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WHAT TURNS A FREEMIUM GAME PLAYER INTO A PAYING PLAYER

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This paper presents a derivation of freemium game players' *playing* and *paying* motivations and demographic attributes by aggregating the results of 17 studies. For further characterization and a clear distinction from other gamer subgroups, this paper also contains an aggregation of *playing* motivations and demographic attributes of video game players in general, and of non-freemium game players. Our results suggest that *socialization* and *competition* are common motivations for *playing* a freemium game, and we derive *enjoyment* to be a particularly important playing motivation for freemium games. We further find that freemium game players who proceed to *pay* particularly name *economic factors* and applied, freemium game-specific *mechanisms* as motivations. Regarding demographics, while the studies which were analyzed to derive freemium gamers' *playing* motivations have a dominance of female participants, the studies which were analyzed to derive freemium gamers' *paying* motivations have mainly male participants. For analyses by both motivations and demographic attributes, we suggest a more differentiated picture including genre and platform considerations. For marketers and developers, we suggest a differentiation between markets, a mechanism transparency, and an emphasis on socialization in freemium games.

Keywords: Social Analytics, Gaming Business Model, Video Game Player, Customer Analytics, Payment Motivation, Customer Demography, Digital Entertainment

1. Introduction

The video game industry is a continuously growing and evolving multibillion dollar global industry [43]. There has been a rise in the number of video game players [52, 63] and hours spent per week playing video games [21]. Gaming is nowadays not only an indispensable part of pop culture, but it is also integrated firmly into our society, with its revenue surpassing the global theatrical and home entertainment market combined [66]. In 2020, the gaming industry was estimated to be worth around 159.3 billion USD, which is a year-on-year rise of 9.3% compared to 2019 [52].

The rise of mobile phones (cf. e.g., [50]) made a new type of game gain popularity: *mobile games*. However, due to the limited processing power of mobile phones, mobile games were quickly labelled as having poor graphics, some major hardware issues (e.g., tiny screens, poky keypads, phone battery drainage, smaller data storage size), a noticeably lower amount of content, simpler and less sophisticated design and structure, and bad user experience when it comes to purchase and

installation [13, 32]. Despite these downsides, the increasing *usage* of mobile phones [32], i.e., mobile phones becoming omnipresent in customers' everyday lives, led to mobile games being accessible to a large audience and being played in idle time throughout the day [10, 47]. The gaming industry soon saw mobile games outperforming traditional PC and console game software in sales and revenue [53, 54]. PC and console games suddenly had to compete with a much larger install base, i.e., billions of smartphone users [33, 50, 53]. These developments were subsequently mirrored in the emergence of new and highly profitable *financing concepts* in the video game industry which soon became frequently applied. Where it was still common in the 90s to purchase a software for a fixed amount of money, the establishment of other financing approaches within the gaming industry could be observed over time [6, 42]. These new financing concepts emerged since the gaming market is growing but also fluctuating, and they were established to monetarize certain gaming products or content for an 'easy cash grab'.

One of these newly emerged financing concepts is called *freemium* which is a combination of the words "free" and "premium". It is characterized by products or services initially being downloadable and playable for free, but those products or services having some mechanisms applied that make the consumer eventually spend some 'real' money [23]. Besides the standard example of a *free demo version* but the full game being locked behind a paywall, some video game publishers and developers also release their *full base game* on a free offer but as the player plays the game, they stumble across an increasing number of in-game obstacles or other mechanisms that make it hard to continue playing the game without purchasing in-game offers. It can even go as far as reaching a point at which the player is 'forced' to pay to continue playing the game without having to deal with major restrictions. Often times, substantial parts of a freemium game's content can be locked behind a paywall [17]. The locked content or advantage can encompass improvements within the game (so-called 'quality of life'-improvements) but also general aids or supports, cosmetic elements/textures/skins, in-game currency, virtual items, functional items as shortcuts, changes to the game experience, levels, and additional game content in general (e.g., additional story chapters, maps, and cutscenes) [42, 43, 51, 70].

Besides the increasing usage of smartphones, an important innovation which fueled the development of such (possibly predatory) monetization schemes is the expansion of *digital purchase* options, including the emergence of 'virtual goods' which are purchasable in-game in small payments termed *microtransactions*. Freemium games rely upon microtransactions for their business model [42, 43, 51]. Although the implementation of microtransactions is common in particular in smartphone game revenue models, it is not limited to smartphone games but can be found across all platforms in both popular online games and offline single-player games [43, 59].

The expenditure in freemium games via microtransactions ranges from some cents to hundreds and - in rare cases - thousands of dollars [16, 36] – mainly by being addicted to purchasing so-called *loot boxes*. Loot boxes are a commonly appearing game design element to easily gather microtransactions. They are virtual containers that can be acquired either through gameplay or by spending real money, and they contain one or more in-game items randomly selected from a list of obtainable items. Although video game developers have been putting random or partially random items in, e.g., treasure chests for decades, those items or treasure chests were traditionally obtainable by, e.g., completing certain in-game challenges, spending a certain amount of time playing the game,

or accumulating in-game currency. Those items were desirable for, e.g., being rare or for providing in-game power upgrades. During the last decade, however, the way of obtaining such items has been increasingly shifting from the player's effort and achievement to mere real-world monetary expenditure, and newly emerging shortcuts such as loot boxes have nowadays become one of the biggest controversies in the video game industry [19, 51, 57, 62]. Out of all in-game items that can be purchased with real money, loot boxes were found to be particularly linked to problem gambling [73] which underlines their problematic nature. Loot boxes lack transparency concerning chances for achieving items. Video game developers often times disguise these 'gambling' mechanisms without identifying them as such [51], and they downplay their monetization in official communication [57, 62].

Freemium games, microtransactions, and loot boxes are all part of the *pay-to-win* business concept. In the study by Lelonek-Kuleta et al. [46], pay-to-win gaming is defined as "*behaviour associated with free computer games made available through a web browser or application on a computer, mobile phone, tablet or social networking site, (…) offering the possibility of paying a fee for the progress of the game*" (p. 2).

The difference between the *freemium* model and the traditional *pay once* model is that in the latter, the consumer receives the full complete game upon purchase without any payments required post-purchase. *Freemium* games, in contrast, mostly have a lure-to-pay strategy applied [42], and they have risen in popularity not only due to the increased smartphone usage but also due to the rise of social media platforms such as Facebook which has some of the most popular freemium games incorporated on its site [55]. It should be noted that although the freemium financing model is most often applied to smartphone games, it can also be found on other platforms, i.e., the PC and gaming consoles [51].

The difference between the *freemium* model and the *free-to-play* (also called *free-2-play* or *f2p*) model is that the latter does not necessarily contain purchasable bonus content, while in *freemium*, it is part of the core concept that a (paying) minority of players gets access to certain 'premium' content. Although many *free-to-play* games also contain real money spending options, a key factor of the *freemium* model is that paying gives the customer a clear advantage in the game. Playing freemium conveys a feeling of necessity to pay to stay in the game [46], thus the freemium model encompasses pay-to-win mechanisms. Free-to-play games, in contrast, offer the same game to all consumers, without the differentiation between spending and non-spending customers. In free-to-play games, players encounter neither a paywall nor a difference in game mechanics, user interface, or difficulty [30]. Not all players of freemium games are payers, but both groups are essential to the survival of the community [4].

Some of the most profitable video game publishers such as Activision Blizzard [1] saw more than half of its annual income, i.e., more than 4 billion USD, being made by microtransactions [43]. But since only a small percentage of players contributes the most to revenue and microtransaction volumes of such games [25], e.g., only 3% of freemium players actually pay for content [18] and over 60% of the revenue gained from freemium games comes from under 1% of players [17], the question arises which attributes distinguish this particular subgroup of players [70]. This paper therefore characterizes consumers who *play* freemium games and who *pay* in those games by means of *motivations* and *demographic* attributes resulting from an aggregation of academic literature.

The reason for us to analyze playing and paying *motivations* stems from studies showing that motivations behind gameplay are good predictors of players' usage patterns [31, 60, 71]. Omori & Felinto [55] already provided an overview of literature that found the main motivational elements of players playing *social games*. Our study is different as it focuses on *freemium* games. We chose freemium games since regarding revenue, production cost, and download volume, the freemium game business model is preferred by game developers and publishers (i.e., suppliers) particularly in the smartphone game segment [23, 26]. The reason for us to analyze *demographic* attributes of players is because such information can be vital for the identification of general consumer preference patterns. For example, a game's reception can also be analyzed by its age rating [8, 9].

Although Hamari et al. [26] and Omori & Felinto [55] also analyzed a few of the analyzed studies in this paper, their focus was set on different parts of those studies' results. While we focus on playing and paying motivations and demographic attributes, Hamari et al. [26] instead provide an overview of the perceived value, continued use, and purchase intensions of players playing freemium games, and they list studies that analyzed not only games but also online gamer communities, a social virtual world, freemium software applications, music as a service, and a music streaming service (i.e., Spotify). Omori & Felinto [55] provide an overview of motivational elements but with a focus on social games. Beltagui et al. [4] conducted a summary of selected literature to provide an overview of studies on community participation, player motivation, and outcomes. However, they also included online selling platforms and online communities. While Hamari et al. [29] also provide a summary of motivations and demographic attributes for playing, they have limited their analysis to one free-to-play game. Overall, despite the increase in research on purchases of in-game content and virtual goods [24, 25], there is no derivation of playing and paying motivations and demographic attributes of freemium game players conducted from past studies.

2. Methodology

To derive playing and paying motivations and demographic attributes of freemium gamers, we retrieved and aggregated some already conducted studies' results. The studies were chosen based on their provision of results that uncover playing and/or paying motivations and/or demographic attributes of freemium gamers. To derive distinctive attributes of the *freemium* game player, we further retrieved studies on video game players in general, and studies on *non-freemium* game players. We aggregated the findings on motivations and demographics of both study types and compared them with our found motivations and demographic attributes of freemium game players.

Our applied literature search criteria were to choose book chapters and peer-reviewed articles that cover the freemium concept and/or its consumers. Articles were searched in December 2021 in the Scopus and Google Scholar databases, using the search term "freemium game". Further articles were chosen based on the reference lists of the obtained articles.

3. Results

In total, 17 studies that contain findings on freemium game players were chosen for analysis. Furthermore, seven studies that cover video game players in general, and seven studies that cover players of non-freemium games were chosen.

We divided our 17 studies into studies that contribute to found motivations for *playing* a *freemium* game (see Table 1) and studies that contribute to found motivations for also *paying* in a particular *freemium* game (see Table 2). (Note that we used three of the 17 studies in both tables.) In both overviews, we included found relevant demographic data (if provided) of each study.

Used source	Analyzed game(s)			Participants (n =)	Country	Demographic data				Found motivations for *playing* a *freemium* game
						age (years)		gender (%)		
	Name	Genre	Platform			range	mean	m	f	
Hou (2011)	*Happy Farm*	Simulation	PC, smartphone	93	China	20-37	26	34	66	Challenge, Diversion, Socialization, Recreation
Zhou & Leung (2012)				342	China	18-22	-	32	68	Challenge, Earn virtual money, Recreation, Socialization, Leisure boredom, Inclusion, Competition
Huang et al. (2015)				855	Taiwan	11-18	-	47	53	Recreation, Socialization
Omori & Felinto (2012)	7 games	Puzzle	PC, smartphone	12	Brazil	-	-	83	17	Challenge, Competition
Engl & Nacke (2013)	*Bejeweled 2, Super Monkey Ball*	Puzzle & Arcade	Smartphone	35	Germany	18-46	29	49	51	Leisure boredom, Mobility (ubiquitous availability), Accessibility
Gainsbury et al. (2014)	Various games	Casino	PC, smartphone	270	Australia	18+	43	62	38	Engagement
Kim et al. (2018)	*Clash of Clans*	MMO strategy	Smartphone	387	-	-	20-39 *(88%)*	67	33	Satisfaction, Socialization, Switching cost, Usage period
Chen & Leung (2016)	*Candy Crush Saga*	Puzzle	Smartphone	409	China	15+	21-25 *(67%)*	17	83	Leisure boredom, Mobility, Challenge, Enjoyment, Recreation, Socialization
Larche et al. (2017)				57	Canada	18-24	21	16	84	Excitement
Hamari et al. (2019)	*Pokémon Go*	RPG	Smartphone	1,190	-	16+	21-25 *(33%)*	59	41	Enjoyment, Nostalgia, Outdoor experience
Hamari et al. (2020)	Various games	-	-	869	Finland	-	20-29 *(47%)*	90	9	Socialization, Enjoyment, Quality of freemium service

Table 1. Overview of analyzed studies to derive *freemium* game players' motivations for *playing*, and provided demographic data (ordered by common analyzed games, and chronologically by publication year)

In Table 3, we list the seven studies used to derive playing motivations and demographic attributes of video game players in general, while we list the seven studies used to derive playing motivations and demographic attributes of particular *non-freemium* game players in Table 4.

The analysis of demographic attributes of players - such as *age* and *gender* - can be vital for the identification of general consumer preference patterns. However, it should be noted that the demographic data of a game's players can heavily depend on the analyzed game's *genre*. There can be significant differences in game genre preferences and receptions across age ratings and age groups [7–9, Sherry et al., 2003, as cited in 29] as well as across genders [12, 58, 71]. Besides a

game's genre, the *platform* that a game is released on (i.e., smartphone, PC, and various consoles) can also impact the obtained results [2, 3, 9].

We compared multiple studies with each other, regardless of the analyzed game's genre or platform. In all four tables, we list the analyzed studies' main findings and - if provided - the number of participants, participants' country of origin, age range and mean age, and gender distribution. We also list some details on their analyzed games' genre and platform to paint a more holistic picture of the typical playing and paying freemium gamer.

All 17 analyzed studies on freemium games (see Table 1 and Table 2) cover games released on PC and/or smartphones. This aligns with the previously discussed patterns of freemium games being mainly mobile games, i.e., being released on mobile phones. In the 17 studies, East Asian countries (e.g., China, Taiwan, Hong Kong) appear the most often as the study participants' country of origin, and games from the game genres *Puzzle* and *RPG* were the most frequently analyzed.

Used source	**Analyzed game(s)**			**Parti-cipants (n =)**	**Country**	**Demographic data**				**Found motivations for *paying* in a *freemium* game**
	Name	**Genre**	**Plat-form**			**age (years)**		**gender (%)**		
						range	**mean**	**m**	**f**	
Shi et al. (2015)	*Dragon Nest*	MMO RPG	PC	4,115	China	-	-	-	-	Perceived quality
Gainsbury et al. (2016)	Various games	Casino	-	521	Australia	18+	34-42	52	37	Enjoyment, Special offers, To advance in the game
Hsiao & Chen (2016)	*Tower of Saviors*	Puzzle	Smart-phone	3,309	Taiwan, Hong Kong	-	17-22 *(51%)*	89	11	Loyalty to the game, Good price & Convenience
Hamari, Alha, et al. (2017)	Various games	-	-	519	Finland	-	<40 *(95%)*	91	8	Unlock content/ Unobstructed play, Socialization, Price & special offers
Hamari, Hanner, et al. (2017)		-	-	869	Finland	-	20-29 *(47%)*	90	9	To advance in the game, Socialization, Competition, Aesthetics
Kim et al. (2018)	*Clash of Clans*	MMO strategy	Smart-phone	387	-	-	20-39 *(88%)*	67	33	Socialization, Switching costs, Obtained relative advantage, Value for money
Fang et al. (2019)	*Royal Sword*	RPG	Smart-phone	86,022	China	-	-	-	-	Socialization
Hamari et al. (2019)	*Pokémon Go*	RPG	Smart-phone	1,190	-	16+	21-25 *(33%)*	59	41	Competition, Challenge, Socialization
Hamari et al. (2020)	Various games	-	-	869	Finland	-	20-29 *(47%)*	90	9	Socialization, To continue playing

Table 2. Overview of analyzed studies to derive *freemium* game players' motivations for *paying*, and provided demographic data (ordered chronologically by publication year, and alphabetically)

Used source	Participants (n =)	Country	Demographic data				Found motivations for *playing* a video game
			age (years)		gender (%)		
			range	mean	m	f	
Lucas & Sherry (2004)	534	U.S.A.	18-24	20	42	57	Challenge, Arousal, Diversion
Sun et al. (2006)	2,379	China	10-88	25	91	9	Recreation, Competition, Socialization
Sherry et al. (2006)	96 (university), 318 (high school), 227 (middle school), 141 (elem. school)	U.S.A.	18-23, 16-18, 13-16, 9-11	20, 17, 14, 10	42, 47, 45, 50	58, 53, 55, 50	Challenge, Competition, Diversion
Yee (2006)	6,675	U.S.A.	12+	27	89	11	Socialization, Achievement
Wan & Chiou (2006)	10	Taiwan	-	-	70	30	Entertainment, Leisure boredom, Diversion, Recreation, Escape from reality, Power, Socialization, Achievement, Challenge
Tseng (2011)	228	Taiwan	-	20-30 *61%*	58	42	Exploration, Competition
Rehbein et al. (2016)	3,073	Germany	16-93	49	47	49	-

Table 3. Overview of analyzed studies to derive video game players' motivations for *playing*, and provided demographic data (ordered chronologically by publication year, and alphabetically)

Used source	Analyzed game(s)			Partic-ipants (n =)	Country	Demographic data				Found motivations for *playing* a *non-freemium* game
	Name	Genre	Plat-form			age (years)		gender (%)		
						range	mean	m	f	
Griffiths et al. (2004)	*EverQuest*	MMO-RPG	PC	540	mainly from U.S.A.	-	28	81	19	Socialization
Williams, Yee, & Caplan (2008)	*EverQuest 2*	MMO-RPG	PC	7,000	mainly from U.S.A.	12-65	31	81	19	Achievement, Immersion, Socialization
Klimmt et al. (2009)	*Travian*	Brow-ser	PC	8,203	Germany	-	24	77	23	Socialization, Convenient access
Jansz et al. (2010)	*The Sims 2*	Simu-lation	PC	760	Nether-lands	8-54	17	16	84	Enjoyment, Control, Fantasy, Challenge, Diversion
Billieux et al. (2013)	*World of Warcraft*	MMO-RPG	PC	690	mainly from France (74%)	18-66	26	87	13	Socialization, Competition
Patzer et al. (2020)	*League of Legends*, *World of Warcraft*, *Overwatch*, *Hearthstone*, etc.	MMO-G	PC	353	-	18-49	23	60	39	Story, Socialization, To continue playing
Lelonek-Kuleta et al. (2021)	[pay-to-win (P2W) games]	-	mainly PC & console	1,702	Poland	16-72	34	49	51	Paying in P2W games to gain advantage

Table 4. Overview of analyzed studies to derive *non-freemium* game players' motivations for *playing*, and provided demographic data (ordered chronologically by publication year)

3.1 Motivations for playing a freemium game

Our aggregated main findings on motivations for *playing* a freemium game (see Table 1) are *socialization*, *engagement*, and *inclusion* [10, 17, 31, 35, 40, 74], *enjoyment*, *satisfaction*, and

excitement [10, 29, 40, 45], *competition* (i.e., to compete with other players), *challenge* (i.e., to push oneself to a higher level of skill or personal accomplishment), and *achievement* [10, 31, 55, 74], *diversion* or *leisure boredom* [10, 13, 31, 74], *recreation* [10, 31, 35, 74], and *mobility* and *outdoor experience* [10, 13, 29].

Hou [31] found that their analyzed freemium game players played mainly for the purpose of *diversion*, i.e., to relax, to escape from stress, and to avoid responsibilities. In another study, *satisfaction*, *socialization*, *switching costs*, and the *usage period* were found to positively impact the intention to continue playing a freemium game [40]. Further sought-after gratifications when playing freemium games were found to be *inclusion* and *achievement* [74]. Hamari et al. [29] found that besides *enjoyment* of the game, *ease of use*, and *challenge*, a certain *nostalgia* and a positive level of *trust* towards a game's developer and publisher can also be vital for continuing to play a freemium game. Chen & Leung [10] named *mobility*, i.e., the ability to play the game anytime anywhere (i.e., the on-the-go aspect), as a major motivation for playing their analyzed freemium game. Similarly, Engl & Nacke [13] note that the ubiquitous availability of smartphone games and their quick short-time entertainment provide value to players, as such games can be played in everyday scenarios, e.g., waiting for or taking public transportation (i.e., *mobility*).

3.2 Motivations for paying in a freemium game

Our main found motivations for *paying* in a freemium game (see Table 2) are *socialization* [14, 25–27, 29, 40] but also *to continue playing*, *to unlock content*, or *to advance in the game* [17, 25, 26], and due to a *special offer*, a *good price/value for money*, and *convenience* [17, 25, 32, 40].

Hsiao & Chen [32] differentiated between paying and non-paying players and found that the in-app purchase intention is influenced by different factors for already paying and non-paying players. They found that the purchase intention is simply influenced by the *price* (i.e., an extrinsic motivation) for non-paying customers (but also by *virtual community participation* and *friends' recommendations*) while for already paying players, it is influenced by *playfulness*, a *good price*, and a sense of *reward*. They further found that Android users in the non-paying group have greater levels of in-app purchase intention, and they advise marketers to devise strategies to encourage Android phone owners to pay [32]. *Challenge*, *competition*, and *socialization* were found to contribute to intentions to proceed with in-game purchases [29], and in particular the ability for *socialization* within a game has a positive impact on the player's willingness to pay [14, 25]. Besides *socialization*, Hamari, Alha, et al. [25] further list *unobstructed play* and *economic rationale* as the main motivations for players to spend money on in-game content. They point out that game designers artificially limit their games and create obstacles, and that the *social interaction* factor additionally affects the money expenditure within a game. Kim et al. [40] derived that *socialization* but also *switching costs*, an obtained *relative advantage*, and the obtained *value for money* contribute to intentions to proceed with in-game purchases.

3.3 Motivations for playing video games in general, and for playing non-freemium games

In Table 3, we list seven retrieved studies that cover found motivations for generally playing a video game. In Table 4, we list seven retrieved studies that cover found motivations for playing a particular *non-freemium* game. Compared to playing video games in general (see Table 3) and particular *non-*

freemium games (see Table 4), we find some differing motivations as to why players play (see Table 1) and eventually also pay (see Table 2) in *freemium* games.

Our aggregation in Table 3 shows that the factors *competition*, *challenge*, and *achievement* are the most commonly named motivations for playing a video game (i.e., all studies in Table 3), followed by *diversion (escape from reality)* and *leisure boredom*, as well as *socialization*. Yee [72] found that male players were significantly more likely to be driven by the *achievement* (and *manipulation*) factor while female players were significantly more likely to be driven by the *relationship* (i.e., *socialization*) factor. The *competition* factor is more attractive to male than female players [46, 48, 67, 72]. (Tseng [68] further found that online game players who are aggressive are also more willing to pay to play freemium games.)

Our aggregation in Table 4 shows that the factor *socialization* is the single main motivation for consumers to play non-freemium games. While Jansz et al. [37] found a significantly higher *competition*-related motivation from their study's male participants, they also found a high *social interaction*-related motivation among male participants which they did not expect.

3.4 Demographic attributes of freemium game players

For our analysis of demographic attributes of freemium game players by *gender*, we included columns in Table 1 and Table 2 that contain found male-female freemium game player ratios. Although video game literature overall tends to point out a male dominated player base [22, 60], our aggregated results point towards *freemium* game players being more equally divided between the sexes, and we even come across a female player dominance in six out of eleven studies in Table 1. However, compared to non-paying freemium game players, paying players were found to more likely be male (and younger) [17]. Correspondently, compared to our overview of motivations to *play* in Table 1, our overview of motivations to *pay* in Table 2 shows no female dominance.

While Lelonek-Kuleta et al. [46] analyzed *pay-to-win* games and found that the male-female ratio is approximately the same, our aggregated studies in Table 3 and Table 4 show a dominance of male participants. Since there is, however, a dominance of female participants in studies that were used to derive motivations to play a freemium game (see Table 1), we suggest that players playing *freemium* games are more often female compared to other player subgroups.

In our demographic analysis by *age*, we observe that although the mean ages of participants in Table 4 are slightly lower than those in the other tables, there are overall no significant differences in our four tables. The mean age of participants in our analyzed studies on freemium games (see Table 1 and Table 2) is usually in the early to late 20s. The typical profile of a (paying) freemium game player being young might be due to younger people having a higher risk for gaming addiction [51] and freemium games - in particular casino games - being prone to baiting and triggering consumers to addiction [10, 17]. Using in-game currencies like "gems" or "diamonds", the connection to real-world money might get lost for the younger consumer group [70].

4. Discussion

In the studies covering freemium games, a surprising result is that by Hamari, Hanner, et al. [27] who found that although a freemium game's service quality positively predicts its usage intentions,

increasing this service quality has little direct effect on the demand for additional premium services. Instead, other aspects such as *social interaction possibilities*, *player's performance*, and in-game *aesthetic*/*visual* offers had a higher influence on purchase decisions [27]. It was further found that the *enjoyment* of freemium services was positively correlated with usage intentions but negatively correlated with intentions to buy more premium content [26]. This aligns with our results of *enjoyment* (and *satisfaction* and *excitement*) being less frequently named as a motivation to *pay* (see Table 2) compared to *play* (see Table 1). The *enjoyment* of the game reducing the willingness to pay for virtual goods was also found in another study by Hamari [24]. Besides *enjoyment*, the *ease of use* is also significantly positively correlated with the game's replay value but not with any purchase intention. Players are more likely to purchase in-game content who seek gratification related to *competition*, *challenge*, and *socialization* [29].

Another surprise is that a significant *negative* correlation between frequent mobile device usage and the likelihood of making purchases was found in a study by Gainsbury et al. [17]. This might be due to customers who do not regularly use smartphones also lacking some understanding of the freemium business model in general, and thus being more prone to falling victim to its predatory mechanisms. Indeed, evidence was found that a subset of payers was indeed rather uncertain about their purchases [17].

In general, different factors can influence the purchase intentions of already paying and non-paying consumers [34]. When it comes to the willingness to pay, *continued use* generally positively predicts purchase intentions of virtual goods [24]. Already paying freemium game players are more likely to be highly involved in the analyzed games since they have a higher play frequency and engagement with the game [17]. Furthermore, there are differences in motivations between different age groups when it comes to spending money in-game. Gainsbury et al. [17] found that frequent moderate spenders tend to be younger, and that their spending motivations are to *avoid waiting* and to *buy gifts for friends*. Less frequent but high spenders are more likely to be male and older, and their main spending motive is *to increase game enjoyment* [17].

Overall, we derive *socialization* to be the main motivation from all but one aggregation (i.e., Table 3). Besides *socialization*, we find *challenge*, *leisure boredom*, and *recreation* to be reasons to *play* both freemium games and video games in general (see Table 1 and Table 3). What sets freemium game players apart from video game players in general is that they name *enjoyment* particularly often as a motivation to play (see Table 1). Found major reasons for freemium game players to proceed to also *pay* in freemium games (see Table 2) are *to continue playing*, *to unlock content*, or *to advance in the game*, as well as a *special offer*, a *good price*, and *convenience* (e.g., wanting to win faster and thus purchasing in-game content [32]) which confirms that the freemium game mechanisms applied by game developers indeed affect the consumer's willingness to pay. Those results as well as the *enjoyment* of the freemium service having a negative correlation to the purchase intention [29] also confirm the *strategic inconvenience* (Barnett, 2012, as cited in [49]) or *demand through inconvenience*-hypothesis proposed by Hamari et al. [26], i.e., that freemium games intentionally create demand through inconvenience. A common strategy by freemium game developers is to increase the desirability of additional content by intentionally increasing the level of frustration experienced within the free core game [26]. However, since such mechanisms are controversial [19, 51, 57, 62, 73], we suggest the following two basic strategies (which are still not

widely used by game developers and publishers) to improve marketing strategies and foster market positions.

- **Differentiation between markets:** We suggest a consideration of intercultural management theories or at least a differentiation between the intensity of application of freemium mechanisms in different regions or markets. For example, China's gaming market comprises mainly smartphone games and PC online games [11, 20, 38, 41] while in, e.g., Europe and the U.S., PC and console games are still doing well [11, 64] (compare also participants' country of origin in Table 1 and Table 2 to Table 3 and Table 4). If certain freemium mechanisms work well in China, developers might still want to consider whether to try such strategies in, e.g., the European market, since Europeans are still playing on traditional gaming platforms (i.e., consoles) much more often than the Chinese, which makes Europeans potentially less used to such mechanisms. In our Table 1, all studies that have China or Taiwan as their participants' country of origin have *socialization* as a motivation to play a freemium game, and we also found *socialization* to be the main motivation for paying in freemium games (see Table 2) which leads to our second suggested strategy:

- **Mechanism transparency and emphasis on *socialization*:** Freemium games often lack transparency concerning chances for achieving in-game items. Video game developers tend to disguise their games' 'gambling' mechanisms without identifying them as such [51], and they downplay their monetization in official communication [57, 62]. Besides the difficulties of developers (in particular smaller independent developers) finding their target audience and addressing them appropriately [39], difficulties also arise when further trying to keep customers. Therefore, we suggest an open communication to gain consumer trust. Furthermore, we suggest the creation of an environment with an emphasis on the *socialization* aspect since we found *socialization* to be the main motivation for paying in freemium games. Flunger et al. [15] already listed *stratified content* as a strategy to leverage the motivations and attitudes of gamers to sell virtual goods, with *socializing activities* for the less hardcore gamers being part of the *horizontal segmentation* approach within the *stratified content* strategy (cf. [28]). Social value positively affects freemium use and in-game purchases [26]. Belonging to an in-game social group can increase the motivations to buy enhancements using real money rather than relying on effort-intensive free game play [61], and players who want to extend or maintain their in-game social experience might end up regarding the basic free game as insufficient [29]. Thus, just like Shi et al. [61] suggest, developers or marketers can proactively report or highlight the quality of social groups rather than passively waiting for consumers to evaluate their credibility. Such a strategy aids consumers in building trust, and it increases the consumers' willingness to contribute to the group – and thus to the freemium game and its revenue.

5. Conclusion

This paper presents an aggregation of 17 studies to derive major playing and paying motivations and demographic attributes of freemium game players. It further contains an analysis of seven studies on playing motivations of video game players in general, as well as of seven studies on playing motivations of non-freemium game players. Major found demographic results are that although the analyzed studies' *playing* freemium game players are predominantly female, the *paying* freemium game players are mostly male. Freemium game players are *social*, *competing*, and (on average) in

their early to late 20s. We find no significant age differences between freemium game players and other player subgroups. Rather than the in-game content (e.g., story) or experience (e.g., the *feeling of being rewarded* and the *ability to freely play*), we find motivations for *playing* a freemium game to be rather environmental and to include, e.g., *socialization* and *competitiveness* (see Table 1). Besides *socialization* factors, what makes a freemium game player also become a *paying* player are *economic* factors and applied, freemium game-specific *mechanisms* (see Table 2).

Based on our findings, we underline that freemium games are subjected to slightly different rules for success compared to traditionally sold video games (i.e., games with a non-freemium business model), and we provide some managerial implications for game publishers, developers, and marketers. Since an overview of playing and paying motivations and demographic attributes of freemium game players has not been provided yet, our study can be regarded as a contribution to the overall video game research.

6. Limitations and suggestions for future research

Freemium games (and free-to-play games) in general can be social games, mobile games, and desktop PC games (cf. [15]). Since the freemium model can be applied to all game genres and platforms, an overarching issue when analyzing motivations and demographic attributes of freemium game players is the choice of game *genre* and *platform*, i.e., the choice of to-be-analyzed game players who inherently bring certain (preferred) game genres and platforms into the analysis (e.g., a comparison of different game genres can lead to drastically different analysis results [8]). The studies we used to derive paying motivations of freemium game players have a male participant dominance and an *RPG* genre focus (see Table 2). Overall, there have been different genre preferences found by gender and motivation differences by age [46], and while we see reoccurring patterns in our results, we caution that both motivations and demographic attributes might heavily depend on the analyzed game's genre and platform. We further recommend a differentiation between paying and non-paying players (cf. [32, 46]) since the freemium business model encompasses both player types. A limitation of our analyzed studies is that most of them do not differentiate between one-time and continuous spending. An important variable of the freemium business model is not conversion but retention. A player can spend, e.g., one USD once but never again afterwards, and can still be counted as a converted 'paying' customer in the data. Therefore, future analyses should focus on continuous spending (cf. [61]) to provide additional value for the business setting. Besides *age* and *gender*, many studies have also collected data on the players' *socio-demographic status* (i.e., income, marital status, etc.), *educational level*, *playing time*, and *genre preferences* (cf. [10, 17, 71, 72, 74, 18, 22, 26, 29, 32, 40, 58, 65]). Since such data is still rarely collected when conducting studies on freemium game players, we further suggest the collection of such data.

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