



VÅLD ELLER UTMANING?

Avgörande faktorer för konfliktlösning inom RPG.

VIOLENCE OR CHALLENGE?

Determining factors for conflict resolution in RPGs.

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Abstract

This study gives an overview of why violence is applied so often in RPGs. It features a breakdown of the RPG-genre and reflects upon how violence is commonly used to create challenge in a game. The study will also bring attention to the psychology of rewards and discuss how game mechanics can encourage players to act in the most rewarding way. The study also conducts a research by creating an artefact and qualitative interviews to test the research question; is it the challenge or the violence itself that is the determining factor for conflict resolution in RPGs? This research concludes that there are several factors that influence the player's decision making outside when choosing either a challenging or a violent path. Factors such as a narrative, character representation and the aspect of game flow in accordance with the game genre also seem to be of higher importance than expected at first glance.

Keywords: RPG, Challenge, Violence, Rewards, Balance.

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1 Introduction

This study gives an overview of why violence is applied so often in the RPG genre. Genres for which it is absolutely necessary to contain violence to maintain a theme or mechanics specific to the genre will not be featured. Genres such as military, shooters, hack'n slash and fighting all require violence to reinforce their aspects and are therefore in need of it to maintain their image. These all genres have in common that violence is the primary way to deal with conflicts but the RPG genre emphasize and focus rather on character development in storylines which often feature impactful decision making. So why is it that the majority of RPGs encourages game progression through violence?

Violence seems to be encouraged in many games today since it forces an interactive challenge upon the player, but there are games that use a different approach to conflict resolution. Games that encourage the player to solve conflicts non-violently while still not missing out on the challenge. The idea to this research came from a play through of the game *Undertale* (2015). The game is a simple RPG where the player has the choice to solve most conflicts either by violence or by different forms of diplomacy. What makes the game unique is that no matter what the player chooses, he or she has to complete a mini-arcade game in order to succeed. This indicates that even the verbal conflict solutions contain challenge. In most games the player just pressed a line of text in order to progress non-violently. However, in those games the player is only granted experience for fighting, not for diplomacy. The same goes for *Undertale*. No experience is received for solving the conflict by diplomatic means even though the challenge is equally hard to the solution by violence. *Undertale* does however balance this by featuring alternative endings depending on how the player has progressed throughout the game.

Thus, violence rewards the player with experience. The starting point of this study then is the observation that violence is encouraged in most RPGs, even on a *mechanical* level. This study will first conduct a summary of the elements which constitute the essence of role playing games, in order to create a common ground for analysis. The essay features research concerning how human behavioral psychology work when obtaining rewards and how it relates to the game industry and especially the RPGs. The study also explains why balanced challenge is so important to produce an optimal player experience. We will investigate the different forms of challenge and analyze why violence is encouraged in videogames not only by player behavior but also by the game mechanics themselves. This will be done by applying the research to different game examples, all within the genre of RPG in order to answer the questions:

When given the choice to resolve a conflict by either violence or no violence in RPGs, which option is most often preferred and why? How do challenge, reward and violence influence players' decision making when given the choice of violent or non-violent conflict resolution?

2 Background

2.1 The Roleplaying Genre

There are many ways of dividing games today and one of the most common is by using the term genre. Diane Carr et.al states that the genres consist of different traits which are important to consider when marketing since players have a different expectation depending on the genre (2006, p. 18). She also states that it is the traits that determine in which genre a game is placed, not the aesthetic appearance (2006, p. 21).

Burn and Carr set up a few elements that are generic for the RPG,genre:

- The player has a fictive part in the narrative.
- The player can gain levels with its character.
- The player can be better and more experienced.
- The player can create and customize their characters.
- There are decisions and possibilities surrounding the role the player receive
- The game is often centered on a mission with a long narrative where the player explores a fictive world.
- The game focuses on strategic thinking and decision-making instead of ability to coordinate and react quickly.

This list does however consist of general attributes and is not true for all RPGs. Sheldon (2004, p. 338-341) and Murray (1998, p. 151-152) do nonetheless support the content presented as they express in similar terms that RPG-games are about experiencing a role/character and exploring different fictional worlds and environments from the perspective of the character.

Another author who writes about the RPG-genre is Joris Dormans in his article *On the Role of the Die: A Brief Ludologic Study of Pen-and-Paper Roleplaying Games and Their Rules* (Game Studies, 2006). As the title suggest, Dormans discuss mostly the origin of the RPG-genre and how it has developed from being strictly pen-and-paper games into four different directions. Pen-and-paper roleplay where critical character information is recorded on “character sheets” is the oldest way of roleplaying. Live-action roleplay, being the second direction mentioned, is played in a large group of people who physically enact their roles by dressing up accordingly for the occasion. Computer roleplaying game evolved as an adaptation of the classic pen-and-paper games. Dormans mention that the player can either control one character or a whole party or develop their avatar often reflected by various statistics, such as strength, dexterity, charisma and so forth. This verifies Burn and Carr who suggest that the player can become better and more experienced.

Dormans fourth type of roleplaying games are the massively multiplayer roleplaying games (MMORPGs) where a player connect to a server using special client software. This client renders a fictional world, much like the software of a normal computer roleplaying game except for the fact that thousands of players can connect to the same world. Dormans argues that this is the newest and also most prominent form of roleplaying as these games have real economic and social aspects (Dormans, 2006).

This is important to consider when testing the research question by designing an RPG prototype (described in detail in chapter 3: Problem) since the prototype will give the player the choice whether to improve their character's attribute. One attribute contributes to increased damage, another to increased movement speed and the third improves the player's available interactions with objects in the world. The attribute which is most commonly preferred might bring some insight towards how players view violence in RPG games.

2.2 History of Game Violence

Violence hasn't always been a normal element in games but it didn't take many years for the first games such as *Tennis for Two* (1959) and *Pong* (1972) to suffer from decreased desirability as the players wanted something different and violence became apparent in the gaming industry. This is something that Wilson et al. writes about in their book *Handbook of Children, Culture, and Violence* (2006). They go back in history and talk about how violence became a common element in videogames in general and mean that *Death Race* (1976) was the starting point for violence in the game genre. The goal of the game was to run down stick-figure pedestrians who would then scream and turned into gravestones (Kent, 2001, p. 90-92). The game made the public react and some communities even banned it. The controversy actually increased sales of the game and although many game developers back then had standards for their games to not contain excessive blood and violence it slowly became clear that games that contained more violence sold better.

This went even further in the late 1980s and early 1990s with one-on-one fighting games such as *Mortal Kombat* (1992) pushed the public tolerance of violence to extreme limits, featuring gore which the public was only used to see in splatter movies. The *Mortal Kombat* series still remains as one of the most known fighting games to this day. The public's craving for violence became even more apparent when Nintendo and Sega both created versions of *Mortal Kombat* for their competing systems. Nintendo had toned down the blood and gore in their version while the Sega Genesis version didn't. The Sega Genesis version outsold Nintendo's version three to one (Kent, 2001, p. 466).

The history of game violence has no direct impact when performing this study but it's importance is still significant and important to have in mind since the majority of the test subjects might act violently because of earlier experiences with games that encourage violence. When evaluating this study, it is therefore important to consider what aspects that motive players to act violently.

2.3 Different Kinds of Challenge

In order to understand what creates challenge we have to understand the different kinds of challenge. In the article *Not Doing But Thinking: The Role of Challenge in the Gaming Experience* (2012) by L. Cox et al. the authors investigate this issue. They mean that the challenge must be perceived as worthy; otherwise the game simply won't be enjoyed as much. They state two ways of achieving this challenge: either push the gamer's physical limits or push the gamer's cognitive limits. The gamer's physicality limits the speed with which interactions with game can be performed. An intense moment of button mashing is an example of this. The cognitive ability has limiting effect on the speed and accuracy of the problem solving required by the game. A player trying to maneuver through a tight maze without touching the walls is an example of this. The authors' state that it is important to balance these two aspects, but it is also important that the players perceive themselves to having enough skill for the challenge at hand.

The aspect of different kinds of challenge is important to consider when designing the prototype in order to create a diversity of challenges. Designing challenges that push the gamer's physical limits, cognitive limits or a combination of both ensures that the game is challenging for all kinds of gamers. By assembling only one kind of challenge, we do not only favor the players who excel in that kind of challenge but we also increase the risk of the game becoming monotonous and therefore boring.

2.4 Progression by Challenge

Feelings of accomplishment and progression are important parts of the RPG-genre and one author who has written about game progression is Mike Lopez. In the article *Gameplay Design Fundamentals: Gameplay Progression* he attempts to define common denominators by using the definition of the word progression from Princetons University's Wordnet:

Progression

n 1: a series with a definite pattern of advance [syn: patterned advance] 2: a movement forward [syn: progress, advance] 3: the act of moving forward toward a goal [syn: progress, procession, advance, advancement, forward motion, onward motion]

[WordNet ® 2.0, © 2003 Princeton University (via dictionary.com)]

Lopez argues that these definitions can be related to games since the “progression towards the final goal” is necessary in order to mediate an enjoyable player experience. He also mentions that most players are familiar with the concept of difficulty progression, at least at a subconscious level – that games should get harder over time. In his article, Lopez explains five key elements of Gameplay Progression: game mechanics, experience duration, ancillary rewards, practical rewards and difficulty. Since difficulty is the most relevant term according to the research question, further analysis is required.

Lopez mentions that the well-structured games start out extremely easy to allow all players to quickly experience the reward of game progress, this is often the case since too much challenge early on could lead to frustration. He suggests that a curved difficulty progression often is the best option since it allows for casual gamers to get a reasonable distance into the game while hardcore player might breeze past the few couple of levels after which the level difficulty progressively increase (Lopez, 2006).

This was important to consider when designing the prototype as the players who tested it have different experiences of RPGs and games in general. Having a curved difficulty progression ensures that unfamiliar players understand how the game works and what they can and cannot do. Players who are familiar with the game might understand it early and proceed toward harder challenges faster than an unexperienced player would. The curved difficulty progression would therefore also ensure stimulation for a fast progressing player.

2.5 Rewards

Hao Wan and Chuen Tsai Sun wrote an essay about rewards in games named *Game Reward Systems – Gaming Experiences and Social Meanings* (Wan & Tsai Sun, 2011). In the article they bring up eight different forms of rewards in videogames with the second one mentioned being experience

points. Only the second form of rewards will be discussed here because of its relevance to the research question. Wan and Tsai Sun mean that experience points represent a facility type of rewards, since they enhance the avatar's ability and since character's level affect gameplay in several ways. They also state that game designers need to keep in mind a basic rule when creating a reward system: the longer the delay, the greater the necessity to provide a reward that is significantly higher in terms of quality or usefulness.

Wan and Tsai Sun distinguishes between the accumulated feedback and the instant feedback: Accumulated rewards, especially those not spent in game like experience points and virtual equipment, mark the progress of players and/or avatars and are suitable for comparison. This kind of reward is better in creating long term and social sense of achievement. Instant feedback, on the other hand, makes a game responsive and provides a sense of accomplishment. This kind of reward helps maintain attractiveness and provide elements for flow experience. The aspect of attractiveness and flow is important due to the evaluation method in the research where the players will be encouraged to communicate their thoughts out loud as they play the game. A break of flow might hinder the player from consistently talking and therefore impair the evaluation results. This method is called think-aloud protocol and is discussed more under the chapter 3: Problem.

Koster (2005) suggests that fun is at the margin of a player's ability when mentally mastering a problem. When players face challenges that seem too high for their skill levels, their anxiety motivates them to either improve their skills or reduce their challenges; the first option is considered much better because the second generally results in increased frustration. In many big RPG titles like *World of Warcraft* (2004) and *The Elder Scrolls* games (1994-2011) and many other the use of violence is a fundamental element of the game. Players fight to get experience, which in turn leads to raised levels as they become better at fighting, which either improve their existing abilities alternatively learn something new. This is something that Brian Cowlshaw addresses in his article *The Narrowing Experience of "Experience" in Video Role-Playing Games* (n.d). He believes that even though you gain levels by repeatedly killing enemies (to become stronger so that they can then kill more powerful enemies and become stronger and so on), it's very rewarding for a player to go up in levels. Koster argues that by increasing the values of different variables (even though the gameplay remains the same) the player develops a sense of progress.

Cowlshaw states that every hour a player spends in an RPG indicates a sense of improvement and that the reward can therefore become addictive. Cowlshaw also states that the sense of improvement is the reason why the RPG-genre is the genre with most hours played. He also draws interesting parallels to contemporary table role-playing game in which a leader could distribute experience in conflict resolution in addition to combat. His conclusion is that the player must be subjected to a challenge to obtain experience, and the game where the player can only walk around without challenge should not give a great reward.

An example of a game that uses the reward system slightly different is *The Witcher 3: Wild Hunt* (2015), where the player has the choice to learn the ability to manipulate people to verbally avoid conflicts. This requires that the player has spent the experience of learning in that particular skill. When a player then uses the ability (which closest resembles the concept of mind manipulation) the player receives a small amount of experience. If the player does not use the skills obtained no experience is given, and the game therefore mechanically encourages the player to use the skill every time it is available. Another game where this becomes particularly clear is the game *Undertale* (2015). The player has the opportunity to resolve any disputes either through violence or through

interactions that may contain mixed elements depending on the enemy (e.g. dancing, flirting, etc.). The game is relatively short and can be completed without ever using violence. The main difference is that the player who always selects violence and defeats his enemy receives experience, while the players who always solve the conflict peacefully never receive experience. Both parties, though, receive the same number of coins for solving the conflict.

It is however important to notice that as the player gains levels, the maximum health of the protagonist increases, but the game balances for this in an odd way. *Undertale* features three different endings: the genocide route, the pacifist route and the neutral one, and depending on how the player has played the game the endings may differ. A player who kills every monster in every region levels up but has to face a much harder boss at the end than the player who went the pacifist route and never killed anything. Both the neutral and the pacifist ways are played similar except for a few differences, one being that the player has to spare the last boss in order to reach the pacifist ending. In *Undertale*, it doesn't matter whether the player uses peaceful solutions or violence, both indicate a challenge that consist of an arcade-style mini-games where the player has to dodge different objects in order to not lose health. These mini-games are similar in style, but their intensity and difficulty varies depending on specific actions used towards a specific enemy. This is something that confirms Barbaros Bostans development of the Sweetser and Wyeth Game Flow model (2005) in the article *Game Challenge and Difficulty Levels: Lessons Learned from RPGs* (2009, p. 3), as she claims that a game's challenge should strive to match the player's skill. Diane Carr et. al also states that as players learn and gain familiarity with the game the amount of conscious effort required in order to perform routine actions will change (2006, p. 56). This is why the game starts off with easy arcade-games which get harder later into the game as the player's skill develops.

While this relate back to Cowlshaw who believe that challenge will involve experience, this is not the case in *Undertale*, where the player does not receive experience despite the challenge, and vice versa in *The Witcher 3: Wild Hunt*, in which the player receives experience despite facing no challenge. Cowlshaw also says that experience in many cases may prevent the player from continuing the story, the player level may be too low in order to defeat the awaiting enemies and this creates a brake that can be very undesirable. This is however not the case in *Undertale* since the player here always has the option to solve a conflict by diplomatic means.

2.6 Psychology of Rewards

In the article *The Psychology of Rewards in Games* behavioral psychologist Max Seidman compares the human reward psychology to reward psychology of different animals (Most Dangerous Game Design, 2013). He mentions an experiment made by B.F Skinner, a psychologist at Harvard who invented an Operant Conditioning Chamber. The concept was simple: put a rat in the box. Let the rat pull the lever in the box. Sometimes give the rat a food pellet for pulling the lever. Study what conditions cause the rat to pull the lever more or less often.

The researchers later started experimenting with pigeons and they found that the pigeons were more likely to push the level more often when there was only a chance that they would receive a reward, and even more often when they always received one. Seidman argues that this can be related to humans since we can be controlled to perform an activity more often simply by giving us a chance at a reward instead of promising us a guaranteed reward. He states that this is why we gamble. He also mentions another experiment performed with kindergarteners by Mark Lepper and Richard Nisbett in 1973. The children were divided in three groups and asked to draw pictures, the first group were

promised ribbons as a reward for drawing, the second group were given ribbons, but were not promised them beforehand. The third group was left alone to draw in peace, without any reward in mind. The experimenters found that while handing out ribbons, all three groups drew comparable amounts of drawings. Then they stopped giving out ribbons. The third group, as would be expected, continued to draw the same amount (after all, nothing had changed.) The first group, however, had a significant drop off in the amount of drawing they did. Seidman states that the reason for this was because of a motivation shift, the children no longer drew because they liked to draw, and they drew because they wanted a ribbon. They were still motivated to draw as long as they were receiving rewards, but once the rewards were removed the motivation did not snap back to being intrinsic.

The experiment with the kindergarteners suggests that the reward was instant for those who became aware of it. Even though the reward was granted afterwards the promise about the reward was given beforehand the second time when they stopped giving out ribbons. As a result the kindergarteners responded negatively and significantly dropped the amount of drawing they did. This is very important to consider when designing the prototype in order to not be biased. To evaluate the research question we must consider that instant feedback might encourage a player to act in a certain way. If a player notices that they receive a small amount of experience for defeating a non-hostile NPC they might continue with it. It is therefore a better option to keep all experience gained hidden and only available as an accumulated reward that a player can retrieve at a certain place in game. The player will therefore see how much experience they've gotten but cannot distinguish exactly what actions granted them experience and how much experience each action granted them. For more about the details about how this will be established see chapter 3: Problem.

3 Problem

Balancing the challenge was difficult since there were many factors to have in mind when designing it. The challenge could not be so hard that the players give up and not so easy that the players don't feel challenged, as suggested by Lopez. The challenge also provides the player with a reward equal to the challenge accomplished. In some games the player is however rewarded for facing no challenge, like *The Witcher 3: The Wild Hunt's* mind tricks or *Undertale's* peaceful route. According to Cowlshaw this shouldn't result in any rewards as the player opposes no challenge.

Experience is the most common way to reward a player in RPGs but gameplay mechanics might sometimes encourage certain player behaviour. This behaviour might make the player act "out of avatar" and perform actions that neither the player nor the protagonist is likely to perform just for the sake of the reward. Game mechanics like these compels players to act in a certain way and instead of having, say, three appealing options, only one option stands out since the player knows it will reward them the most. In this study we attempted to create conflicts, relatively balanced both in terms of challenge and time while still keeping all experience earned hidden in order to investigate whether it is violence in its own regards that encourages the player or rather the interactivity of the challenge.

When given the choice to resolve a conflict by either violence or no violence in RPGs, which option is most often preferred and why? How do challenge, reward and violence influence players' decision making when given the choice of violent or non-violent conflict resolution?

Many alternative designs had been considered regarding whether or not experience earned should be displayed or not for the test persons, as they might influence the player's actions in the game. Just like the experiment performed with kindergarteners a biased outcome might be possible if the player is visibly rewarded. This does however speak against what Tsai Sun and Wan says when they state that the reward has to be significant enough to make up to the delay of receiving it. One way to solve this issue would be to make the player's aware of when they gain a new level. The issue with this solution however is that the player doesn't know what has granted them experience except for the last committed action. If a player for example were to receive a small amount of experience for killing a critter the player would know that the game mechanics encourage violence even though the critter might only stand for 1% experience while the player of non-violent actions stood for the remaining 99%. Letting the player know when they level up in this way would therefore be considered problematic.

By having the amount of experience earned unknown to the player it is more likely to see differentiate the reward from the research question and focus more on how the challenge and the violence influence the player's decision making. The experience could not be completely hidden however since it would eliminate the concept of reward completely. Letting the player gain access to the experience at a certain place in the game would therefore be considerable. That best idea would be to place it in the dialogue with the NPC used when the player wants to level up. The NPC would check the player's experience in order to see if they've earned enough experience to level up but only returned the level to which the player gain access. The player would then not understand what has granted them experience since they only know what if they have enough experience or not. Observing how often players return to the NPC in order to see if they can level up could be used to investigate to what degree the psychological behaviour of rewards impact a player's decision making.

This NPC couldn't be easy to access however, since players then would be able to experiment with what gives them experience. By placing the NPC in the beginning of the game we forced the player to run all the way back in order to earn experience. This would be similar to games like *Dark Souls* (2011) where the player has to return to different bonfires in order to level up, or as in the sequel *Dark Souls II* (2014), where the player only can distribute their experience by accessing one NPC in the main hub of the game. The second option could have been to have a teleport function for the player to travel back to the NPC, the pros of this is that the player won't be as annoyed by having to run back through all zones they've been in. The cons though is that the player might earn much experience within a short time and not being able to spend it since the timer doesn't allow the player to see the NPC. The best alternative was therefore a combination of both, the player have the ability to teleport back to the NPCs once every 5-10 minutes but they can also run straight back through the earlier areas manually. This would create a balance between the player's irritations as the player has to pass through earlier areas and the player's anticipation knowing that they can improve their character once they reach the NPC. The reward at the end of the journey therefore remains.

Analysing the traveling aspect in terms of risk and reward was also valuable to the study as the player either can go back to develop their character or take risk of continuing and might end up dying. Games like *Dark Souls* are unforgiving in the aspect that all experience (in the Soul-series called souls) are lost once the player dies and can only be retrieved by picking them up at the spot where the player died. This seems a bit too punishing for an experimental prototype with a relatively short playthrough of less than 30 minutes. The player will therefore start over at the start of the current map with all earned experience still accessible through the NPC.

A greater problem arose when differentiating between whether challenge or the violence itself is the determining factor for how a conflict is resolved. In order to test this the game provided the player with different challenges and two ways to solve each challenge. The player could either complete a jumping puzzle in order to retrieve an item needed to hand in to a NPC. If the player gives the NPC the item, the NPC would return by giving the player an item needed to progress in the game. This jumping puzzle would indicate a challenge to the player while providing a reward at the end. To test if player's are prone to using violence the player would also be able to attack and kill the NPC, without doing the jumping puzzle to receive item needed to progress.

By designing different room with alternating NPCs and challenge we balanced the challenge of the violence to observe what causes a player to use violence. The first room for example, contain an easy puzzle and an optional easy combat encounter with the NPC while the second room have an even harder puzzle but a similar difficulty level in combat with the NPC. The third room would therefore have a hard puzzle but an extremely hard combat encounter. Most of the NPCs in the game would however be fairly harmless in order to test challenge versus violence, but by establishing at least one challenging combat encounter we could observe and compare it to the earlier conflict resolutions and discuss whether it is the challenge rather than the violence itself that drives the player. As L Cox et al. suggests, it is important to create different kinds of challenge as a challenge must be worthy enough for the player to conquer. Only featuring one kind of challenge would possible bias the results towards player's more acquainted with that particular kind of challenge.

3.1 Method

In an attempt to prove whether it is the challenge (rather than the violence itself) which encourages players to solve conflicts, I conducted qualitative studies where test subjects played through a prototype of a simple RPG created in Game Maker. In the same way as in *Undertale* the player have the choice to settle disputes and resolve conflicts either by violently killing the NPC or by an alternative method that won't feature violence (examples of this could be a jumping puzzle or a maze walkthrough). It is important to consider that the amount of time required for both the violent and the non-violent alternative has to be relatively equal. If a conflict can be resolved much faster and/or easier by the use of violence the game will encourage the player to do so. In order to receive unbiased answers both alternatives must seem appealing to the player.

The game called *Homeschool Graveyard* – was made as a 2D "sidescroller". The reason for having a perspective which displays the game from the side instead of an isometric 2D top-down view is due to lack of construction time, given the specifications of this essay. It would be preferable to create the game as an isometric 2D-topdown as it enables more depth and possible more immersion. The perspective would nonetheless require twice as many animations as all animated characters would have to move in four different directions (up/down/left/right). A sidescroller one other hand only require movement in two directions, left and right. The game contain interactive doors, tunnels etc. that leads the player to another room as a mean to enable transportation between environments. Some doors would only require the player to collide with it in order to transport, while others would require the player to press a key while carrying a certain item in order to "unlock" the door. An example of this would be that if a player has to retrieve an object to pass a guard, the object would be stationed at the end of a jumping puzzle accessed by a door. The player could do that or attempt to straight up kill the guard and pass anyway. The hardest part here was to make both options look appealing while still maintaining a similar amount of time and provide an equally hard challenge. The idea of the game was to have several challenges the player could solve by either violence or non-violence and since the player's only played the game one time it was hard for them to determine whether the violent or the non-violent route progresses the fastest. It was therefore very important that the evaluation not only took place as an interview after the playtest. As the players played the game I analyzed their way of gameplay and frequently asked questions concerning their decision making. This was easiest accomplished by both screen recording the gameplay, audio recording what the players said as well as a visual camera recording which displayed the players facial expressions. In order to successfully establish balanced challenges a Pilot Study was performed to receive input concerning how the conflicts can be designed.

In the game the player takes the role of a ghost by the name E (gender unknown) who just recently died and lost most of hir memories, it is now up to the player to remind E about why/how hir died. The decision to not display E's gender was made in order to let players of all genders be able to get immersed into the story and gameplay while minimizing the risk of encouraging a certain behavior in case E's gender wouldn't resonate with the gender of the player.

The actions available for the player are to walk around pick up items and use these items at certain locations. The player could proceed in the game in two ways, either investigating E's past or violently avenge people hir didn't like. The game keeps count of the player's experience but keeps it concealed for the player. The reason for this is my desire to keep the mechanics partly hidden for the player as they won't know what grants them experience until they level up. The player then had to understand

that whatever last action they performed granted them experience but they had no idea about how much experience was received.

The hard part when designing a prototype of this small scale was to consider that we are specifically testing for the RPG-genre and the game therefore has to contain element of character improvement. Character improvement is one of the core elements of the RPG-genre according to Carr, Sheldon and Murray and the player will therefore have the possibility to distribute a few points to determine the characteristics of E at the start.

- **Strength**
Determines how much base damage E deal.
- **Agility**
Determines E's movement speed and slightly improve jumping height.
- **Soul**
Increased E's max health and slightly influence the rate of which E receives experience.

At the start of the game the player has 10 points to freely distribute among these stats. Strength, Agility and Soul all start at 1 point and as the player levels up another 10 points can be distributed.

The play length of each session was estimated to be between 10-20 minutes. Before the players started playing I encouraged them to use something known as "Think-Aloud Protocol". The Think-Aloud Protocol is a protocol used to gather data in usability testing, commonly used for product design and development. The method involves participants thinking aloud as they are performing a set of specified tasks. Participants are asked to say whatever comes to mind as they complete the task. This might include what they are looking at, thinking, doing and feeling (Boren, T & Ramey, J, 2000). The participants were documented by a voice recording which later was used for evaluation. The recordings are kept by the writer of this essay until the date of the examining seminar. If the player don't manage to finish the game in 20 minutes the session would be over (this was later changed, due to bugs in the game). During this period of time the researcher observed and made notes as the test subject ran the prototype. Rolf Ejvegård writes about this in his book *Vetenskaplig metod* (2009) and argues that this form of evaluation is a participating observation. He states that even though there are pros of using it, such as being able to go deep into the course of event and underlying motives behind decision making it comes with a certain flaw: the researcher's presence might influence the studied course of events (Ejvegård, 2009, p. 76).

Once the play session was completed the players was afterwards given the opportunity to answer what they thought about the different interaction elements. It is according to Ejvegård a good way to combine the participating observation with another form of evaluation, as its scientific value otherwise might be compromised (2009, p. 77). These questions asked why they distributed stat points as they did, why they acted violently/nonviolently when they could've acted another way, as well what they thought about the game in general. This interview proceeded according to semi-structured questions. This meant that some questions was mandatory for all test subjects in order to answer the research questions, while the investigation still maintained the freedom to elaborate with follow-up questions if necessary.

3.2 Cultural & Social Aspects

Attempting to make the research as unbiased as possible I decided to not select the targeted audience for the test by player experience in games or the in specific genre. One bias was unavoidable though and that is the cultural aspect. All test subjects were either born in Sweden or had spent at least the last 10 years living in Sweden. This indicates that they all have the same cultural reference which is important to consider as most Swedish people understand English and has decent understanding of games. If the study were to be conducted in another country with a different culture, the results might be extremely different due to a different culture frame.

The test participants were recruited among relatives and students at Högskolan i Skövde. The goal was to survey the players' behavior and how they handled different conflicts. The players were not aware of how their character's experience is affected by their actions in order not to bias their decision making and had an aim to survey at least 10 persons.

The geographical location of the study was chosen in accordance with the location of test subjects. Due to a total survey time of 30-45 minutes and requirement of both a computer and equipment for recording the survey had to be performed within a limited area. Since the survey used the Think-Aloud Protocol it required a physical presence by a supervisor that could take notes over the course of the playthrough. The qualitative research method by interview questions could've been performed on distance but the recordings couldn't as the test subjects would require access to screen monitoring software for recording as well as microphone. It's also more likely to believe that the players would forget about the Think-Aloud Protocol if the test were performed without supervising which could result in long periods of silence.

Age distribution was set to be between the age of 15 and 30. One reason for this is that I think it is more likely for younger people to act violently just because "it is a game" according to the observation made by Wilson, Singer and Dowd (see 2.2: History of Game Violence, above). Another reason for this is that a younger age group might be more prone to using violence as they have yet to develop an understanding for the English language. It is therefore likely to believe that a younger age group would skip the dialogue, not due to lack of interest, but rather as a result of incomprehension. Most Swedish children at an age of 15 has developed a decent understand for English in a sense that they at least able to understand simple sentences without too complex words.

A third reason for the lower age limit is the fact that the prototype contains violence and language that some might find offensive. The violence should however be consider playable at age of 7 in accordance with the Pan European Game Information (PEGI, 2016) as it may contain mild or unrealistic violence (e.g. violence in a cartoon context) but due to the language the prototype more likely appeal to the age group of 12 years and above. This is due to the fact the game contains profanity.

The higher age group was chosen due to game relevance according to history. *Homeschool Graveyard* appears to be more of a platform game than a RPG at first gaze and with the rise of *Super Mario Bros.* (Nintendo, 1985) and many other platformers most people, whether hardcore gamers or not, below the age of 30 should at least be familiar with the genre.

The gender group would preferably be an equal distribution between males and females in order not bias the answers towards one particular gender. Unfortunately a few females who replied with interest

to participation had been prevented for various reasons and could therefore not attend. An equal gender representation could be preserved if I denied a few males to participate. This would however result in fewer than 10 participants, which would not be enough to establish correlations among their individual gameplay sessions.

Anonymity was also important to consider since the test subjects were recorded and could be recognized both through their voice and their face. The test subjects therefore had to read and sign a paper stating the terms and agreement of the survey. The agreement informed the player that the game contained profanity as well as violence and that the player could find this offensive. The agreement also stated that the only information about the test subject that would be displayed in the study was their gender, age and results of their gameplay session. In order for any other information to be displayed or handed out, the owner of this paper would have to receive additional permission from the test subjects. This agreement was done to ensure that the players could stay anonymous as well as informing them about potential offensive content in the prototype.

I considered investigation in this subject important since it might bring understanding about why players respond by violence to different conflicts. This study might therefore be of use in the future for both game developers (as they adjust their design) as well as publishers (as they adjust their target audience). Figuring out why the violence itself is common within the game industry might grant us a new perspective through which new games could be designed with nonviolent challenges.

The study was summarized mainly by searching connections in the evaluation from what the test subjects experienced, featuring motives for why they acted in a certain way, according to violence, challenge and reward as well as their opinions about the prototype and the test itself. More objective data was also summarized quantitatively (by the observations of the “Think-aloud”-method) in order to analyze potential correlations in opinions depending on age, game experience, playthrough length of the prototype and whether the conflicts were resolved violently or not.

4 Implementation

This chapter will feature how the implementation of the prototype was performed.

4.1 Research

The prototype *Homeschool Graveyard* was made in the program *GameMaker: Studio* (originally named *Animo* and later *GameMaker*). *GameMaker: Studio* is a proprietary game creation system created by Mark Overmars in the Delphi programming language. The program simplifies creation of 2D games by using drag and drop action sequences and a scripting language known as Game Maker Language, to develop more advanced games which actions are not covered by the drag and drop functions.

The major pros with *Game Maker: Studio* is the fact that it allows users to easily develop video games without having to learn a more complex programming language such as Java or C++. The downside however is that the 3D graphics are limited and GML is usually significantly slower than compiled languages such as Delphi or C++. These downsides are of no importance when designing *Homeschool Graveyard* however, since the game only will feature 2D graphics and the program isn't large enough to need fast compilation.

The design of the game was inspired by a mixture of *Undertale* (2015) which features dialogue and non-linear decision making as well as basic platformer games such as the *Super Mario Bros* (1985) which features basic platformer mechanics such as jumping, falling etc. In order to maintain a scope on the RPG-genre, classical design for RPGs was added by implementing variables for health, level, experience & attack. To further enhance the RPG-aspect we implemented different attributes to which the player can allocate skillpoints (received once leveling up) in different attributes to further customize their playstyle.

4.2 Progression

The first thing to be implemented in the game engine was movement system for the player character. To make sure as many people as possible would be familiar with it the keys 'A' and 'D' was chosen to move left and right and SPACE was chosen as jump key. Instead of using the normal system a physics system was designed in order to improve the handling of movement and collisions in the game. The game was designed into rooms and doors enabled transitions between them. If the player dies or has a position outside the room, the room will restart and the player respawns at the starting position with full health. The player will not lose stat points or items upon dying.

The first room *Graveyard1* was designed to be an introduction for movement, attack, interact, inventory and character information keys. Three textboxes in the beginning of the game made sure to inform the player of what actions they had available. The first NPC named Grim Reaper appears and welcomes the player to the game as well as informing the player to return to them every now and then. The reason for this is because the player has to return to a certain NPC in order to level up since they lack the ability to track their own experience. This tie back to what Lopez mentioned about progression where he mentioned that too much challenge early on could lead to frustration. It was therefore a sound option to inform the players both about which actions were available to the player as well as informing the player about E's backstory.

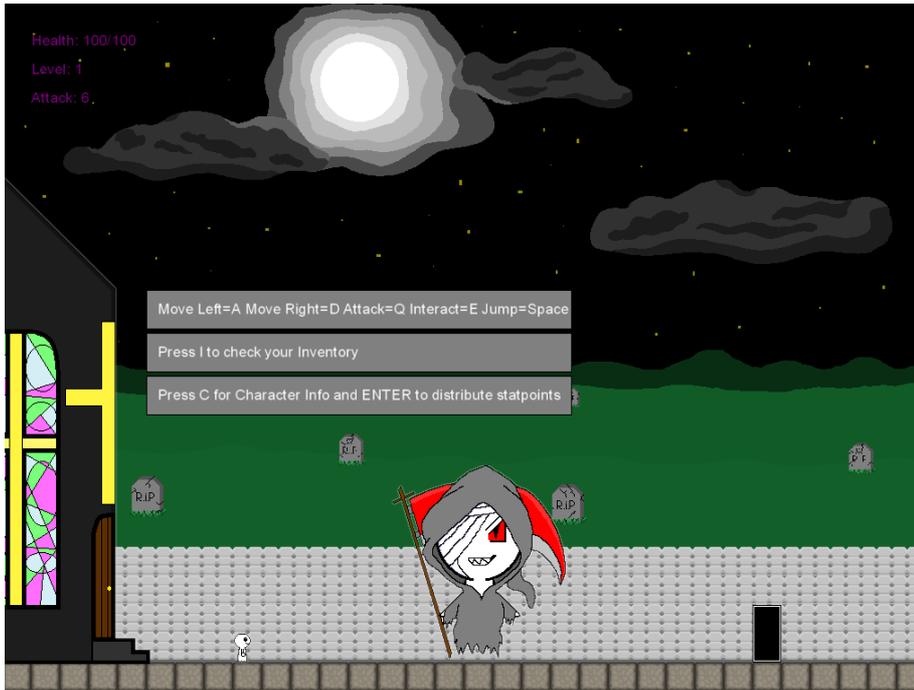


Figure 1 Room_Graveyard1.

In the second room Graveyard 2 there are two NPCs. The first being the Angel who informs the player what the attributes indicate and the second being the Devil who encourages the player to attack creatures. Once again this tie back to the progression by challenge, the NPCs informs the player about vital information about how to improve their character as well reminding their character to use violence when they find it necessary. No challenge is yet encountered; but the player has nonetheless received all means in order to proceed in the game.



Figure 2 Room_Graveyard2.

The third room Graveyard 3 contains three locked doors, one locked chest and a creature known as Blob. Blob will try to approach the player and attack them if they collide. Blob can however be

interacted with from a distance in order to open up a conversation. If the player kills Blob or finishes the conversation with him, the player will receive a key to the first of the three doors. This causes the first actual challenge to the player, or at least the player might think so as they are approached by a NPC that could seem hostile.

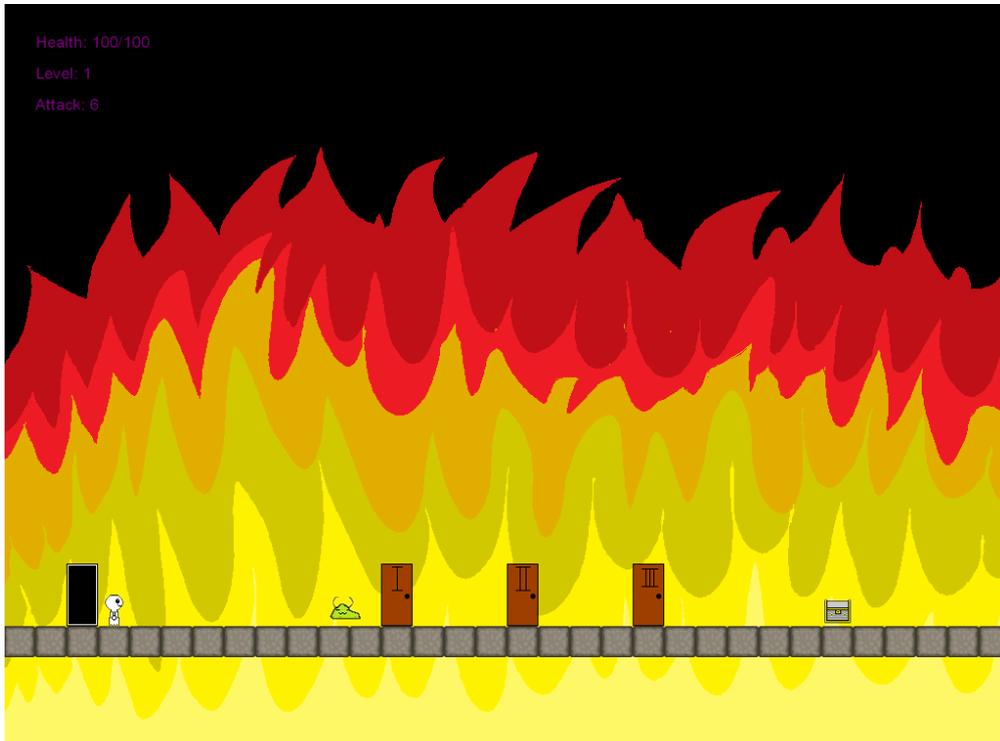


Figure 3 Room_Graveyard3.

The first key leads to Level 1 in which a Tree exists. The tree has the key the player needs to get into the second door but will only hand it over if the player hands him the scissor which is found in a chest on top of the level. The player can now either proceed through a jumping puzzle were blocks break if the player collides with them in order to get the scissor and hand it over or kill the tree and just loot the key from it. Jumping indicates a far greater challenge than the violence from fighting the tree. This indicates a challenge that mostly pushes the player's physical limits as the room demands fast reflexes once the blocks starts falling. It does however contain a slight amount of cognitive challenge as well, since the player has to plan and adjust where to jump to. The two forms of challenge mentioned by L Cox et al. therefore apply more so in this room than in Room_Graveyard3.

There are two rewards in this room one major, the key retrieved from the Tree, and one minor, the scissor up in the chest. The player could however retrieve the major reward by simply using violence instead of performing the physical challenge of jumping up to the chest. This behaviour could indicate that the player uses violence as a primary mean of conflict resolution.

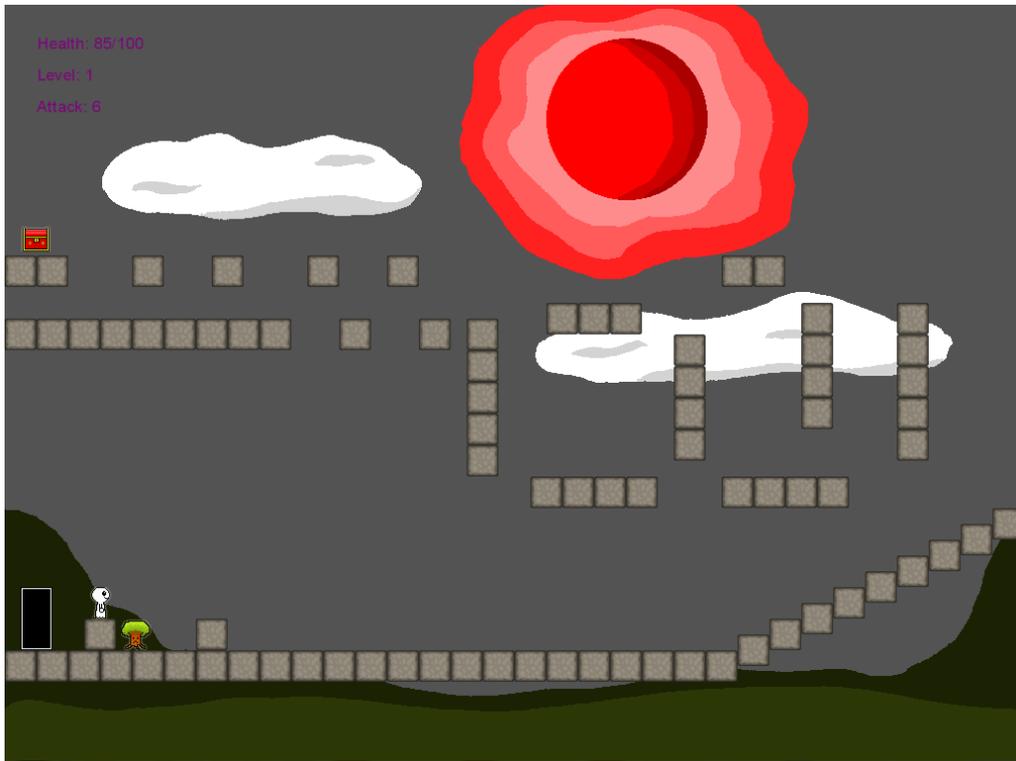


Figure 4 Room_Level1.

The second key leads to Level 2 where the player can talk with the NPC Blue. The NPC tells the player that the key is somewhere inside a dark maze. As soon as the player's Y-position becomes higher than a certain value a black sprite is placed around the player, leaving only the closest area visible. The player doesn't know that Blue has the key all along so when the player find the chest inside the maze a note will pop up revealing Blue's betrayal. Once the player comes back to Blue, he will surrender the key to the player and beg to not be attacked. If the player attacks Blue he will try to defend himself by powerful knockback effects. The challenge is more based in navigation rather than reaction, compared to level1, and it is therefore consider more of a cognitive challenge as the player's perception is put to the test. It is however interesting to see whether players attack Blue or not, even though the player has gotten the key. This wouldn't indicate that the player use violence as a primary mean but rather violence as a result of the narrative.

In the same way as Room_Level1 there's a minor and major reward in this room. The minor reward is retrieved by completing the challenge in order to reach the major reward but the major reward could be reached by killing Blue. The challenge faced when attacking blue is although much harder than in the first room as Blue both has more movement speed, health and further attack range than the NPC Tree. This was created with progression of challenge in mind, and as Lopez mentions, it is important to increase the difficulty progression. By increasing the difficulty of combat the test subjects who only rush through the game and attack everything that they can attack will face a harder challenge than their previous combat encounters.

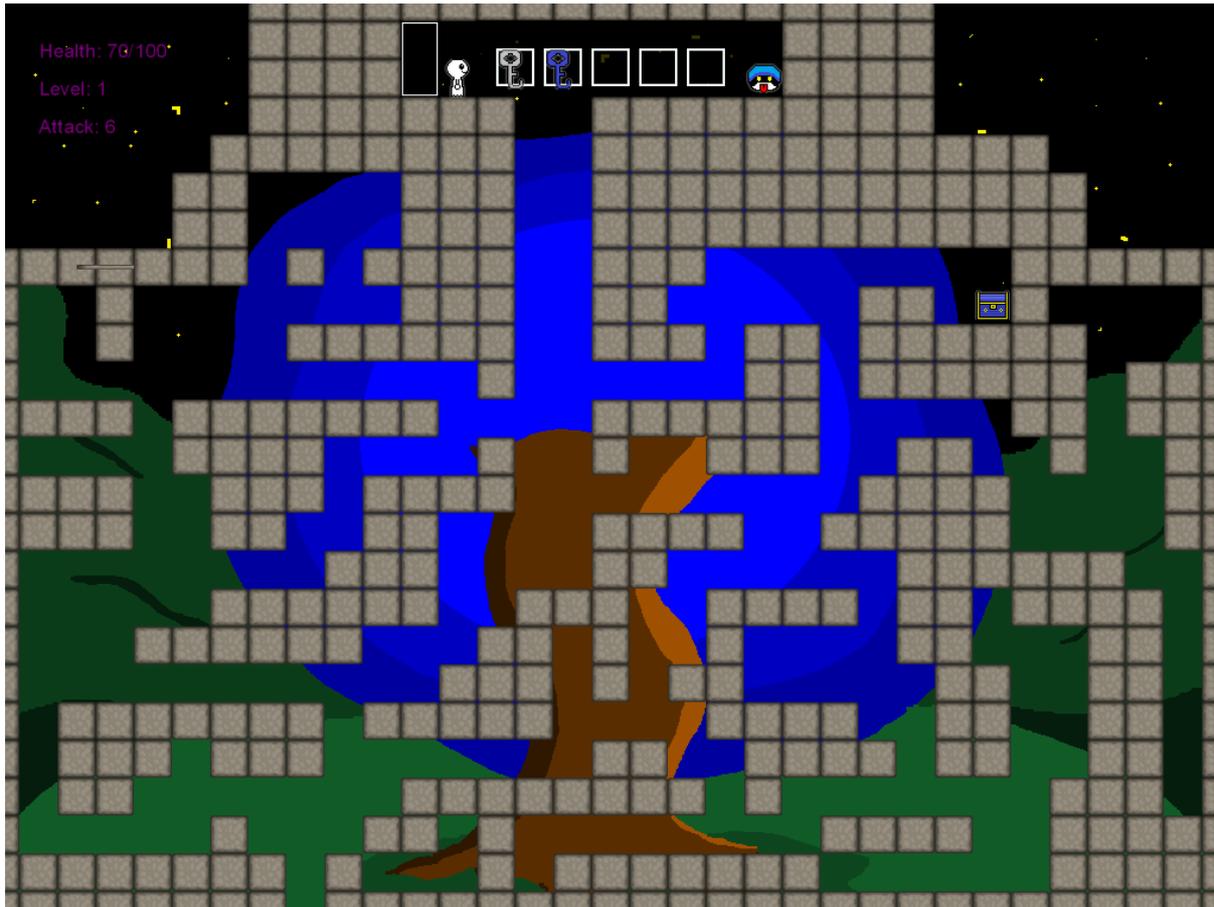


Figure 5 Room_Level2.

The third key leads to Level 3 in which a Drone wants the player to retrieve the third key and hand it over. The level is challenging due to it consist of a mixture between falling blocks and invisible blocks that only get visible upon colliding with the player and could therefore be consider both physically and cognitively challenging. It's physical in the sense that the player has to react fast when standing on falling blocks and cognitive since the player has to remember where the invisible blocks were stationed.

If the Drone is attacked it will spawn red orbs that will move towards the player and deal damage on impact. When the player retrieves the key it doesn't matter whether it's handed over to the Drone or not as the Drone will clone the key and hand a copy over to the player anyway. The challenge of jumping is in this room hard but the challenge of fighting the Drone is even harder in accordance with progression by challenge. The drone has an immense amount of health but cannot move at all. The red orbs does nonetheless spawn at an intense pace, has fairly high speed and both damage and knockback the player if they both collide. This main function of this room is to differentiate between those who use violence because it gives them the key fast and easy and those who actually enjoy the violence.

This room is different from Room_Level1 and Room_Level2 since it only contains one reward, the key in the chest. It is therefore not necessary for the player to return the key to Drone, this could differentiate players who only want to progress fast from the players who consider the narrative an important factor.



Figure 6 Room_Level3.

The third key leads to an interactive credits screen known as level 4. All rooms except level 4 contain a door that leads back to the previous room.

All rewards visible to the player are according to Wan and Tsai Sun instant feedback. The player picks up an item and it instantly appears in their inventory window. It is important to reward the player with this sort of feedback as it provides a sense of accomplishment and makes the game feel more responsive. Instant feedback also makes the game more attractive and indicates a sense of progress.

The accumulated reward is experience which is hidden to the player but is hinted about in the conversation with the Grim Reaper. The accumulated reward might not be a concern to the player until the player faces a challenge which seems impossible. As Koster mentions, a challenge that seem too high for a player's skill level can create an anxiety that either might motivate the player to improve their skills or reduce their challenges. The accumulated reward might therefore be an alternative to giving up if the players feel that they cannot raise their skill level enough to overcome the challenge. This could indicate a potential break of game flow as the player would have to return to the beginning of the game in order to level up, that is however a fairly small price to pay in order to, as last resort, progress further.

4.3 Pilot Study

In order to make sure that the prototype would provide the data needed to answer the research question a pilot study first had to be made. The pilot study was performed by having a test subject playing the game while using the think-aloud protocol. The playthrough was recorded both visually of the game, audio for what the test subject said as well as camera footage of the player's facial expression when playing the game.

The player was informed about the game controls and which actions were available early in the game. The player first tried to attack the Grim Reaper and then ran through the level without talking to it as the player noticed it wasn't attackable. In the second room the player did the same thing with the Angel and the Devil only to notice afterwards that talking might be an option. In the third room the player instantly attacked the Blob and killed it to retrieve the key to room_lv1.

This room proved to be hard for the test subject as the Tree NPC in the room was hard to kill as floor collapsed while standing on it for too long. The test subject was also very stubborn on killing the Tree and it took more than 5 restarts to understand that there actually was something to pick up in the room. As the player found the scissor, she ran out to the third room in order to open the door to room_lv2 with it. She then ran back into the room and talked to Tree in order to retrieve the key to room_lv2.

In room_lv2 the test subject chose to talk before attacking for the first time. The level was completed with relative ease as it only took a few minutes to find the chest and return to the NPC named Blue and unfold his betrayal. As soon as she got the key to room_lv3 from him she left, she didn't seem to have any intention for unnecessary violence.

Room_lv3 proved to be the hardest challenge for the test subject. It took around 10 minutes to complete the jumping puzzle and the player never tried to attack the Drone. She talked to it at first, in the same way as she did to Blue in room_lv2.

Afterwards a qualitative interview was performed where questions relating to the gameplay experience were asked. The test subject admitted to using violence as a primary mean to resolve conflict with the reason that most of the games she's played lately worked that way. She also explained that there was no reason to return to the Grim Reaper in order to level up since it would ruin the flow of the game, even if she could teleport back to him. If the game was longer and she would've reached a point where it got too hard, she would consider it an option. The reward was therefore not worth returning for as the challenge was more entertaining. When distributing the first 10 skill points, 6 went to strength, 2 to agility and 2 to soul. When questioned about it, the test subject said: "But I don't wanna die". She elaborated by explaining that the more damage you deal, the faster the enemies die which mean the avatar takes less damage. This further enhances the theory that violence was the primary mean of conflict resolution.

During the pilot study a few a bugs were also noticed. One being the ability to jump was greatly increased when standing on a falling block. Another being that the door to lv_3 became locked when passed through once. The test subject also suggested a notification for when colliding with an open door in the form of "Are you sure you want to leave the room?" as well as a reminder from the Grim Reaper when level 1 was completed to make sure that the player remembers to level up.

The test person also admitted to be much more likely to use violence actions would've displayed experience gain. This makes the psychological theory about rewards from B.F Skinner seem true

since the test subject admitted that the motivation for playing the game would be different if they were aware of the avatar's character progression, much in the same way as the motivation shifted among the kindergarteners.

5 Evaluation

In this chapter we will talk how the study was performed, what results it gave and how they can be analysed. We will also mention problems that occurred and how they were handled and also draw a conclusion about the research in general. Finally we will discuss how research within this subject could be handled in the future.

5.1 The Study - Analysis

The study was conducted by a qualitative investigation where test subjects played the game and afterwards answered questions about their experience playing games and about their experience and opinions about the prototype. Ten people participated in the study, 7 males and 3 females, between the age 15 and 28 (average was 21 years old).

Before the study started the test subjects had to read and agree an agreement which enabled us to record the session by screen capture and voice recording. The agreement also stated that that the prototype might contain violence and/or offensive language. It also informed the test subjects that their participation could be cancelled without further ado.

The game experience of the test subjects had a large variety, some played games several hours every day and a few barely played games at all nowadays. Player's genre preferences also seem to differ vastly; half of the participants did however mention RPG as one of their favourite genres.

When the test participants were asked if they understood the game with ease the majority said yes. They did elaborate by explaining that the controls were easy but instructions were not very clear. A few players experienced that they didn't know who they could attack or not as well as knowing what NPCs were friendly or not. The majority of players did not anticipate that every NPC was possible to interact with through dialogue. A few players mentioned that the Reaper, Angel and Devil NPC felt more like a background than an intractable NPC.

A large majority also attempted to either open a chest and/or a door with the scissor retrieved from level 1. When confronted about why they reasoned as they did the players explained that they didn't consider interacting with the Tree and instead thought of the scissor as a mean to get through the next door.

Four players opened up the character screen for stats distribution but only one player actually distributed the points into the different attributes. When all players asked about the character improvement system agreed that their primary focus was to proceed in the game and not to stay still and allocate attributes. The large majority of the player considered it to be a ruin of flow in the game to have to run back to the start in order to level up. Most of the player also did not see the need for it, some explained that they might have considered using it if they got stuck and couldn't proceed. The focused seemed to be on the story and the interactions in the game but all players agreed that their actions would've been influenced if they were given instant feedback in terms of experience upon making decisions. Several players also admitted that they would probably use the accumulated experience if the game had been longer.

The players' feedback about the three different levels also seemed to differ depending on player experience. The more experienced players thought of the first level as a good introduction to game mechanics as a jumping puzzle and one player mentioned that it felt like a tutorial. The less

experienced players did have troubles however and thought the first level was very stressing and frustrating as the ground fell where their avatar stood.

A majority of the players attacked the Tree at first sight in room and only the remaining three talked to it. When asked to express their first impression of the level some reasons were, quote:

- *Here's a tree, it has red eyes so it must be evil*
- *The tree is blocking my path!*
- *I just felt like killing.*
- *The tree looked so sad, I wanted to help it.*

The difficulty rating for the first level scored between 2-9 with an average of 4.9 and a median of 4.5.

The second level seemed to confuse many people as the camera perspective zoomed in on the avatar and made the perspective appear closer. The players consider level 2 to be a more orientation-based challenge where they could take their own time without being stressed. The second level was therefore a challenge in terms of cognitive ability. The outcomes of interaction in this room were by far more diverse than in level 1. The majority of players now attempted to talk to Blue at first, five of which later attacked Blue when they found out he had betrayed the player. One player also missed out the interaction with Blue, wandered lost for a while then admitted he got bored and went to kill Blue. Another player attacked Blue after the dialogue because Blue felt “shady”. All players agreed that the challenge was the most time consuming. Some player quoted their encounter like:

- *Hmm, he seems sneaky.*
- *Do I really have to jump down here?*
- *I've never met an NPC who says “Psst, you there” and wishes me well.*
- *What's this paper?*
- *Dafuq?! Hahahaha!*

The difficulty rating for the second level scored between 3-7 with an average of 5.1 and a median of 5.

The player's experience of the third level was varied; some player thought it was easier than the first level because there were safe spots (stones that didn't fall) in the level which reduced the amount of stress. It was not possible to notice the safe spots position until collision though which made it feel like a balance between annoyance and amusement for according to most participants. Another reason why the players considered it easier than the first was because by the time they've gotten to level 3 they had gotten more used to the game mechanics. One player thought the level was more confusing than challenging arguing that it was more a matter of whether you were lucky enough to land on an invisible block or not. A few quotes from this level sounded like:

- *Alright, the drone seems ok. He's just standing there.*
- *What are these red orbs? Argh!*
- *Aha! The visible blocks are the only ones that fall. Well, that's a relief.*
- *It wanted to rule the galaxy, so I figured I had to kill it.*

The difficulty rating for the third level scored between 3-8 with an average of 5.1 and a median of 5.

When asked if the evaluation results could be used to answer the research question all test subjects agreed. They motivated it by stating that the game could be solved either by violence or non-violent

interaction and it therefore gave the player the choice to play according to their own preference. Some players considered the game to be confusing, not in a mechanical way but in an informative way. The majority of the player who had a hard time understanding what to do was the ones who skipped to talk to the NPCs.

As mentioned earlier only a few people used the character improvement system but when informed about what the attributes did most participants would've spent their attributes into agility instead of strength and soul. When calculating the average of how the player's would've distributed their 10 stat points if aware of what they did the results were: 2.3 strength, 4.2 agility and 3.5 soul. The less experienced players were also more likely to spend their attributes evenly to have balanced character. The average in soul is also higher than in strength but the median is lower since a few players's reasoned to allocate most of their points into soul in order to progress faster in the long run.

The following figure displays how the test subjects proceeded in the game, which NPCs they interacted with and how the interaction was made.

Reaper	Angel	Devil	Blob	Tree	Blue	Drone
	X + Talk	X + Talk	X(Döda)	X + Talk	Talk	Talk
Talk (Ignore)	Talk	Talk	X(Döda)	X + Talk	Talk + X(Döda)	Talk
	Talk	Talk	X(Döda)	X(Döda)	Talk	
			X(Döda)	Talk		Talk+X
			X(Döda)	X + Talk	Talk + X	Talk
Talk (Ignore)			X(Döda)	X + Talk	X(Döda)	
			X(Döda)	X + Talk	Talk + X(Döda)	X(Döda)
Talk	Talk	Talk	Talk + X(Döda)	Talk	Talk	Talk+x(Döda)
Talk	Talk	Talk	X(Döda)	Talk	Talk + X(Döda)	Talk
			X(Döda)	X + Talk	Talk + X	Talk
	Attacked the NPC, without killing it or talking to it.					
	Attacked the NPC and killed it without talking.					
	Talked to NPC and then killed it.					
	Attacked the NPC first but then talked to it.					
	Talked to the NPC first but then attacked it.					
	Talked with the NPC.					
	Opened the first conversation box, but then ignored the conversation.					
	No interaction at all.					

Figure 7 NPC Interaction

5.2 Discussion

When given the choice to resolve a conflict by either violence or no violence in RPGs, which option is most often preferred and why? How do challenge, reward and violence influence players' decision making when given the choice of violent or non-violent conflict resolution?

In order to answer the research question we need to know how the player's reasoned when faced with a conflict. We also need to know why the players reasoned as they did and what factors that impacted their decision making.

From NPC interaction figure we can conclude that only four players interacted with the Reaper, Angel and Devil NPC. As stated above this might have been due to the fact that they felt like a part of the background, this is possible since the three NPCs didn't have any idle animation. It is also possible that the players considered them a background due to the size of the sprites, as the three NPCs mentioned above are much larger than the later sprites in game.

All players except for one attacked the Blob instantly, the last player also attack Blob but retrieved the key by conversing at first. It is however hard to determine if it was intended or not as the player spammed both interact and the attack button. The conflict with Blob could be resolved by either attacking and killing it, and therefore retrieving the key or talking to it for a few textboxes. Blob doesn't attack the player but he does move to their position once the player moves close enough. It is therefore likely to conclude that most people felt threatened by an unknown approaching creature and attacked it. Some players also noticed that they didn't take any damage upon colliding with Blob (Blob respawns every time the player enters the room) but killed him anyway as the NPC was blocking their way.

This violent "attack on sight" mentality seemed to remain into the first level where 70% of the players choose to attack the tree. Killing the tree proved to be a challenge however as the ground crumbled beneath the player and they accidently pushed down the tree or fell down themselves. Only one player successfully killed the tree and retrieved the key to lv 2. The players who choose to talk to the tree quickly understood the purpose of the scissor and handed it over to the tree but the players who attacked the tree at first had no idea of what the scissor should be used for. They therefore ran back outside and tried to open both doors and chest with the scissor. In a few cases hints had to be given for the subject to try interacting as the player had been unaware about how to proceed otherwise.

This proves that violence has so far been the primary method of proceeding in game and even though the player was informed about the key bindings for attack and interact in the same way, a majority chose the violent path.

This changed in level 2 however, where the players who earlier didn't considered talking as a mean to interact now are more aware of it. Eight players now turned to interaction as their way to solve the conflict at first but six of them still turned towards violence. Some attacked Blue as soon as his dialogue was exhausted and some choose to attack him once the player was betrayed. It is therefore possible to conclude that not only may violence, challenge and reward influence the player action but also the story itself. As mentioned earlier one player chooses to attack Blue simple because he felt untrustworthy because of the manuscript.

In level 3 the interaction with Drone was also varied. Three players chose to attack the Drone, one of which killed it. The seven chose to talk to it but two of them decided to attack it once the dialog was over. It seems to be impossible to find a correlation in the player decision making between level 2 and 3 as players that earlier was non-violent changed behaviour and chose the violent path and vice versa. It is however interesting to analyse the players spontaneous reaction to choose violence against Blob and against the Tree. Both Blob and the Tree causes no real challenge when attacked as their attack patterns have short range and low damage. The Tree also has very low movement speed and is easily outmanoeuvred. The violence therefore seems more appealing to the player than stopping and reading

dialogue. The results indicate that all players attacked and killed the Blob and 7/10 players attacked the tree. Once they player became more aware about possible dialogue interaction in level 2 and 3 the decision making shifted to be less violent.

When comparing how the players would've spent their attribute points we can also see that agility clearly was the most popular attribute. The reason for this was due to most of the game was about being agile and jumping around according to the players. A few players did however admit to spend many points into Soul in order to level up faster in long run. Strength had the lowest average due to the fact that violence was scarce (compared to most games) throughout the game and the players reasoned that increased damage would not make much difference.

Improving attributes was not a priority for any player. The reward of improvement which is common in RPGs was not as appealing as we anticipated due to that the game was relatively short and the focus was on progression in the game environment rather than character progression. The reward aspect was therefore not the accumulated feedback the player could receive but rather the instant feedback the player received once performing actions, such as attacking or interacting with NPC. Most focus seemed to be for the players to open the chest in graveyard_3 and the reward was rather the unknown anticipation of what might happen once it's opened.

During the study the players also rated the different levels on a scale from 1-10 in difficulty. Using quantitative data in a small project is hard due to the small test group and the results varied vastly. A reason for this is likely to be that the test subjects have different experience of playing similar games to the prototype, those who had experience thought of it as easy and those who lacked experience considered it challenging. The average scores for the levels were:

Level 1:	4.9
Level 2:	5.1
Level 3:	5.1

By this we can see that the players considered that first level to be the easiest, but not by much. The players had hard time differentiating which was hardest among the first and the third levels as most thought the third was harder but their understanding of the game made it easier. The players did however agree that the second level proved a different kind of challenge. They described the first as reaction-based, the second as orientation-based and the third as a combination but mostly reaction-based due to the invisible blocks. This concludes that the first challenge was a strain for the player's physical ability and the second a strain for the player's cognitive ability.

The aim was to maintain a challenge curve that made each level harder than the last in order to introduce new player to mechanic but at the same time letting more skilful players progress faster. This was however hard to design since the levels have two different ways to completed and "challenging enough" seemed to be highly subjective, the time required for players to finish the rooms therefore varied immensely.

5.2.1 Issues

It is however fairly hard to draw a conclusion of whether how violence and challenge would influence the decision making in a larger scale due to a several factors, one being the test group. The test group was fairly small with only ten participants and even though the studies were conducted by qualitative interviews which gave in-depth answers and explanations it is hard to draw an objective conclusion to

answer the research question. Another problem with the test was that only 30% of the participants were females and the age group was between 15 and 28. This means that the prototype has only been tested on a certain group of people and it is uncertain how the results would've changed if the gender distribution was more equal or the age group was more diverse.

Another reason why it is hard to conclude whether challenge or violence is the determining factor for conflict resolution has to do with *The Proteus Effect*. This is something that Nick Yee and Jeremy Bailenson write about in their article *The Proteus Effect: The Effect of Transformed Self-Representation on Behaviour* (2007). They conducted an experiment in which the player uses an Oculus rift to move around as an avatar in a room. They performed two tests, both featuring a conversation with an NPC. The purpose of the first test was to see whether a player's behavior was influenced by how attractive their avatar was in relation to the NPC. In the article they conclude that a player that has an attractive avatar is more likely to approach the NPC (which has the opposite gender of the player) than a player that has an unattractive avatar. This implies that the player's ego is still in some way related to their avatar.

The second experiment was conducted within a similar set frame, a player encounter with an NPC in a room, but this time the purpose was to negotiate with the NPC. This time the researchers searched for a correlation between the height of the player's avatar and whether or not they accepted an offer from the NPC. The result indicated that the players with longer avatars were more likely to be dissatisfied with the negotiation while the players with a short avatar were more likely to display opposite behavior and therefore accept the offer.

With the *Proteus Effect* in mind it is therefore possible that the test subjects' behavior might have been influenced in their interactions with different NPCs in the prototype. One example of this was the fact that all players attacked Blob when he was approaching. This might have been because the player felt threatened by an approaching creature but it could also have to do with Blob's graphical representation as it wasn't relatable as "attractive". If the NPC would have had a representation of a little girl who came running it is very possible that the players would display another behavior. It is therefore hard to draw a conclusion about which factors influenced the players' decision making even on a subconscious level.

Another risk is the fact the prototype playthrough length is fairly short. This means that there is a risk that the player doesn't get immersed enough into the avatar to develop a sense of "self" about the protagonist, his backstory and/or ethics and values. The only information about the past is the fact that the player has died recently and has been brought back as a ghost. What's positive about that is that the player has no guidance whether how to act in a certain way or why as the avatar remains a silent protagonist. This at least indicates that the backstory or protagonist manuscript doesn't influence the player's decisions. This truth could however be the opposite as a game with fairly short playtime and no clear indications of what's right and wrong is given to the player indicates a risk that a player could act in a random way.

L. Cox et al. mentions that the player can either be challenged cognitively or physically but it seems there is a third form of challenge which has yet to be discussed; ethics. Ethical choices are common within RPGs where a player often has to choose one lesser evil out of two or more. This can be seen in games such as *The Witcher 3: Wild Hunt* where the protagonist is often forced to decide between several options, all of which may lead to harsh consequences. This form of challenge is neither physical nor cognitive but rather a dilemma where the player has to choose. As mentioned earlier it is possible to conclude that the graphical representation of NPCs has influenced how the player acts towards

certain NPCs and that a player is more likely to attack a character which is ethically acceptable to attack.

Another issue was that during the study several bugs appeared in the prototype. Most of the bugs were harmless but they still influenced the player experience in a negative way. One way this could've been handled would've been by performing more extensive pilot tests beforehand. With risk of biasing the results a decision was made to not adjust the prototype while the study was performed. Working on the prototype while performing the study might have enabled better player experience but none of the bugs had a direct impact on the research question and the decision was therefore made to continue with the study.

Bugs

- Duplication bug (The player avatar duplicates if the player returns to graveyard_1 with the scissor in the inventory).
- FPS-drop in Lv2 (Due to a large black sprites rendered around the player sprite, appears after about 30 seconds).
- Inventory bug (If the player retrieves the scissor and kills the tree instead of talking to it there's no slot left for the last key).
- Wall-jump only works in one direction (Appears at random and only enables the player to wall-jump either to the left or the right. The direction shifts once the player dies).

The bugs did however change the study significantly since the FPS-drop in Lv2 made progress much slower. The play session was at first considered to be 20 minutes long but due to the delayed progress the limit for playtime was removed and the players could finish the game at their own pace.

5.3 Conclusions

RPG is a genre where the player advances a fictive character (Carr, 2006, p. 21) commonly through retrieving experience as a reward as a result of accomplished challenges (Wan, H. & Thai Sun, C, 2011). The feeling of progression is very important and games often use a curved difficulty progression in order to make the game appealing to all kinds of players (Lopez, 2006). This difficulty is established by either pushing a player's cognitive limits and/or by pushing a player's physical limits (L Cox et al, 2012). The challenge has to be balanced with the reward; the reward has to be significant enough to make up to the delay of receiving it (Tsai Sun & Wan, 2011). Experience points are a common way to reward a character (Tsai Sun & Wan, 2011).

These distributions differ depending on what game it is applied to. In *The Witcher 3: The Wild Hunt* (2015) the player is rewarded smaller amounts of experience for not facing any challenges. The opposite occurs in (2015) where the player only is granted experience fighting their opponents but not when solving the conflicts by diplomacy, even though challenge remains equal. *Undertale* does however compensate for this by featuring alternative endings depending on how violent the playthrough has been.

Investigation of reward psychology has revealed a pattern where the performance decreases if the motivation shifts to getting the reward instead of enjoying the process (Seidman, 2013). This could be applied to players playing *Undertale*, noticing that no experience is given unless they choose to fight and the game therefore encourages the player to use violence on a subliminal mechanical level.

Balancing challenges in game is hard as we all have different experience and preferences about what we consider to be challenging. Establishing a balanced difficulty curve would require a more extensive test group due to individual preference of challenge.

Why are players using violence? The reasons for a player to use violence are many but most of them seem to come from the interaction and consequence. Players use violence because they are used to it from other games or because they just want something to happen. Many players want to push the limits of the game and see what objects and NPCs that are attackable. It is therefore possible to conclude that instant reward is more important than an accumulated reward even though the accumulated reward might have a larger impact. This study has also shown that a player will respond with aggression if approached by a seemingly hostile creature and that talking most often is a second-hand choice. It is nonetheless uncertain if this is due to the player desire a consequence to their action, the graphical representation of the NPC or if it's the ethical perspective in terms of narrative that influence the player behaviour. Another reason for this could be that dialogue slows the pace of game and might ruin the flow of the player experience. Many players also seem to think that a platformer should be fast paced as they ran from one room to another without interacting with NPCs. It is possible that a study conducted in a 3D-engine would result in another outcome.

It seems like the players use violence as a mean in order to create an interactive challenge of survival which means that violence can indicate a challenge but challenge itself does not indicate that violence is necessary.

The study found that accumulated rewards have to be presented clearly to the player for them to understand and not by hints given by exhausting dialogues. It is however clear that visible rewards or even instant feedback influence the way the player plays the game as players are more likely to do what the game encourages them to do. A player is more likely to kill NPCs if they notice that they receive experience for doing it. The decision to keep the experience was however a conscious decision to receive unbiased results of the players would act in same way B.F Skinner did in the experiment with kindergarteners.

It does however stand clear that all of the test subjects used violence as a direct mean when faced with an approaching NPC and a majority used it violence a direct mean against stationary NPCs. The reasons why violence was used are however divided; some used it to get rid of the NPC, other for the enjoyment and some just in order to see if it was possible to damage the NPC. The study also proved that the player behaviour changed once they noticed that interaction was possible. It remains unknown whether violence or challenge is the determining factor for conflict resolution in RPGs but this study has brought us some insight into why players act as they do and what factors that do influence their decision making and what factors that don't.

The research questions were broad and over the course of the study several factors that had been overseen was brought to light. It was apparent that most players used violence primary to challenge at hand but within the scope of this study it is too many factors that might've influenced the player's

decision making. The results of this study should therefore be encapsulated to only be related to this study as many aspects outside of this research were not taken into consideration.

- The player thought the game was a side scrolling platformer and therefore where more likely to keep the flow going which may have resulted in skipped dialogues.
- The “Protheus Effect” was not ethically challenging to the player, as there was no remorse killing unattractive creatures.
- The accumulated reward was only hinted towards once in a fairly vague context and therefore barely acted upon.
- The amount of gaming experience might have influenced how a player acted.
- The narrative might have influenced the player’s decision making.
- The player’s current mood might influence their decision making.

The study also doesn’t take every factor into the decision making progress about whether a player prefer violence or challenge. Other aspects all have high possibility to impact in which way the player plays the game and a more extensive survey would have to conduct in order to analyze the relationship between violence and challenge in videogames.

5.4 Future Work

This study might have brought some insight into what differentiates why a player chooses to use a conflict either violently or non-violently and how challenge but there are still much more to research. This study only shows how violently a small group of players reacted in a certain setting. It seemed from this research that the instant feedback has a higher value than accumulated feedback but this could also be falsified in a larger scale research. It also seems as if 2D-sidescrolling environment made the player experience the game as more of a platformer than an RPG with dialogue, alternative conflict resolutions and character improvement and it is therefore fully possible that the study would’ve reached another conclusion if the game was made in a 3D-engine.

Another way to future research whether violence or challenge is mostly appealing to the player would be create a prototype that doesn’t feature the RPG-genre. This is due to the risk that the narrative might also influence the player’s decision making as discovered in this study where one player attacked Blue simply because he felt sneaky and some other players attacked him when they figured out his betrayal. The same goes for the Drone, which one player attacked because he wanted to rule the galaxy. It might therefore be important to remove the narrative function in order to remove factors that might influence the player’s decision making outside of challenge and violence. This would be better established with a prototype that lacked not only narrative but also graphical representation in the form of creatures. By removing “The Proteus Effect”, maybe by only using geometric shapes, the risk of transformed behavior due to graphical representations is significantly decreased. The same goes for the narrative; removing narrative elements reduce the risk of emotional attachment which indicates that behaviors to a certain narrative outcome also decrease.

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