Game Ethics and Real-Time Mobile Gaming

Graduation Project

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1

HOw DLC WAs BORN:

Hey - what if we just chopped up the final product and sold some of the pieces separately, as "extras."

I don't think that gamers would just stand for that, sir.

HOw PAY-TO-WIN WAs BORN:

Hey - what if we made games that were "free," but then we make the game basically unplayable unless you pay a bunch of money all the time?

That sounds like a terrible business approach that no one would ever -

HOw EARLY ACCESS WAs BORN:

Hey - what if we charged people to test our games?

Making people pay money to play unfinished buggy games is the dumbest -

It seems like consumers like being cheated like garbage! What's the next big idea, sir?

What if...

Honey! Where's my credit card?

LITERALLY JUST A PILE OF GARBAGE! Maybe there'll be a game in the pile!

$69.99

Publish date: 11 August 2015

1 Comic by Julia Lepetit
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Abstract

This thesis was written during my Internship at Ambient Coding and KeoKeN Interactive. It consists of two major themes: Game Ethics and Real-Time Gaming.

Game Ethics is about finding an ethically correct business model for games. The business model has two big ethical aspects: the Customer Value Proposition (CVP) and the Revenue Model. CVP is about putting the customer (gamer) in first place. Using aspects that conflict with the CVP, like Fun-Pain, should be avoided. The Revenue Models together with the sellable parts of a game are evaluated using The Code+. The Code It is a set of principles created for programmers as a moral guideline. I added the principle: “Transparency” to make it more suitable. With this addition I created The Code+.

With the help of a survey I could find out what revenue models I should use and which I should avoid. Basically I concluded that selling the whole game all at once using the Production Model is the most preferable and ethically correct option.

Real-Time Gaming is about finding a way to create an online real-time multiplayer race game for Android. To create such a game there are two important aspects. The first one was about selecting the game engine. I chose Unity3D 4, since it delivered the best support for mobile games. The second aspect was deciding which service to use. This happened to be a race between Photon Unity Networking and Google Play Game Service. The difference between the two services was tiny. The decisive aspect was the scalability of Google Play Game Service before getting any costs.
1. Introduction

As a Software Engineering student of the Amsterdam University of Applied Sciences. I have had the opportunity to create multiple applications, mobile apps and completed the researches on a number of subjects. For my thesis and last project as a student I wanted to find a challenging and fun assignment. I came in contact with two entrepreneurs: Johan Terink from Ambient Coding and Koen Deetman from KeokeN Interactive. These companies are located in the same office and share their experiences to create games, websites, mobile apps and other kinds of software. I have always had an interest in creating games, but never took the rare opportunities, so this time I did not hesitate and since I had some mobile development experience, we quickly came to the conclusion that I could do an internship for these companies to create a mobile game.

The assignment started with the idea of a small mobile game, but after a few brainstorm sessions it became larger and more challenging. The final idea was to create a race game which could be played with other people real-time on mobile devices.

During these brainstorms we also came to one very important conclusion. We did not want to make a game all about exploiting people for profits. Like young children buying virtual goods without consent of their parents, people draining their saving accounts to keep playing and fun-pain! Thus ethics and earnings became a large chunk of my research.
1.1 Research Questions
This research contains two major themes: **game ethics** and **real-time gaming**.
For both of these themes I used a similar approach, as shown in Figure 1.

![Research Approach Diagram](image)

**Figure 1. Research Approach**

**Game Ethics**
I started with analyzing the problem, so I could create a singular research questions “*What is an ethically correct business model and useable for games?*”
Secondly I needed to figure out what I required to learn to answer the research question. This created the “learning questions”. For Game Ethics this meant I had to learn about what defines ethics and how I could measure these. I needed to learn about what kind of business and revenue models exist. What parts of a game should be sold. To top it all off I found out I needed some feedback from consumers, so I also had to create a survey. At the start of the themes I define the learning questions.
With the learning questions in place I could actually research the subject. for Game Ethics I have split the learning questions in multiple categories. Each category became a subchapter, having multiple subsections where I find answers to the learning questions.

**Real-Time Gaming**
Also starts off with defining the research question: “*How do I create a real-time online multiplayer game on Android?*”. As for the learning questions, I needed to look for known solutions. Finding the correct game engine to use, but also what kind of service for the online aspects I could use. After making these decisions I still had some learning questions how I could implement the API.

After answering the theme’s learning questions, I will give my conclusion, giving an answer to the research questions. The Game Ethics theme will also have an extra discussion chapter, giving some final thoughts I have about the subject.
2. Game Ethics

As already described in the introduction I will answer the research question: "What is an ethically correct business model and useable for games?", by answering a few learning questions first.

Learning Questions

Ethics
- When is something ethical?
- How can ethics be measured?

Business Models
- What does a business model contain of?
- What kind of business models exist?

Game
- What kind of revenue models can be applied within games?
- What can be sold?
- What should be sold?

Consumers
- What do people prefer?
- What should be sold and how?

After answering the initial learning questions I still had some questions that needed to be answered.

Survey
- Which payment models are used most?
- Which models are most preferred?
- How are DLC and Expansion Packs different, comparing the numbers?
- What do the players deem fair and fun?
- What are the general opinions on being discomforted in games?
- What do people think of Early Access?
- What do people think of Queues?
2.1 Ethics
Question and Research
To be able and form an opinion about game ethics, I first needed to have a better understanding about ethics in general. The learning question: “When is something ethical?” gave me enough information and send me in the right direction to answer the follow-up question.

Q:  When is something ethical?

R:  subsection 2.1.A  Shows the literal definition, with a broader definition. Concluding in the need of finding a set of morals.

I was required to find a method which would involve making ethical justified decisions for the business models I would review.

Q:  How can ethics be measured?

R:  subsection 2.1.B  Shows the method I found
    Programmer and Salesperson Ethics
    subsection 2.1.C  Compares the method with the interests of the stakeholders.
    Game Company’s Stakeholders VS The Code
    subsection 2.1.D  Expands the original method.
    Upgrade The Code

.
2.1.A Ethics and Morals
The (Oxford) dictionary defines 'ethics' as:
- Moral principles that governs a person’s behaviour or the conducting of an activity.
- The branch of knowledge that deals with moral principles.

The (Oxford) dictionary defines ‘morals’ as:
- Concerned with the principles of right and wrong behaviour
- Concerned with or derived from the code of behaviour that is considered right or acceptable in a particular society:

Ethics and morals are both about what is right and what is wrong. However, they are not the same. There is a big difference between the two. Ethics are defined by a certain group of people who live in a certain time and place. The group decides as a whole what is right and what is wrong. Morals however are personal, an individual decides what is right and what is wrong. Ethics can and will overlap with the morals, but it is also possible they conflict with each other. It is the choice of the individual to do the right thing (morally) or do what is socially acceptable (ethically).

Although ethics are set by people, the context in which ethics are set is crucial. Without full knowledge of the implications and the setting of a problem it is meaningless to decide about right and wrong.

I came to the conclusion I needed to find a set of morals which would work for me, but would also be socially acceptable to the consumers and public.
2.1.B Programmer and Salesperson Ethics

To find this set of morals I first started looking at ethics in software development, since I am a programmer of this game. I quickly came across the paper: *Software Engineering Code of Ethics Is Approved* [1]. The writers have reviewed The Code which exists of eight Principles. These Principle are related to the behaviour of and decisions made by professional software engineers.

The eight Principles identify those who are ethically responsible and which various parties participate as well as the primary obligations they all have within these relationships. A summary of the code can be seen in Figure 2.

**Code of Ethics at first glance [1]:**

1. **Public:**
   Software engineers shall act consistently with the public interest.

2. **Client and Employer:**
   Software engineers shall act in a manner that is in the best interests of their client and employer consistent with the public interest.

3. **Product:**
   Software engineers shall ensure their products and related modifications meet the highest professional standards possible.

4. **Judgment:**
   Software engineers shall maintain integrity and independence in their professional judgment.

5. **Management:**
   Software engineering managers and leaders shall subscribe to and promote an ethical approach to the management of software development and maintenance.

6. **Profession:**
   Software engineers shall advance the integrity and reputation of the profession consistent with the public interest.

7. **Colleagues:**
   Software engineers shall be fair to and supportive of their colleagues.

8. **Self:**
   Software engineers shall participate in lifelong learning regarding the practice of their profession and shall promote an ethical approach to the practice of the profession.

In addition to The Code I found the article *Ethics for Sales Pros* [2]. The writer explains that a salesperson has responsibilities to certain entities. Some of these entities are stakeholders like the “End-Users”, but he also explains that you need to have a responsibility to your own moral compass.

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2 For the duration of this research I will mention the ‘Code of Ethics’ as ‘The Code’.
Ethics for Sales Professionals

- **Responsibility to End-Users**
  The consumer of the product or service is the end-user. The end-user has to be treated fairly. Selling products that are not safe or do not give the results promised are not done. To test responsibility you could ask yourself if you would advertise/recommend this product to a close relative or friend.
  More about this on Customer value proposition in subsection 3.2.A Business Model Breakdown.

  This responsibility is handled in The Code principles: ‘Client and Employer’ and ‘Product’

- **Responsibility to Their Consciences**
  Each company has to do what is right according to their own moral standards. Sometimes it could seem a company has a clear conscience, but this might not be the case. When a company gets caught doing something unethical it can damage their reputation.


- **Responsibility to Their Purchasers**
  This is all about not tricking the purchasers into buying something they do not want or do not need. Lying, selling unnecessary products or giving empty promises are just a few examples.

  This responsibility is handled in The Code principles: ‘Public’ and ‘Product’

- **Responsibility to the Community**
  A product or service should not damage its surroundings and even if it is not harmful on its own, it has to be taken into account what would happen if everybody in the business did this.

  This responsibility is handled in The Code principle: ‘Public’.

- **Responsibility to Their Companies**
  Salesperson represent the companies they advertise for. They have a responsibility to not show bad behaviour and uphold their own credibility, since the company’s credibility depends on theirs.

  This responsibility is handled in The Code principles: ‘Client and Employer’

Even though programmers and salespeople have very different jobs, their responsibilities towards the stakeholders are about the same. The Sales ethics are focused on selling and thus not taking everything into account. However I believe it to be a nice addition to The Code’s principles to be the perfect base of the set of morals to use for this research. They are the guidelines that seem to watch over the interest of most parties. To test this I must first make sure that all stakeholders are present as in the principles.
2.1.C Game Company’s Stakeholders VS The Code

Stakeholders are individuals or groups with which business interacts who have a “stake”, or vested interest in the firm. Stakeholders are integral constituents in the business and society relationship. As stated in the book: **Business & Society [3]**. The Code contains the guidelines for the programmer, the principles cover some of the stakeholders interests. To get a better understanding what covers who, I have created a diagram (Table 1.).

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<th>Judgment</th>
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*Table 1. The Code vs Stakeholders*

It seems investors are not covered in The Code. After further analyzing the investor’s interest it became apparent for me what The Code was missing: transparency. Transparency is vital for any investor, they need to know what they are investing in. Not only to evaluate if they are going to make money out of it, but also because they would not like to invest in unethical practices.
2.1.D Upgrade The Code

Since The Code does not cover any of the investors interests I would like to add *Transparency* as a new principle to my own code: **The Code+**.

*Transparency*

1. Intentions of a company should be made clear to the public and investors.
2. Product’s and service’s terms and conditions should always be lucid.

Transparency is a large principle and has a different meaning for all stakeholders. Employees for example would like to know what they are up against, if the company is healthy so they know they will not be jobless if the company has a bad year.

Transparency for the customers is also very important. People have the right to know what they are buying and if it was, for example, created under fair circumstances.

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<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
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<td>Government</td>
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<td></td>
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<td></td>
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<td>X</td>
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<td>Investors</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Table 2. The Code+ vs Stakeholders*

With this addition The Code+ seems to be complete as seen in Table 2. The stakeholders are taken care off in all the general aspects. I can now use The Code+ as a measurement guideline.
2.2 Business Models

Question and Research

With The Code+ in place as my ethical guideline it is time to take a look at the business models and revenue models used within the gaming industry. First a better understanding of the business model is required before focusing on the revenue models.

Q: What does a business model contain of?

R: subsection 2.2.A Shows and explains the business model.
Business Model Breakdown

subsection 2.2.B Shows the difference between investors and
Investors and Publishers publishers.

Without examples of normal revenue models, I will not be able to compare them to game revenue models.

Q: What kind of business models exist?

R: subsection 2.2.C Explains the different revenue models.
Revenue Models
2.2. A Business Model Breakdown

Business model as a whole is not defined by a dictionary, but the terms business and model are. The (Oxford) dictionary defines the following words as:

Business:
- Commercial
- activity

Commercial:
- Making or intended to make a profit

The online Cambridge dictionary defines model as:
- Something that represents another thing, either as a physical object that is usually smaller than the real object, or as a simple description that can be used in calculations.

By combining these terms we now have a basic understanding. A business model is a representation on how a company makes money from selling goods and or services.

The business model is explained, defined and redefined by many people over the years. The definitions and approach of the article Reinventing Your Business Model [4] is my favorite so far. The reason for this is the focus on the customer.

“A business model, from our point of view, consists of four interlocking elements that, taken together, create and deliver value. The most important to get right, by far, is the Customer value proposition” [4].

The other elements mentioned in this article: Key Resources, Profit Formula, and Key Processes. Figure 3 shows all these elements plus the profit formula’s elements.

Figure 3. Business Models
1) Customer value proposition (CVP)
The customer value proposition or CVP for short. Is the link describing what value a product or service offers to the consumer. The value differs per consumer since each consumer has its own tasks and problems to solve.

For games this includes elements such as: Gameplay, servers uptime, updates, playerbase and much more. The main reason to buy games is having fun and in some cases to learn.

To create a successful CVP, the customer first needs to be profiled.
Three aspects have to be charted (Figure 4. right side).
- **Customer Jobs**
  The tasks they need to perform or problems they require to solve.
- **Pains**
  All negative emotions, undesired costs, experiences and risks a customer experiences while getting a job done.
- **Gains**
  What makes a customer happy?

Once the customer is profiled, the value proposition can be modeled. This also has got three aspects (Figure 4. left side).
- **Products & Services**
  All products and services a company offers, which influences a customer’s jobs in a positive way, may it be functional, social or emotional.
- **Pain Relievers**
  An answer to eliminate or reduce the customer’s pains.
- **Gain Creators**
  How it makes the customer happy

---

*Figure 4. Customer Value Proposition*

*Figure from Reinventing Your Business Model [5]*
2) Key resources
All assets required to give value to the targeted customer. Assets include aspects such as people, technologies, equipment and much more. The focus here is on the key elements that create value for the customer and the company.
For game companies key resources can be a lot of things. For example: certain type of console with controllers, fast internet connection and even the Publisher can be a Key Resource.

3) Profit formula.
Consists of yet another 4 elements (as shown in Figure 3).

- **Revenue model**
  In short this is the price times the volume. Sell many products for a lower price or a few for a high price, and in addition to this how it is sold (see chapter 2.2.C).
- Cost structure
  A list of all the cost, direct and indirect. With focus on the costs of predominantly key resources.
- Margin model
  This model is closely tied with the desired profit. How much profit should be made of each product
- Resource velocity
  How quickly and in what quantity can products be sold. Including inventory for physical products.

Together these four elements make up the **Profit formula**. One of the most important aspects of the profit formula is setting a goal: How much money should be made from this business model? This goal can be set purely internal, but it might also be an external requirement. e.g. paying back investors. (More on investors in the next chapter 2.2.B Investors and Publishers).

4) Key processes
For larger and more successful companies it is necessary to have operational and managerial processes to deliver value in a way they can successfully repeat and increase in scale.
These may include such recurrent tasks as training, development, manufacturing, budgeting, planning, sales, and service.
Key processes also include a company’s rules, metrics, and norms.
The smaller (indie) game companies won’t get as much from Key Processes as the big ones get.
Since the context of this research is the race game developed at a small indie game company I will look no further at the key processes.
2.2.B Investors and Publishers

During my research about business models I also came across some information about investors and publishers and since a publisher can be a Key Resource I decided to put it here. They are, if present, both stakeholders of a game company. They have common interests as they want to see you become successful so they can earn money from you. They are however present at different stages of the business model. The investors are required at the start. Without them there would be no game. The Publisher is recommended for bringing your game to the market. Without them you’ll have a hard time getting your game sold.

It is certainly possible for a company to be both, the investor as the publisher.

Investment Models
- Shareholders
- (Bank) Loans
- Debt instruments such as bonds, medium term notes, etc
- Crowd Funding
- Gifts / Stimulation Funds

Publishers
- Steam (Valve)
- Xbox Live
- Playstation network

Responsibilities
As an investor you are not only interested in financial return and credit risk, but you are also ethically responsible when you are aware of any unethical practises taking place inside that company. This is for a publisher not any different.

The only difference between the two is the timing. An investor might unknowingly invest in an unethical practise, since the process of creating an unethical product might not be clear at the time. A publisher however will have a better understanding of the product. Since the product should be more concrete.
2.2.C Revenue Models
In the gaming business there are a lot of ways of earning money. As I said before some of these ways are less ethical than others. Now I will show what kind of game classic revenue models exist, before going over on the gaming specific points.

Classic Models
Each Revenue Model below will be used in subsection 2.3.A Game Specific Revenue Models to connect the classic with the game specific revenue models. I selected the revenue models from A2Zstartup [6].

1. Production model
   This is the most common revenue model. A company sells a product or service to a customer, thus generating revenue.

2. Subscription model
   A company sells a product or service, just like the Production Model, the only difference is the consumer does not pay everything at once, instead payments are made on pre-determined periods of time until a contract is terminated or expired.

3. Fee-for-service model
   Like the Subscription model, the business charges its customers for a service or product they use. But instead of periodic payments the consumer only has to pay for the services or products they use.

4. Markup model
   Unlike the previous models this business does not offer its own products or services, instead it buys those of other businesses before reselling it to the consumer at a higher price. These businesses could be seen as the middleman.

5. Commission model
   Is similar to the markup model, but instead of buying from one party and reselling it to the next. It only mediates between two parties. The business charges fees for the mediation, thus generating revenue.

6. Licensing model
   Generates revenue through selling licenses to third parties of copyright material the business owns.

7. Advertising model
   Is an interesting model. It is not about selling a service or a product, instead it offers space for advertising. A party buys advertising space to promote their product or services. This space can be bought just like the production model, but also with monthly payments like the subscription model. Even the fee-for-service model can be used to generate income on clicks or view.
2.3 Gaming

The final subject is about bringing the questions and other subjects into context by looking at games.

Question and Research
While knowing what classical revenue models exists, it is now necessary to look closer at games and compare the classical’s with the game’s models.

Q: **What kind of revenue models can be applied within games?**

R: **subsection 2.3.A**
**Game Specific Revenue Models**
This subsection will contain what models are used in games and compares them to the traditional models.

**subsection 2.3.B**
**Fun-Pain**
Shows how ‘Fun-Pain’ conflicts with the CVP.

What parts of a game are sold or at least worth something to the gamer.

Q: **What can be sold?**

R: **subsection 2.3.C**
**Breakdown in sellable parts**
Here I have broken down what parts of a game can be sold. Explaining each part in detail.

A lot can be sold, but, ethically speaking, what should be sold?

Q: **What should be sold?**

R: **subsection 2.3.D**
**Ethically according The Code+**
Rates the sellable aspects of the game with The Code+. 
2.3.A Game Specific Revenue Models
The classic revenue models are also used for games, but can differ a bit. In Table 3 you can see the different kinds of game specific revenue models and if they are connected to a classic model.

<table>
<thead>
<tr>
<th>Revenue Models</th>
<th>Game Specific</th>
<th>Classic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Model</td>
<td>Production model</td>
<td></td>
</tr>
<tr>
<td>Subscription Model</td>
<td>Subscription model</td>
<td></td>
</tr>
<tr>
<td>Free to Play</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Updates (DLC)</td>
<td>Production model</td>
<td></td>
</tr>
<tr>
<td>Advertisement</td>
<td>Advertising model</td>
<td></td>
</tr>
<tr>
<td>Microtransactions / Freemium</td>
<td>Production model &amp; Fee-for-service model</td>
<td></td>
</tr>
<tr>
<td>Server leasing</td>
<td>Production model &amp; Subscription model &amp; Fee-for-service model</td>
<td></td>
</tr>
<tr>
<td>Publisher</td>
<td>Commission model</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. All Revenue Models

**Production Model and Subscription Model**
Both these models are the same as the classic revenue models. With only an option to be sold via stores (retail) or online.

**Free-to-Play (F2P)**
Is not an actual revenue model since it doesn’t generate income by it self. However if the game is made in assignment for another company it does generate revenue for the game company. Also these games can be used to promote other products or services which do generate incoming. But it is mostly used in combination with the **In-Game Models**.

- **In-Game Models**
  This is a classification of all the models that generate revenue through in game actions or selling in game content.
➢ Updates
If a game is popular it can be a good idea to not create a similar game, but to expand the current game by releasing more content. This new content can be released in three different ways.

■ **(Mandatory) Updates**
People get an update for free, generally fixing bugs and adding minor content.

■ **Expansion Packs**
Or *Expansions* for short, contain extra content for a game. Most of the times an expansion pack can be bought in a store.

■ **DLC**
Stands for *Downloadable Content* and is exactly what it sounds like. You get to download extra content. This sometimes comes with a price but it can also be for free. They are very much alike Expansions, except you won’t get to buy them in retail stores and they are generally smaller than expansions.

Since the differences between Expansion Packs and DLC are rather small and getting smaller each year I will refer to them from now on both as DLC.

➢ Advertisement
Just like the classic model you sell space to third parties for them to put adds. But instead of real place you give them room in your game. This can be placed in loading screens, during the game and even as a forced video you would have to watch.

➢ **Microtransactions / Freemium**
Are all about improving the Customer Value Proposition for (small) amounts of money. This can be done by selling better items, faster progress, but also cool looking skins.

**Ingame Currency:** When a game offers a lot of microtransactions they often introduce an ingame currency which can be used to buy those CVP improvements.

**Fun-Pain:** Can’t find a way to improve the CVP? Just first add some Pain for the gamer. Too much pain will stop a person from playing. If it is not painful enough the gamer will ignore it. but if it’s right in between a person might pay money to keep it away. More on this subject next subsection (2.3.B Fun-Pain).

➢ **Server leasing**
You sell virtual space in your game, allowing players to have their own place in the game. Second Life uses this model.

❖ **Publisher Model**
Publishers are part of the game industry that take a large chunk of the profits. They are the middle man, between the game developer and the consumer. Generally a publisher has a method of selling the games more easily than other game studios.
2.3.B Fun-Pain
The article *Chasing the whale* [7] has shown me the best definition of Fun-Pain. Fun-Pain is a term coined by Roger Dickey, which basically involves putting the gamer in a uncomfortable position and then giving them the option to buy their troubles away. This could involve having to spend less time waiting for a certain assignment, but also reducing the currency on items. If you are interested in a more detailed analysis and more uses of Fun-Pain I advise you to read the article: *The Top F2P Monetization Tricks* [8], but first read what I have to say about Fun-Pain by showing a Fun-Pain CVP.

**Fun-Pain’s Customer Value Proposition** (Figure 5)
To give a better understanding how Fun-Pain works I have compared it to the CVP. Where normal CVP is about making a great product. Fun-Pain is about exploiting one's pains and focusing less on one's gains. As you can also notice there is a money part within the CVP. A normal CVP should NEVER be about money, money comes later! But since the Pain can only be relieved by money, I felt it was necessary to put it in.

![Figure 5. Fun-Pain conflicting CVP](image)
2.3.C Breakdown in sellable parts
With having all these different kinds of Game Revenue Models it is necessary to have a better overview of what is sold in order to get a better understanding of what SHOULD be sold. I have broken down the game in multiple sellable parts and other interesting aspects. In Figure 6 you see a representation of a game broken down.

**Figure 6. Game Breakdown**

**Perfect Game**
The complete game as the game designers want you to play it. This is the game how the designers wanted you to play it before looking at money. All content is available without any of the Fun-Pain. Rewards are part of the game and not something to just get you addicted. The Perfect Game should have the best CVP because of it.

**Base**
The base of the game, this contains most features and a lot of content. It can be sold via the *Production Model* and the *Subscription Model*. It can also be the part that is Free-to-Play.
Demo

In the old days demos (demonstrations for short) are exactly what they mean. They give a (short) demonstration of what the game is going to be. Demos are mostly free and were used as advertisement for their own game. Free-to-Play games will never have a demo variant. Even though there are few demos left. I still feel the need of putting it in here. (read more about my vision on Demos in subchapter 2.6 Discussion).

Extra Content

As already explained in the previous chapter, games can be expanded with updates. If these updates are free of charge they are not ‘extra content’, but rather new content. Extra content can be new levels, other characters, skins and even functional items like weapons. If the extra content gives a large advantage it’s classified as Pay-to-Win (P2W). P2W is both as annoying as it is brillant.

For example.

Two players play an online game, both paid exactly the same amount money to be able and play this game (could be free).

1. Player one wins from player two, every single time.
2. Player two wants to win also. The game makers introduce the option to buy an advantage (e.g. stats upgrade or a better weapon). With this advantage player two can now win from player one.
3. If player one now wants to win from player two, he too shall have to buy an upgrade. This method is actually also a form of Fun-Pain.

Ads

Even though some advertisements can be amusing, they are certainly not a reward for a consumer. They are only introduced to earn money for the company. There are two kinds of ads in games.

1. Passive advertisement

Some advertisements can be seen in loading screens. I call these advertisements passive. They do not influence the gameplay in anyway. To avoid redundancy in this research I decided to place this kind of advertisement under the Advertisement Model from subsection 2.2.C Revenue Models.

2. Active ads

The other type of advertisement is yet again the Fun-Pain one. Fun-Pain-Ads introduce a way to either: turn off advertisement, or force the user to watch more advertisement to get rewards.
Queues

Queues are necessary for online games. Sometimes players have to wait for other players to join a game and the other time players have to actually stand in queue before they can even log-in. It is very well possible to create a priority queue. People who pay a bit extra get serviced faster, this is already done in certain theme parks (like in Disney World). Selling priority queues to people isn’t necessarily Fun-Pain. Since the queue is a necessity to cover for a limitation of the system, these queues I call Functional-Queues, but if the queue is introduced just to slow people, it most certainly is categorized as Fun-Pain I call these Fake-Queues. You can read my example in Figure 7.

Some download sites actually make use of this. For example: a download site gives you the option to download a file for free at slow speeds (6 minutes) and give you the option to purchase a fast download (1 minute). Another site does the same, but instead of letting you download at slow speeds, it adds a queue of 5 minutes. Only when the queue ends you can download the file. Even though the download would be done in the same time, the user is forced to wait twice. First to actually start downloading and secondly for the completion of the download.

Figure. 7 Example fake queues

A fake-queue can also be used as punishment for players. Players who break rules of a game could be punished with having to wait before being able to join another game. League of Legends use this form of punishment. But it has been around a lot longer. Because World of Warcraft for example also had this form as punishment, although it was a bit more extreme, getting banned for playing for multiple days.

Bugs

Every piece of software contains bugs, games are not the exception to this rule. On the contrary. Games generally contain a lot of bugs. Koen Deetman wrote an article about how games are broken. All games. [9] Now you might wonder why I’ve put this as a sellable part. Because the smaller this part is, the more valuable it becomes to the gamers and yet games containing a lot of bugs can be sold.

Early Access

Early Access is a way for game developers to let the their game be tested by gamers. This is a lot cheaper then having to hire testers, sometimes the Early Access even generates money! Some people do not seem to mind playing an unfinished game, as long as they can play it sooner.
2.3.D Ethically according The Code+

Now that we know what can be sold and also how it can be sold. It is time to check which aspects are ethically correct. I will use The Code+ and my own moral judgement to check if it's ok. This conclusion will then be tested with a survey, resulting in a final discussion of this thesis.

Score System
In the next three subsections I have reviewed the Game Revenue Models and Game Parts. Each revenue model and each part of the game I have evaluated using The Code+. Giving it points for how well it complies with The Code+. The legend in Figure 8 shows the scoring system. Each score will be evaluated.

Legend

<table>
<thead>
<tr>
<th>Ethical Score</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect</td>
<td>3</td>
</tr>
<tr>
<td>Nothing is really perfect, but this is cutting it very close.</td>
<td></td>
</tr>
<tr>
<td>Imperfect / Flawed</td>
<td>2</td>
</tr>
<tr>
<td>Having some troubles, but really depends on what situation and implementation.</td>
<td></td>
</tr>
<tr>
<td>Corrupt</td>
<td>1</td>
</tr>
<tr>
<td>Almost always having ethical dilemmas</td>
<td></td>
</tr>
</tbody>
</table>

Figure 8. The Code+ Legend
I Game Revenue Models

Each of the revenue models at the left vs the aspects of The Code+ in the top. With a total score at the right per model (Table 4).

<table>
<thead>
<tr>
<th>Model</th>
<th>Public</th>
<th>Client and Employer</th>
<th>Product</th>
<th>Judgement</th>
<th>Management</th>
<th>Profession</th>
<th>Colleagues</th>
<th>Self</th>
<th>Transparency</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Model</td>
<td>3</td>
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<td>3</td>
<td>3</td>
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<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Subscription Model</td>
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<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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</tr>
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<td>Free to Play</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
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<td>3</td>
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<td>3</td>
<td>3</td>
<td>26</td>
</tr>
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<td>3</td>
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<td>3</td>
<td>2</td>
<td>2</td>
<td>25</td>
</tr>
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<td>3</td>
<td>3</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Microtransactions/Freemium</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Server Leasing</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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</tr>
<tr>
<td>Publisher</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 4. Game revenue models vs The Code+

Perfect (27)
- Production Model
  This is perhaps the most simple and straightforward model, no suprise for the perfect score.

- Subscription Model
  The subscription model is also very straightforward. I did have my doubts at first but after examining The Code+ it didn't show any signs of inconsistency.

- Advertisement
  The model itself shows no inconsistency with The Code+. With one big IF. The content of the advertisement should be appropriate for the target group.

- Server Leasing
  My first thought was this would be a flawed model. Mainly because it reminded me about microtransactions, but it seems this model is much closer to the Production and Subscription model.
Imperfect / Flawed (25-27)

- Free to Play
  Scored a 2 on The Code+’s Product. Reason for this is simple. There is a reasonable high chance the game can not be created as it was intended. Since the investment for the game won’t be refunded by the revenue model. It is often required to apply a second Game Revenue Model which affects the Product aspect.

- Update (DLC)
  Both Product and Transparency scored a 2. This all has the to do with timing.
  - Early Updates
    If the update was already available when you bought the game, or when the game creators made the game and didn’t put content in it to sell it later again. I would say this is pretty damaging to the product and has the tendency to not be transparent to the consumer.
  - Late Updates
    The Game has turned into a success and now there are resources which can be used on the game. New content comes is created and can be sold again.
  - Peer pressure from a community
    If a friend buys and update and you do not. You might not get the chance to play with each other or atleast can’t play the content together. This is totally fine for most genres. But some types like MMORPG, can actually have a huge impact almost forcing a player to buy the update.

- Publisher
  Profession (2) & Colleagues (2)
  - Monopoly
    When you are forced to use a certain publisher for a platform it has a higher chance of being exploited and as a small game company you might not have the resources to bring out your game yourself

Corrupt (9-24)

- Microtransaction / Freemium
  - Judgement (2) & Self (1)
    A lot of microtransaction games are all about getting people hooked on the game so they pay money for it. This addiction can go so far people spending their life savings. I would think that in no circumstance you should exploit people’s addiction for money.
  - Transparency (1)
    - In-game currency
      It is there to make it less obvious you are spending real money
    - What are the costs of what you buy?
      You have no clue what so ever if you pay a fair price.
## II Game Parts

Each part of the game vs The Code+’s principles and on the right the total score of each part (Table 5).

<table>
<thead>
<tr>
<th></th>
<th>Public</th>
<th>Client and Employer</th>
<th>Product</th>
<th>Judgement</th>
<th>Management</th>
<th>Profession</th>
<th>Colleagues</th>
<th>Self</th>
<th>Transparency</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect Game</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Base</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Demo</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Extra Content</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<td>Ads</td>
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<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>26</td>
</tr>
<tr>
<td>Queues</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>22</td>
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<td>Bugs</td>
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<td>2</td>
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<td>Early Access</td>
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<td>3</td>
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<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>19</td>
</tr>
</tbody>
</table>

*Table 5. Game parts vs The Code+*

**Perfect**  
- **Perfect Game**  
  The perfect game is of course perfect, because it can be sold as it is meant to.

- **Base**  
  The base of the game is a fair part which can be sold.

**Imperfect / Flawed**  
25-26
- **Ads**  
  Forcing people to view an ad could have a negative impact on the actual product. You might be confused between the Advertisement Model and the Ads part. This is mainly because I see advertisement as a passive thing which can be used in games.

  Ads on the other hand play a more active role. Being used to unlock points for example. I do admit the difference is subtle, but it is there.

- **Demo**  
  The product is incomplete and thus the experience of a player might not be perfect. I would rather not see a demo getting sold because of it, but if it is sold it should be completely transparent, this can be challenging and that’s why I didn’t give it the full score.

**Corrupt**  
9-24
- **Extra Content**  
  - **Product**  
    By selling content separately there is a very high chance the base of the game is affected in a negative way. Thus the lower score.
○ **Management**
The power, price and value of extra content is bound to give problems. Pay-to-win items for example have a negative impact on games with a lower budget.

○ **Transparency**
Knowing what you buy is vital. With Extra Content there is a higher chance you do not exactly know what you buy.

● **Queues**
  ○ **Client and Employer & Management**
  Having gamers pay for shorter queues gives the same problem as Extra content with Pay-to-Win. It gives an unfair advantage to gamers with a larger budget.

  ○ **Profession**
The game designers should do their best to create a game without a lot of waiting. Queues might be necessary, but are also used as a quick fix.

  ○ **Transparency**
  A gamer has no way of knowing if a queue is functional or nonfunctional.

● **Bugs**
  ○ **Product, Profession, Management**
  All games contain bugs solving all of them is nearly impossible. Some bugs are annoying, while other can be game breaking. Each game company should have a medium for which bugs can be reported so they can also be fixed.

  ○ **Transparency**
  There is no transparency with bugs, since you only know when you find one. A gamer does not know if the developer just left a bug on purpose or if it never encountered it

● **Early Access**
A score of 19 is very low. The reason behind it is because an unfinished product is sold. This might not be necessarily a bad thing, but does conflict with a lot of The Code+’s principles.

  ○ **Client and Employer, Product, Management**
The gamer pays for an unfinished game with bugs. Sounds like it is not in their best interest.

  ○ **Transparency**
  There is a large chance the gamer doesn’t actually know what he’s buying. He only knows what is promised, but no guarantee that it will be delivered. Which brings me to my next point.

  ○ **Profession and Colleagues**
  If too many Early Access games would fail, it will get such a bad name which would make sure the revenue model of early access can no longer be used.
III Game Models VS Game Parts

Score System

With both the ethical scores for the game models and the game parts it is now time to merge results together. To create the final score to give a better understanding what models should not be used for the selling of certain parts of the game (Table 6).

<table>
<thead>
<tr>
<th>Game Models vs Game Parts</th>
<th>Perfect Game</th>
<th>Base</th>
<th>Demo</th>
<th>Extra Content</th>
<th>Adds</th>
<th>Queues</th>
<th>Bugs</th>
<th>Early Access</th>
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<table>
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<tr>
<td>Good</td>
<td>50-53</td>
<td>Green</td>
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<tr>
<td>Acceptable</td>
<td>45-49</td>
<td>Yellow</td>
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<tr>
<td>Avoid</td>
<td>46</td>
<td>Red</td>
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</table>

Table 6. Models vs parts

With the help of these results I could ask people what they think on the subject.
2.4 Consumers Survey
To get a better insight and come to a final conclusion I was required to know what people thought about the different revenue models used for gaming.
I decided to create a survey to answer some of the questions I still had. The questions are in this chapter's Question and Research.

The survey was created with Google Forms and spread with via the medium: Facebook. The target group consisted of students from the University of Applied sciences Amsterdam, colleagues at my internship, people from work and friends.
The survey was filled in by 53 people total and can be viewed in Appendix A & B.

Before getting into the real questions I asked the target group about their gender, age, gaming preferences and how much money people spend on games overall. The answer to these questions could have been useful to evaluate strange spikes in the data. However this was surprisingly not the case at all. Nor gender, nor age, nor the gaming preferences brought any major result changes in the following questions.

Questions and Research
To get a better understanding how the surveyed spends their money I wanted to create a baseline. Asking which payment model they use and prefer, helped me establish this.
In addition I also wanted to look at any differences between DLC and Expansion Pack. To see if they are really that similar to each other, like I stated in subsection 2.3.A Game Specific Revenue Models.

**Q:** Which payment models are used most?

**Q:** Which models are most preferred?

**Q:** How are DLC and Expansion Packs different, comparing the numbers?

**R:** subsection 2.4.A Shows all the models how much they are used and preferred by the consumers.
Revenue Models

The next question is to determine what people actually like to play and whether money could be part of this.

**Q:** What do the players deem fair and fun?

**R:** subsection 2.4.B Factors fun / time etc
What factor/investment is fair and fun?

subsection 2.4.C Perfect game opinion
Perfect Game Opinion
To know if Fun-Pain is as bad as it sounds, I wanted to know if people really minded if they get are placed in a uncomfortable position in games.

Q: **What are the general opinions on being discomforted in games? (Fun-Pain)**

R: subsection 2.4.D  
People about Fun-Pain  
Shows the differences between what people think about challenges and pain.

At this point I had a pretty good idea about what people might think of Early Access. So to be sure I asked them what they thought about it.

Q: **What do people think about Early Access?**

R: subsection 2.4.E  
Early Access  
Results of the form split between people who said yes and those who said no.

For starters I wanted to know if people would pay for a queue model, but I also wanted to know what people thought about getting fooled by a ‘fake queue’.

Q: **What do people think about Queues?**

R: subsection 2.4.F  
Queues  
What the consumers think about queues.
2.4. A Revenue Models

I wanted to know what revenue models they already have used and what model they prefer to use.

I have excluded Server Leasing for it is less known and also Publisher since it has less to do with the consumer.

Paying vs Free

The survey shows that the production model is the most used and preferred model even more so than the Free to Play model. People do not seem to mind paying for a game, as long as the game is good. They also seem to like the straightforward payment (no hidden costs!).

Production Model

With these results I would say the production model is the best model to be used.

Free-to-Play

Quite interesting is large group which is against the Free to Play model. I have tried to sort on gender, age and gaming preferences, but it did not really matter. Almost every deviation there was a 1/5th to a quarter of the people who just didn’t like Free to Play.
II Update Models: DLC & Expansion

To know if DLC and Expansion Pack have a different meaning to people I still wanted to split the two Update Models.

The largest difference between the two models are the preference of using it. DLC has a way lower preference than expansion pack has. A few people elaborated throughout the form, they dislike DLC because they felt the content shouldn’t have to be paid for again. Most certainly if it’s already available when bought. This connects perfectly with my hypothesis from subsection 2.3.A. Game Specific Revenue Models.

Expansion Pack
About 70% of the people have bought an expansion pack at least once

DLC
About 66% of the people have bought DLC at least once
III Dodgy Section

Both the subscription model as the Upgrade model didn’t score very high on the popularity scale as well as the preference scale.

Subscription

![Figure 17. Popularity Subscription](image1)

![Figure 18. Preferred Subscription](image2)

I think that people do not like the returning payments for a game, or any other product for that matter. Unless they are sure they want to play it. Which brings me to the upgrade part.

F2P - Upgrade

![Figure 19. Popularity Upgrade](image3)

![Figure 20. Preferred Upgrade](image4)

You get to play a game, for free and if you like it you can upgrade to the full version. This is about the closest you can get to the Demo model (which I didn’t put in since it is less used currently). I was not surprised to see so many people who have never used this model, I was however surprised how many people (more than half!) did not like the model.
IV NO-GO Section

The last two models of this survey. Microtransactions and Advertisement. Looking at the numbers I would tell everyone to never use these models ever again. For the better of mankind.

However!

The negativity towards those two models can be explained. For starters the question was about an active form of advertisement, where you can pay to skip. Not the passive kind where advertisement is shown sporadic. This form is a minor form of Fun-Pain, most people are not pained enough to actually skip it. But almost every person dislikes the method.

Advertisement

As for the microtransactions. People do not like to pay money twice. If they have bought a game they rather not spend another dime on it. So I would say do not use this model in combination with the Production or Subscription Model, but only with the Free-to-Play model as base.

Secondly microtransaction should not be used to create (unfair) advantages nor in combination with fun-pain!

Microtransactions
2.4.B What factor/investment is fair and fun?
To get a better understanding of what should influence a game I asked the people in my survey what ought to be fair and fun.

Chance
First was chance, what if players and an equal chance of winning? as you notice the results are almost the same for both fairness and joy.

Equal chance of winning. (chance is the factor)

Skill
Someone who’s more skilled than another should win. Sounds fair and probably is, but it isn’t as much fun. People seem to like having the skill factor play a role, but not be the conclusive factor necessarily. This might have something to do that people would like to win every now and then without being the best.

Skill decides who should win (Skill you get from playing the game a lot is also skill)
Time
Playing the game longer than another player could increase the skill of such a player or perhaps knowledge which can be exploited, but that’s not the aspect right here. It’s about getting an extra advantage over a player who plays less. For example you had time to get better gear or more points.

Now things get interesting. A lot of the people think it is fair that the gamers who invest more time in the game should benefit more, but do not think it to be so much fun.

I think this has to do because not every gamer would have enough time to keep up.

**Time investment is the winning factor (e.g. Players who have had the chance to farm more)**

![Figure 29. Time fair](image)

![Figure 30. Time fun](image)

Money
Already in this form there were a number of people complaining over Pay-to-Win. Well this is exactly the question, is it fun and is it fair? Numbers do not lie. Pay-to-Win is a total no-go!

**Money investment is the winning factor (Pay-to-Win)**

![Figure 31. Money fair](image)

![Figure 32. Money fun](image)
But what about money for appearance boosts? Those numbers seem a lot less hostile towards spending money on games. More than half of the people agrees it is fair, or at least ok. As for fun, the opinions are spread. Most of the people think it’s not that bad.

**Investing money gives better appearances**

**Figure 33. Looks fair**

**Figure 34. Looks fun**
2.4.C Perfect Game Opinion

After the previous questions about fairness and fun, I asked the people to give their opinion of what should be inside a game. The averages of each aspect can be seen in the 4 diagrams below here.

What do you want?

**Figure 35. Skill, Time, Chance and Money**

Put together we get a single diagram of how the people would like to see their game.

Skill takes up most of the pie. People seem to like a challenge when playing games.

Time taking a larger piece of the pie than Chance did surprise me. People think Chance is more fair AND fun than Time, yet they rather spend more Time in a game to win.

**Figure 36. Average prefered ratios**
2. 4.D People about Fun-Pain

**Challenges**

- All People are ok with being challenged in games.
- 17% of the people think it ok that challenges can be removed or reduced by paying.
- 9% of the people are willing to pay for such a thing.
- 5% have payed for such a thing.

**Pain**

- 60% is ok with being introduced with discomfort in games.
- 7% think it is ok to be able and remove or reduce the discomfort by paying.
- Almost 6% is willing to pay for such a thing.
- Almost 2% has payed for such a thing.

About half of the people gave their opinion about fun-pain. Almost all replies were negative. People blamed fun-pain on bad game design and would rather see normal ‘fun’ content. The amount and type of Pain is also a factor. People would rather not spend hour and hour to accomplish a certain easy task, but when they do they get a higher level of gratification when they do. It seems people are ok with solving challenges and attenuate some pains, as long as it does not feel meaningless.

---

3 Fun-Pain, not sure what it means? Read subsection 2.3.B Fun-Pain!
2.4.E Early Access

Would you pay for early access?

![Pie chart showing responses to the question of paying for early access.](image)

It seems that more than half of the people questioned do not mind Early Access. But more than half of THOSE people do think the game should be almost finished.

![Figure 37. Pay for Early Access?](image)

These people seem to want to invest in the game, they have known about it for a longer time and have been waiting and eager to play. Some even like to help the game evolve by testing the game and finding bugs.

![Figure 38. Yes Early Access](image)

These people just do not want to waste time. Why play a possibly broken game if you can play another game which is not. The fact that a lot of those people also do not want to be exploited as guinea pigs. Makes it obvious that Early Access isn’t for everyone.

![Figure 39. No Early Access](image)
2.4.F Queues

A lot of people do not mind queues, but almost an equal amount of the people do. Priority Queues and Fake Queues are a NO-GO in the ethical point of view. But there is a rather large segment (11.3%) who would pay for a priority queue (Figure 40).

The feelings people have about queues are mixed. A queue is not fun, but at times they are necessary. It seems lots of people would avoid such games, but most would still play it. No surprise most people would never pay for a priority queue, only 11.3% would (Figure 41). It surprises me more that the priority queue is deemed fair by three times the amount of people that who would pay for it (Figure 42). The Fake Queue had the lowest results (Figure 43). People do not like to be fooled and think it is unfair to do so.

**Would you play games with queues?**

**Would you pay for a priority queue?**

**Do you think priority queues are fair?**

**Are Fake Queues fair?**
2.5 Conclusion

<table>
<thead>
<tr>
<th>Research Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is an ethically correct business model and useable for games?</td>
</tr>
</tbody>
</table>

The two most important aspects in a correct business model are the revenue model, which has to uphold to The Code+, and the customer value proposition, which places the customer first. Any model which deviates from these two aspects have a high chance of not being ethically responsible.

**How should a game be sold?**
The model that does keep up with those aspects and has the least chance of being corrupted is the Production Model, as I have determined with The Code+. In addition, the production model also happens to be the favorite and most popular model of the surveyed.

**What should be sold?**
The Perfect Game would be preferred anytime, because it should have the best Customer Value Proposition and thus having a higher chance of being the most fun for the gamers. To bad it is not always possible because of finite resources a game developer has at its disposal.

**Alternative 1.**
If the game cannot be shipped fully, as it was meant to, it is still perfectly ok to just ship only the Base. Remember the Base of the game should be fully playable and in essence the same as the Perfect Game. If resources are too scarce to develop the Perfect Game all at once. Second best would be to ship the Base of the game with the possibility receiving more content if resources become available to the game developer.

- **DLC**
  *These additions can also be sold as Expansion Packs, but DLC is perfectly fine as long as the content is worth its money, as the survey suggests.*

- **Subscription**
  *If the game developer can keep up with his promise of issuing Updates regularly it would also be fine to have a subscription model.*

**Alternative 2.**
If for some reason the previous models are not a possibility, the Free-To-Play model is the best option in combination with Advertisement and Microtransactions as revenue stream. Both the Advertisement as Microtransaction Model should never be used in combination with Fun-Pain. So they should have a passive impact on the game if any!

- **Advertisement**
  *Should be used as passive commercial only. Giving people the option to see advertisement to create (unfair) advantages is a form of Fun-Pain and for this reason unacceptable.*

- **Microtransactions**
  *Services or items bought within the game with microtransactions should not give big advantages. Best is for only visual sellable content. Like shiny items or skins. Sellable content which does give big advantages should be avoided at all cost, as we now know it creates a Pay-to-Win structure.*
2.6 Discussion
I would like to end this part of the research with some final thoughts and ideas I have on the subject. For starters people disliked the idea of upgrading from a Free-to-Play game to the full version of the game. This was a very normal thing in the old days, they are only known under another name: Demos. I think bringing back the Demo is a good thing. The game itself does not have to be finished but it should be very close to the Base of the game. Before people play the Demo it has the be apparent it is not the full game and gamers also need to know which payment model is used to be able and play the full game in the future!
3. Real-Time Gaming

As already said the general idea was to create a multiplayer race game for mobile devices. Games such as Battle Run [10] proved this could be done. Battle Run is a sidescroller race game which lets you race online versus multiple players. It has three key components which our race game should also have. It runs on mobile platforms (Android and IOS), it is an online multiplayer game which is also real-time (more on this later) and it is obviously a race game. You might ask yourself, what is going to be different about our game? We (Johan, Koen and myself) have also asked ourselves this and the answer came rather quickly. We wanted to create a third person 3D race game.

Having an extra dimension to a game gives more problems/challenges to solve. A lot of these problems can be solved using a game engine and although it is possible to build your own game engine, but as I have learned as a student of University of Applied Sciences Amsterdam it is highly recommended to walk the roads other people have build.

Time to define the learning questions with the research question in mind (How do I create a real-time online multiplayer game on Android?).

For this research I’m going to need the following questions answered:

- Which game engine should I use?
- How am I going to achieve a real-time online connection?
- What factors do I need to take into account?

After I made the choice of using an API I had four more questions:

- What API should I use?
- How is the API implemented?
- How should the API be used?
- How should the data be transferred?
3.1 Game Engines and Services

Questions and Research

Obviously I need to pick a game engine for this project.

Q: Which game engine should I use?

R: subsection 3.1.A Compares the two engines.

Engine

Which service is could use which corresponds with the engine and mobile.

Q: How am I going to achieve a real-time online connection?

R: subsection 3.1.B Shows the available services I could use.

Online Service

Before I get to pick the service I have to use, I need to know what factors to take in account. While doing so I also had to ability to already gain some knowledge for the implementation.

Q: What factors do I need to take into account?

R: subsection 3.1.B Should work for the engine obviously.

Engine

subsection 3.1.C Shows what latency could influence the game.

Online Service

subsection 3.1.D This one gives a solution how to work around a non optional condition.

Dead Reckoning

subsection 3.1.E Contains the scalability factors.

Scalability
3.1. A Engine

At the moment⁴ the two most popular game engines are **Unity3D 4 [11]** and **Unreal Engine 3[12]**. Koen Deetman (founder of Keoken Interactive) advised me to use *Unity3D 4* since the support for mobile development was better than *Unreal Engine 3* as well as the company’s intern knowledge about Unity3D was far higher at the time. This was an easy, but almost forced decision to use Unity3D.

---

⁴At the time of writing both platforms brought out new versions, I have chosen not to further look into both newer version of platforms since the development stage was already finished.
3.1.B Online Service
Just like 3D games have more problems than 2D games, online games have some network problems which offline games do not have. These are standard network problems and thus there should be plenty of standard solutions. So instead of reinventing the wheel yet again I had to find some hosting service. Well not really find. The first one I knew about for a couple of months, the Google Play Games Service (GPGS) [13] and the other name was given by Koen: Photon Unity Networking (PUN) [14]. As a last resort there would have been a third solution creating my own hosting, which could have been a great project, but in terms of time and money not that effective.

With two hosts in the race I was ready to set the boundaries and go for the finish line. For starters I had to look at the different kinds of delay, which ones are important or can be influenced. How many packages should I send each second? At what frequency are racing games at their best?

Scalability, a word commonly used whenever people are talking about software problems in meetings, best to address it now before getting any questions later.

Limitations each host has its own limitations. How do these host differ from each other?
3.1.C Delays: Latency & Package Frequency

When creating online games there are different kinds of delay. The first one is the Network Delay, the time between sending a package and having another client receiving it. Network Delay is divided in four parts shown in Figure 44.

The network delays are important. A bad delay will take away the 'real-time' interaction in a game.

The game itself does not and could not have any impact on any of these delays. Only the hardware of the gamer (mobile phone) and their provider (3g/4g or WiFi) will make an impact. It might be necessary to advice gamers to play fast networks only. (This should be a warning to players buying a game).

The other delay is the time between the action and the time of sending. This delay is tied to the Send Frequency: The amount of packages that can be sent per second.

Both types of delay impact the gaming experience differently. The higher the latency (Network Delay) the harder it is to interact with moving object from another client. While a lower (or slower) Send Frequency will make moving objects move less fluently. The next diagram (Figure 45) shows what kind of games require higher Send Frequencies (Precision) and which require faster internet (Deadline)

In the article Latency and Player Actions in Online Games [16] I found a lot of information about performance and latency related issues.

As you observe. A racing game requires both high precision as well as a short deadline on the packages send when compared with other types of games and actions.
The next diagram in Figure 46 shows how the different types of games influence performance and shows the acceptability of the gamers.

![Graph showing performance vs latency for different game categories.](image)

But not only the type of gameplay influences the required delays. "Latency and player actions in online games" shows that camera placement influences the required latency to play games (as seen in Table 7). The further the camera is, the less sensitive a game has to be. From a first person perspective the latency and precision have to be superb. While a third person perspective is less demanding.

<table>
<thead>
<tr>
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<th>Thresholds</th>
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<tr>
<td>Omnipresent</td>
<td>varies</td>
<td>rts, sim</td>
<td>low</td>
<td>1000 ms</td>
</tr>
</tbody>
</table>

Table 7. Summary of Latency and Online Games [16]

To accommodate the high sensitivity and low latency thresholds it might be required to have a third person racing game. Luckily this was already how we visioned the game.
3.1.D Dead Reckoning

Is a method to support smooth movement in online games while still reducing the amount of messages sent per second. When sending the position of an object it is possible to send the location each time it changes, to get a smooth movement you would have to send updates as much as the screen’s frame rate (between 30 and 60 frame per second). Instead of sending more packages with data per second. It is better to send more information per package. Normal you would only send your location (Vector) and rotation (Quaternion). Instead you also add the velocity (Vector) to the package, making it possible to predict the path of movement. Instead of having an object flicker around the screen, you will now see straight smooth movements.

Table 8 shows how dead reckoning can be applied and how it affects paths. I have sketched five different scenarios each a bit different to show what problems are handled with Dead Reckoning.

With normal updating there are gaps between the update positions. These gaps have to be filled. It is possible to just teleport items from one gap to another or have a linear movement between the two. The speed of movement would be the distance between the two points divided by the difference in time since the last update. Dead Reckoning does not always have a gap, but when it does it can be calculated the same way.

\[
\text{Gap Transition Velocity} \ [m/s] = \frac{\text{Distance to Travel} \ [m]}{\Delta \text{Time} \ [sec]}
\]

When packages are sent more frequent the gaps will become smaller, thus when latency is higher than normal the gaps will become bigger. So if there is a movement and a package isn’t delivered. Normally the position of an object would not be updated, thus it would freeze. Dead Reckoning however will continue to let the object move (if it still has a velocity) in a straight line. By keeping the object moving there is a chance that the next package received has a position close to the object, thus reducing the gap.
3.1.E Scalability

If this game is going to be a success (I am sure it will be). It should still work as smoothly as it would with less people. The hosting service should scale with the number of active players. When a service is used by more users or more intensely the service will cost more.

There are three scalability aspects that need to be good. First, the **package frequency** if it’s too low, the game cannot be played. Secondly: the amount of **concurrent users (CCP)** that can be active in on the platform and last: **Match making**. Most mobile games have an auto queue for match making this a feature that should also work with less users.
3.2 Real-Time Online Service

Questions, Answers and Research
As I already explained there are two real options for hosting, GPGS and PUN. To make a decision between the two I first have to know the limitations of both solutions. After which I compare the two to make a final decision.

Q: What API should I use?
R: subsection 3.2.A Limitations Shows the limitations of both GPGS and PUN.
    subsection 3.2.B Compares GPGS to PUN
    Google Play Game Service VS Photon Unity Networking
3.2.A Limitations
Both GPGS as PUN have their limitations. Both offer a free service with each having different limitations (Table 9).

<table>
<thead>
<tr>
<th>Hosting</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Google Play Games Service</strong></td>
<td>Daily messages*</td>
</tr>
<tr>
<td></td>
<td>messages/sec/player</td>
</tr>
<tr>
<td></td>
<td>Roomsize</td>
</tr>
<tr>
<td><strong>Photon Unity Networking</strong></td>
<td>CCU*</td>
</tr>
<tr>
<td></td>
<td>messages/sec/room</td>
</tr>
</tbody>
</table>

*Upgradeable for money*

Table 9. Limitations GPGS & PUN

For GPGS it is possible to upgrade the amount of messages being sent each day. Having hard limit on the amount of players in one game (8) and each player being able to send 50 packages per second.
PUN on the other hand has no limitations on the amount of players per game, but does have a limitation on the amount of packages send in a room. Meaning having more people in a room would allow for less packages being sent per player.
3.2.B Google Play Game Service VS Photon Unity Networking

The table below (Table 10) shows how these numbers reflect to each other. I chose 20 CCU since it is the free limit for PUN. as well as a 100 to show how GPGS scales. Keep in mind that the 100 is an **CCU average** for GPGS, their system could theoretically have 2,400 CCU for just one hour a day.

Both services do very well in small rooms. Both service peek at a room size of 8. The real difference is the scalability of CCU. PUN has a low amount of CCU. While GPGS shows it can even withstand four times the amount of PUN, while still being free.

<table>
<thead>
<tr>
<th>Test Scenarios</th>
<th>Concurrent users</th>
<th>Room size</th>
<th>4</th>
<th>8</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>80</td>
<td>100</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td><strong>GPGS</strong></td>
<td>25</td>
<td>7</td>
<td>5</td>
<td>25</td>
<td>7</td>
</tr>
<tr>
<td><strong>PUN</strong></td>
<td>31</td>
<td>31*</td>
<td>31*</td>
<td>7</td>
<td>7*</td>
</tr>
</tbody>
</table>

**Cost extra**

Table 10. GPGS vs PUN

Looking at the numbers both services show almost equal value. With a slight favor for GPGS since the messages per second can be higher than 7. In addition to this it would take longer before there would be any costs whatsoever with GPGS. These are the reasons I went for the **Google Play Game Service**.

However I do want to adress that both systems are changing rapidly and both services should have worked for this game.

---

5 Concurrent Users
3.3 Implementation - GPGS API
The final part of this research was creating a functional game. I would like to show how I have used the Google Play Game Service API within Unity3D.

Questions, Answers and Research
Each API will have a unique way of implementing. Luckily most will have a guide. I need to find a good way to implement the API in the Unity3D project.

Q:  How is the API implemented?
R:  3.3.A Shows my general implementation
    Google Play Game Service API

How can I structure my project so I can use the API at its best.

Q:  How should the API be used?
R:  subsection 3.3.B Explains how the Room Protocol works and has a visual
    Room Flow representation in the form of a Flow Diagram.

    subsection 3.3.C Shows a partial class diagram on how I have implemented the State
    Room States Pattern.

Sending and receiving data should be structurized.

Q:  How should the data be transferred?
R:  subsection 3.3.D Explains what classes can be placed within a package and how the
    Packages command is added.
3.3 A Google Play Games Service API

Luckily the **Google Play Games plugin for Unity [17]** already exists. So I did not need to create an extend to the GPGS API, but rather an extend on this plugin.

**Room**

The Google Play Games Service takes care of a variety of functions. Its main task is controlling the connections of the clients in the same game. Google Play Games Service calls this a “Room”. A Room is a virtual place where players get together to play their game. [12]

In Unity3d the messages are received by implementing the **RealTimeMultiplayerListener**. This instance has a few important methods giving information about the Room, like when a client connects or leaves, but also if you join one. In addition the method **OnRealTimeMessageReceived** will be called when messages are received from other clients.

I created two singleton classes to accommodate both the receiving as sending the messages. These are shown in the class diagram below (Figure 47)

![Class Diagram Room](image_url)

*Figure 47. Class Diagram Room*
3.3.B Room Flow

To connect and make use of the Room, I had to construct a ‘Room Protocol’. This protocol should make sure all information is in place before the Room can be used to play the game.

The protocol contains five phases each phase as a main function. I’ll explain each phase and with the help of the flow diagram in Figure 48 you should have a good idea how the game is set.

1. **Wave**
   When first connecting to a Room the first thing that happens each participant will Wave. Waving is used to introduce the participants with each other. It is also used to see if a **Host** has created this game, or if everybody joined a Random game. There are two possibilities.
   a. The Host waves at each participants, letting them know they are Clients.
   b. All participants are random. If this is the case the IDs of each participant are used to establish who is going to be set host. The Host gets nominated and set as Host. The other participants get set as Client.

2. **Ready Check**
   After waving the game settings have to be transferred to everyone. This contains the list of all the participants with some information about their settings, such as the vehicle they use and if they are ready. When the Host host knows every Client is ready. He sends out a Start Loading Signal.

3. **Loading**
   All the participants start loading the map where they are going to race.

4. **Loaded Check**
   Same as the ready check, the Host asks all the participants if they are done loading. When all the participants are loaded. The countdown can start.

5. **Game**
   The participants actually play the game.
3.3.C Room States
Since the protocol dictates different behaviour for the roles a participant can have inside a room. I decided to use the State Pattern\textsuperscript{6}. In the partial class diagram (Figure 49) you can see how I implemented the different States a Room can be in.

\textsuperscript{6} Design Pattern from the Gang of Four
3.3.D Packages

Between the Clients and the Host there was a lot of different kinds of data to be transferred. For starters a simple status update, but also the position and rotation of a gamer. To accompany the different data types I created a generic class which could hold any serializable class. The four classes in the class diagram (Figure 50) each has its specific function.

1. **TeckBlock**
   So I could group multiple `TeckBlockType<T>` classes inside a `List<TeckBlockType<T>>`.

2. **TeckBlockType<T>**
   The generic class containing the class of type T. Both these classes are serializable.

3. **TeckBlockSerializable**
   Contains `TeckTypeMessage` and the actual data in the form of a `TeckBlock<T>`.

4. **TechSerializer**
   This static class has two functions. Serialize the `TeckBlocks` to a byte array and visa versa.

```java
public enum TeckTypeMessage {
    StartLoading,
    Waving,
    RacerTransformation,
    Gamer,
    GameState,
    HostNomination,
    GameSettingsRequest,
    ReadyCheck
}
```

The `TeckTypeMessage` enum shows a few of the messages that can be send to other participants. The `OnRealTimeMessageReceived` method from subsection 3.3.A Google Play Games Service API. Decides what to do when receiving a package with a certain `TeckTypeMessage`. 

![Figure 50. Class Diagram Packages](image)

![Figure 51. Enum messages](image)
3.4 Conclusion

Research Question

*How do I create a real-time online multiplayer game on Android?*

There is no singular answer to this question. The game could have been made native in Android and connections could have been made manual by the developer. But also in Unity3D or Unreal with the use of a service.

I decided to use Unity3D with the Google Play Game Service. I think it would not have mattered in the long run if I had used the Unreal engine and/or the Photon Unity Networking service. Both engines and services are growing and changing quickly. During this project I have seen multiple updates for the Google Play Game Service and also new versions for both Unity3D as for Unreal.

The result of my internship at Ambient Coding & Keoken Interactive as an alpha version named Multi Racer. This game is not yet downloadable in the store, but the alpha version does work as the preview shows in Figure 61.

*Figure 53. Multi Racer Alpha*
References


Last Accessed: 10 August 2015 at 13:37

Last Accessed: 10 August 2015 at 13:37

Last Accessed: 10 August 2015 at 13:37

Last Accessed: 10 August 2015 at 13:37

Last Accessed: 10 August 2015 at 13:37

Last Accessed: 10 August 2015 at 13:37

Last Accessed: 10 August 2015 at 13:37

Last Accessed: 10 August 2015 at 13:37

12) Unreal Engine, Epic Games, Retrieved from: https://www.unrealengine.com/previous-versions
Last Accessed: 10 August 2015 at 13:37

Last Accessed: 10 August 2015 at 13:37
14) Photon Unity Networking, Photon, Retrieved from: 
15) Networking Info Blog, Overview of delay in packet-switched networks, Retrieved from:
d-networks/, Last Accessed: 10 August 2015 at 13:37
  49, No 11.), Communications of the ACM, 42-45P
17) Google Play Games Service - Unity3D, Retrieved from:
  https://github.com/playgameservices/play-games-plugin-for-unity
  , Last Accessed: 10 August 2015 at 13:37
Appendix A. Google Form - Survey

The total survey can be viewed at
https://docs.google.com/forms/d/1yal5KhNdEZwJzJzF14MKwUlxvFRg7WEpVafETxZVMqK0I/viewform. Last Accessed: 10 August 2015 at 13:37

What is your gender?
How old are you?
Do you prefer multiplayer over singleplayer?
Do you play (online) multiplayer games?
What is your favorite game type?
What is your favorite game platform?
Extra information?

What kind of OS do you prefer?
How much money did your current/last (gaming) PC cost
Extra information?

What kind of console do you prefer?
How much money did your current/last console cost?
Extra information?

How much money have you spend on video games in your life?
Payment models you've used before [Buying the game from a store/online]
Payment models you've used before [Subscription]
Payment models you've used before [Expansion Packs]
Payment models you've used before [DLC]
Payment models you've used before [Free to Play]
Payment models you've used before [Microtransactions]
Payment models you've used before [Remove / skip Advertisement]
Payment models you've used before [Upgrade to full version (mostly with F2P)]
Payment models you've used before [Other]
If you have used a different model to buy games, please describe the model!
Preferred payment model [Buying the game from a store/online]
Preferred payment model [Subscription]
Preferred payment model [Expansion Packs]
Preferred payment model [DLC]
Preferred payment model [Free to Play]
Preferred payment model [Microtransactions]
Preferred payment model [Remove / skip Advertisement]
Preferred payment model [Upgrade to full version (mostly with F2P)]
If you have a different model which you really do or do not like. Please leave it here
Why would you pay for a game?
Extra information?

Players have an equal chance of winning
Players who are more skilled in a game win from players who are less skilled
Players who put more time in a game win from players who put less time in the game.
Players who put more money in a game win from players who put less or no money in the game. Players who put more money in the game have better looks
Extra information?

Players have an equal chance of winning
Players who are more skilled in a game win from players who are less skilled
Players who put more time in a game win from players who put less time in the game.
Players who put more money in a game win from players who put less or no money in the game.
Players who put more time in a game win from players who put less time in the game.
Players who put more money in the game have better looks
Extra information?

How would you say winning in games have to be so they are both fair and fun? [Skill]
How would you say winning in games have to be so they are both fair and fun? [Time]
How would you say winning in games have to be so they are both fair and fun? [Money]
How would you say winning in games have to be so they are both fair and fun? [Chance]
Would you like to elaborate on that?
Extra information?

Do you think it is ok to be challenged in games?
Do you think it is ok to be able and reduce/remove those challenges by paying?
Would you ever pay for such a thing?
Do you think it is ok to be introduced to pain in games?
Do you think it is ok to be able and reduce/remove those pains by paying?
Would you ever pay for such a thing?
What do you think about fun-pain?
Extra information?

Would you pay for early access?
Extra information?

Why would you pay for early access?
Extra information?

Why wouldn't you pay for early access?
Extra information?

Would you play a game with queues?
Would you pay to get into a priority queue if the normal queue was too long?
Do you think a priority queue is fair?
Why do you or don't you think it to be fair?
What if the queue was just a fake so people would buy a ticket for the priority queue.
Would you say this be fair?
Why do you or don't you think it to be fair?
Extra information?
Appendix B. Google Form - Results
Name and email addresses are removed from results.
All answers of the survey can be viewed at:
All answers with generated diagrams can be viewed at
https://sites.google.com/site/tycekart/home, Last Accessed: 10 August 2015 at 13:37
And for the diehards I also include the answers as a csv-formatted text.

Timestamp,What is your gender?,How old are you?,Do you prefer multiplayer over singleplayer?,Do you play (online) multiplayer games?,What is your favorite game type?,What is your favorite game platform?,Extra information?,What kind of OS do you prefer?,How much money did your current/last (gaming) PC cost?,Extra Information?,What kind of console do you prefer?,How much money did your current/last console cost?,Extra information?,How much money have you spent on video games in your life?,Payment models you've used before [Buying the game from a store/online],Payment models you've used before [Download to play/Microtransactions],Payment models you've used before [Remove / skip Advertisement],Payment models you've used before [Upgrade to full version (mostly with F2P)],Payment models you've used before [Other],"If you have used a different model to buy games, please describe the model!",Preferred payment model [Buying the game from a store/online],Preferred payment model [Subscription],Preferred payment model [Expansion Packs],Preferred payment model [DLC],Preferred payment model [Free to Play],Preferred payment model [Microtransactions],Preferred payment model [Remove / skip Advertisement],Preferred payment model [Upgrade to full version (mostly with F2P)],If you have a different model which you really do or do not like. Please leave it here,Why would you pay for a game?,Extra Information?,Players have an equal chance of winning,Players who are more skilled in a game win from players who are less skilled,Players who put more time in a game win from players who put less time in the game.,Players who put more money in a game win from players who put less or no money in the game.,Players who put more money in the game have better looks,Extra information?,Players have an equal chance of winning,Players who are more skilled in a game win from players who are less skilled,Players who put more time in a game win from players who put less time in the game.,Players who put more money in a game win from players who put less or no money in the game.,Players who put more time in a game win from players who put less time in the game.,Players who put more money in the game have better looks,Extra information?,How would you say winning in games have to be so they are both fair and fun? [Time],How would you say winning in games have to be so they are both fair and fun? [Money],How would you say winning in games have to be so they are both fair and fun? [Chance],Would you like to elaborate on that?,Extra Information?,Do you think it is ok to be challenged in games?,Do you think it is ok to be able and reduce/remove those challenges by paying?,Would you ever pay for such a thing?,Do you think it is ok to be bought in paying games?,Do you think it is ok to be able and reduce/remove those pains by paying?,Would you ever pay for such a thing?,What do you think about fun-pan?,Extra information?,Would you pay for early access?,Extra information?,Why would you pay for early access?,Extra information?,Why wouldn't you pay for early access?,Extra information?,Would you play a game with queues?,Would you pay to get into a priority queue if the normal queue was too long?,Do you think a priority queue is fair?,Why do you or don't you think it to be fair?,What if the queue was just a fake so people would buy a ticket for the priority queue?,Would you say this be fair?,Why do you or don't you think it to be fair?,Extra information?
6/17/2015 16:48:36,Male,16-20,No preference,Yes,"Shooter, Action",PC,Windows,"€600,- to €999,-","PlayStation 4 XBox One","€500,- to €799,-","€500,- to €799,-","A, lot,Once or twice,Commonly,A lot,Sometimes,Once or twice,Once or twice,Once or twice,Once or twice,Yes,Please,It's ok,It's ok,It's ok,Please,rather not,Rather not,It's ok,"To be able to play the actual game, To play MORE of the game (DLC etc). Early release","4,5,4,2,3,4,4,3,4,80%,80%,20%,90%.,Yes,No, "No, I wouldn't","Yes,Yes,"Yes,"Yes,"Yes","Yes, but only if it does not contain too many bugs,"To be able and play game (duh), So I can learn to play game and master it before others, So I get an extra reward","No,"I won't",Yes,No,People are mostly money are always First in The queue ,No,Its not nice to get money from your players in this way ,
6/17/2015 16:54:47,Male,21-25,Singleplayer,NO,Shooter,Consoles,Gender: other?? Haha,Windows,"€500,- to €799,-","PlayStation 3 / Xbox 360","€500,- to €799,-","€1000,- to €1499,-","Always,Never,Once or twice,Never,Once or twice,Never,Never,Never,Never,Never,Yes please, Rather not, Rather not, Rather not, Rather not, Rather not, Rather not, Rather not, Rather not, Rather not,To be able to play the actual game, To be able and win (Better vehicles, weapons etc). To customize your gameplay, (just appearance), To reduce waiting times","5,5,5,2,1,5,4,5,1,5,3,"One question is double ,70%,70%,0%,80%.,Yes,No,"No, I wouldn't",Yes,No,"No, I wouldn't",Challenges = challenge (s),"Yes, but only if it does not contain too many bugs","To be able and play the game early (duh). I like to test games, So I can learn to play game and master it before others, Because it is cheaper, So I get an extra reward","Yes, I have","No, No, People are mostly money are always on the front seat, let's change that in gaming, I think gaming about the virtual reality that everyone likes about it? Everyone is equal and no one is who he/she is behind the pc. With making it about the money, you get that separation back. ",No,If it shouldn't be about the money (see above) this isn't fair as well.Interesting this. 
6/17/2015 17:06:21,Male,26-30,Singleplayer,NO,"Racing, Shooter, RPG, Action",PC,Linux,i don't own one,PlayStation 4 XBox One,"€100,- to €299,-","€500,- to €799,-","Always,Never,Never,Never,Never,Never,Never,Never,Never,Yes please, Rather not,Yes please,Rather not,It's ok,Ok,sir!,Rather not,.Sir,To be able to play the actual game, To play MORE of the game (DLC etc)","5,3,2,1,4,5,3,1,3,3,80%,0%,0%,80%.,Yes,No, "No, I wouldn't",No, No, "I won't", "No, I won't", "I want my first experience of the game be without bugs, I want my first experience of the game be with full content, I don't like to be their guine pig while paying them","No, I won't",Yes,You shouldn't wait to be able to play a game. (Other than loading),No,You shouldn't wait to be able to play a game. (Other than loading),
6/17/2015 17:49:00,Male,21-25,No preference,Yes,"Racing, RPG, Strategy",Consoles,i don't have a preference,"€1500,- to €1999,-",PlayStation 3 / Xbox 360,"€500,- to €799,-","€600,- to €999,-","Always,Never,Never,Never,Never,Never,Never,Sometimes,Never,Never,Yes please,No sir!,No sir,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!,No sir!

6/17/2015 17:54:36, Male, 21-25, No preference, Yes, "Racing, RPG, Stategy, Action, Explorer, MOBA", Consoles, Windows and Linux equally. I don't own one, PlayStation 4 / Xbox One, €300, - to €299, -, €3000, - and above, Mostly, Once or twice, Commonly, Commonly, Mostly, Commonly, Never, Once or twice, Never, Yes, No, It's ok, Yes please, It's ok, Yes please, Rather not, No sir, It's ok. "To be able to play the actual game, To customize you gameplay. (Just appereance), To play MORE of the game (DLC etc)"., 5, 5, 5, 4, 1, 4, 4, 5, I selected 3 at ""Players who are more skilled "" because it's not that fun for the lesser skilled people", 90%, 70%, 0%, 0%, Yes, No, No, I wouldn't, Yes, No, I wouldn't", I Challenges", "Even though I know the game will be unfinished and contains more bugs,". "To be able and play the game early (duh), I like to test games, I like to find bugs", ".", Yes, I would", No, No, Because the people who can't pay for a queue will get less playtime and won't be treated equally, No, Because that is a scam.

6/17/2015 18:21:25, Male, 21-25, No preference, Yes, "RPG, MMORPG, Stategy, Cards, Action", PC, Windows, €600, - to €299, -, "I'll admit my current gaming pc also serves as my business computer. As an audio engineer, I need loads of RAM and SSD cards! Also, while the computer itself is expensive, its graphic card isn't top notch. So I'm sure simulating gaming quality can be achieved with a pc costing €1500-2000ish, if not less. ". PlayStation 4 / Xbox One, €300, - to €299, -, €1000, - to €1499, -. Mostly, A lot A lot, Commonly, Commonly, Sometimes, Always, Never, Once or twice, Yes, Please, it's ok, Yes please, Rather not, Yes please, it's ok, No sir!, Rather not, "To be able to play the actual game, To customize you gameplay. (Just appereance), To play MORE of the game (DLC etc)"., 5, 5, 3, 2, 5, 5, 4, 3, 1, 4, 3, 100%, 20%, 0%, 0%, "I'd say skill (mostly) comes with time spent on the game or other games similar to it. Still, time on itself should not be a determining factor. If you've spent a hundred hours practising and still get outplayed by a player who has spent only ten hours on the game, that's a fair outcome. ", Yes, No, No, I wouldn't, Yes, No, No, I wouldn't", "Overcoming obstacles is one of the elements that makes a game fun to play. If people want to pay to have obstacles removed for them, they're free to do so--", for one, wouldn't I? I might as well pay to have the fun stripped away from the game.

., No, I want my first experience of the game be with full content, "Yes, I have", No, Yes, "As long as the priority queue is based on whoever gets in the queue first, then that's fair. First come, first served.

Giving paying users priority in a queue is fine, too; they're the ones that keep the game financed, after all. ", No, Because it deceives the consumer, .

6/17/2015 18:27:11, Male, 16-20, No preference, Yes, "Racing, Shooter, RPG, Stategy, Explorer", PC, Windows, €800, - to €999, -. "A very very old one (no longer sold in stores), €100, - to €299, -, "I'm kind of allround, still own my first N64, GB and GBC. I still use them from time to time. But I also use my newer consoles (Wii) (U), 360, ps3", €1000, - to €1499, -. "Always, Sometimes, Commonly, Sometimes, Sometimes, Never, Never, Sometimes, Once or twice, Yes, Please, Rather not, It's ok, Rather not, It's ok, No sir!, No sir! It's ok. "The whole bloody game at purchase, no dict to unlock on disk content. It's like paying twice for that particular content. Post-launch produced content I'm okay with.", "To be able to play the actual game, To play MORE of the game (DLC etc)"., 5, 5, 4, 1, 5, The 3rd question here, "Players who put more time in a game win from players who put less time in the game". Is a gray area: if with more time, you mean map knowledge, game mechanics knowledge, experience, a wider variety of skills/equipment. Than yes, it's fair. If in some sort of broken way, then no.", 5, 4, 4, 1, 4, 5, 50%, 30%, 0%, 0%, 20%, "When you win a match/game, knowing that you did win because, you are more skilled, put more time and effort in a game, is much more satisfying. Than winning a game because your/your parents have a fat wallet with a lot of money in it. For the one who loses, it's also less frustrating.

And remember, you can't buy happiness. ";, Yes, No, No, I wouldn't, Yes, No, No, I wouldn't", "As long as there is no such thing as a waiting time (like planting something in farmville which then takes hours to complete), not even something that comes close to it. Never ever something behind a paywall.... It's evil", "Yes, even though I know the game will be unfinished and contains more bugs", "It helps the producer form a better game, because from the start of the so-called ""early access"" they get feedback from the community. They can then tweak the game, fix bugs, add or remove content, etc.

From a consumer perspective it's satisfying to see a game change, grow, improve. Yes for a consumer it may not be ideal, because you pay for something that's beyond broken, or something that will never get finished. But in most cases you pay for a game that will be finished at some point, or is atleast playable. For example take, Beamng drive, kerbal space program, Space Engineers, Dirt Rally, Asseto Corsa. I can go on. Oh and of course: Minecraft. "To be able and play the game early (duh), I like to test games, I like to find bugs", "Take Steam Early Access: you buy the game (mostly at a lower price), which is Early Access, or still in development, (pre-)alpha. But at launch you get the game, because you already paid for it.", "Yes, I have", Yes, No, "It's actually勘查..... Renting servers isn't cheap, so it's natural that someone who extra for the game, get's priority access. But on the other hand, for the players who also bought the game, may not be able to play, because said queue may be insane.", No, It's just ripping off your customers. Morally wrong. Nuff said....

6/17/2015 19:18:02, Male, 21-25, Singleplayer, Yes, "RPG, Stategy, Action, Explorer", PC, Windows, €300, - to €499, -, PlayStation 3 / Xbox 360, €300, - to €299, -, €600, - to €999, -, Mostly, Sometimes, Commonly, Sometimes, Once or twice, Never, Never, Never, Never, Yes please, it's ok. It's ok. Rather not, It's ok.

6/17/2015 19:31:09, Female, 16-20, Multiplayer, Yes, Chance games, PC, Windows, 0, PlayStation 4 / Xbox One 0, €50, - to €999, -. Once or twice, Never, Never, Never, Sometimes, Never, Never, Once or twice, Never, It's ok, It's ok, Rather not, No sir!, No sir!, Please, Rather not, No sir!, No sir!, To be able to play the actual game, To play MORE of the game (DLC etc)", 4, 4, 4, 3, 1, 5, 4, 3, 2, 2, 1, 40%, 40%, 10%, 10%, Yes, Yes, No, I wouldn't, No, No, I wouldn't", "Yes, but only if it does not contain too many bugs", "To be able and play the game early (duh), I like to test games, So I can learn to play game and master it before others", ", No, I won't, No, Yes, Developers have to make money too. No, Developers have the responsibility to publish the game as polished as possible.

6/17/2015 20:30:58, Female, 21-25, Singleplayer, Yes, "Racing, Puzzle, Stategy, Cards, Tought games (e.g. Chess)", Phone / Tablet / Handheld Console, Windows, I don't know, Wii U / Wii, I don't own one, 0, Never, Never, Never, Never, Never, Never, Never, Never, No sir!, No sir!, No sir!, No sir!, No sir!, Rather not, No sir!, I don't, 5, 3, 4, 5, 1, 5, 2, 4, 3, 3, 100%, 70%, 0%, 0%, Yes, No, No, I wouldn't, Yes, No, No, I wouldn't", No, No, I wouldn't", No, "I don't like to be their guinea pig while playing them","Yes, Yes, No, No, I don't know, No, because its a trick to get more money.

6/17/2015 20:47:23, Male, 21-25, Multiplayer, Yes, "Shooter, MMORPG, Stategy", Consoles, Linux, €1000, - to €1499, -, PlayStation 4 / Xbox One, €300, - to €299, -, €3000, - and above, Commonly, Sometimes, Once or twice, Never, Commonly, A lot, Never, Mostly, Never, Never, It's ok, It's ok, Yes please, it's ok, It's ok, Rather not, No sir!, It's ok, "To be able to play the actual game, To reduce waiting times, To play MORE of the game (DLC etc), Early release", 5, 4, 5, 1, 4, 4, 4, 1, 1, 40%, 30%, 10%, 20%, Yes, Yes, No, I wouldn't", Yes, Yes, No, I wouldn't", "Yes, but only if it does not contain too many
bugs","I'm able to play the game easily (duh). So I can learn to play game and master it before others. So I get an extra reward","No, I won't","No, No, I think you can get to front of a queue is pretty similar to corruption. No, although I would understand the idea of making money out of it. Discovering this would probably make me stop using the game.,

6/17/2015 20:57:50, Male, 31-40, No preference, No, "Sport", fifa, Consoles, PS4, $300, - to $499, -", PlayStation 4 / XBox One, $500, - to $799, -, $5000, - and above."Sometimes, Never, Never, Never, Once or twice, Never, Never, Never, Never, Yes please, Rather not, No sir! No sir! No sir! No sir!, Anything with ads. To be able to play the actual game, 3.5, 5.1, 5, 5.3, 1.1, 30%, 30%, 0%, 0%, Question is ambiguous in terms of the answers. Appears that all answers should add to 100. I'd change the options. Yes, No, "No, I wouldn't", Yes, No, "I wouldn't.",

Bad idea, rewards gamers who are financially better off. Also a Ploy to make more money. Not ethical, Challenge and challenged, No, They should be paying testers. Not the other way around. Unethical. "I want my first experience of the game be without bugs, I don't like to be their guinea pig while paying them", "No, I won't", No, No, "Should be open to all, not people with more money". No unethical.

6/17/2015 21:17:13, Male, 31-40, Singleplayer, Yes, "RPG", Explorer, PC, OS X, $3000, - and above."A very very old one (no longer sold in stores), $300, - to $499, -$, $5000, - and above." Mostly, Never, Sometimes, Once or twice, Once or twice, Never, Once or twice, Sometimes, Never, Yes please, Rather not. It's ok, Rather not, Rather not, No sir! It's ok. It's ok, "It's a secret!.

Developers who make players wait 24 hours OR buy a Chest of Bullshitberries for €66 so they can continue playing right now should GDIAF.", "Yes, even though I know the game will be unfinished and contains more bugs." "Backed Elite Dangerous on Kickstarter, was not disappoint." "To be able and play the game early (duh), I like to test games, I like to find bugs", "No, I won't", No, No, "I disagree with any thing that tries to get more money from gamers that have already paid for the game.

I suppose it's slightly less unethical for freemium games, but I simply don't buy those. "No," I kind of have an issue with any type of queuing in game, fake or real.",

6/17/2015 22:53:07, Female, 21-25, Multiplayer, No, "Racing, Shooter", Cards, "Explorer", Consoles, Linux, $300, - to $499, -, PlayStation 4 / XBox One, I don't own one, $500, - to $799, -, Commonly, Never, Never, Commonly, Never, Never, Never, Never, Yes please, Rather not, Rather not, No sir! It's ok, No sir!, No sir!, No sir!, To be able to play the actual game, 5.4, 5.1, 5, 5.1, I think everybody needs to have a chance to win. No one has the money or time to buy extra objects or get extra skills. 5.1, 3, 4, 70%, 40%, 0%, 40%, Yes, Yes, No, "I wouldn't", Yes, Yes, "No, I wouldn't.", "I don't understand why a developer would do this. It seems to me that you want your gamers to like the game, instead of making parts of it boring or uncomfortable. ", "No, I'm not interested in games enough to pay for early access," "Yes, I have", No, No, "Everybody has to wait, it doesn't seem fair to have to wait even longer because some other people have priority for whatever reason. It's a game, not a doctor's visit." No, That's cheating people into paying. Not fair.,

6/17/2015 23:26:09, Female, 50+, No preference, No, I don't play at all. PC, I don't have experience with gaming. I don't have a preference, 0, I don't have experience with games. I don't have a preference, 0, I think when I would try to play games that I probably prefer Wii, 0, Never, Never, Never, Never, Never, Never, Never, No sir, No sir!, No sir, No sir!, No sir! No sir! No sir!, "onl only when I don't know what to do, being bored," I don't have much time to experience gaming but I also realise that if it would have attention I can imagine that I would pay a little for a nice game, 5.5, 5.3, 1, 5, 3, 3, 3, It is difficult for me to give answers. I am not sure what I think about it because I never played games. 50%, 50%, 50%, 50%, I chose 50% because I don't know because of my lack of experience with games. Yes, No, No, "I wouldn't", Yes, Yes, No, "I wouldn't," I think I don't like this kind of games. No, I prefer to know what I buy before buying, I don't like to be their guinea pig while paying them, "Yes, I would", No, No, "I know in the real world it works like that, but I do not like that. No, Because this is cheating.

6/17/2015 23:38:23, Female, 21-25, Singleplayer, No, "Racing, Shooter", RPG, Consoles, Windows, I don't own one, PlayStation 4 / XBox One, $300, - to $499, -, $100, - to $299, -, Always, A lot, Commonly, Never, Never, Never, Never, Never, Never, Yes please, Yes please, Yes please, No sir!, No sir!, No sir!, No sir! To be able to play the actual game. To play MORE of the game (DLC etc), 4.5, 5.1, 1, 5, 5.1, 1, 40%, 30%, 20%, 10%, "The more amount of time you'll put in, the more skill you get. That's fair if you want me to try to play games that I probably prefer Wii, 0, Never, Never, Never, Never, Never, Never, No sir!, No sir! No sir! No sir! No sir! No sir! No sir! On one hand, it is actually fair, since those players paid extra money to be prioritized. But what about the players who can't afford it? What about the players who had to save their money for a couple of weeks, just to buy it? Prioritized queues only make the difference between poor and rich players even bigger and gives the richer players a bigger advantage over the poorer players. No, "First of all, the players who don't want to or can't afford to be in that queue are being left behind", Second, the paying players are being scammed. It's a lose-lose.

6/18/2015 1:09:36, Female, 31-40, Singleplayer, Yes, "RPG", Action, Consoles, Windows, I don't know, PlayStation 3 / Xbox 360, $300, - to $499, -, $1000, - to $1499, -", Always, Never, Sometimes, Never, A lot, Never, Never, Never, Never, Yes please, It's ok, It's ok, No sir! Yes please, No sir!, No sir!, No sir!, Sorry I don't know what DLC is, "To be able to play the actual game, To be able to win and (Better vehicles, weapons etc). To reduce waiting times", 3, 4, 5, 4, 4, 4, 4, 4, 3, 3, 70%, 70%, 30%, 30%, Yes, Yes, No, "I wouldn't", Yes, No, "I wouldn't", "Yes, even though I know the game will be unfinished and contains more bugs", "To be able and play the game early (duh), I like to test games, I like to find bugs", "Yes, I have", No, No, "On one hand, it is actually fair, since those players paid extra money to be prioritized. But what about the players who can't afford it? What about the players who had to save their money for a couple of weeks, just to buy it? Prioritized queues only make the difference between poor and rich players even bigger and gives the richer players a bigger advantage over the poorer players. No, "First of all, the players who don't want to or can't afford to be in that queue are being left behind", Second, the paying players are being scammed. It's a lose-lose."
to €1999", "Sometimes, once or twice, once or twice., Never, Never, Never, Never, Yes, please, it's ok, Rather not, Rather not, No sir!, No sir!, No sir!", "To be able to play the actual game, Early release", "5, 4, 3, 2, 1, 4, 3, 2, 3, 30%, 20%, 10%, 0%", "Yes, No", "I wouldn't", "Yes, No", "I wouldn't!", "Yes, even though I know the game will be unfinished and contains more bugs", "To be able and play the game early (duh), I like to test games, I like to find bugs", "No, I wont", "No, No!, Cause that's not what gaming is about, No, Because you are just taking peoples money.",

6/18/2015 11:18:04, Male, 26-30, Single, No., "Shooter, Action, Action Adventures", "Console, I am not so much of a mobile gamer "; "Windows," "€3000, and above", "5 Years ago, PlayStation 4", "Xbox One", "€300, - to €499, -", "400 each," "€3000,- and above", "Commonly, Once or twice, Sometimes, or twice, Never, Once or twice, Once or twice, Once or twice, Mostly, Retail, It's ok, Rather not, It's ok, Rather not, No sir!, No sir!, No sir!", "To be able to play the actual game, 5, 5, 5, 1, 3, 1, 2, ..., 80%, 40%, 0%, 0%, 'Never cheat, always play fair'", "Yes, No", "I wouldn't", "No, No!, I wouldn't!", "Games have to be fun, its all about entertaining people not harming them!", "Yes, even though I know the game will be unfinished and contains more bugs", "To be able and play the game early (duh)", "I like to test games", "No, I wont, No, No!, It's a pain for people to play the game. Why would you withheld people from playing your game? No! I don't like to pay my players and taking them to pay. Paying upfront is the best.",

6/18/2015 20:46:53, Female, 21-25, No preference, Yes, "Racing, Puzzle, Strategy", "PC, Windows, I don't own one, PlayStation 3 / Xbox 360," "€300, - to €499, -", "€300, - to €499, -", "A lot, Never, Commonly, Never, Sometimes, Never, Mostly, Once or twice, Once or twice, it's ok, No, Sir!, Rather not, No sir, Yes please, Rather not, Yes please, It's ok, 'To be able to play the actual game, To reduce waiting times', 5, 5, 4, 3, 4, 4, 3, 5, 80%, 70%, 50%, 30%, "Yes, No", "Yes, I would", "No, Yes, I would", "No, No", "I don't like to be their guinea pig while paying them, "No, I won't", "No, No!, Cause it is just a fake to earn money, No, Even worse,

6/19/2015 14:10:40, Male, 21-25, Multiplayer, Yes, "Shooter, Action, Tought games (e.g. Chess)", "PC, Windows," "€3000, - and above", "A very very old one (no longer sold in stores), €100, - to €299, -", "€3000,- and above", "Mostly, A lot, A lot, Commonly, Commonly, Once or twice, Never, Never, Never, Yes please, It's ok, Yes please, Rather not, It's ok, No sir!, No sir!, No sir!", "To be able to play the actual game, To play MORE of the game (DLC etc), 5, 5, 5, 1, 1, 1, 1, 5, 4, 1, ..., 60%, 30%, 0%, 10%. 'Time doesn't always mean better but it is always a factor'

And there will always be a little bit of luck", "Yes, No", "No, I wouldn't!", "Only okay if you just have to get better. Shouldn't be able to pay for it, "Yes, but only if it does not contain too many bugs", "So I get an extra reward, ", "Yes, I would", "No, Because then everyone isn't on the same base and someone gets ahead by paying, No, Money hungry dev's cheating costumers,

6/19/2015 14:15:35, Female, 26-30, Single, No, city building, "PC, Windows," "€800, - to €999, -", "I don't own any, I don't own one, €100, - to €299, -", "Sometimes, or Once or twice, Never, or Once or twice, Never, or Once or twice, Never, it's ok, No sir!, Rather not, Rather not, it's ok, No sir!, No sir!, No sir!, No sir!, To be able to play the actual game, 5, 5, 4, 2, 3, ..., 80%, 50%, 20%, 60%, "Yes, No", "No, I wouldn't!", "Yes, even though I know the game will be unfinished and contains more bugs", "To be able and play the game early (duh), I like to test games, I like to find bugs, Because it is cheaper", "No, I won't", "No, No!, Because it means some people are worth more than others and by paying you up your worth. No.

It's manipulative and mean. It is one of those things that your mind processes on a subconscious level like how little girls grow up with eating disorders by staring at unhealthy model magazines. It influences your mental model of life in a corrupt manner.

6/19/2015 14:52:06, Male, 26-30, Multiplayer, Yes, "Racing, RPG, MMORPG, Strategy", "PC, self, Windows," "€1000, - to €1499, -", "A very very old one (no longer sold in stores), I don't own one, €500, - to €799, -", "A lot, Sometimes, Commonly, Once or twice, Mostly, Sometimes, Once or twice, Once or twice, Never, Yes please, Rather not, Yes please, It's ok, Rather not, No sir!, It's ok, Yes please, "To be able to play the actual game, To customize you gameplay. (Just appendage)", 5, 4, 3, 4, 2, 1, 4, ..., 60%, 20%, 10%, 10%. "I think every game needs some chance to keep it interesting but should mainly be about skill."

Having some money influence the game is ok, but it should be very little (less than 10% perhaps)", "Yes, No", "Yes, I have", "No, Yes, I have", "It's genius, but rather not see it ever again in my gaming carrier", "Yes, but only if it does not contain too many bugs", "To be able and play the game early (duh), I like to test games, Because it is cheaper, So I get an extra reward..., "Yes, I have", "No, No, because it shouldn't be about money who gets to play.

Perhaps if it was F2P it could be a thing, but only then!

"No, queue shouldn't be a trick, but a solution to a problem. If its fake its just another form of Fun pain I guess",

6/19/2015 17:54:42, Female, 21-25, No preference, Yes, Explorer, Consoles, "OSX, I don't own one, I don't have a preference, €300, - to €499, -", "€100, - to €299, -", "Sometimes, Never, Never, Never, or Once or twice, Never, or Once or twice, or Never, It's ok, No Sir!, No Sir!, No, Sir!, It's ok, To be able to play the actual game, 5, 4, 5, 1, 5, 1, 1, 3, 50%, 50%, 0%, 0%, "Yes, Yes, I would", "No, No, I wouldn't!", "I avoid those games", "Yes, even though I know the game will be unfinished and contains more bugs", "To be able and play the game early (duh)", "Yes, I have", "Yes, Yes, it's fair cause it doesn't give anyone more skill, No, Is this really happening? Those game developers make me sad,

6/20/2015 12:28, 10 Male, 21-25, No preference, Yes, MMORPG, Puzzle, Strategy, Explorer, "PC, Windows," "€1000, - to €1499, -", "PlayStation 3 / Xbox 360, €300, - to €499, -", "€50, - to €99, -", "Commonly, Once or twice, Once or twice, Never, A lot, Sometimes, Once or twice, or Once or twice, or Once or twice, It's ok, Rather not, it's ok, Rather not, Yes please, it's ok, It's ok, Ok, Rather not, To customize you gameplay. (Just appendage), 5, 5, 4, 1, 5, 5, 3, 1, 5, 30%, 50%, 10%, 10%, "Yes, No", "I wouldn't!", "Yes, Yes, I would!", "Yes, or if it does not contain too many bugs", "To be able and play the game early (duh), I like to test games, Because it is cheaper, So I get an extra reward..., "Yes, I have", "No, No, because it shouldn't be about money who gets to play.

Perhaps if it was F2P it could be a thing, but only then!

"No, queue shouldn't be a trick, but a solution to a problem. If its fake its just another form of Fun pain I guess"
for the servers.

6/20/2015 20:38:52.Male,41-50,Multiplayer,No,"Puzzle, Strategy, Tought games (e.g. Chess)".Phone/Tablet/Handheld consoles,IOS."€1500,- to €1999,-",I don't have a preference,I don't know,"€500,- to €799,-".Once or twice.Never.Never.Never.Only.NEVER.€1999,-,It's ok.No sir!Rather not.It's ok.Yes please.No sir!No sir!No sir! I would never pay for a game.,1.5,4,1,1,1.5,1,1,1,1,60,20,0,0,80,.Yes,No."No, I wouldn't("sir!),Yes,No,"I wouldn't,."No,.I would not pay for any game.,"Yes, I have".No,No,balls.No,n tits.

6/20/2015 20:44:24.Male,21-25,Multiplayer,Yes,"Shooter, RPG, MMORPG, Cards, Action, Explorer, Tought games (e.g. Chess).MOBA,".Consoles,Consoles on shooters/rpg's preference over pc.Windows."€1500,- to €1999,-","PlayStation 4 / Xbox One,"€300,- to €499,,-,"€3000,- and above."Mostly,Mostly,Mostly,Always,Only,Never,Once or twice,.Sometimes,It's ok.Rather not.Yes please.Yes please.Yes please.It's ok.No sir!Rather not.Pay to win I hate it.To be able to play the actual game, To be able to win (Better vehicles, weapons etc).To play MORE of the game (DLC etc).Early release, Supporting the publisher/ development,Kickstarter projects/ alpha support,3.5,4,2,3,5,3,4,3,5,30,30,30,10,Randomness equals awesomeness.,Yes,No."No, I wouldn't(!)No,No,"No, I wouldn't("sir!),"Yes, even though I know the game will be unfinished and contains more bugs",Vivid alpha/ beta tester supporter,"To be able and play the game early (dhu), I like to test games, I like to find bugs, So I can learn to play game and master it before others.,"Yes, I have".No,Yes,Alternative for ppl with less time on their hands.No,Fraud.

6/20/2015 15:01:44,Male,21-25,Multiplayer,Yes,"RPG, MMORPG,".Windows."€1000,- to €1499,-,".PC MASTER RACE,I don't own one.,"€3000,- and above,"Commonly,Never,Commonly,Commonly,Commonly,Always,Always,Once or twice,Once or twice,Once or twice,Yes please,Rather not,Yes,Please,yes,Please,yes,Rather not,Yes,Not,Rather not,Yes,Rather not,Yes,To be able to play the actual game,5,5,5,1,5,5,5,1,1,80,70,0,0,30,%.Yes,No."No, I wouldn't(!)Yes,No,No,"No, I wouldn't("sir!),"Yes, only if it does not contain too many bugs","To be able and play the game early (dhu), So I can learn to play game and master it before others, Because it is cheaper, So I get an extra reward"Mainly the extra reward.,"No, I wont".No,Equally above all,.No,"It's fraud, you bastard. It is illegal."

6/20/2015 16:03:58,Male,21-25,Multiplayer,Yes,Shooter,PC,PS,"Windows."€3000,- and above,"PlayStation 4 / Xbox One,.I don't own one,."€2000,- to €2999,-",Mostly,Once or two times,.Sometimes,The actual game,Sometimes,Some of the game,Never,Once or twice,Never,Steam,Sales,Yes please,No sir!,Rather not,Yes,It's ok.,Yes please,Rather please.No sir!Rather not,Yes,.To reduce waiting times, To reduce grinding (effort).Early release",5.5,5,1,4,5,5,2,1,4,4,40,40,10,10,.Yes,No."No, I wouldn't(!)No,No,"No, I wouldn't("sir!),"Yes, but only if it does not contain too many bugs","To be able and play the game early (dhu), So I can learn to play game and master it before others, Because it is cheaper, So I get an extra reward"Mainly the extra reward.,"Yes, I have".No,Let those fuckers fund the game while i wait an extra 5 seconds.,"No, They're lying.

6/20/2015 17:46:25,Male,21-25,Multiplayer,Yes,"Shooter, Strategy, Action,".Windows."€1000,- to €1499,-,".I don't have a preference,I don't own one.,"€1500,- to €1999,-",Mostly,Always,Always,Commonly,Commonly,Commonly,Sometimes,Once or twice,Once or twice,Never,Never,Never,Yes please,Rather not,It's ok.It's ok.It's ok,Rather not,Rather not,Rather not,Yes,Rather not,To be able to play the actual game,2.5,3,2,5,4,4,3,1,5,50%20,10,20%,.Yes,No."No, I wouldn't(!)Yes,No,"No, I wouldn't("sir!),"Difficult tasks will challenge the players, just like people are challenged in everyday life. You can't always buy yourself out of these challenges, so I think paying to release these pains is wrong.,"No, I'm patient enough to wait for the final release, Yes, I have".No,Let those fuckers fund the game while i wait an extra 5 seconds.,"No, They're lying.

6/20/2015 17:46:25,Male,21-25,Multiplayer,Yes,"RPG, MMORPG, Strategy,".PC,Windows."€1000,- to €1499,-,".I don't have a preference,I don't own one.,"€1500,- to €1999,-",Mostly,Always,Always,Commonly,Commonly,Commonly,Sometimes,Once or twice,Once or twice,Never,Never,Never,Yes please,Rather not,It's ok.It's ok.It's ok,Rather not,Rather not,Rather not,.To reduce waiting times, To reduce grinding (effort), To play MORE of the game (DLC etc),5.4,4,1,5,4,4,2,4,4,70,70,0,0,40,.Yes,No."No, I wouldn't(!)Yes,No,"No, I wouldn't("sir!),"No,dayz was the first and last early access game I bought,."I want my first experience of the game be without bugs, I don't like to be their guinea pig while paying them,"Yes, I have".No,Yes,Depends on how you want to earn money with the game (1 amount / subscription etc.). But generally speaking, pay more = get more.,"No,Quite obvious wouldn't you say? You'd lose a lot of customers once this reaches the public.,"Yes, I have".No,Yes,Depends on how you want to earn money with the game (1 amount / subscription etc.). But generally speaking, pay more = get more.,"No,Quite obvious wouldn't you say? You'd lose a lot of customers once this reaches the public.,"Yes, I have".No,Yes,Depends on how you want to earn money with the game (1 amount / subscription etc.). But generally speaking, pay more = get more.,"No,Quite obvious wouldn't you say? You'd lose a lot of customers once this reaches the public.,"Yes, I have".No,Yes,Depends on how you want to earn money with the game (1 amount / subscription etc.). But generally speaking, pay more = get more.,"No,Quite obvious wouldn't you say? You'd lose a lot of customers once this reaches the public.,"Yes, I have".No,Yes,Depends on how you want to earn money with the game (1 amount / subscription etc.). But generally speaking, pay more = get more.,"No,Quite obvious wouldn't you say? You'd lose a lot of customers once this reaches the public.
€1999~...A lot.Commonly,Commonly,Commonly,Commonly,Never,Never,Once or twice,Never,It's ok,Rather not,Yes please,Rather not,It's ok,Ok sir!,Rather not,To be able to play the actual game, Actual expansion packs".DLC sucks mostly stuff that already should have been in a game on release,5,5,3,1,4,5,5,1,1,2,100%,30%,0%,50%","I believe s game should resolve around the players skill (competitive games) and not about the amount of money someone's mom gets stolen from her son/daughter to rollstomp other players that are actually good at the game they play.

That being said there are also games I believe that should have a level of luck in them for example a game like cards against humanity.( aldo this is not a videogame but a card game)."Yes,No,"No, I wouldn't",No,No,"No, I wouldn't",...No,...","I want my first experience of the game be without bugs, I want my first experience of the game be with full content, Paying for an unfinished game is bad. It should be in the form of a beta,"."Yes, I have",No,Ok it's a way to force you to pay extra to get the full experience of the game. It's all about the money, No, Cause you are lying to your costumers.,6/24/2015 21:37:34 Male,16-20,No preference,Yes,"Shooter, RPG, Action","PC,Windows",€800, to €999","..PlayStation 4 Xbox One",€1000, to €999,","..€3000, and above","Once or twice,Never,Mostly,Always,Commonly,Never,Never,Never,Never,Yes please,It's ok,It's ok,Yes please,No,sir!No sir!,No sir!,"To be able to play the actual game, To play MORE of the game (DLC etc...),3,5,4,1,4,3,5,5,1,4,40%,40%,0%,20%","For me, it is a delicate balance; Making a game such that more skilled and experienced players can dominate others creates a "playing curve"," making playing the game more and more increasingly desirable.

Give those players too much advantage would discourage new players from playing, giving them too less would discourage players to put much time into the game."Yes,No,"No, I wouldn't",Yes,No,"No, I wouldn't",...No,...I don't want to pay for a game in testing phase,".No, I won't,No,No,All players are equal, and should therefore receive the same opportunities for playing a game."No,"Not everyone can afford to pay for such tickets, this would cause a massive advantage for the wealthier of players.

6/24/2015 22:19:34 Female,21-25,Multiplayer,Yes,"RPG, MMORPG, Strategy","PC,Windows",€1000, to €1499","..I don't have a preference,I don't own one,"€300, to €499,","..€100, to €299,"..Sometimes,Never,Never,Once or twice,Sometimes,Never,Never,Never,Never,It's ok,Ok sir!,Rather not,Rather not,It's ok,Ok sir!No sir!,No sir! No sir!,To be able to play the actual game, To play MORE of the game (DLC etc...),3,5,5,1,1,5,5,5,1,1,80%,60%,30%,20%","Yes,No,"No, I wouldn't",Yes,No,"No, I wouldn't",...No,...I don't like to be his guinea pig while paying them,"Yes, I have",Yes,Yes,"If you pay for the game, it is possible to have some privileges as long as it does not affect the actual gameplay."No,That would probably be illegal...to state that you can pay for priority when there isn't any.,

6/24/2015 22:21:34 Male,21-25,Multiplayer,Yes,"Shooter, Strategy, Idle games",Consoles,Windows,I don't own one,Just a standard PC,PlayStation 3 / Xbox 360,€300, to €499,","..€100, to €299,"..Sometimes,Never,Never,Once or twice,Sometimes,Never,Never,Never,Never,It's ok,Ok sir!,Rather not,Rather not,It's ok,Ok sir!No sir!,No sir!,To be able to play the actual game, To play MORE of the game (DLC etc...),5,5,5,2,4,5,3,4,1,2,70%,30%,20%,60%","Yes,Yes,"No, I wouldn't",Yes,No,"No, I wouldn't",..."Yes, but only if it does not contain too many bugs","To be able to play and the game early (duh), Because it is cheaper, So I get an extra reward"..."No, I won't,No,Yes,Yes,6/25/2015 01:38:24 Female,21-25,No preference,Yes,"Racing, Puzzle, Cards",PC,IOS,€1000, to €1499,"..."I don't prefer MacOS for gaming, neither their computers, but I prefer them for work. For gaming I'd prefer a Windows but that's the only reason. There simply aren't awesome games for Mac."PS3 en PS4, maakt mij niet uit,"€300, to €499,","..€100, to €299,"..Mostly,Never,Never,Commonly,Never,Never,Never,Never,Yes please,It's ok,It's ok,It's ok,It's ok,Please yes,Please yes,Please, Rather not,No,sir!No,sir!,No sir!,No,sir!,To be able to play the actual game, 4,3,4,3,4,3,4,2,3,70%,50%,20%,70%","Yes,No,"No, I wouldn't",Yes,No,"No, I wouldn't","..."This shall not be an option at all and I can speak from experiences, game developers dont do such things!","..Yes, but only if it does not contain too many bugs","I like to test games,"..."Yes, I have",No,Don't know,No,Don't know,6/25/2015 2:27:05 Male,26-30,Singleplayer,Yes,"Shooter, RPG, Action","PC,Windows",€800, to €999,..."I don't have a preference,"€100, to €999,","..€3000, and above","Once or twice,Sometimes,Never,Once or twice,Never,Never,Never,Never,It's ok,Ok sir!,Rather not,Ok sir!No sir!,No sir!No sir!,To be able to play the actual game, 4,3,4,3,4,3,4,2,3,70%,50%,20%,70%","Yes,No,"No, I wouldn't",Yes,No,"No, I wouldn't","..."This shall not be an option at all and I can speak from experiences, game developers dont do such things!","..Yes, but only if it does not contain too many bugs","Because it is cheaper","Yes, I have",No,No,Fggt","No,Fggt.,

6/25/2015 9:01:01 Female,21-25,Singleplayer,Yes,"Slategy, Tought games (e.g. Chess)",PC,Windows,I don't know,PlayStation 4 Xbox One,Don't know,",€100, to €299,","..Mostly,Never,Sometimes,Never,A lot,Never,Never,Never,Never,It's ok,Rather not,Ok,It's ok,Yes please,Rather not,Ok,It's ok,Ok,Ok,To be able to play the actual game, Early release",4,5,4,1,1,3,4,5,1,4,60%,20%,0%,20%,","Yes,No,"No, I wouldn't",No,No,",I wouldn't","..."Yes, but only if it does not contain too many bugs","Because it is cheaper","...No, I won't,No,Yes,you pay more money, you get priority queue. It's like buying flight tickets, you pay more to be in businessclass, to get better service. That's fair,"...No,"If it's really a fake then you don't get the better service for additional money, thus thats not fair"
6/25/2015 9:55:25,Male,16-20,Multiplayer,Yes,"MMORPG, Stategy, Explorer",PC,,Windows,I don't own one.,I don't have a preference,"€100,- to €299,-","€800,- to €999,-",Commonly,Never,Sometimes,Sometimes,A lot,Once or twice,Never,Never,Never.,It's ok,No sir!,Rather not,Rather not,No sir!,No sir!,No sir!,To play MORE of the game (DLC etc),.4,5,1,3,.5,5,1,3,100%,80%,0%,50%,.,Yes,No,"No, I wouldn't",Yes,No,"No, I wouldn't",.,No,,"I want my first experience of the game be without bugs, I want my first experience of the game be with full content".,"Yes, I would".,No,,"because you pay for the game and nothing, more even if the queue is long,",No,it's just people paying for nothing.,
6/25/2015 22:29:09,Female,21-25,No MORE game,sir!,No MORE game,sir!,I have the time,Once or twice,Once,Once or twice,Never,.,I want to play PC,",Windows,"€1000,- to €1499,-",.,I don't have a preference.,I don't know.,"€100,- to €299,-",Mostly,Once or twice,Once or twice,Never,.,A lot,Never,Never,Never,.,It's ok,Yes,Yes,Rather not,It's ok,Ok No sir!,It's ok,.,"To be able to play the actual game, To play MORE of the game (DLC etc)",I would NEVER buy additions that would shorten my gaming time (reduce grinding/skipping levels feels like cheating),.5,5,5,1,5,.4,4,5,1,2,70%,30%,10%,40%,.,Games that take skill and practice are the most fun, since you have to make an effort to win. Chance is also fun because it makes a game unpredictable, but if chance takes over from skill it is less fun because it is annoying if you put effort and time in the game but you do not get rewarded. Money should play no role inside a game (after buying the actual game, unless for aesthetic reasons and not conflicting with gameplay) for the same reason as chance, it makes the game predictable and boring.,.,Yes,No,"No, I wouldn't",Yes,Yes,?,No, I wouldn't,"I like that there is some discomfort in games, because the gratification is higher after you have achieved something that is difficult. However, grinding/boring tasks can get annoying fast, so it should not be the main point of the game as this will make me not want to play the game any more.",.,"I want my first experience of the game be without bugs, I don't like to be their guinea pig while paying them".,.,No, I won't.,No,No,?,I think queueing for a game you have already paid for is criminal. Gaming for me is about relaxing and de-stressing, waiting to do this would elevate my stresslevels and I would not bother to play the game.,.,No,It is not fair because it is taking customers' money under false pretences.,
6/26/2015 7:07:22,Male,21-25,No preference,Yes,"Shooter, RPG, Stategy, Action, Explorer",PC,,Windows,"€800,- to €999,-",Wii U / Wii,"€300,- to €499,-",.,"€3000,- and above",Mostly,Never,Sometimes,Sometimes,Commonly,Sometimes,Mostly,Once or twice,Never.,Yes please,Rather not,It's ok,It's ok,It's ok,Rather not,No sir!,Rather not,.,"To be able to play the actual game, To play MORE of the game (DLC etc)",Early release,.5,5,5,1,3,.5,5,4,1,.3,70%,20%,0%,10%,.,Games should rely on your skill mostly while some chance can mix it up but paying to win is bad.,.,Yes,No,"No, I wouldn't",Yes,Yes,?,I dont think queueing for a game you have already paid for is criminal. Money should play no role inside a game (after buying the actual game, unless for aesthetic reasons and not conflicting with gameplay) for the same reason as chance, it makes the game predictable and boring.,.,Yes,No,"No, I wouldn't",Yes,Yes,?,No, I wouldn't,"I like that there is some discomfort in games, because the gratification is higher after you have achieved something that is difficult. However, grinding/boring tasks can get annoying fast, so it should not be the main point of the game as this will make me not want to play the game any more.",.,"I want my first experience of the game be without bugs, I don't like to be their guinea pig while paying them".,.,No, I won't.,No,No,?,I think queueing for a game you have already paid for is criminal. Gaming for me is about relaxing and de-stressing, waiting to do this would elevate my stresslevels and I would not bother to play the game.,.,No,It is not fair because it is taking customers' money under false pretences.,
6/26/2015 9:31:04,Male,21-25,No preference,Yes,"RPG, MMORPG, Stategy, Explorer",PC,,Windows,"€800,- to €999,-",.,A very very old one (no longer sold in stores),"€100,- to €299,-",.,"€2000,- to €2999,-",.,Mostly,Sometimes,Commonly,Sometimes,Mostly,Once or twice,Never,Never,Never,.,It's ok,Yes,Yes,Rather not,It's ok,Ok,Rather not,No sir!,Rather not,.,"To be able to play the actual game, To play MORE of the game (DLC etc)",.5,5,5,1,3,.5,5,4,1,.3,50%,40%,0%,10%,.,Yes,No,"No, I wouldn't",Yes,No,"No, I wouldn't",.,Yes, even though I know the game will be unfinished and contains more bugs,"To be able to play the game early (duh), I like to test games",.,"Yes, I have".,.,No,Yes,If you want to pay to wait less go ahead.,.,No,Ripping people off.,
6/26/2015 7:29:17,Male,21-25,No preference,Yes,"RPG, MMORPG, Stategy, Explorer",PC,,Windows,"€800,- to €999,-",.,A very very old one (no longer sold in stores),"€100,- to €299,-",.,"€2000,- to €2999,-",.,Mostly,Sometimes,Commonly,Sometimes,Mostly,Once or twice,Never,Never,Never,.,It's ok,Yes,Yes,Rather not,It's ok,Ok,Rather not,No sir!,Rather not,.,"To be able to play the actual game, To play MORE of the game (DLC etc)",.5,5,5,1,3,.5,5,4,1,.3,50%,40%,0%,10%,.,Yes,No,"No, I wouldn't",Yes,No,"No, I wouldn't",.,Yes, even though I know the game will be unfinished and contains more bugs.,"Depending on the game and the progress it has made in pre-alpha, along with the current funding and development schedule/plan,.,"To be able and play the game early (duh), I like to test games, I like to find bugs",.,"Yes, I have".,.,No,"Priority queue's mean that someone can log in and start playing ahead of someone who has been waiting for an extended period of time, thereby giving one player an unfair advantage of time playing and personal skill gain over someone who does not pay.".,No,"It would be forcing people to pay money to be able to play normally, that's the equivalent of making someone pay for the keys to the house they just bought.",.,7/6/2015 22:59:55,Male,50+,Singleplayer,No,"Puzzle, Explorer",PC,,Windows,I don't know.,I never used one.,I don't own one.,"€30,- to €49,-",.,Once or twice,Never,Never,Never,Never,Never,Never,Never,Never,.,It's ok,No sir!,No sir!,No sir!,Yes please,No sir!,It's ok,No sir!,.,"To be able to play the actual game,.5,4,4,1,5,.4,4,1,5,90%,80%,0%,80%,.,Yes,No,"No, I wouldn't",Yes,Yes,"No, I wouldn't",.,No,,I want my first experience of the game be without bugs.,.,"No, I won't",No,Yes,"priority because a player invests more time or money will either trigger a player to play more or pay for it or just stop playing, so he has a free choice",.,Yes, eventually it does not make any difference for a player,