***I Am Here As Well***

**Cyberbullying Prevention Game**

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Introduction

I Am Here As Well (IAHAW) is an anti-bullying game to help children realise that they are not alone in this world. Therefore the international students of The Hague University Of Applied Sciences have done research on “***How does Media and Information Literacy (MIL) affect cyberbullying amongst today's youth.***” Which was a research report on the international background information of cyberbullying and MIL. Besides this, the report was focussed on kids aged 11 till 15 years. (Gallimberti et al., 2016; Vieira, Rønning, Mari, & Bordin, 2019) Thereupon comes the result of this report, for the substantiation of the game IAHAW and the initial report. In the introduction, the topics are as follows: problem solving, important findings initial report and explanation of the problem solvability.

The following objectives will be conveyed throughout the report:

* Describing the aim of the final product IAHAW.
* Justification on the technical decisions.
* Content description of the final product.
* Usability test process outline.
* Description of the development process.

(Perc & Szolnoki, 2010)

The main purpose of the game is getting children familiar with various globally used forms of cyberbullying. For instance: cyber-impersonation and cyber-slander are currently the main topics within the game. (Nixon, 2014) Next are the most findings were important throughout the development of the game.

To begin with, “cyberbullying differs between countries” was fundamental for the development of the game. For this reason, the development team decided to create awareness in cyberbullying amongst different cultures. Consequently, this meant that the South-Korean and American issues were implemented. Because of the fact that information-leakage is the most cited bullying-form in Korea (Lim Ke Rou, 2016) and for the United States that is name-calling. (Anderson, 2018)

Thereupon, comes the definition of cyber-slander (abusive language or offensive messages) and cyber-impersonation (pretendations of a person) (Willard, 2007), In referral to the netiquette rules of the report. (Hambridge, n.d.; Park, Na, & Kim, 2014) Which in this case, provides a solution to the concept of cyberbullying. For the purpose of reducing various negative feelings, for instance: distressed, fear overwhelming or embarrassment. (Nixon, 2014)

In spite of this education on cyberbullying prevention is important, but games should make learning fun instead of boring. Therefore educational games are usually accompanied by other gaming genres, with the intention of providing fun. A way to do this is to use multiple choice questions, for the verification of the educational material that has been learned. (Hurst, 2015)

In conclusion IAHAW is not solving a problem, since cyberbullying will not become extinct. Although that kids can still be informed on cyberbullying prevention methods. With the intention that they will become more independent to protect themselves from online terror. Especially in South-Korea and the United States, where cyberbullying varies per continental region.

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# Gaming product: I Am Here As Well

### Product aim and product description

The target group is children between 11 and 15 years old. Since problematic cell phone usage starts at the age of 11. (Gallimberti et al., 2016) Also, the age of 15 used for this research, because it is an international minimum age for mental health screenings developed for adolescents. (Vieira et al., 2019)

IAHAW is a game with various educational mini-games, which aims to educate children on international cyberbullying concepts. With the intention of kids learning from textual-explanation within the game. (All, Van Looy, & Castellar, 2013) The game features two stories (The first game is located in South Korea and the second in the United States). Each story focuses on the most prolific form of cyberbullying in that country. The purpose of the story is to teach children that throughout the world people are being cyberbullied even though the form of cyberbullying might be different, the effects can be similar

### Programming choices

For the choice of the programming language the following things were considered: learning time-consumption (Wiley, n.d.), programming language purpose (Richardson, 2019) and licencensings (Free Software Foundation, 2017). With that knowledge the following products where chosen:

JavaScript is the fundamental programming language used for the programming the game, because it is a web-oriented programming language. (Theisen, 2019)) Besides this video game technologies tackle visual challenges, therefore a game framework was chosen. Coincidentally, there was a discussion on Unity (Unity Technologies, 2019a) and Phaser (Davey, 2019). Which has conquense for both frameworks. Below are the advantages compared in order of importance for the development team.

Phaser 3

|  |  |
| --- | --- |
| *Advantages* | *Disadvantages* |
| JavaScript was a common programming language within the development team, since 5 out of 6 had a familiarity with it.  Also comfort in a programming language is the way to success. (Bergin & Reilly, n.d.) | Their community is not as large as Unity’s.  (Google, 2019; Unity Technologies, 2019a) |
| MIT License which is a free software license (Massachusetts Institute of Technology, n.d.; Open Source Initiative, n.d.) | JavaScript is frequently improperly used.  (GitHub, 2015) |
| Covering of basic abilities that are important for development:  Temporary caching images and sounds  Sprites (Coordinates on images)  Legacy audio support  (Davey, 2019) |  |
| Focussed on mobile development  (Davey, 2019) |  |

Unity

|  |  |
| --- | --- |
| *Advantages* | *Disadvantages* |
| Large community, because it is supported by professional companies. For instance Sony, Nintendo, Google; And Microsoft.  (Unity Technologies, 2019a) | Can have a steep learning-curve for users.  (Unity Technologies Forum, 2016) |
| Professional instructions are provided at multiple universities with game courses.  (Bosch & Stikkolorum, 2017; edX, 2019) | Proprietary, so over annual revenue of $100.000 it requires a license.  (Unity Technologies, n.d.) |
| Unity is available on various digital devices (Unity Technologies, 2019b) |  |
| C# is a programming language which provides the Object Oriented Programming (OOP) concept. Which means, that self-describing logic is important. (Microsoft & Green, 2017) |  |

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### Software implementation

The game is browser based because schools have strict policies on installing software on school computers, since they are afraid of people installing malicious software. (Demetriadis et al., 2003) Next JavaScript is a good scripting language for makings small game. Also the programming team who was working on the game was most familiar with the scripting language. (Bergin & Reilly, n.d.)

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# Story

The story was based on countries of How does cyberbullying differ between countries. In the game, there are two countries which have different types of cyberbullying.

In Korea, most students like to playing their social network services. Therefore Korea students are suffering from cyberbullying which has huge relation with Social Networking Site.

On the first chapter, there is a girl whose name is Mi Sun living in Korea. She traveled a lot with his family to nice places and went to fancy places often. She always took pictures of traveling and daily things. She was also being happy with uploading her pictures on the social networking service such as Instagram and facebook. However, her classmates started to feel jealousy about Mi Sun’s life. They thought she showed off by putting those pictures upload there. So her friends started to write hateful comments on her Social networking service. Moreover, bullies deliberately spread her personal information such as phone number, address, and photos. They had now not only bothered her on the cyber but also bullied his at school.

In this chapter, the game’s purpose is giving advice to children.

1. Spreading deliberately other people’s information is not just a playing. It can make a big problem.

2. It is not good to put too much of your daily routine in public Social Networking service.

In the United States, the most common type of harassment youth encounter online is name-calling.

On the second chapter, there is a boy named Kevin who lives in Manhattan, New York. His mother ran a bakery in Manhattan. Similar to his mother, he was a young child who loves making food and trying new cultural foods. He always goes to his mother's shop after school to make bread and take it to school the next day to share with his friends. Then one day, as usual, Kevin went to school with his own cookies. His friends who saw him began to tease Kevin that he always had food and could not live without it.They teased Kevin about the smell of bread and began calling him a “baker pig”. They could use the Internet to harass him anytime, anywhere. he began to feel ashamed of his appearance. Thinking that everything he could be a joke to the children, he always started wearing a hat and big clothes to cover himself up. He became less and less proud and reluctant to go to school.

In this chapter, the game has on the purpose of giving some advice to children.

1. Teasing someone for bad word can hurt their feelings.

2. Children should avoid and ignore people that are trying to hurt them by teasing them on social media.

# Visual designs choices

### Style

The game is made in a pixel style, there were two main reasons for doing it this way. As a 2d game the consensus was that this would suit the game better. The other reason was more practical the lead designer found it better and easier to design and it was simpler to find assets that used a pixel style.

### Assets

The game is partly being built with pre-made design assets. These design assets are all royalty free and do not necessarily need acknowledgement. Bits of design which could not be found have been made specially for this game. For instance the level designs are all built specifically for this game. This was done because the consensus in the team was that the assets that were available were not good enough or did not fit the overall design of the game.

The characters in the game are all made from pre-existing (free) design assets. This was done for two reasons. Reason 1 was that it would save time, it would have taken (more) valuable time to actually make the characters. The second reason was that the expertise to make a complete 2D character was not available so instead of trying to make the different characters the designers opted for using pre-made character assets.

### Font

Characters used in the game were already in pixel form and so were the background of the levels. Because it was important to maintain consistency the decision was made to also use a font that was pixelated. It was important to keep continuing the overall flow of the game (so that every bit of design was the same). By doing this the user would feel like it was one thing and not different segments

### Colors

The ingame colors are overall dark, this was done because the game focuses on cyberbullying and the consensus was that if the game because to light this would take away from the subject matter. This being said a conscious decision was made to primarily use base colors.

### 

### Royalty free

During the development of the game it was important that every asset that was used was royalty free. Seeing as the game could potentially be used in classrooms. This meant that if someone was to play the there wouldn't be any problems with compensating the owners of the used assets. This was important seeing as the product was made by students and that it should always be free to play.

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# Content

### Netiquette

The South-Korean game is on respect others privacy, where a thief steals someone's belongings, And the character is logged in on her phone, what gives him the opportunity to send messages to the friends of Mi Sun. With IAHAW the message of the first game is to respect others privacy. (Cole, 2016) Next the United States has a minigame in IAHAW, the use of scholars language is more effective than the use of swear words. Also the respect of privacy is important in this chapter, since the user is being cyberstalked. What means that his personal space is invaded. (Cole, 2016)

### Textual choices

The story was based on countries of How does cyberbullying differ between countries. Each country has its own story. However these stories are connected to each other in the sense that they all highlight a different aspect of cyberbullying. Because each country has a different form of cyberbullying which is more prominent there for instance in the United States it is more common to use foul language to bully someone. That is why the story for that level focuses on that. The reason behind was that by doing this the user can learn about the difference in cyberbullying across the world. This then serves two purposes first it shows that cyberbullying is a global issue and second it shows that no matter were in the world you live unfortunately you can fall victim to it.

### Translations

The game was originally designed to only work in English. English was chosen because that was the language that every group member speaks. During the process and coding there was also talk about potentially making the game in a different language. The other language for the game being Dutch. This was also party done because the usability test would be done in Dutch so the people who were going to test the game also needed to be able to understand what it was about.

However due time and most of the text in the game was mostly done in images, a problem arose, translating the text from the images was not the difficult part to do but to choose which image had to be selected when the game language was selected, this resulted in the game not being made in Dutch. Which meant that the usability test was a bit harder to actually do. This was resolved by translating the usability test into Dutch. The need for this came from the fact that all of the test subjects were Dutch. Besides the test subjects being Dutch their level of English also varied. So to make sure the test could go as smooth as possible the unanimous decision was made to create a translated text.

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# Usability test

The usability test was held with 5 participants with different educational levels. Ranging from specialized education to gymnasium. There was also a variety of ages the group was between 11 and 15. (Gallimberti et al., 2016; Vieira et al., 2019) For the execution parental permission was required, in order to do any data-gathering on kids under years of 16 year old. Which is required by the European General Data Protection Regulation (GDPR) law. (Autoriteit Persoonsgegevens, 2017; Intersoft Consulting, n.d.)Therefore, a electronic-form was sent to collect the permissions. Only five of the twelve parents have gave permission to undertake the test.

For the testing of game three computers were used. Each of these computers had Microsoft’s Windows 10 as its operating system. Nevertheless the computers used were very old the reason for using old computers was that it was important to test if the game also ran on older systems. The game was designed on newer systems so it was already known that it would run on newer systems. Evenly, this testing method is formally known as software performance testing. (Denaro, Polini, & Emmerich, n.d.)

The test consisted of 3 different scenarios each scenario had an introduction text and tasks that need to be completed. (Laitinen, n.d.) Each scenario picked up were the previous one ended, so when the user finished one task it felt like they were going further with the overall story.

However, because the game was still in English with meant that some of the children did not understand what they needed to do. So during the test they were helped a bit however to make sure that helping the kids did not affect the results of the test. The tester first allowed the kids to find out how the game and levels worked. The only time when the tester intervened was when the children got stuck and needed help to be able to continue with the test.

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# Post test results:

### Introduction screen

An introduction screen to show the controls for each level and how the level works. This screen will be shown immediately after the story screen. The user will have the option to click the screen away when they are finished reading it. Putting a timer on the screen (till it goes away can potentially annoy users).

### Controls

One of the main things that came out of the test was that the controls were not really explained. This was the case for all the levels, the user wasn’t not aware of the controls. This meant they were left to their own devices to figure it out.

To be able to make it more accessible and easier to use for the user the controls need to be displayed at different stages of the game. In the main menu under controls (so that when the user starts the game it is clear how it works. Then at the beginning of each level (after the introduction text). Then there could come another screen explaining how the controls work and how the game is to be played.

### Objects

In the word game it was not clear what the different objects meant. The purpose of those were not either increase or decrease the health of the player. During testing users found it difficult to understand what they meant. This meant that there were instances when the collected both objects which meant they were game over.

In favor of usability it was suggested that the information about the objects should be displayed in the same screen as the controls. By grouping the controls and objects information together the user wouldn’t have to make any extra steps to understand the game.

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Process

The process to carry out the project was in the first instance a minor to a greater development. This can be explained by the fact that the zero sprint has very few hours of work on the platform due to the new use of the Scrum methodology. However, rather than a failure, was a good point because a high retrospective could be found to be applied in next steps. . Below are the results of the first sprint (sprint 0):

Create the Game:

GAME WORLD

Start Screen

To design a structural design

Making DataBase

Design assets

Sound

Programming Physics

Debugging

Technical Documentation

UML class analysis diagram (See also Appendix C: Analysis Class Diagram - Story Game)

UML class design diagram

UML use case diagram

User case stories

Website

Web-site

Hosting

Browser optimization

UI/Ux

Organization

Have a programming collaboration structure

Slack

Github

Defining the stakeholders (See also Appendix B: Stakeholders)

Usability Testing

Observing

Interview

Usability Testing

Marketing

How students get into the games

Content

How do we present cyberbullying through our game

Educational Part

Story

It is worth mentioning that these tasks to be performed were collected taking into account that they had to be formulated for the Scrum methodology, besides that to give estimated times the Scrum Poker application was used in which each member of the team had to give priority to each task and to reach an agreement for after each one to estimate the hours necessary to complete this task.

At the beginning of sprint 1 the way of working improved greatly, because the team took into account the failures and improvements that had to be implemented to make the development optimal. During this sprint the daily scrum meetings were very present and even five days a week, taking advantage of the maximum to continue understanding the Scrum methodology. In addition, it was decided that two extra platforms would be used apart from ScrumWise, being those Whatsapp and Slack, this with the aim of improving the communication outside of classes and upload the evidences of the tasks carried out. In Slack, five specific communication channels were designated for the design, fronted, backend, scrum and general.

For sprint 2 the roles of scrum master and product owner were still exchanged correctly among the members, despite the fact that the task was a bit slow so during this sprint the progress of the project declined.

Again and very similar to what was the sprint zero retrospective, new work methods had to be implemented at the start of sprint 3, work in class until completing the minimum 75% of the assigned task of that day and be in constant communication between the whole team because it was a crucial part to know what things were in process and what were still to begin. Once again, the way of working was improved during this sprint, implementing much better communication through the Slack and Whatsapp platforms for the daily Scrum in case any member of the team was unable to attend classes.

For the retrospective of sprint 3, it was largely a matter of making concrete decisions about what to do about the Usability Test and whether it was worthwhile to continue working on new scenarios of the project or to finish completely those that were already there. In addition new recommendations were found to mention reasons why it was not possible to perform a task.

After sprint 3 there was a gap of 2 weeks in which the exchange of roles of the methodology was not performed although the daily scrum was still being implemented, during this time the ScrumWise platform was not used and the way of working was focused on tasks that were incomplete and required to be completed. Despite this, the way of working was largely through WhatsApp where the progress of the tasks and the necessary changes that were required were reported. Contrary to what one would think, good results were obtained.

For sprint 4, the use of the platform was retaken in order to finish all the unfinished tasks so that the project would meet the client's requirements, during this sprint the results were only uploaded to the platform until they were completed just to take maximum advantage of the time and focus on the report and project details.

Below the Backlog completed list is shown:

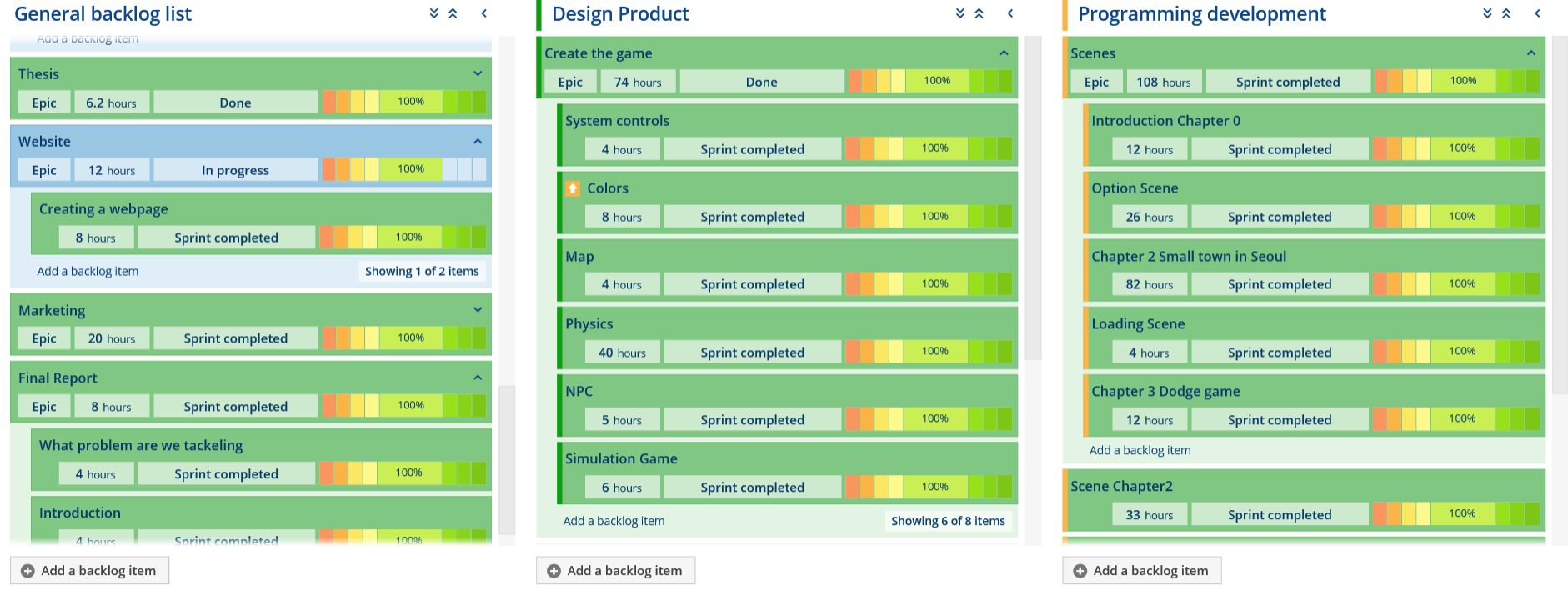


Figure 1: Sprint 4 backlog

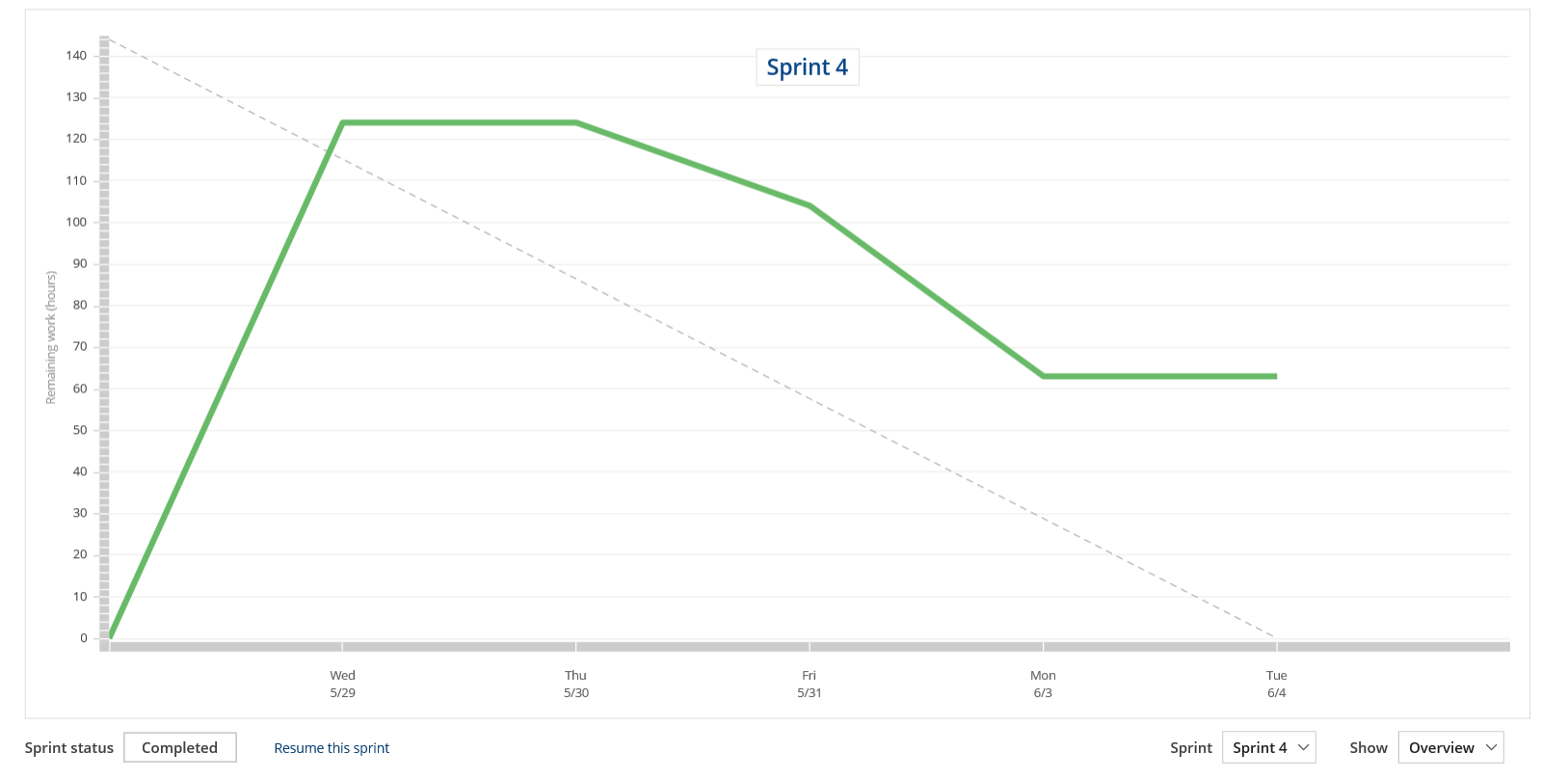


Figure 2: Burndown statistics backlog items completion

The final sprint had some uncompleted tasks on the platform, however, those tasks were completed without using ScrumWise.

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Obstacles during development

The group experienced a variety of different challenges during the whole project. These problems were always solved. Despite that it did make it difficult at times to create the game and the reports. In the beginning of the project the main problem the team faced were cultural differences. Differences such as a different ways of giving feedback, work ethic, being on time and vacations.

### Feedback

Feedback was something that in the beginning of the project was really difficult each team member was used to giving feedback a different way. An example the Dutch team members sometimes were a bit to straight forward in the giving off feedback. Which was something that the Korean members of the team struggled with a bit in the beginning.

### Work ethic

Because the team consisted of 6 members from 3 different countries there sometimes was also the issue of work ethic. Even when members from the same country went to work it differed. Because of the different work ethics it made it difficult in the beginning to find a way to all work together. Where one team member preferred to do a lot of research and then start to build others preferred to do this simultaneously or a little bit of research and do more during the building of the game.

### Time

Being on time for meeting was a thing that throughout the project was difficult. There was no clear answer as to why this was difficult. That being said there was always an effort made by the person who was late to work hard to fill in the lost time. Resulting in the other team members not clinging to the fact that that particular member was late.

### Vacations

Throughout the project different members of the team went on vacation during (mostly) different times. However sometimes two members were on vacation at the same time. Because of this there needed to be a tight planning to make sure that were no extra delays in the development of the game. Overall this went very well there were hardly any delays in the development, the only thing that did occur was that sometimes because of the fact that a team member was on vacation it made it a bit more difficult to come in contact with them. This meant that sometimes the development laid still for a bit, but in the end it all worked out well.

### Technical challenges

For the implementation of the project on a server first had to solve previous problems as to decide on which platform would be uploaded the project for evaluation, first took into account a web that is dedicated to hosting video games for computer or web, however faced the problem that said page called Kongregate does not support the framework in which the game was developed, so it was decided to use a domain at a low cost to implement the project and could be accessed through any web browser.

### Design challenges

The final product needed designs, most of these designs were a combination of own made and already available assets. It was sometimes difficult to find the correct assets which would fit the game and at the same time also be free (and royalty free). Having to find assets that fit the aforementioned parameters caused some delays. It meant spending a lot of time searching the internet, because the assets needed to be searched for online meant that time could not be spent doing other design related things. Fortunately this was something that mainly occurred in the first stages of the game development.

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# Conclusion

The aim of the final product is to create more conscience among high school children on the subject of cyberbullying. If a child suffers from a of cyberbullying the product aims to help him/her by informing what steps they can partake to get help and prevent future bullying.

Besides this, previous research (See also subchapter Introduction, paragraph 6) shows that cyberbullying is not a regional or national problem it is a global problem. As discussed in the previous chapter (See also subchapter Textual choices, chapter Content) cyberbullying as a form changes from country to country.

Based on findings from the previous report it was decided which issues should be tackled in the video game. The previous report was taken as a baseline for which parts of cyberbullying should feature in the game. It was then decided to focus on the countries where the members came from, taking into account that the video game would only be tested for children of the Netherlands.

Whilst playing the game the user will be immersed into different countries and their most prolific form of cyberbullying. The aim then is to make the user aware of the different ways of preventing of cyberbullying and teaching them the correct way of conducting oneself on the world wide web, netiquette so to speak. Whilst learning these ways the user should also be able to feel enjoyment of playing the game. Reasoning behind this was that the product should also be enjoyable instead of only educational, so it was decided to include minigames that would draw the user's attention and then include the content of which you can inform what to do when they or some relative is suffering from cyberbullying.

The game would originally be released in the Netherlands therefore in the beginning stages of the project the decision was made to also make the game in Dutch instead of only English. This decision however was not put through due to time constraints. However this did create a slight issue during the usability test seeing as not all of the test subjects had a good understanding of English (all of the test subjects were Dutch). To circumvent potential issue the test was translated into Dutch (the game however stayed in English) and during the test the testers helped the test subjects. The test subjects were only helped when they were completely stuck and could not participate any further in the test (the help given by the testers was minimum). (See Chapter Content, subchapter translation )

Issues found during the Usability test were analyzed and discussed among the programmers in the team. When an issue deemed important it was changed in the final version of the game. Minor issues were assessed if they could be implemented before the deadline if this was not the case these issues would only be described in the report and not seen in the final version of the game.

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# 

# Appendix A: User test plan

## horizontal line



**Usabilitest**

Template

**─**

# **Overview**

This test plan is for the EPS game. In this document the various scenarios for each aspect of the game are written down. This document is to be used as a guideline for the usability test.

# **Goals**

The purpose of this test plan is to gain insight into how the users of the product experience it.

# **Test setup**

The test is setup with different scenarios, each scenario gives a brief description on how the user got to the specific stage. Underneath each scenario are the tasks that need to be completed. During the tasks the user shall be observed (how is their body language and what is being said during the tasks). After completing each task the user will be asked a set of questions, each question is specific to the task and the element of the product which is being tested.

# **Legal**

Each participant will be presented a document which gives us consent to let them do the test. This is done because the subject group are minors and permission from parents or a legal guardian is needed. All gathered data will be anonymized.

# **After the test**

When all the tests are finished the results will be assessed. The results will be put in a report from this report changes to the product can be made. When these (potential) changes have been put through the usability test will be held again. The results from that test will be assessed again. This will be done to see if the made changes had any positive effect.

# **Scenario**

***Menu***

You have navigated to the website and want to play the game but before you can do that you want to know the controls. You like to learn as much about a game before you start playing it.

## Task 1

*Taak 1*

### 1.1 Navigate to the control screen, read all the controls.

### 1.2 Navigate back to the main menu.

### 1.3 Turn off the music

### 1.3.5 Turn on the music

# 

# 

# 

# 

# 

# **Give notice when you think you completed the task.**

# **Scenario**

***Word game***

You found out what the controls for the game are. After reading what they are you feel confident that you can start playing the game. From the main Menu you click on start game.

## Task 2

### 2.1 Play the game and answer the questions.

### 2.2 Now play the game again and chose different answers

### then the previous playthrough.

# 

# 

# 

# 

# **Give notice when you think you completed the task.**

# **Scenario**

***Jumping game***

The first game has been completed. You are now transported to a different part of the world. This game takes place in South Korea. The backstory of the level shall be explained via text at the beginning of the level.

## Task 3

### 3.1 Play the game, try and catch all your stuff the bully stole and is throwing back at you.

# **Give notice when you think you completed the task.**

# **Scenario**

***Dodge the bullet (words)***

The second game has been completed. You are now transported to a different part of the world. This game takes place in New York. The backstory of the level shall be explained via text at the beginning of the level.

## Task 4

### 4.1 Play the game try and catch all the good words and avoid the bad ones.

# 

# 

# 

# 

# 

# 

# 

# 

# **Give notice when you think you completed the task.**

# Appendix B: Stakeholders

**Appendix B.1: System users overview**

|  |  |
| --- | --- |
| Id | Name of the stakeholder |
| ST1 | Student |
| ST2 | Teachers |
| ST3 | MIL expert |
| ST4 | Development team member |
| ST5 | Team coach |

**Appendix B.2: System users descriptions**

(ST1) Student

|  |  |
| --- | --- |
| Description | A pupil someone who is learning at a school. Next, their age is 11-15. Who are middle school students, which will learn cyberbullying prevention methods. |
| Responsibility | * To play the game and get a knowledge about cyberbullying prevention |
| Success criteria | * Clears the goals that are satisfied on every stage. * Make children understand what cyberbullying is. * Make children aware of the dangers of cyberbullying. |
| Notations / Issues |  |

(ST2) Teacher

|  |  |
| --- | --- |
| Description | Manager of the education process, which generally teaches students (ST1) on methods around cyberbullying.  Next, the teacher has educational contact with the students. Which means that he/she takes notes and informs students about educational materials and is prone to create enthusiasm on educational topics. . |
| Responsibility | * Making sure that students (ST1) play the games. * Criticization of the educational materials. * Advice about education minorities. |
| Success criteria | * Notes what makes students understand cyberbullying prevention * Becomes less stressed, due to the fact that students (ST1) can refocus their concentration on the game. |
| Notations / Issues |  |

(ST3) MIL expert

|  |  |
| --- | --- |
| Description | A professional on information structures, information ethics or media sources. Therefore, he can distinguish if information is false or true. Also, defines the MIL education of students.  Next, he can provide information about cyberbullying prevention, such as: user settings on social media, block users on instant messages. |
| Responsibility | Get information about the MIL progress of the students (ST1) and can check the effectiveness on the learning process. |
| Success criteria | * Check the learning development on MIL-skills. * Has statistics on the learning process. |
| Notations / Issues |  |

(ST4) Development team member

|  |  |
| --- | --- |
| Description | A development team is cross-functional expertised member within a team. And is responsible for the finalization of the product. |
| Responsibility | * Communication in between all roles  (ST1 till ST 5) * Completing tasks in the development process. * Notify members on issues |
| Success criteria | * Students (ST1) likes playing the game. |
| Notations / Issues | Has not role in the final use case of the project, because it is not a functional end-user of the final product. |

(ST5) Coach

|  |  |
| --- | --- |
| Description | A person whose job teaches the development team (ST4) on project processes skills. Which, are related to the finalized product. At the same time, the coach is responsible for workproces liminiting epidiments. Who can not be fixed within the team (ST4) itself. |
| Responsibility | Shows opinions and has critical perspective on the outcome of the game. |
| Success criteria | * A smooth development process |
| Notations / Issues | Has not role in the final use case of the project, because it is not a functional end-user of the final product. |

# Appendix C: Analysis Class Diagram - Story Game