

# Gamers' Attitudes Toward Free-To-Play Revenue Model

Initial Findings From A Global Survey

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## Abstract

Free-to-play is a dominant revenue model on mobile phone environment. Games can be downloaded, installed and started in seconds and gamers can quickly begin enjoying the gaming experience. Yet, free-to-play is not without its downsides. Game developers producing games with monthly subscribers can guarantee their income, but developers releasing free-to-play games need to lure gamers to invest money in a game that is called "free". This has led to a situation where gamers like to play free-to-play games, but only few of them invest money in the game. This study challenges these presumptions. The survey study presented in this article is based on answers of 462 individual gamers around the globe. Our findings indicate that the majority of the gamers invest money in free-to-play games, although there is variation based on where the gamer is living. Similarly the attitudes towards grinding, advertisement, and faster advancing with money vary based on where the gamer is living. The findings are not inline with all the previous research and we recommend continuation of the research on the topic.

## Keywords

business model, revenue model, free-to-play, survey, computer game, mobile game, ethics

## 1. Introduction

Globally the video game industry, especially on the smartphone ecosystems, has become a giant during the last twenty years [1]. Due to the smartphone technology becoming affordable even in the poorest developing countries, and the hardware capabilities reaching the level where even the cheapest entry-level phone is sufficient for games, games have become truly a global phenomenon, with even the smaller game studios having customers in all continents.

Latest studies have shown how mobile gaming has increased in revenues from zero to cover 60% of the whole industry [2, 3]. With mobile gaming also the free-to-play revenue model was developed. The model has ethical issues (see for example [4]) and in this study the focus is on some of the free-to-play concepts that are considered ethically questionable.

We set the following three research questions:

1. How much gamers invest money and time in free-to-play games?
2. What are the differences in behaviours between different geographical areas?

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### 3. How is free-to-play revenue model considered among gamers?

The aim is to shed light on how much gamers are investing money in free-to-play games and how they consider the revenue model and its problems. This is the initial analysis of the data and focuses only on questions that are related to ethical parts of the revenue model.

## 2. Background

The release of Apple's iPhone and its App Store changed revenue models of digital games radically. The *revenue model* itself is a term describing how company is compensated from products or services it offers [5]. In the beginning the App Store had two types of applications / games: free ones and those, which cost 99 cents or such. Very soon it was clear that if a customer had the chance to choose between free or non-free app the choice would be the first. This made the computer game companies to innovate new revenue models as the games that would cost money to download were not successful anymore. This marked the beginning of free-to-play revenue model.

First the games were filled with advertising. The gamers would not pay money directly, but they would need to watch ads, which would then generate money to the developers. This seem to be ok for gamers, but it did not create enough revenue for the developers. That lead to more innovations and soon games would have restrictions. For example, one could only play sometime and then her character's energy would be empty. More energy would generate over time – or the gamer could spend some money to continue playing session. This lead to born of division between paying and non-paying gamers. There might be a case where gamers are playing the same game, but they have different situation based on the investment of money. Ethical balance has been shaken.

The digital gaming business has seen various revenue models over the four decades of gaming. The Table 1 clarifies the different types of revenue models. The main focus is on whether gamers are paying before they can access the game or do they pay after they have already started playing the game. Not all combinations make sense; an open source game with pay-to-win mechanics would be doomed to fail. This study is focusing solely on games that do not require any investment when gamers start the playing, but they have an option to invest money in the game during the gaming sessions. This is illustrated with light green on the Table 1.

Fast forward to 2023 and basically all the mobile games are following free-to-play revenue model. There has been research on the ethical side of the revenue model. The research shows that free-to-play revenue model exposes gamers to addictive behaviour [4], how random rewards (so called *loot boxes*) in games produce ethical problems [8] and how game development and logic are not transparent and thus gamers do not know whether certain rewards are worth achieving [9, 10].

Alha [11] argued how the focus of free-to-play research has been more on economic side; how to make more profit, how to maximize the player base. The societal implications and critical reviews have been in minority. This is especially important when considering how Dreier et al. [4] found out how whales (those how use a lot of money in free-to-play games) share significant characteristics with addicted video gamers. Free-to-play games can foster

**Table 1**

The revenue models – and their example games – of modern digital games loosely based on [6, 7]. Black options are not used (they would hardly make any sense), and dark gray ones are hardly successful ones. This study focuses on the light green part (different shades are only used to clarify the cell borders).

		How to pay before playing				
		No paying			Paying	
		Open source	Freeware	F2P	P2P	S2P
How to pay while playing	None	Gnu Chess	MoleZ		Quake, Original Angry Birds	World Of WarCraft
	Donation	0 A.D.	Angels That Kill - The Final Cut			
	Ads			Angry Birds		
	DLC			Kingdom Rush	StarCraft	
	P2W			Dungeon Keeper (2014)		
	Diamonds			Forge Of Empires, AngryBirds 2	Kingdom Rush Vengeance	

DLC = downloadable content, F2P = free-to-play, P2P = pay-to-play, P2W = pay-to-win, S2P = subscribe-to-play.

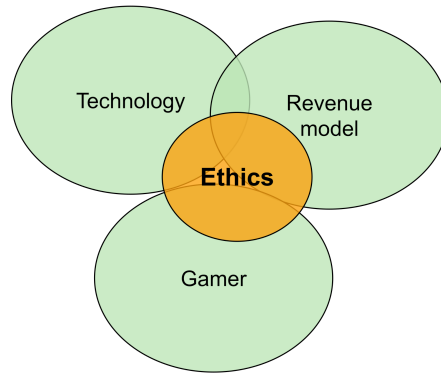
internet gaming disorder (IGD). They even argue that dolphins (those who use money, but not as extensively as whales) are in the risk group of getting IGD.

In Fig. 1 the ethical questions are positioned to include both technical and business side decisions, but also decision gamers make when they are using money and time within the game. Developers make ethical decision already if they decide to go on with free-to-play revenue model. In the game they might design features that support getting more money instead of serving the gaming experience. Similarly the gamer itself makes decisions to use money or watch ads, which can lead to situations that are not ethically sound.

Thus, there is more to study in the world of free-to-play games and gamers' behaviour. There are issues, shortcomings and evolution in the revenue model and business logic. This study dives into these issues.

### 3. Research process

The study follows the same pattern [12] as the previous study we conducted [13] and thus replicates it with a larger and global respondents' pool. The online survey was created with Google Forms in the end of 2021 and it was then opened to the public. The survey was advertised in various social media platforms (such as Twitter, Facebook and several game-related Discord



**Figure 1:** Relation of ethics to the free-to-play game business in this study.

servers) and distributed in university intranets and through individual connections. The survey had a control question to filter out answers that were not honest.

In the fall of 2022 Amazon mTurk was utilized to gather responses from countries that had provided no answers. The survey was opened to several areas at a time and when respondent(s) pop up from a country, it was excluded from future mTurk batches. Two more control questions were added in this phase so that the risk of dishonest answers would be lower.

In December 2022 the survey was closed. In the end 484 responses were recorded and 462 were accepted. 22 respondents did not answer correctly to some of the control questions and missing even one was a reason to reject the response. In total the survey had 36 questions divided into three sections each having its own control question and open ended comment box where respondents could open their answers and give additional comment regarding the topic.

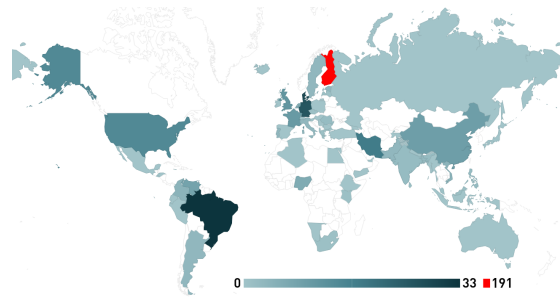
The survey was anonymous and available only in English. The analysis of the data was conducted with spreadsheet software.

## 4. Results

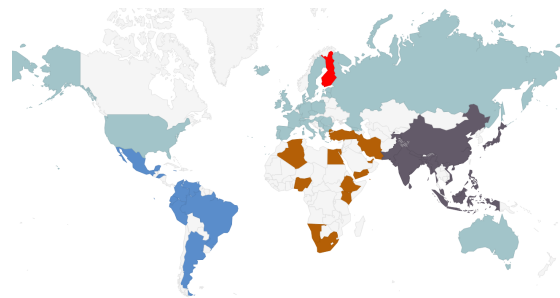
### 4.1. General results

In the end a dataset of 462 answers was gathered. As the initial idea was to collect data globally, the aim was to get data from all the continents, but despite the effort the number of respondents from African countries was low. The Fig. 2 shows respondents' countries on the map. 65 different countries were represented in the dataset. Largest numbers of respondents were from Finland, Brazil, Denmark and Germany.

191 (41%) respondents were from Finland, which is a risk for bias if the dataset is discussed and manipulated as a whole. Thus the decision was made to divide the dataset into smaller portions. The original idea was to use 5 areas: western world, Latin America, Africa, Middle East, and East Asia. The lack of African respondents lead to decision to combine African and Middle East data and leave Finland to its own portion. This division is illustrated in the Fig. 3 and the key numbers of these areas are presented in the Table 2 and Table 3. Although, for example, Japan is member of Organisation for Economic Co-operation and Development (OECD) like



**Figure 2:** Countries respondents reported to be located in.



**Figure 3:** Division of the areas that were decided to use when grouping the data. Red = Finland, grayish blue = Western world, blue = Latin America, brown = Middle East and Africa, grayish purple = East Asia.

**Table 2**

The level of highest degree of education in different areal groups.

Area	Respondents	Highest degree of education				
		None	Primary school	Highschool or equivalent vocational school or similar	University degree	Doctoral degree
Finland	191	0	3	75	100	13
Rest of the western world	138	1	3	54	74	6
Latin America	59	0	1	15	40	3
Middle East and Africa	36	0	0	6	30	0
East Asia	38	0	0	15	22	0

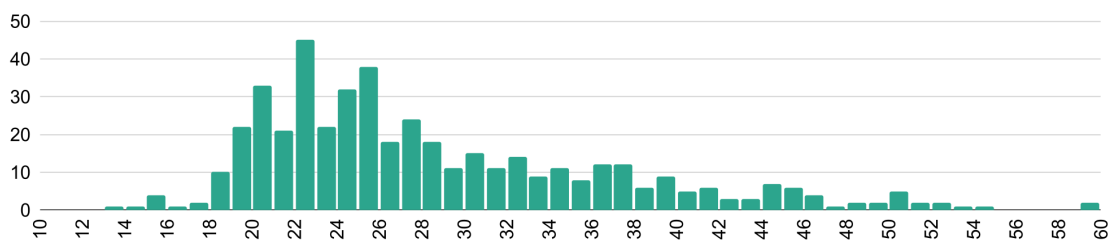
all the countries that are listed as "western world", it is still considered to be part of the Asian group here as the gaming habits in Asia and Europe and North America are different. Reasoning for different grouping can be made [14] and we are not arguing this would be the best, but it is a starting point when analyzing the data.

This leads to second and third possible bias issue. 62% of the respondents have a university degree (Table. 2) and 50% are students (Table. 3). On one hand this indicates that the data is not within normal distribution, but on the other hand students are a big group of gamers.

**Table 3**

The gender and occupation in different areal groups. M = Men, W = Women, O = Others, N = Do not wish to tell

Area	Gender				Occupation				
	M	W	O	N	Student	Full time work	Part time work	Unemployed	Other
Finland	121	62	4	4	118	60	6	6	1
Rest of the western world	83	50	5	0	74	41	15	2	6
Latin America	43	16	0	0	5	43	7	3	1
Middle East and Africa	30	5	0	1	11	15	8	0	2
East Asia	31	5	1	1	23	12	2	0	0



**Figure 4:** The age distribution of the respondents.

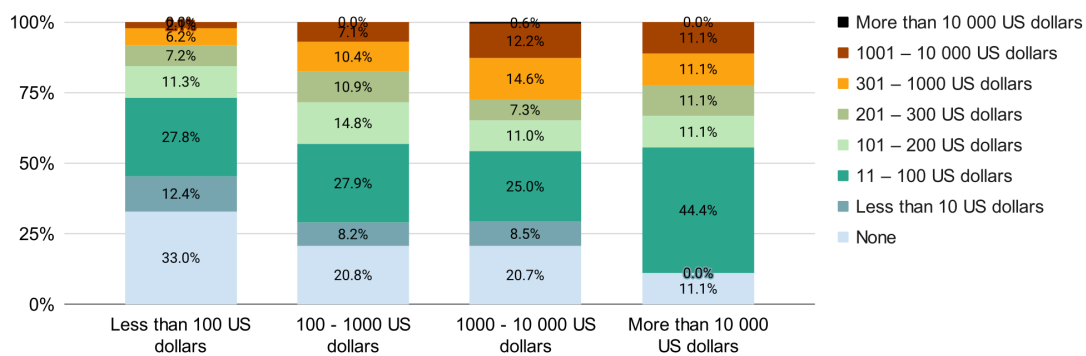
Nevertheless it should be noted this study requires more replications to decrease the data bias.

The age distribution of respondents is presented in Fig. 4. This reflects the overall gamer population, where the gamer population is soonish reaching the retired population. Young people have more time to play games – as many older respondents commented on the survey: "the life got in the way" and thus the number of hours spent in gaming has decreased.

As free-to-play games are not actually free, but include lot of options to invest money in the game, it was asked how much respondents have invested in free-to-play games in total. It was also asked what is the income level of respondents. This is presented in Fig. 5. It is no surprise that the more is one's income the more is she investing in free-to-play games. Even in the group of gamers whose income is less than 100 US dollars in a month almost 70% of respondents have invested money in games; and more than 25% have invested more than a monthly salary in free-to-play games in this group.

The Fig. 6 illustrates the investment habits of gamers in the selected areas. There are some interesting notes to take. Based on the data gamers in Latin America are more interested in investing money in games. On contrary African and Asian gamers are more reluctant to invest money. The Fig. 7 explains some of these issues as it indicates that the respondents from Africa and Asia have lower income level. Nevertheless it does not explain the finding why Latin Americans tend to like investing on wider range into games.

Yet the biggest finding here is the fact that only 23% of the respondents tell they have not used any money on free-to-play games. More than three quarters of the gamers have invested

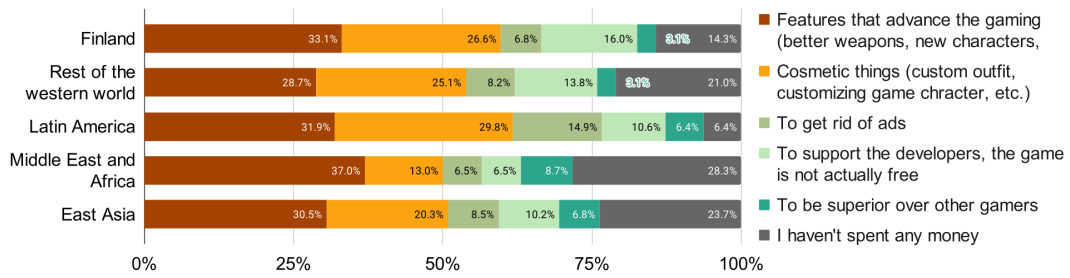


**Figure 5:** Gamers' monthly income (x-axis) vs. total investments in free-to-play games (y-axis). Note that there were only 9 respondents whose monthly income was over 10 000 US dollars.

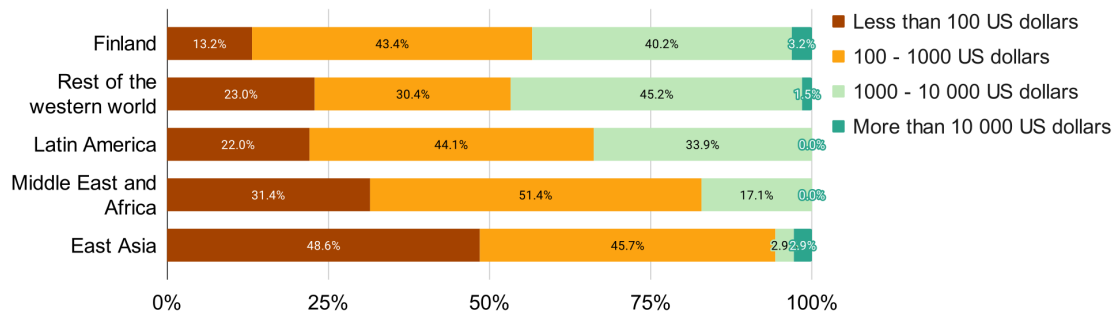
at least some money in some free-to-play game. We first encountered this discovery in our previous study among Finnish gamers [13], but it clearly seems to be a global phenomenon. For example [15] argue that 1-10% are paying gamers, where in this study the number seems to be bigger than 10%. The [15] is focusing a revenue stream of a *one particular game* at a time and we are focusing a *one particular gamer* at a time. This means that although gamers clearly are investing money in the free-to-play games, they can do this only to some of the games they are playing. Thus we also asked percentage of games the gamers are investing in. The Fig. 8 shows that majority of gamers spend only a very little to none. 55% invest money in less than 10% of the games they play. 10.4% of gamers invest money in more than half of the free-to-play games they play. This study underlines the evolution of the free-to-play revenue model in that sense, that it is far more common to invest money in "free" games that it was ten years ago. When this issue is opened more widely, the change is illustrated a better way. The Fig. 9 illustrates how there are gamers who invest some money in some games, gamers who invest a lot of money in some games, gamer who invest a lot of money in a lot of games and gamers who invest no money at all. This underlines the issue that in our data it is very hard to define who is a "whale", when more than 10% of the respondents invest in more than half of the games and more than 8% have invest more than 1000 dollars into free-to-play games – but these groups are not totally overlapping as the Fig. 9 illustrates. When combining these there exist 77 respondents, which is almost 17%. We are not arguing that there would not be whales and dolphins, but we are arguing that based on this data the group of gamers who invest in free-to-play games is bigger that just 10%.

#### 4.2. Results considering the ethical sides of free-to-play revenue model

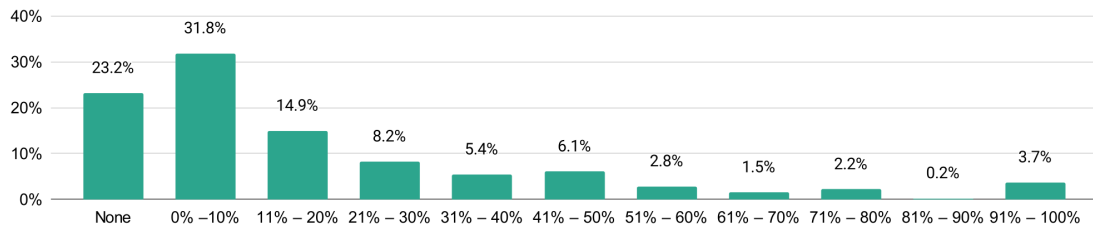
The idea of traditional software is to minimize the time to spend on a some specific task. The idea of game is the opposite: to get the gamer spend as much time with the game as possible. This is even more crucial with free-to-play revenue model where the more gamer spend time within the game the more she has changes to invest real money in the game. Mobile phones are more and more important to our daily life and the usage of them surpassed TV viewing already



**Figure 6:** To what are the gamers investing in free-to-play games.



**Figure 7:** What are the income levels of gamers.



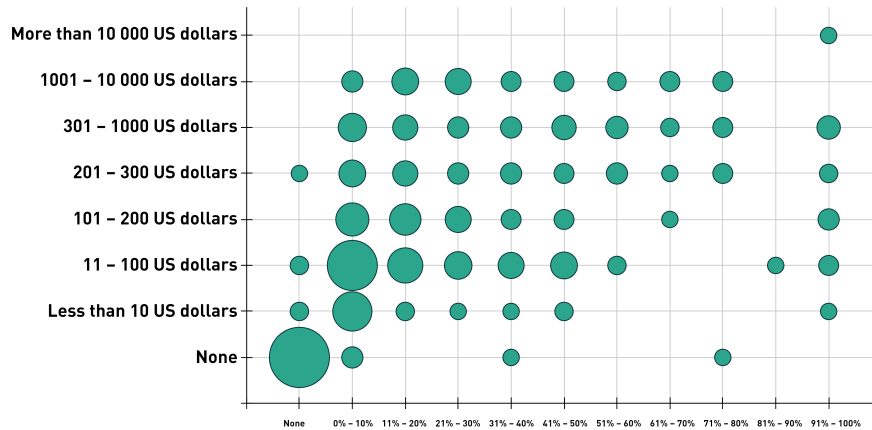
**Figure 8:** On what percentage of games one is investing money in.

in 2014 [3].

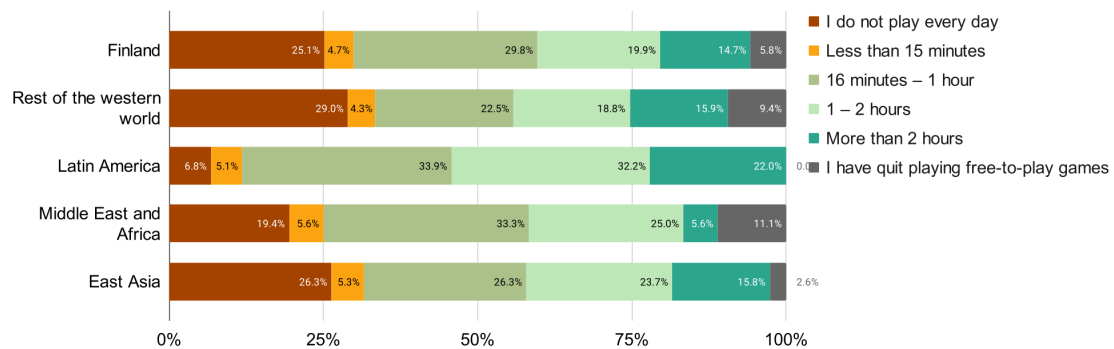
To get an idea on how much respondents spend time on playing free-to-play game, we just simply asked it. The Fig. 10 illustrates how most of the respondents spend from 16 minutes up to 2 hours per day. There are also some who do not play daily or play just few minutes. Yet depending on the area 5 to 22 percent of respondents spend more than 2 hours on free-to-play games. 2 hours a day is a lot – especially if one has a full-time work and/or family. It has been argued that free-to-play games generate higher perceived stress and applied dysfunctional coping strategies more frequently [4]. In this study the respondents from Latin America seem to spend most time within free-to-play games.

One of the question was *What do you think about the following free-to-play game features?*





**Figure 9:** The total amount of invested money in free-to-play games and the percentage of games money is invested in.



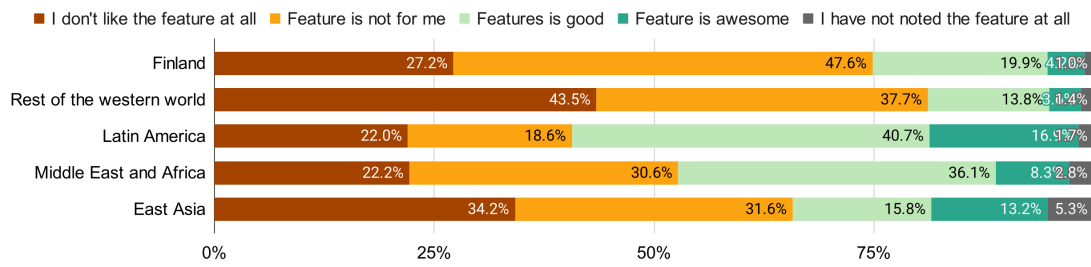
**Figure 10:** How much gamers play free-to-play games daily.

and there were four statements under this question: *Gamers using real money can advance faster, (Boring, too hard, etc.) parts of the game can be bypassed with money, Games have ads and One has to grind a lot.* The results divided into areas presented before are shown in the Figures 11, 12, 13 and 14.

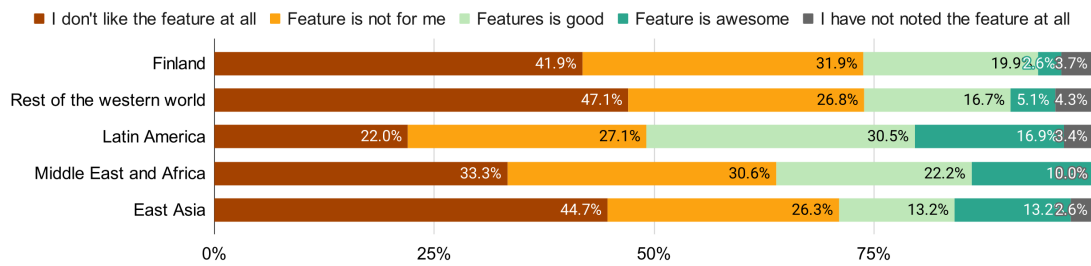
The overall idea of other gamer advancing faster and combating with better weaponry just because they are using real money in free-to-play game is very controversial topic. When this is taken to the extreme the game logic is called *pay-to-win*; to win, you need to pay money. One of the respondents illustrated the topic with the following quote:

60 euros in mobile games often gets you almost nothing (if you play a game where the money goes towards progress, not just e.g. cosmetic skins). To be actually competitive you'd have to spend hundreds, possibly thousands if you play long enough for the money to make any difference.

This underlines problems of free-to-play / pay-to-win concept. One can buy new things and advance in the game with real money, but there rarely is any upper limit on how much one can



**Figure 11:** Responses to the statement: "Gamers using real money can advance faster"



**Figure 12:** Responses to the statement: "(Boring, too hard, etc.) parts of the game can be bypassed with money"

invest in a game. In this study one gamer reported to have spent more than 10 000 US dollars in free-to-play games. In addition to that 36 gamers have spent more than 1000 US dollars. These so called *whales*, who spend a lot of money, are very important to game developers [16], but it rises a question how ethical can this be?

The data collected for this study shows how the feature allowing advancing faster with real money is disliked in most of the areas. Only respondents from Latin America consider the feature ok. In Africa and Middle East the feature just barely disliked, but respondents is East Asia and Western World (including Finland) do not considers the feature ok. When respondent dislikes the option to skip some parts the option can backfire as one respondent describes in the following quote:

"If I notice grinding can be skipped in-game by paying money, I stop playing immediately."

Skipping boring or too hard parts of the game just by paying some real money is disliked even more than advancing faster with money (Fig. 12). Once again Latin America stands out being the only area where less than half of the respondents dislike the option to skip some parts of the game by using real money. Are we seeing a pattern here?

Ads in games are even more disliked and this topic is also disliked in every geographical area we have set (Fig. 13). Although watching ads can be seen as an alternative to pay directly to developers, they are much disliked. In some games one needs to watch and ad once per gaming session, but in some games there are ads after each map or such, so if one needs to play the same map over and over again, she will have to watch a lot of ads that can vary from 5 seconds snipped to 30 seconds bombardment. One respondent commented the role of ads with

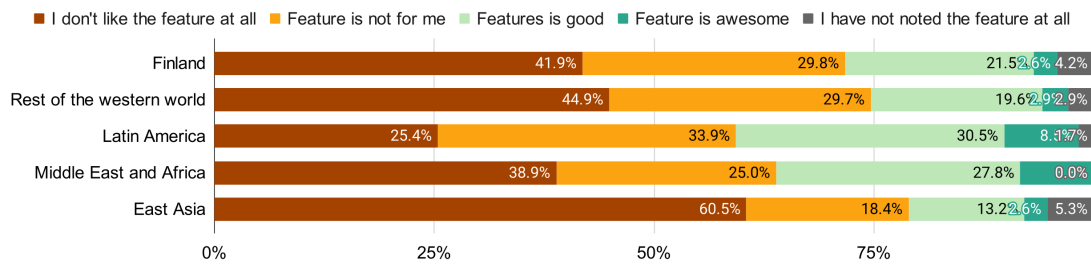


Figure 13: Responses to the statement: "Games have ads"

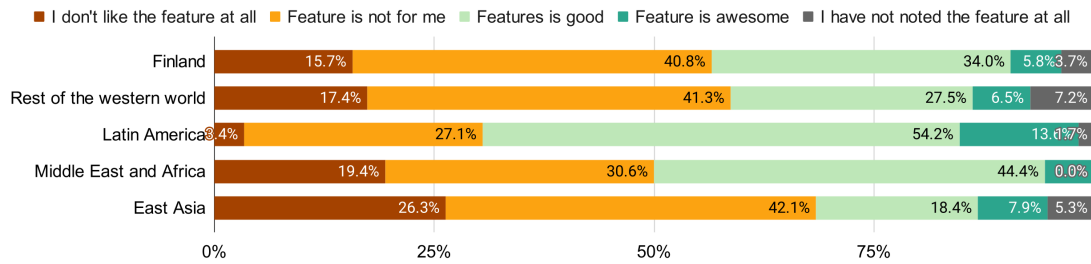


Figure 14: Responses to the statement: "One has to grind a lot"

the following quote:

"I have stopped playing many games due to ads being too frequent."

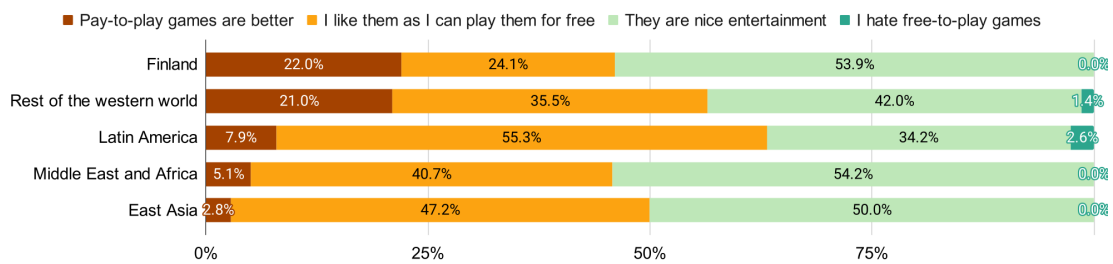
Ads in games are disliked everywhere – yet, the most positive view towards them was from Latin America.

One of the most interesting things to study in free-to-play games is the role of grinding. Grinding is a feature where one needs to repeat the same gaming part over and over a again to get enough money, experience or something valuable in the game. In free-to-play games this can usually be skipped with real money. Grinding can be interesting part if it is present in small amount, but when the whole game is focusing over grinding, it soon becomes boring.

The respondents in this study disliked grinding, but there there are less heavy disliking ("I don't like the feature at all") than in the previous questions (Fig. 14). It is more acceptable than ads for example. Once again the respondents from Latin America seem to have more positive view on grinding as only 30.5% dislike the feature. On the other side the respondents from East Asia dislike the grinding most. This comes as a surprise as previous research has shown how the model originates from Asian [17] markets.

When asking reasons to *Why do you play free-to-play games*, we gave six sub-categories and options *none*, *not much*, *some*, *a lot*, and *I cannot tell*. It was then translated to scale 1 to 4 and average values were calculated. The option I cannot tell was bypassed.

The sub-category *Games bring joy to my life* was consider true for almost all gamers (avg. 3.53). Only few East Asian gamers substantially reported to play free-to-play games without them bringing any joy (avg. 3.29).



**Figure 15:** Responses to the statement: "What are your thoughts on free-to-play games in general?"

The sub-category *There are nice people in games* created more distribution. The average was 2.63 and Latin American gamers scored 3.11. Not all games have multiplayer options so it really depends on what type of games one likes to play.

*I have used money* gave 1.98 as average answer, but once again the Latin American respondents were a bit off as the average of their answers was 2.50. Mainly the already invested money was not seen as the reason to play, but in Latin America that played a bigger role.

The average for the sub-category *To kill time* was 3.10 and once again only Latin America was substantially different as the average of the respondents there was 3.36.

The sub-category *I have addicted to game(s)* was given average score 2.20 and here the Latin America scored 2.50, but Middle East and Africa score even higher average 2.60.

With *Games provide new tasks every day* the average score was 2.46 also here Latin America, and Middle East and Africa scored higher: 3.02 and 2.91.

Finally we asked respondents to give their thoughts on free-to-play games. There were four options: *Pay-to-play games are better*, *I like them as I can play them for free*, *They are nice entertainment*, and *I hate free-to-play games*. The Fig. 15 illustrates the responses.

The hating option was selected only by three respondents, which is even lower percentage (0.6%) than in our previous study (1.4%). Respondents from the western world (including Finland) would prefer pay-to-play games more than gamers in Latin America, Africa or Asia. In our previous study the option *They are nice entertainment* was selected in 63.7% of the cases. Also in this study Finns, and Middle East and African respondents were the top groups of selecting the option. Still the overall percentage (48.5%) is significantly lower than in the previous study within the Finnish gamers. Whether this is just because western gamers might have better income is something further analysis of data might reveal.

It will require further analysis on why Latin America is standing out from the data. This study has 462 respondents and 59 of those are from Latin America (13%), thus we consider that it provides sufficient cover over the area.

## 5. Discussion

In the beginning we set the following three research questions:

1. How much gamers invest money and time in free-to-play games?

2. What are the differences in behaviours between different geographical areas?
3. How is free-to-play revenue model considered among gamers?

Summarising the results for the first research question we argue that gamers are investing more and more money into free-to-play games. This is inline with our previous study, but it is somewhat contradicting older research (such as [15]). Free-to-play games are not considered as free in the sense that they would not require money – although circa 23% of the respondents have not used any money at all. The 10.4% of the respondents have invested money in 50% on more free-to-play games they are playing. 55% are investing in less than 10% and 34,6% are between these ends. We cannot agree with the "old" saying "1% of the free-to-play gamers bring the money". Based on the data presented in this article we argue that most of the gamers bring money to developers, but of course there are still so called whales who bring more than others – but their role seems to be decreasing.

In this article we compared five geographical areas: Finland, rest of the western world, Latin America, Africa and Middle East, and East Asia. The aim was to try to find out any differences between the areas. The most formidable finding was that Latin American gamers seem to be more compliant with free-to-play revenue model and its features – such as advertising and grinding. This result was not expected as the gaming blogosphere is full of writings how Asian games have a lot of grinding, which is then disliked in the western world. This study reports how East Asian gamers are the most against extensive grinding.

The overall consideration of free-to-play revenue model is clearly positive. Gamers are not hating free-to-play games, but instead they are investing money in games. In the western world pay-to-play games are considered a suitable option for free-to-play games, but the gamers of free-to-play games in the rest of the world would seem to prefer free-to-play games more – although gamers invest money in free-to-play games whether they are from Finland, Germany, Brazil, Iran or China.

That being said there are also some features that are strongly disliked. The inequality of paying and non-paying gamers is one such feature. Yet, this is the core of free-to-play revenue model. Using money to advance faster or ease the game with money are disliked. Similarly advertisements are not liked. On the other hand, grinding divides opinions. Some gamers do like it (especially in Latin America) and some do not. We could not identify East Asians prefer grinding more than other groups. Actually the results seem to indicate the opposite.

So the ethical and unethical issues with free-to-play games are still existing, but gamers are investing money into free-to-play games. If the acceptance of investing money into free-to-play games is still increasing, it makes us wonder whether we are going to see the rerise of pay-to-play games, but this time branded as *games with ethical business model* or *games with no in-app purchasing*?

As for threats of validity, to maintain the validity of this study against the common threats (for example [18]) the questionnaire was developed following guidelines set by [12], the questionnaire and the collected data was discussed with all the authors of the article to avoid personal bias, and overall, the data collection phase implemented techniques such as control questions, to ensure that the answers were submitted by real people and by real meaning, even though anonymously. Obviously, because of the nature of the data collection, it is impossible to

completely remove bias towards population favors in some identifiable group such as degree of education or level of income, but at least the group of people who answered represents all genders, age groups, “hardcore” fans and casual players with different income groups and investing levels. Overall, the metrics presented in this paper are accumulation data from the survey, so the researcher bias, or statistical inaccuracy on the results should be minimal and not a meaningful issue. It is also noteworthy that although framing effect was tried to minimize in the survey design, there is still a risk that it was not achieved with every question

## 6. Conclusion

In this study we gave the initial results from the global survey of free-to-play gamers’ thoughts towards the revenue model. The main findings of the study are that the results follow and fortify our previous study conducted within the Finnish gamer population [13], the gamers are investing money into free-to-play games and the idea of only 10% of the gamers investing in free-to-play games seems to be a bit outdated in 2020s. In this study the global answer pool was divided into geographical areas and the main finding was the realization how gamers in Latin America seem to be approbative towards free-to-play revenue model concepts than rest of the respondents.

The data needs more analyzing and the next steps are continuing cross tabulation and intersectional analyses. Although this study fortifies the previous study it still leaves questions and the need of continuation of the research exists. The journey in the world of free-to-play gamers will continue.

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