Usability Research

On "Salty Waters" by SaltInc.

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Research by Teamo
Gia Linh Hoang, Timo Maarse, Raka Schipperheijn, Jelle Loman
s4553519, s4416295, s4582721, s4573382

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Introduction

This usability review is written about the application "Salty Waters", produced by SaltInc. This review is done for the course "Research & Development" from the Radboud University. For this assignment, the goal is to take test subjects from one group of students to test the application of another group of students.

The application "Salty Waters" is a game made for the Android system. The game contains two modes: a normal mode and an endless mode. The goal in the normal mode is to stay alive until you reach the end boss. Once you've reached the end boss it's your task to kill it, after which you will win the game. Within the endless mode, as the name suggests, there is no end. This also means that there is no end boss to defeat. Staying alive for a longer period of time increases your score.

Method

The method used in this usability review is a method called "thinking out loud testing". This is a "moderated task test", which means the steps the test subjects have to follow are not too prescriptive so they have to figure out the application for themselves. This really shows the usability of the application tested - namely how intuitive it is. Four test subjects were used, in combination with a smartphone preloaded with the application. The test subjects tested the app one by one. Each test subject received the phone with the game already opened. They were instructed to play the game as they would have otherwise, and say aloud everything they thought. Nearly everything the test subjects said was written down - these results can be found in the appendix. When a test subject stopped talking out loud, they got reminded to think out loud. After they had fully explored the app - which took about five minutes - they were asked the question: "What do you think of the app?" These answers were also written down. The researchers have chosen this method of testing because it is possible to record the user's thoughts as closely as possible. It also gives a better indication of how the test subjects are using the application by observing them. Because the application is a game, without a specific goal, the interaction the user has with the application is important.

In usability research it is common to comprehensively describe use cases, without giving away too much of the steps that have to be taken to accomplish them, to test subjects that they have to perform. The researchers chose not to provide extensive use cases. Since the application is not very extensive there are only two real use cases: start a normal game and start a game in endless mode. However, the test subjects were instructed to test both game modes.

The researches have chosen not to use the ten heuristics for usability research since these are focussed on functional applications, and not on applications made for the user's enjoyment. Pain points in this application's user experience are mostly bugs in the game and possible improvements for the developers to implement. For example, "System status visibility" is not needed within a game.

The choice was made to not use personas. The target audience of the application mostly consists of teenagers, and our test subjects already had a broad range of different experiences with games, and all fit the target audience. The addition of personas would be superfluous, and would distract from the readability.

Results

In this section the results of the thinking out loud test with the test subjects are summarised in a collection of likes and dislikes per person. These likes and dislikes are extracted from the minutes obtained during the test. The full minutes can be found in the appendix. Every subsection ends with the test subject's overall conclusion, their answer to the question "What do you think of the app?".

Test subject 1

Likes

- The mute icon in the top right corner.
- Getting to choose the music for the application - "the options are there, which is great" - even though it was not "personalised".
- The explanation given when the "Help" button was pressed.
- The fact that his health didn't decrease when he hit other fish.

Dislikes

- The background of the main menu. Though it was clear, it also was "fucking worthless" and the test subject "had never seen anything so bad".
- The test subject could not hear the song before choosing it.
- The bubbles shot at other fish were not clearly visible.
- When activating the nuke, the test subject didn't like the sound effect.
- The game crashed during play time, and the music continued in the background.
- The "main fish" is slow, and everything dies too quickly.
- Uncertainty whether the game was won or not.

What do you think?

Test subject 1's answer to the question "What do you think of the app?" was, aside from his observations: "Much of the same".

Test subject 2

Likes

- The background.
- The mute icon in the top right corner of the main menu, it was "very handy".
- The fact that he had to kill other fish, "I have to kill other fish? Nice."
- The game overall.

Dislikes

- The user experiences crashes.
- It is strange the fish dies of air.
- The end boss is reached in a very short amount of time, "the end boss is here after a few seconds".
- The score is partially displayed outside of the screen in the endless mode.
- The game is not very challenging.

What do you think?

Test subject 2's answer to the question "What do you think of the app?" was:
"Great! Good game! But it could be more challenging."

Test subject 3

Likes

Test subject 3 did not mention any likes.

Dislikes

- The app crashed a few times.
- The control was not good: "The controls are not amazing."
- The user suddenly died: "I suddenly died."
- Sometimes, the sound doesn't work.
- It was impossible to get to the bottom of the screen to kill the fish which swam there.
- The user could not pick up power ups.

What do you think?

Test subject 3's answer to the question "What do you think of the app?" was:
"The control didn't work very smoothly, I could not reach the bottom, it's not clear what is happening."

Test subject 4

Likes

- The "help" is useful.
- "The fish looks nice."

Dislikes

- The help text is not complete; for example, power-ups are not explained.

- You cannot hit fish at the side of the map.
- The user suddenly died: "How did I die all of a sudden?"
- It's not clear when health drops or when you die.
- Won in endless mode.
- The normal game crashed.

What do you think?

Test subject 4's answer to the question "What do you think of the app?" was:
"It's a nice app, but it's repetitive. It's not challenging and after 5 minutes you're done playing. Maybe they can add an option with levels."

Conclusion

Here all the things the test subjects liked about the application are aggregated. Below that, the dislikes are listed in a table as usability problems, and they are given extra explanation. Each individual problem is given a score from 0 to 4 on the "Severity Ratings for Usability Problems" scale by Jakob Nielsen.

Likes

Description
Mute icon in the top right corner of the main menu.
Getting to choose the music.
The explanation when the "Help" button is pressed.
The background.
The fact that it's possible to kill other fish.
The fish looks very good.

Usability problems

Issue	Description	Score[1]
Crashes	The game crashes during play time, and the music continued in the background. This is a usability catastrophe, because a finished product should not crash "out of the blue". Fixing this is imperative before a release.	4
Health did not drop	The health did not drop when he hit other fish. This is a major usability problem, because the whole point of the game is to either avoid fish as to not drop in health, or to kill fish in order to avoid them. If the health doesn't drop, you could theoretically go on forever without losing.	3
Bubbles hard to see	The bubbles that are shot can be hard to see. This is a major usability problem, since it is very persistent, has a high frequency of occurring, and has a big impact on the user's experience if it occurs.	3
Status unclear	It is not clear whether you won or lost. This is a major usability problem since the whole point of the game is to defeat the boss, if the user is not aware of whether he or	3

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[1] The score was determined using Severity Ratings for Usability Problems by Jakob Nielsen.

	she succeeded, this defeats the point of the game.	
Control not good	The control is not very good. Because the control is the most important part of the application, it is a major usability problem if it doesn't work well or intuitive. It could be fixed by giving haptic feedback - i.e. a short vibration - when a bubble is fired, and by making the fish swim more directly to the point where the user clicks.	3
Score outside of display	The score is partially displayed outside of the screen in the endless mode. This is a major usability problem since the whole point of endless mode is to gain as much points as possible.	3
Suddenly lost	The fish suddenly died. This is a major usability problem since its impact is high, but its frequency of occurrence is low. Its persistence is also not very high, since the user can simply restart the game.	3
Can not reach bottom	It is not possible to reach the bottom of the screen with the fish. This also means you cannot pick up power-ups or shoot fish down at the bottom. This is a major usability problem since it is very annoying for the player, unexpected, and happens continuously.	3
Win in endless mode	It is possible to win in endless mode. This is a major usability problem, because the endless mode should never stop. Fixing this problem is very important before releasing the application.	3
No preview of song	Cannot hear the song before you choose it. This is a minor usability problem because it could potentially irritate a user of the application; if a user has picked a song that he likes the name of, but he hates the song once he has started playing, he has to return to the main menu to alter the song.	2
Fish too slow	The main fish is too slow. This is a minor usability problem; it occurs continuously throughout the game, has a significant impact, but it is not very persistent. It is not very persistent since the user will get used to it.	2
Too easy	Everything dies too quickly. This problem is minor because it doesn't impact the usability of the application, it only decreases the time a user spends to play it.	2
Too short game	The end boss is reached in a very short amount of time. This is a minor usability problem since its impact is very low; the user can still enjoy the game and restart the game if required.	2

Cannot pick up power ups	Cannot pick up power ups. This is a minor usability problem, because most power ups can be picked up. Only a few can not. This is annoying, but not a major problem, because the game is still playable.	2
Help not complete	"Help" is not complete because power ups are not explained. This is a minor usability problem, because it is important to understand the game when playing it, but not imperative since a lot can be figured out by trying.	2
Ugly background	The background doesn't look good. This is a cosmetic problem only, since even though it has high frequence, its impact is very small.	1
Ugly sound effects	The sound effect of the nuke is not very nice. This is a cosmetic problem only, since it is not a frequent issue and its impact is very small.	1
Strange damage	It is strange the fish dies because of bubbles. This is merely a cosmetic problem, because the bubbles can easily be replaced by something more "lethal".	1
Not working sound	Sometimes, the sound does not work. This is a cosmetic problem because its impact is low: it does not affect the game at all. Its frequency is also low and it is not very annoying.	1

Overall, "Salty waters" is a fun game to play, but it still has many major problems, like sudden crashes and in game bugs. However, improvements can be made on all of these points, and none are inherent limitations on the concept of the game.

Discussion

To improve our raw data, a recording of the interview may have been a better choice, but we are not unsatisfied with our current findings. We could have made a questionnaire for our test subjects, to get a better impression of their anticipations beforehand, and a better view of their findings and how their anticipations were fulfilled afterwards. It would also have been helpful it there had been more time available to think out the testing phase more thoroughly.

Future development

Points for improvement

- The application should be debugged further so that crashes are less likely and ideally should not happen. The test subjects experienced frequent crashes, which are a catastrophe for the user experience and temporarily disable the user from playing.
- The artwork should be improved upon to make certain distinctions and the gameplay mechanics clearer.
- The application should be tested on more screen sizes, to ensure that the layout fits every single one. This could prevent usability problems with not being able to see the score, not being able to kill the fish at the bottom of the screen, or not being able to pick up power ups at the bottom of the screen.
- The controls were reported by most test subjects to be rather annoying, and this is an issue that persistents and is present continuously.

Suggestions

- The bubble graphics could make it clearer that it is a projectile that inflicts damage; for example, the bubbles could be shaped in a more lethal form, like a spike.
- The help text could be extended further; power-ups and nukes should be explained.
- In case the user needs to pause the game, it would be nice for there to be a pause menu.

Appendix

Minutes "Thinking out loud" testing

The following text was obtained by writing down what each test subject said as precise as possible. Because the subjects were speaking in Dutch, it was faster to also type in Dutch.

Test subject 1

Het icoon rechtsboven is mooi voor het geluid. De achtergrond is fucking waardeloos, maar wel duidelijk, nog nooit zo slecht gezien. De titel is wel mooi, een mooi ding. Je krijgt een pop-up als je op de knop drukt. Je krijgt een logische uitleg. Muziek kiezen is leuk, maar niet gepersonaliseerd. De opties zijn er, dat is mooi. Je kunt de song niet horen voordat je hem gekozen hebt. Ik kan de bubbels amper zien. Mijn levens gaan er niet af. Geweldig. Mijn levens gaan omhoog. Ik hoef ze dus niet te schieten, dus ik kan ze ook ontwijken, geweldig. Het is creepy. Je hoeft niet te bewegen, dat is mooi. Geen mooi geluid bij gebruik van de kernbom. Levens werken en kun je oneindig stacken. Hij crasht tijdens het spelen. De muziek gaat door na een crash. De vis is traag, alles gaat te snel dood. Asian mode: oh shit. Onduidelijkheid over of je gewonnen hebt of niet. Conclusie: veel van hetzelfde.

Test subject 2

Leuke achtergrond. Ik ben benieuwd. Geluidsicoontje bovenin is super handig. De app crasht wanneer je probeert te starten. Ik moet andere vissen doodmaken? Leuk. Gaan vissen dood van lucht? De eindbaas is er na een paar seconden. De score valt bijna buiten beeld bij endless mode. Er zitten power-ups onderaan het scherm waar je niet kunt komen. Conclusie: super leuk! Leuk spel, maar het mag wat uitdagender.

Test subject 3

Crash bij start game. Deze besturing is niet geweldig. Dood gaan is plotseling. Zonder geluid endless mode proberen. Geen geluid werkt, er is geen geluid. Ik kan niet ver genoeg naar onder om de onderste vis te doden. Opeens ben ik dood. Hoe kan ik dan naar onder? Ik kan vissen onderaan en power-ups niet oppakken. Besturing werkt niet geweldig. Wat is die engel? Het menu is saai, daar zit geen geluid. Hij crasht alweer. Conclusie: de besturing loopt niet helemaal lekker, ik kan niet helemaal onderaan komen, het is onduidelijk wat er gebeurt.

Test subject 4

De help is handig, maar er staat niet wat de power-ups doen. Aan de randen kun je ze niet raken. De vis is mooi vormgegeven. Hoezo ging ik dood opeens? Het is onduidelijk wanneer je nu precies levens verliest en dood gaat. Het is nog steeds onduidelijk wat de power-ups doen. Ik kies voor endless mode maar ik heb gewonnen. Als ik een gewone game doe dan crasht hij Conclusie: het is een leuke app, maar het is veel van hetzelfde.

Niet veel uitdaging en na 5 minuten ben je al uitgespeeld. Misschien een optie toevoegen dat je moeilijkheidsgraad kan kiezen.