different goods to enhance their performance. It is common that within the casual games, the players can buy almost each item with real money. It is therefore vital that the designers can create desirability for certain goods so that the users will actually purchase them.

Within the creation of casual games a combination of different strategies is used. The following guidelines were extracted from the available literature - and may be useful for SG developers to create demand for their virtual goods:

- Create two types of virtual goods: easy-to-earn and hard-to-get money, which can be bought with real money
- Hard-to-get money is aimed at improving the player’s performance and enables them to accomplish faster particular levels. Thus, they are important in the later stages of the games whereas easy-to-earn money is relevant in the initial phases.
- Lower prices for easy-to-earn money to attract players at low levels
- Restrict the possible moves of the players through lives, energy, number of plots, etc.
- Present items as limited resources to increase demand for them

- Offer exclusive virtual goods for special occasions, such as Christmas, Father's day, etc.

### 3.2 *Sociability and retention of players*

Sociability in casual games ties to the number of players, their ability to communicate with each other within the game, to compete, to send/exchange gifts, goods, etc. These factors are crucial within the freemium business model because they relate to the popularity of the game, the opportunity to attract long term paying customers and thus, to an increasing conversion rate of the game (paying players vs. all players). Similar to a pyramid system, existing users may invite their network of friends into the game, resulting in potential percentage of payable players. Sociability is also important as the increasing number of players provides more opportunities for the data mining team to extract information about the player behaviour and preferences and adopt the game accordingly [33].

In many Social Network Games (SNGs), users are either encouraged to visit their 'neighbours' (network of friends within the game) through promises for rewards - or to share the information regarding achievements on their walls. The quest can be purchased with 'hard-to-get' money; however, impatient players could opt to buy them with real money.

### 3.3 *Virality*

Another factor relevant to the casual game sector is 'virality', i.e. company's understanding of viral marketing and ability to enable a connection between the different games it has developed [33]. The factor is crucial as it facilitates discovery of new games of the same company and thus, it ties closely to the sociability factor and the need for an increase in the number of players. For example, Wooga (3rd largest company on Facebook) capitalizes on such connections through on-spot advertisements of one of their games in another. The advertisements are limited to several hours and when a player clicks on them, they receive a quest that needs to be completed in the second game to obtain rewards in the initial game. Thus, an incentive is provided for players to try other games published by the company. Another strategy involves traditional advertisements of the different games around each game that a company has developed. Co-branding products is also a popular approach for marketing products to wider the audience.

### 3.4 *Game Life cycle and metrics*

Similar to other technological products, a video game has a lifecycle and goes through four phases: early adopters, early majority, late majority, and laggards [34], i.e. the game goes through introduction, growth, maturity and revenue and eventually is being abandoned. Therefore, even the most successful games will eventually lose on popularity. An example would be *FarmVille*, which decreased in popularity since 2012 while the game's developers have introduced new but similar games on the market (*CastellVille*).

Through regular updates and adding new, meaningful content game designers can expand the late maturity stage and thus, gain more revenue. Nevertheless, they should not change items that the player has purchase with real money or restructure the personalized environment of each player [35]. Therefore, web analytics and data mining play a crucial role. Gazecki [34] proposes a framework including four key performance indicators (KPIs): retention, user acquisition, virality, and monetization. In the initial stage the focus should be on engagement metrics while after that acquisition, virality and monetization metrics become also of high importance.

## 4 Methods and Material

Our study involves analysing *how companies in the SG industry adopt business models for casual games by adopting a mixed method approach*.

### 4.1 Quantitative analysis

The first part of the study includes conducting a survey to gain insight of the game users' view of the Freemium model. The initial questionnaire was tested with five casual game players to ensure the validity, completeness and correctness of the questions. The questions were then modified according to the user's suggestions. The final questionnaire constitutes 12 questions designed to measure user's preferences with respect to social network games. The survey was then distributed through the university's email list and Facebook as these two channels offer quick access to a large number of users from different countries and within different age groups. In addition, the link to the survey was posted in several casual games related groups on Facebook and LinkedIn as the member demography covers mainly casual gamers and they were the main targeted audience for the survey.

The questions were related to the components of a business models: user's demographics, value proposition, distribution channels and purchasing behaviour (see appendix A). They were also reflected by common methods used in the freemium model discussed in Section 3.

In general, the collected data can be described as categorical data because it cannot be measured numerically [36]. All the responses were coded with identification numbers to facilitate the analysis of the survey. The codes were checked for errors and illogical relationships and the coded results were then examined [36]. The data was presented through descriptive statistics, including percentages and frequencies. Other statistics were not possible due to the structure of the data. The data was then presented through frequency tables, pie and bar charts because they are seen as most appropriated for these types of data [37][36]. Correlation among components was determined. In the literature Spearman's rho ( $r$ ) is the suggested correlation coefficient for ordinal data and therefore, it was used here [36] [38]; [39]. The coefficient is a symmetric measure ranging between -1 and +1 where -1 corresponds to a perfect negative correlation and +1- perfect positive correlation [40]. The strength of the relationship is measured according to the guidelines provided by Cohen [41], illustrated in Table 1.

**Table 1: Strength of the relationship**

Size of the effect	Correlations coefficient ( $r$ )
Small	$r > 0.1$
Medium	$r > 0.3$
Large	$r > 0.5$

Further in the analysis it was necessary to test whether the determined correlations were statistically significant. The approach for statistical hypotheses testing involves the formulation of a null hypothesis, which is a statement of no occurrence of a certain assumption [42]. Therefore, the null hypothesis was formulated as "*There is no correlation between certain variables*". Because the assumption is of (no) difference among the population the appropriate statistical test is two-tailed test [42]. Significance level of 0.01 (1%) and 0.05 (5%) were set in order to examine the probability of occurrence of the correlation by chance. This means that for statistically significant correlation coefficients the probability of occurrence

by chance will be less than 1% (5%) [36]; [39]. Therefore, using the two-tailed tests and significant level, the strength of the correlation was validated and can be anticipated as reliable.

#### **4.2 Qualitative analysis**

Semi-structured interviews were conducted and data from three companies, with the aim to assess the freemium model, was used. The data was necessary to explain and exemplify real business models and specifically to show how they work in practice. The interviews took place either via Skype or per emails as these were the most appropriate ways for the interviewees. The interviewees include personnel with management expertise, who were familiar with the business model of the companies. The questions that were asked were related to the literature review and observations of the industry. A summary of the questions can be found in Appendix B.

The companies were selected based on specific criteria. For the purpose of this study the Freemium model played a crucial role, so the companies were selected to have designed games within this model. It was also vital to choose different types of actors within the value chain: publishers as well as independent development studios.

### **5 Results and Analysis**

This section presents the results of the conducted research. In the following subsections, the findings from the interviews and the survey are summarised.

#### **5.1 Survey results**

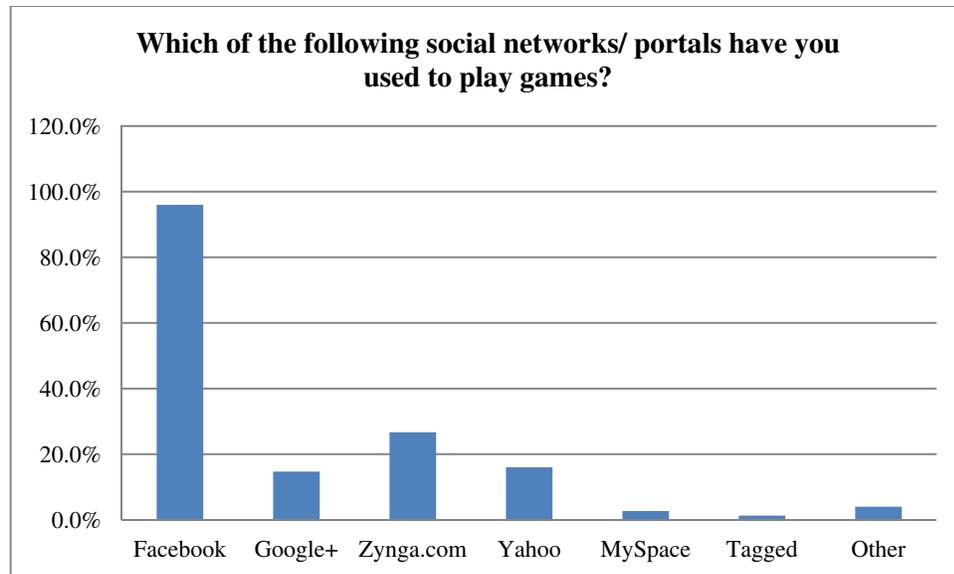
In total 254 responses were gathered. However, 17 of them were only partially completed and therefore disregarded. Thus, 237 replies were used for the actual analysis. The main representatives were in the age groups 18-24 (around 51.5%) and 25-34 (42.6%). 43.9% of the respondents were females, meaning that the survey was equally completed by both genders. The majority of the respondents come from Europe (65.8%). Thus, the main scope of the survey is on users at age between 18 and 34 from Europe.

##### **User's demographics**

The majority of the respondents are at age between 18-24 (37 respondents) and 25-34 (32). Only 6 of the respondents who play social casual games are at age between 35 and 54 and none of them is under 18 or above 55. Considering the gender of players, they are fairly split with 37 (49%) males.

##### **Distribution channels**

The results in Figure 5-1 show Facebook as the most common platform to play casual games. It is, however, more interesting that the recently established platform zynga.com is the second choice of the players whereas Yahoo and Google+ appear to be following it and MySpace and Tagged are even less usual.



**Figure 5-1 : Distribution Channels**

### **User's motivation**

From the collected data, 75 respondents (32.6%) stated that they play casual games. Their core motivation is *to pass time or when they are bored* (69.3%), *for fun* (60%) and *to relax or de-stress* (38.7%). The rest 68.4% do not play games due to the following reasons: *do not see any benefits from such games* (57.4%); *do not have enough time* (51.2%); *casual games are boring* (41.4%). Furthermore, respondents added that they are interested in more sophisticated games with more content and better storylines, i.e. they are interested in core games.

### **Player's preferences**

Figure 5-2 below illustrates the player's satisfaction factors, ranked by the respondents as not important, important or extremely important. Fun factor and ease of use were held as extremely important by most of the respondents, 60 and 47 respectively.

Graphics and game design were graded as important by 43 and 52 participants, respectively. 58.6% of the respondents considered offers of free virtual goods as either extremely important or important whereas for the rest 41.3% such offers are not important.

The last two components: ability to interact with other players and ability to share information, were ranked as not important by most of the respondents, 52% and 68% respectively.

## Importance of satisfaction factors

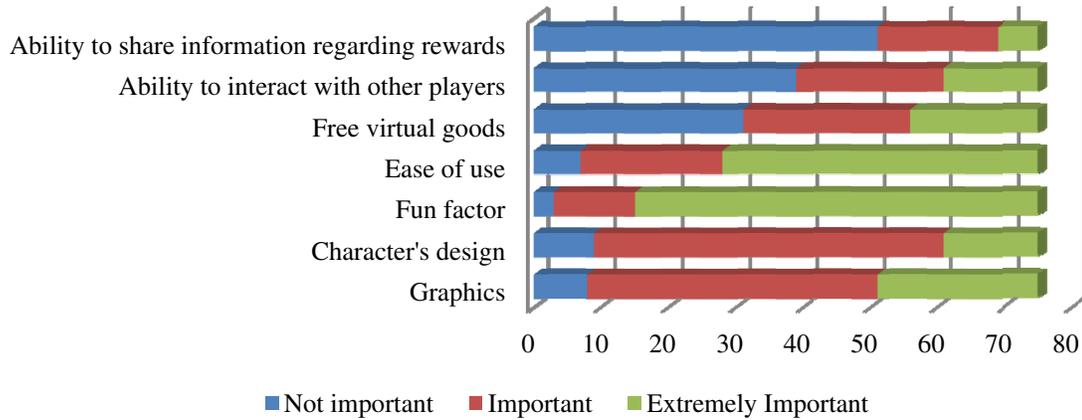


Figure 5-2: Importance of satisfaction factors

### Sociability and virality

In social networks casual game developers encourage players to share their achievement in the game and ask their neighbours for virtual goods or for help. Figure 5-3 below illustrates the relationship between the time the user spends on gaming and likelihood to become more 'social' within the game.

		TSG	SIGR	AFVG	AFH
Time spend on games	Correlation Coefficient	1.000	.070	.385**	.438**
	Sig. (2-tailed)	.	.551	.001	.000
	N	75	75	75	75
Share information about game rewards or achievements	Correlation Coefficient	.070	1.000	.420**	.373**
	Sig. (2-tailed)	.551	.	.000	.001
	N	75	75	75	75
ask friends to send you virtual goods	Correlation Coefficient	.385**	.420**	1.000	.642**
	Sig. (2-tailed)	.001	.000	.	.000
	N	75	75	75	75
ask friends for help	Correlation Coefficient	.438**	.373**	.642**	1.000
	Sig. (2-tailed)	.000	.001	.000	.
	N	75	75	75	75

\*\* . Correlation is significant at the 0.01 level (2-tailed).

TSG – Time spend on games

SIGR – Share information about game rewards or achievements

AFVG – Ask friends to send you virtual goods

AFH – ask friends for help

Figure 5-3: Correlation between virality factors

Figure 5-3 figure shows no significant correlation between the time players spend on gaming and their intention to share information. By contrast, players who spend more time on a particular game are more likely to ask friends for virtual goods or help.

Furthermore, there is strong relationship between the different virality drivers. Most pronounced is the correlation between the constructs 'ask friends to send you virtual goods' and 'ask friend for help'. There is also positive correlation between the drivers 'share information' and 'ask friend for virtual goods'. The relationship is less pronounced between the drivers 'share information' and 'ask friend for help'.

### Revenue streams

Around 80% of the respondents do not buy virtual goods, resulting in 20% paying users. Other revenue streams have been introduced to boost the game's revenues regardless of the player's spending on virtual goods. Figure 5-4 shows a summary of player's attitudes towards such in-game offers. Players are more likely to watch an advertisement (45% responded yes or probably yes). They are less likely to play another game or fill out a survey form and these will depend on the game itself for some of the users. Even less likely it is for players to install an application or share the information regarding their gaming activities. The vast majority of respondents (82%) will not be attracted by other offers requiring purchase such as buying a product from a partner company, booking a hotel or flight or subscribing for a service.

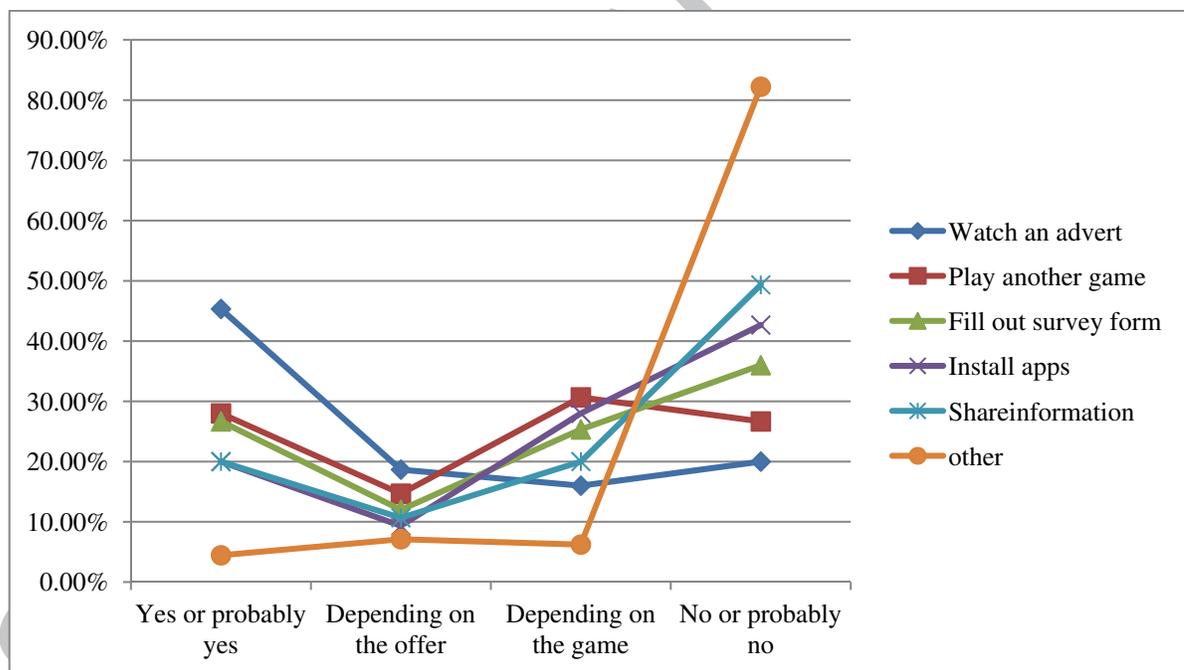


Figure 5-4: Player's attitude towards offers

## 5.2 Interview findings

The interviews provide inside of how the freemium model is designed by companies. The results are focused on the business models components – value proposition, users demographics, distribution channels and revenue streams.

### Value Proposition

All interviewee pointed out that the casual game market is very saturated and therefore, it is important that the developed game “stands somehow out from the crowd”. Company A places value on the user’s good game experience and the game’s visual appealing. Company B, on the other hand, offers its customers high-quality graphics and design of the game, using brands such as BWM, Audi, Nissan, Ford, and Chevrolet to associates itself. The value proposition of company C lays in offering unique experience to the users allowing them to create their own storyline depending on their actions and decisions. The game is designed as a mixture of 3D game play and video let narrative content. In addition, the company has integrated brands such as Nike, Alfa Romeo, and Red Bull as part of its value proposition.

It was suggested that competitor such as Big Fish, Gameloft, Facebook are too big to compete against and it is more advantageous to partner with them and use their existing traffic as a benefit for your games. However, company A also emphasised that because games on Facebook, for example, are built on “mechanisms of compulsion” and many people do not want to send requests to their friends, another part of the value proposition of the company for online games includes stand-alone version.

### **Targeted audience**

Game itself as well as the company’s culture and ambitions can predefine the user market. For example, company A, historically, has become one of the top distributors in the German speaking market and therefore, the focus is mainly on western European countries, including Germany, France, Benelux, and the UK. The different geographical markets have also defined the demographics of the audience. In Western Europe and US the main targeted audience consists of females at the age of 30 and above. In contrast in Eastern Europe the users are at age between 15 and 40. It is also worth mentioning that during the past years it has become more acceptable for women to play games and therefore, the company has started following that trend and making more user friendly interfaces and games designed especially for females. Thus, when the company began developing free to play casual games its audience included mainly females (more than 80%) and the games were with more female settings and topics.

The nature of the games for both company B and C specifies the game’s audience as males at the age 18 to 35 years. The companies’ geographical markets include mainly European developed countries. It was stressed out that for European or US companies it is more difficult to enter the Asia market because of the different mentalities and expectations.

### **Available platforms and distribution channels**

Company A develops games for many different platforms, including PC, iPhone/iPod, Nintendo DS and Wii and will enter the markets for tablets and Androids. The company has developed several own distribution channels for the different geographical markets. In addition, it has strong relationships with many portals, which are also distributing the games, including Big Fish games and Zylom.

In contrast, Company B is putting its efforts on the market for iPhones and iPads and thus, has also predefined their distribution channel to be iTunes. Company C games are adapted for playing in a web browser. The company has launched games on iOS and is focusing on developing social games and therefore, one of the distribution channels includes Facebook. The games are also available on MSN and on the company’s own created game portal.

The available platforms and distribution channels differ depending on the game and the users. However, the companies are all using social media and game related portals as means to attract more users and promote their games.

### **Revenue streams**

The companies have obtained the freemium model as a main revenue stream. They have designed the model around virtual goods, which the players can purchase to boost their performance within the game. Virtual goods can be power-ups, energy bars and any game specific item to allow the player accelerate their performance, receive an extra life or skip certain levels or barriers. One of the main challenges of this model is establishing a link between virtual currency and real money. The model is adjusted on a trial and error approach to depending on the experience of the game designers and producers as well as feedback on other similar products on the market. The companies placed great importance on a designated operational team to analyse the player's behaviour in the game so it can predict the users' behaviour. According to the interviewee from Company A there are certain items, which the company knows are working and knows where to place them in order for the user to spend money. The interviewee from Company B suggested it is vital to analyse what and why the players are buying and whether the game is too difficult or too easy. Therefore, it will take several iterations before an increase in the conversion can be observed.

They have all highlighted the essence of tracking and analysing the player's behaviour for the successful implementation of this model. Metrics such as Monthly Average Users (MAU), DAU, average revenue per paying user (ARPU), average revenue per register user (ARPRU), virality, stickiness (MAU/DAU) are only small part of the indicators used by the companies to track players. In reality, they use various metrics offered by different web analytical tools. These metrics can then be further split by territory or age to target specific user groups and optimise company's advertising spends. Therefore, the analysis should also include the company's specific metrics depending on its objectives. Company B emphasized on the funnel of the game, i.e. how many people leave the game, at what point, and why. This is important, especially in the initial phases of the game's release, so that it can be fixed and prevent "future players of leaving at that point". According to the interviewee from Company C a vital step is ensuring that the created virtual items are appropriated for the different user's types, especially for the Whales. The interviewee highlighted that it is important to align the premium items with their interest to increase the conversion rate.

## **6 Discussions**

In this section, we place an emphasis on relevant implications for the SG sector from the casual game industry as well as on how the Freemium model can be adopted from SG developers. Our discussion is based on the four components: value proposition, user's demographics, available distribution channels, and revenue streams.

### ***6.1 Value proposition - Implications for SG***

The educational nature of SGs and their benefits, related to opportunities for the users to apply various skills, can be sufficient to attract many users within the gaming communities as well as people, who are not generally interested in games. However, these will not be sufficient for a company to differentiate itself in the market and as stated by the interviewees it is important for a company to stand out from the crowd. Similarly to casual games companies SG developers can focus on brand association, the visualisation of the game or on exploiting newest technology. For example, Muzzy Lane focuses on 3D games in the areas of Education, Corporate Training and Healthcare.

From the player's perspective fun factor and ease of use were identified as the most important components as it was stated in the survey analysis. In terms of learning achievements, the educational value of SGs is often based on the value attributed by the teacher integrating the game in a formal education context, but there is a lack of "achievements" value recognition without a formal education context which can discourage the player's interested in the educational value of SGs. The use of badges through the IMS Digital Credentialing initiative could add value to the competences achieved through the SGs [43]. The multi-player SG *Who's Got Class?* is one of the first initiatives designed to give Western Interstate Commission for Higher Education in USA members a way to explore the integration of badges and games for learning.

For SG developers in particular, a challenge is to optimise the level of fun with the educational purpose of the game [16]. Users also identified clear goal and rules as important and these factors will play even more crucial role for SG as the players will not be familiar with the game's content. Similarly to many social games it can be in the form of a "neighbour" in the game who has already achieved higher levels and can help the player accomplish different tasks. Playgen has employed a similar structure within the design of FloodSim. Respondents of the survey also rated graphics and character's design as important factors. SGs developers can offer different items that the players can purchase to personalise their gaming environments as it is the case in MeTycoon.

### **6.2 The market**

As suggested by the interviewees companies should be aware of their target market and the preferences of their users. Company A stated that their audience included mainly women and therefore, the games were designed with more female settings and topics. Also the respondents of the survey consider graphics and character's design as important, so developers should create these with respect to the target audience. SGs commonly involve an interdisciplinary team, which will allow target audience and subject experts to be involved in the development process. Such an approach can be expanded by including a more general market research mirroring strategies of casual games, where preferences of their target market is key to uptake and brand loyalty. As part of the post-production of SGs involving some forms of evaluation of efficacy, for e.g. learning outcomes should reach as many demographic as possible to allow consideration of new markets.

### **6.3 Available distribution channels**

Facebook was seen as the main channel to play casual games. It should also be used as a marketing tool, creating a page to post games-related content is a common strategy. In the SG domain, companies have also started maintaining such pages, as for example Thrust Interactive, AiSolve or Totem Learning. They have also created their own "Blog" or "Events" pages on their own sites, which is another good strategy to popularise the games. SGs distribution channels should align with existing educational distribution channels such the MOOCs platforms. Different initiatives look at the use of MOOCs as a way to integrate SGs [44] or gamification as a way to increase MOOCs learners' engagement [45].

### **6.4 Revenue stream – Freemium model**

The freemium model is designed to allow users to play the game for free and to purchase virtual goods with real money. In this model there are four key issues that SGs developers need to consider when implementing it: creating virtual goods, sociability, possible revenue streams, and metrics.

### **Virtual goods and their demand**

Within the freemium model it is essential to create virtual goods that the players will buy. The transposition of the virtual goods model in SG sector should consider the purposes of the SG. In case of educational SG for example, the virtual goods that could be offered can be similar to those introduced in MOOCs: certification, recruitment and headhunting, tuition fees, secure assessments and sponsorships or partnership with third companies [46]. SG developers can follow the provided guidelines for designing virtual goods in the early stages of the games lifecycle and then adapt these according to their specific community.

Despite purchasing drivers many players will not make any purchase. According to the survey's results, 80% of the players are not buying virtual goods. Company A also stated that within the model there are 7-9% paying users. These paying users can be split further into two groups: occasional payers and the so called 'Whales', which will be the smallest percentage of users spending the most money on a particular game and thus, generating significant percentage of the game's revenue. Therefore, SG developers need to target the Whales and design the game narratives according to their preferences.

### **Sociability**

One of the main challenges of the freemium model is the creation of a large number of users that can interact with each other. From the user's perspective, their ability to interact with each other is not seen as particularly important and their ability to share information regarding their rewards is seen as even less important. SG developers can encourage the players to interact with each other through different quests for which the users will receive rewards. These quests will be more important when the players have more experience with the game, i.e. the tasks should be integrated in the higher levels of the game. Similarly to the SG communities such as Little Planet or Scratch players can be encouraged to redesign the characters or the environments within their games. Such techniques are widely used in the casual games sphere, in games such as Astro Garden. In serious games such the prototype *GénCam*, the educational value is based on the intergenerational sociability within the members of the family.

### **Other possible revenue streams**

Developers can also generate profit when the players are completing specific offers, such as watching an ad, filling out a survey form, etc. in order to gain virtual money. In general the players are more likely to accomplish offers that do not require payment from them, such as watching an advertisement or filling out a survey. Considering offers, such as buying products or booking a flight/hotel the player's choice will strongly depend on the specific offer. Thus, offers such as watching an advertisement, filling out a survey form, install an application and playing another game tend to be more effective as players are more likely to accomplish them. Therefore, the relationship with advertisers can be improved in order to increase the efficiency of ads because users will watch them when they are offered an incentive. Furthermore, since the players are willing to play other games to earn virtual money, the optimization of the links between the different games through e.g. on-spot adverts in other games, becomes even more essential. In such a way the popularity of the SGs can be improved.

### **Metrics**

The final part of the Freemium model involves the use of analytical tool and appropriate metrics. All of the three case companies emphasised on different key metrics that enables them to track the players' behaviour in the game. They are important so that the company can gain knowledge about its users' preferences. In addition, as the interviewees stated the model is based on a trial and error approach

allowing the developer to experiment with different strategies and adapt the game to the users. Thus, the game is further developed several times before increase in the conversion rate can be obtained.

Therefore, the following strategies can be considered when adopting this model:

- 1) Observe the 'whales' (small percentage of players that accounts for a high percentage of the company's revenue) and analyse what and why they are buying in order to adapt the offers to their preferences
- 2) Try out different strategies for items that work for other 'whales'
- 3) Optimise the funnel of the game: how many people leave the game, where and why and the level of difficulty of the game
- 4) Track key standard metrics, split them by territory and adapt them according to the game.
- 5) Key metrics include: DAU, MAU, ARPRU, ARPU, day 2 and 9 retention, virality and stickiness

## 7 Conclusions

Several implications for SGs from casual gaming were identified in this paper: value proposition, market segmentation, distribution channels and revenue streams. SG developers should exploit the best practices of casual gaming and include them in the development process of SGs – from pre-production through to post-production. An effective model for analysing the players and their preferences tend to be the Freemium model used as basis in particularly within the social gaming domain. The model can be very attractive; however it needs several iterations before starting to pay off in terms of revenue streams. It is vital that the virtual goods are adequately designed to provide incentive for the users to purchase them. Furthermore, the game has to be distributed to as many users as possible due to the relatively low conversion ratio typical for the industry. Finally, essential part of the Freemium model includes metrics and tracking the player's behaviour within the game and gain knowledge about different user's group and their preferences.

This study has the following limitation: limited scope of the survey to the average social player without covering the preferences of the 'whales'; not covering the US market; no long – term conclusions for the Freemium model as the general attitude towards the model may change; insufficient survey data to draw general conclusions. However, the study is sufficient to provide general strategies for the implementation of the Freemium model that can be beneficial for serious gaming in the long term.

Thus, the study can be seen as a starting point for future research on the topic. The following recommendations are provided for future studies: investigation of the US and Asia markets; a study focused on the 'whales' covering particular gender or area in serious gaming; a study focused on the Freemium's revenue streams such as offering players to watch an advertisement or fill out a survey.

The study is a starting point for future studies that explore the role of different business models for increasing revenues from game content and for supporting the development of communities to ensure that players remain playing games for longer. While other models will evolve, the role of the Freemium model as a bedrock for more refined models in the future remains clear.

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**Appendix A: Survey Questions**

1. Age?

under 18  
18-24  
25-34  
35-54  
55+

2. Gender?

Male  
Female

3. Where are you from?

4. Do you play social casual games (games that are usually played on social networks, such as FamVille)?

Yes, a couple of times every day  
Occasionally, several times a week  
Once a week  
I do not play social casual games

5. What are your main reasons for not playing online games?

I think they are boring  
I don't have time  
I don't see any benefits from playing online games  
Other (Please specify)

6. What are your main reasons for playing online games?

For fun  
When I am bored/ to pass time  
It's exciting  
To play/ socialise with other players  
Other (Please specify)

7. How important do you consider the following factors?

*Please select one answer for each topic!*

	Extremely important	Important	Not important
Graphics			
Character's design			
Fun factor			
Free virtual goods			
Ability to interact with other players			
Ability to share information regarding game's rewards with other players			

8. Which of the following social networks/portals have you used to play games?

*Please choose more than one if applicable!*

Facebook Google+ zynga.com Yahoo MySpace Bebo Hi5 Friendster Tagged Other (Please specify)
---

9. Do you buy virtual goods?

Yes Occasionally No
---------------------------

10. Would you do one of the following to earn lives, energy, or virtual money?

*Please select one answer for each topic!*

	Yes	Probably yes	Maybe, depending on the offer	Maybe, depending on my interest into the game	Probably no	No
Watch an ad						
Install apps						
Play another game						
Fill out survey form						
Buy products from other Companies (Body Shop, Adidas, Puma, etc.)						
Book a flight/ hotel Reservation						
Subscribe for a service (e.g. for magazine Or audio book)						
Purchase health and Beauty products						

11. Considering a game that you are interested in, what is an acceptable price for you for virtual money?

I would not purchase virtual money  
 Less than \$5  
 \$5-\$10  
 \$10-\$25  
 More than \$25

12. How often do you do one of the following?

*Please select one answer for each topic!*

	Every time	Usually	Sometimes	Rarely	Never
Share information about game rewards or achievements					
Ask friends to send you virtual goods					
Ask friends for help (e.g. to unlock levels)					

**Appendix B: Interviews Questions**

1. How do you develop your value proposition?

.....  
.....  
.....

2. Do you consider drivers such as graphics, storyline, character's design, usability or association with other brands as important?

.....  
.....  
.....

3. The players have many alternatives. So, you have to compete against TV, music and other sector. How can you compete in such environment?

.....  
.....  
.....

4. Please specify your main targeted audience in terms of user's demographics and geographical location?

.....  
.....  
.....

5. Do specialise in designing games for a specific platform or are you aiming for platform differentiation? Which platform(s)?

.....  
.....  
.....

6. What are your main distribution channels?

.....  
.....  
.....

7. The try before you buy model is measured with the metric conversion. What is an adequate value of this metric for the industry?

.....  
.....  
.....

8. What does this metric depends on and can it be improved?

.....  
.....  
.....

9. How does the freemium model works for your designed game?

.....  
.....  
.....

10. What kind of metrics do you use to track the players' performance?

.....  
.....  
.....

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## Appendix C: Description of companies

Construct	Company A	Company B	Company C
Value proposition	Game experience, Visual appearance	High-fidelity graphics, Brand association	Unique experience, Brand association
Targeted regions	Western Europe, Russian speaking territories, US, Latin America	UK, Germany, France, Italy, Spain: developed markets	Global audience with interests on sports and music
Main target audience	Females above 30; users at age 15-40, depending on the region	Males at the age 18-35	Males 18-34
Available platforms	PC, iPhone/iPad, Nintendo DS and Wii, Androids	iPhones and iPads	Web browser, iPhones
Distribution channels	Own channels for the different regions, Big Fish Games, Zylom, and many other portals	iTunes, publisher is NaturalMotions	Facebook, MSN, and own Portal
Metrics for freemium model	MAU, DAU, ARPU, ARPRU, virality, stickiness, quest specific metrics	Funnel of the game, optimisation of the game and level of difficulty	ARPU, ARPRU, retention, optimisation of the ad spending and the profile of “whales”

**Highlights**

- Serious Games (SG) sector could benefit from business models from casual game sector.
- The freemium business model outstrips the free trial in casual games and is considered for its transpositions to SG
- The freemium business model takes into account four components: value proposition of the games, user's segmentation, available distribution channels and revenue streams
- Findings from end-users survey (n=237) and SG companies (n=3) are analysed in relation to the 4 components of the free trial and freemium model
- Guidelines are indicated for the SG sector in relation to the 4 components.