

# Game Development Methodology

(2020/2021)

Group 9

## Tower Domination - Final Report

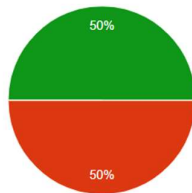
### Playtesting Results

For this playtest, we wanted to focus on card balance as well as making sure each class had their unique feel and strategy. To see if we had achieved those goals, we asked the playtesters to fill out a google form with simple questions on their opinion of the game, cards, classes and strategies they might have used. We also collected logs from the playtests to see which cards were bought, played, destroyed or discarded the most. We also collected data on the updates chosen, paths chosen and a few more details. Using this, we intended to see which cards were being left aside and not used so we could address them and also which cards were being used too many times or were felt as being too strong by the players.

First we collected some information about our playtesters, their age group, how often they play video games and their Brain Hex type.

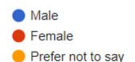
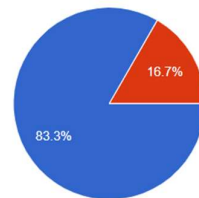
Age:

6 responses



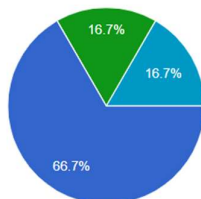
Gender:

6 responses



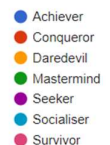
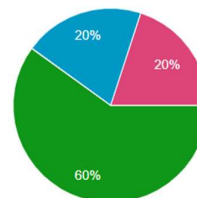
How often do you play video games?

6 responses



BrainHex Player Type:

5 responses



We then moved onto a series of questions about Game Mechanics. Here, we asked our playtesters which class they preferred. The most preferred the warrior because they found it to have the best survivability, while some preferred the thief for its extra draw and the steal card in the starting deck, and one of them preferred the mage for its versatility and AoE damage.

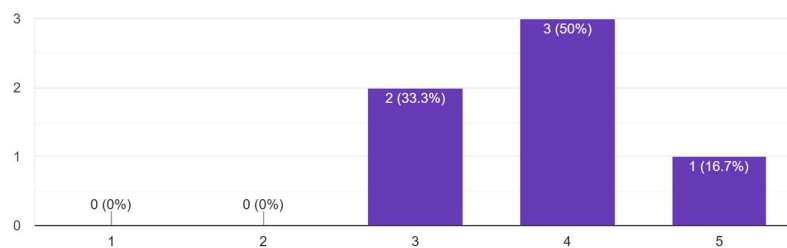
Then we asked a few questions about which cards they preferred, which they liked the least and why. These questions got a nice variety of answers, and we could derive some interesting conclusions from them.

First, the two most liked cards were Fireball and Charge. Charge was the favourite card of almost everyone that preferred Warrior, with the exception of one that chose fireball for its AoE. The other testers that picked fireball here also preferred the Mage class in the previous question. Finally, both of the testers that had said they preferred the Rogue, chose utility cards in this question, more specifically forget and steal.

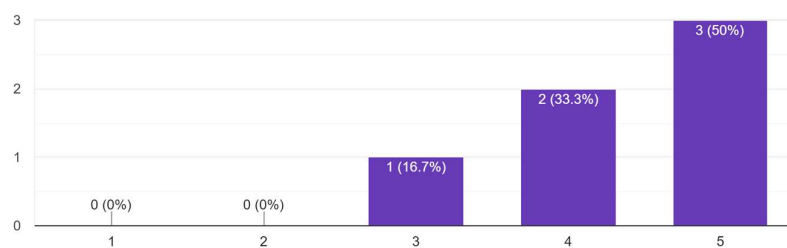
As for the cards that felt the least useful there was no consensus, each tester choosing a different card for different reasons, the cards chosen were Magic Shield, Mana Shard, Gold, Arcane bolts and Slight of Hand.

After this we asked a series of questions about the overall game with 1 being strongly disagree and 5 strongly agree.

There were enough classes.  
6 responses



The level selection was easy to understand.  
6 responses



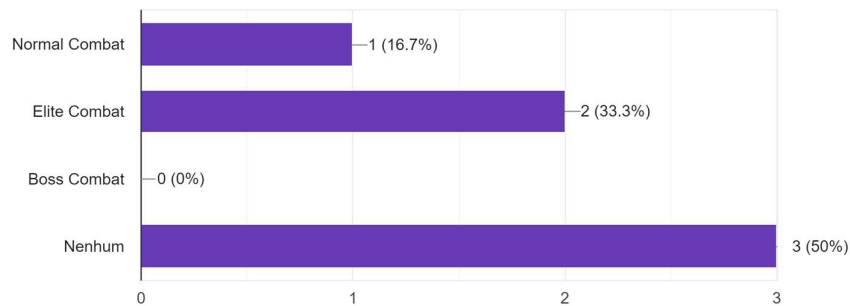
And finally for the games mechanics we asked if there was anything the playtesters wanted to do but couldn't, here we got some interesting ideas for potential features to implement in the future such as being able to see the entire deck, unlocking new cards and even multiplayer mode. There were also some complaints about the difficulty of some classes with one answer commenting on how hard it was to defeat the first combat as a Mage if there were three enemies.

Afterwards we moved on to questions about Game Balance. These speak for themselves, as we can see below:

Question: Which type of combat did you find unbalanced/ too strong?

Which type of combat did you find unbalanced/too strong?

6 responses



Question:

How do you feel about the randomness of the game?

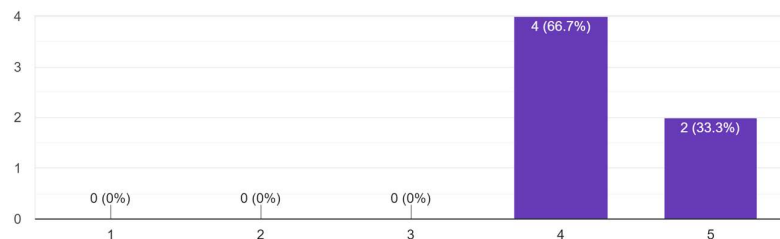
For this question

1 is Bothered

and 5 Unbothered

How do you feel about the randomness of the game?

6 responses



Question:

During the game, I felt at risk of dying

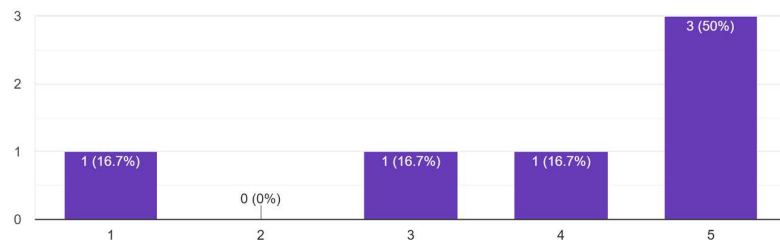
For this question

1 is strongly disagree

and 5 is strongly agree

During the game, I felt at risk of dying.

6 responses



From the Logs collected, we found that the amount of runs won were very low. However, we believe that this is not indicative of unbalance, but rather of the learning curve of the game since most of the losses were before winning the first time after which even if the users swapped classes, they would take less attempts to beat the Boss. Also, most users only played until winning once, which meant that each person had a low win rate.

In 47 attempts, we registered 15 wins in a playtest group of 10 players, with around 1 win per player. Some of them tried and won with all classes.

Across the classes, the wins rates were as follows: Warrior - 4 wins / 18 games; Mage - 5 wins / 19 games; Rogue - 6 wins / 10 games. If we keep the information above in mind, it makes sense since many people started by playing the warrior then the mage and finally the rogue, making it the class with a greater win ratio.

We collected data of which cards were bought, played, discarded and destroyed the most.

For the Warriors (18 games), we have the following top fives:

Card Name	Times Played	Card Name	Times Bought	Card Name	Times Discarded	Card Name	Times Destroyed
Charge Card	838	Charge Card	98	Injury	18	Gold Card	38
Gold Card	533	Block Card	46	Diamond Card	16	Injury	15
Slice Card	363	Diamond Card	41	Gold Card	15	Slice Card	4
Diamond Card	153	Mana Shard	33	Block Card	5	Sapphire Card	4
Block Card	150	Sapphire Card	28	Magic Armor	4	Diamond Card	3

For the Mages (19 games):

Card Name	Times Played	Card Name	Times Bought	Card Name	Times Discarded	Card Name	Times Destroyed
Gold Card	552	Sapphire Card	39	Gold Card	23	Gold Card	19
Arcane Bolts	203	Diamond Card	38	Sapphire Card	12	Sapphire Card	5
Sapphire Card	151	Quick Steps	25	Magic Missile	6	Fireball	2
Fireball	134	Fireball	22	Slight of Hand	6	Injury	2
Diamond Card	131	Heal Card	22	Heal Card	5	Forget	2

For the Rogues (10 games):

Card Name	Times Played	Card Name	Times Bought	Card Name	Times Discarded	Card Name	Times Destroyed
Slice Card	453	Quick Steps	39	Diamond Card	9	Gold Card	18
Steal Card	231	Meditate	31	Sapphire Card	7	Injury	13
Meditate	225	Diamond Card	22	Slight of Hand	5	Diamond Card	9
Quick Steps	153	Slice Card	19	Gold Card	4	Slice Card	7
Gold Card	139	Block Card	17	Sacrifice	4	Heal Card	4

And finally across all classes (47 games), the least used cards were:

Card Name	Times Played	Card Name	Times Bought
Mana Drain	23	Gold Card	0
Burn	36	Injury	0
Mana Potion	73	Mana Drain	4
Injury	77	Steal Card	13
Magic Armor	79	Arcane Bolts	17
Sacrifice	80	Mana Potion	19
Slight of Hand	86	Burn	20
Absorb Elements	107	Slight of Hand	23
Forget	110	Absorb Elements	24
Life Steal Card	118	Arcane Study	25
Arcane Study	135	Sacrifice	28
Heal Card	149	Life Steal Card	29
Fireball	161	Forget	32
Magic Missile	166	Fireball	34
Mana Gem	166	Mana Gem	40
Arcane Bolts	226	Heal Card	41
Steal Card	237	Magic Armor	44
Mana Shard	244	Magic Missile	46

With this data, we plan on tweaking some of the cards to make them more reliable or even create new cards that synergise with less used cards like the gold to create some niche strategies where they might see play. We will also try to address some of the cards mentioned by the playtester as being too strong, especially the charge card, since as we can see it was bought a lot on warrior and even a fair amount on rogue. Regarding the different battles and combats, we also plan on balancing this aspect of the game better, since there were some complaints about the difficulty that they can have in the beginning of the game.

## Development Plan

In its current state, the game has room for improvement, both visually and mechanically, as well as extra features that can be added that weren't included in our final version due to lack of time, as well as some others that were idealized after the final delivery.

## Tasks Planning and Schedule

Here's the list of the main tasks, ordered by their importance:

- **Sounds**

Currently, the game has no sounds whatsoever, which is its major flaw. Sound helps the user to immerse himself into the gameplay, as well as give the user active feedback when he interacts with anything. Sounds would range from the sounds of the spells being cast, to the swords attacks from enemies, to simple *click* noises when using the menu buttons, to a complete musical soundtrack for the game, playing different musics when in combat, in the level selection, and in the main menu.

- **Animations**

The game could gain from improved animations when the cards are played, as well as when the enemies attack the player or do some action. It would both give the player a sense of weight behind actions, as well as giving a more polished look to the combat gameplay.

- **Art**

### **Cohesion**

When first making the game, we didn't worry too hard about the different art styles of the 2 artists. It's fine to have multiple art styles in a game, but in some areas it can make the game lose some connection. Simple adjustments like color correction and color grading between all the cards and all the enemies, so as to keep the art style different but the core colors the same, are enough to improve this.

- **Story**

Currently, the story is only lightly touched. To make the player more engaged into the character and the world the game takes place in, improvements to the storytelling can be made. Cutscenes can be added as well to improve the feel of the game.

- **Quality**

### **of**

### **Life**

Simple, easy to implement changes in the game that were overlooked during development. For example, adding a functionality to be able to check your deck when not in combat and more options in the settings menu (namely accessibility).

- **Procedural**

### **Generation**

In this genre (roguelike), games tend to have an infinite map or some way to replay the game. Instead of coming up with different ideas and designing an absurd amount of levels by hand, we can work instead on a way to generate levels according to our specifications. All the work would go instead to the "modules" from which the algorithm will choose from. With this, the game gets added replayability, as well as cementing its position in the genre.

- **Upgradeable**

### **Cards**

One specific card mechanic we didn't get to implement was the upgrade. This involved buying a "level-up" of a card in the shop. Instead of adding the card to your deck, it would replace all copies of the said card with a stronger version of it. This also connects with the procedural generation reason; it's not feasible to create a huge amount of cards that only a few players would achieve. As such, we can create another algorithm

to generate these “upgrade cards” *ad eternum*, which further adds to the progression and the replayability.

- **New Classes/Treasures/Cards**  
To add some extra content to the game, more classes can be created, as well as new treasures and new cards. Each class added brings a new take on the game, and a new card can potentially open up a new strategy to play the game. The current treasures can also be improved upon, replacing the current simple effects with ones more special and complex.

For each task, we calculated the expected time consumption by taking into consideration the earlier development and time spent. Each task also takes into consideration the later tasks workload (i.e. Sounds and Animations take an extra X more weeks because of tasks like Upgradeable Cards and Extra Content, which have increased work amount). We arrive to a development cycle of 20 weeks, divided into 2 sections:

**Note:** 1 week = 5 days of work (weekends not included)

### 1. Core

This section englobes Sounds, Animations, Art Cohesion, Story and Quality of Life, and represents the polish of the game. We want to deliver a finished product above all else, not a conjugation of good ideas with poor execution.

Sounds	-	2	weeks
Animations	-	3	weeks
Art Cohesion	-	2	weeks
Story	-	2	weeks
Quality of Life	-	1	week

### 2. Features

This section englobes Procedural Generation, New Classes/Treasures/Cards, and Upgradeable Cards, and represents the features (content wise) we wanted to, but didn't get to add into the game. We want the game to have multiple layers, and give the player a lot of systems for them to play with, along with multiple options and strategies for each system.

Procedural Generation	-	5	weeks
New Classes/Treasures/Cards	-	3	weeks
Upgradeable Cards - 2 weeks			

## Development Costs

The team behind these additions and updates to the game would be composed of 3 programmers (1 lead, 2 developers), 2 visual artists (1 lead, 1 assistant), 1 sound designer, 1 story artist and 1 marketing expert.

Team Members	Time	Pay/Week	Total
Programmer A (L)	15 weeks	300 €	4 500 €
Programmer B	15 weeks	250 €	3 750 €
Programmer C	15 weeks	250 €	3 750 €
Visual Artist A (L)	10 weeks	250 €	2 500 €
Visual Artist B	10 weeks	200 €	2 000 €
Sound Designer	2 weeks	200 €	400 €
Story Writer	2 weeks	200 €	400 €
Marketing Expert	4 weeks	200 €	800 €

The team salaries would amount to 18 100 €. The equipment wouldn't be provided by us, considering our enterprise limitations, and assuming each team member already has the proper tools to work with. Travel costs will not be required, as all work can be done remotely, and in the current state of the world, it is unadvised either way. Each member of the team will receive 22.50€ per week of food allowance, which adds another 1 642.50 €. And finally an added 100 € to place the game on Steam, totalling 19 842.50 €. We then add a portion of money of approximately 5 000 € for any potential licenses or assets needed to be bought, and for marketing purposes, reaching 25 000 €.

In order to get this sum of money, we will gather from family members and friends an amount equal to 5 000 €, and the remaining 20 000 € from a public crowdfunding event (Kickstarter).

## Revenue Sources and Marketing

The game will be placed in the Steam store for sale for 20 €, making 14 € per sale (Steam takes a 30% cut in the first 10 million dollars in sales, then dropping to 25%). Marketing wise, ads will be created for the game and put on the Google Ads system, which will then appear on youtube videos, and on websites that support Google Ads.

# Postmortem

During the development of the project, there were three different cycles. Each cycle lasted for 1 month, where we performed different activities and tasks in order to polish our initial game concept and develop the game itself. This initial game concept was presented in our first laboratorial class and we gave it the name of Tower Domination.

Each week, we also published updates of our development in our blog, on the gitea page. These updates revealed to be quite important, as it helped us to understand what was done during the week and prepare for the one to come.

## 1st Cycle - Main Gameplay Loops

During this cycle, we started out by creating the **Design Document**, which would be used and updated during the rest of the semester. This first document was quite important as it helped to shape up our main goals for the game, as well as the target audience, focus group and the different gameplay loops that we plan to have in it.

On the second part, we builded our first prototypes, in this case, low fidelity prototypes. Since our concept was of a card game, we wanted to do physical prototypes, but, due to the current state of the world with the pandemic, we developed them online. Since we planned to have 3 different classes in our game, we divided in a way that each person got a different class. These prototypes helped us build the fundamentals of what we wanted to develop and the user feedback that came with it was quite insightful, since it showed us problems we hadn't thought of until that moment.

At last, we also started to think of the engine we wanted to use to develop our game. We ended up choosing Unity. We still think this was the right choice, as it made the development a lot smoother due to our previous experience with this engine.

## 2nd Cycle - Control and Presentation

During this second cycle, we added a new section to our design document, where we presented what our ideas for the UI and controls of the game would be. Unfortunately, at first, we created this section without any imagery. It was quite a bad decision on our part, since we were talking about the visual aspect of the game and the easier way to show it would be with the images of our concepts that we had done until that moment.

We also did a workshop with the people from the focus group. For this workshop, we planned some simple activities related to our game, such as playing different rounds of the game Dominion, doing some simple sketches of cards and some personal quick interviews, where we received ideas from them. This workshop was quite important, working as the last step before the development of our first digital prototype of the game.

Nonetheless, we feel that this workshop was not used to the fullest by us, as it could have been used to have more concrete and new ideas that we could implement in our game. We still got some feedback, but by adding some more activities, it could have been more complete and thorough, simplifying our work for later.

At last, we developed the prototype for the control and presentation. For it, we simply developed the battle scene of the game, which is the main aspect of it. We presented the various key aspects of the visuals of the game, like the cards, the UI and the overall organization of the different elements on the screen. This prototype turned out to be



fundamental, as the starting point to our final prototype. We got different types of feedback from the users, which were used to improve the following prototypes.

### 3rd Cycle - Progression

For the last cycle, we were tasked to create the progression of the game, so that we could have a working prototype for the MOJO event. As in the previous cycles, we started out by updating our design document, by adding a progression section. In it, we developed our initial idea for the progression, elaborating it even further and adding more details.

We also started to prepare the different materials for the MOJO, besides the game itself. We prepared our playtesting plan, where we chose to do some game instrumentation with logs of each game and a questionnaire.

During all of this cycle, we kept improving and upgrading our prototype in order to have the final version for the MOJO. We think that we organized ourselves really well and the development of the game went quite smoothly.

At last, we prepared our itch.io page, created our game trailer and recorded a gameplay video. On the 31st of May, it was the day of the MOJO and we presented our game.

### Final Thoughts

Overall, we feel that the various activities that were done during the semester went really well. We were able to organize between ourselves and since we had a concrete idea from the beginning, which was polished as the different cycle activities were performed, it made it easier for us to develop our prototypes. Also, we tried our best to a good baseline of code and we feel that we achieved it. As the game stands now, it is quite easy to further develop it by adding more cards, more floors, more types of classes or levels.

We also had the opportunity of working with 2 art students and 1 writing student that also helped us throughout the semester. From the assignment of the teams until the end of the semester, we contacted each other regularly.

Nevertheless, there were some decisions that were not the best ones, probably due to our lack of experience in the game development area. We feel that there were some times where we could have explained our thoughts better, which would make it so there were less confusions during the development. As said before, there were also some activities where we did not do our best like the workshop, which could have improved our first prototype.

For the final prototype itself, we feel that what was missing (sounds for example) was not due to bad decisions on our part, but just due to the time constraints on the semester.

In conclusion, this course provided us the experience of developing our own game, from just an initial idea to the actual final prototype. We learned about the different phases of development and how important it is to have constant feedback from users/playtesters on these different phases, since it is easier to change aspects of the game at its initial state than in a later one.