



DESIGN RESEARCH REPORT

DRG1 Assignement

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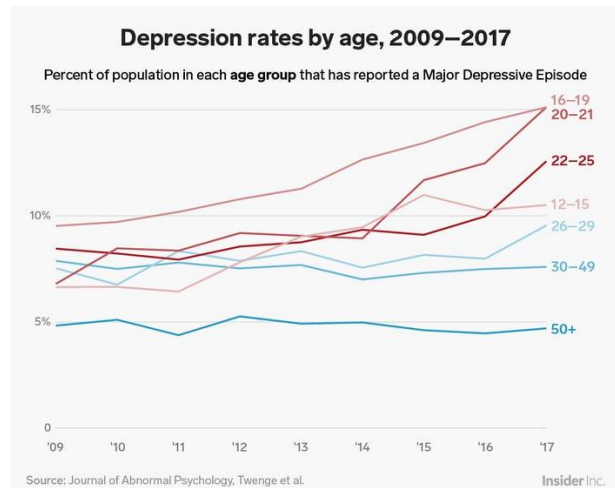
1. Project Framework

1.1. The problem

The problem that our game tackles: Raising awareness for depressions and depicting the effects of mental health issues.

Why did we choose this topic: Mental health struggles like depressions are a very common issue for a lot of people nowadays.

- Depression is a common mental disorder affecting more than 264 million people worldwide (WHO, 2020)
- Close to 800 000 people die due to suicide every year.
- Suicide is the second leading cause of death in 15-29-year-olds.
- Due to the global pandemic psychological struggles like anxiety and depression become even more serious and widespread.



1.2. Target audience

As we want to raise awareness for depressions our main target audience are friends and relatives of people who suffer from depression. Since young people between the age of 16 and 25 are reported to be the most effected by depression, we hope to use video games to reach those people as well as relatives and friends of them.

1.3. Game concept

To give a better understanding of what depressions are and what a person experiences when suffering from this, we want to create a interactive novel that follows a character with depressions over the course of a few days. This aims for a “spend a day in my shoes”-approach and should make the players really see the world through the other persons eyes.

The player will experience a major depressive episode of the character as he (our character will be a male but have no defined name) goes through medication withdrawal and revisits events that contributed to his current mental state. The goal with that is to give an understanding of the complexity of depressions.

2. Objectives and Research Questions

The research’s goal is to evaluate 2 UX-aspects that are especially important for our game. The first of which is the aspect of Immersion within our game and more precisely how immersive our story is for the players. By creating a questionnaire that tackles different dimensions of immersion we want to evaluate which story elements are contributing to it and which elements are making it more difficult for the players to immerse themselves into the game.

The second UX-aspect that is relevant for our game is the design for our UI more precisely its usability. Since we want to make the player feel like they are experiencing a depressive episode and want them to forget that they are playing a video game it is important to create a very subtle UI that does not interfere with what is going on in the story. The goal of the research is to define design requirements for our UI (including controls), with the desired feedback giving us evaluation on how well our UI is integrated into the game and if its in line with the art style and general atmosphere of our game.

Of course, there are other UX-aspects that are important to our game as well, for example how the motivation of our players develops over the course of our game. As we are discussing a very dark topic that goes along with negative experiences for the player it is important to find a delicate balance between making the player experience depression and not making it to grim for them to keep playing.

2.1. Research methods

In this chapter we will explain some possible research methods, that we will later use to collect results. The goal of this chapter is to give a basic understanding of the methods that we are using and to summarize their advantages and disadvantages.

2.1.1. Playtesting

Play testing is a very user orientated research method, as it basically consists of creating a prototype and analyzing how the participants react on it, which can happen through quantitative feedback like documenting the number of errors done when trying to complete a certain task or qualitative feedback like participants opinions on different parts of the tested subject.

The good thing about this method is that it is very flexible and can be used for almost any research question. The only thing that is necessary is something that can be tested. However, to be able to conclude proper results from it, it is important to adjust the presented prototype to the UX aspect that the conductor desires feedback on.

Since playtesting itself is a considerably basic research method, the desired feedback can often be improved by adding other methods like “Thinking out loud” or surveys/questionnaires/interviews to the test. Thinking out loud helps to understand why a user might have done certain errors, while questionnaires help to go more into depth when it comes to the opinion of the participants after playing the prototype.

2.1.2. Questionnaires/Surveys

Questionnaires are especially helpful when it comes to analyzing the opinion of the participants and how they view different parts of the product. One of the advantages of this method is that it allows the conductor through the choice of questions to decided what things they will get feedback on. Another advantage that relates to this choice of questions is that the results are easily measurable since all participants answer the same questions. Questionnaires are also very efficient when it comes to resources (mostly money and time) that must be spent to collect data. It is also easy to gather large amounts of data and deliver quick results. (Doane, 2015)

But the scalability and the measurability come at their price. To maintain this measurability, questionnaires are inflexible, meaning you cannot change anything about the survey once you have started to administer it. Another point is that the results are often influenced by the perception of the participants, which can be helpful as the goal is to collect their feedback but might have a negative influence if the participants give answers that do not fit what they want to say (due to social influences, like feeling obliged to say certain things). This is a reason why questionnaires are not fitted for controversial issues as the socially biased influence becomes much more important. Lastly questionnaires often have the problem of being somewhat blind to certain topics, that might have been interesting for analyzing purposes but were left out due to the creator of the questionnaire missing to ask related questions.

2.1.3. Interviews

Interviews might be quite similar to questionnaire but as so often the detail makes the difference. Interviews are designed to capture the unfiltered opinion of the participant. They allow open feedback and are very personal to each participant.

Obviously, this offers a good opportunity to get good in-depth feedback on what the participant experienced when testing something (play testing a prototype for example) and allow to address different topics.

Getting this in-depth feedback, however, takes a lot of time and must be done properly, meaning that collecting good feedback is reliant on the abilities of the interviewer. (Nacke, 2015)

3. Research Immersion

As the main goal of our game is to raise awareness for mental health issues like depression by creating identification between the player and the feeling to be in such situations. To achieve that it is crucial to immerse the player to a point where they forget that they are playing a game but instead experience the emotions that the protagonist is going through. This means that we must engage the player, keep them dedicated to the game and its narrative and since games are seldomly played through in one session, give them motivation to return to our game.

According to Ernest Adams (Adams, 2004), immersion can happen in different ways.

This relates to defining “types of immersion” and by that providing different ways to create immersion, those types being:

- 1) **Tactical Immersion:** Tactical immersion is experienced when performing tactile operations that involve skill. Players feel “in the zone” while perfecting actions that result in success.
- 2) **Strategic Immersion:** Strategic immersion is more cerebral and is associated with mental challenge. Chess players experience strategic immersion when choosing a correct solution among a broad array of possibilities.
- 3) **Narrative Immersion:** Narrative immersion occurs when players become invested in a story and is similar to what is experienced while reading a book or watching a movie.
- 4)

Based on these categories it becomes obvious that our game relies heavily on narratively immersing the player. Still, we should try to include the other types as well to support the immersion of players that are more attached to strategic or tactical immersion.

As a result of this it becomes more clearly that the use of immersion is not only dependent on the goal of the game but also on the target audience. Immersion is a heavily subjective issue evolving from the personal likes and dislikes and lots of other characteristics of every individual player.

Because of that our main goal when researching this UX-aspect can not be to achieve “maximum immersion” for every player in our target group but instead to identify to which extend we achieve the kind of immersion that supports the main goal of our game: creating awareness through identification with / understanding for mental health issues.

With that in mind we can define requirements or rather goals that we want to achieve when a player plays our game:

1. Creating an emotional relation between the player and the character

As we are telling a story that is about understanding another person’s point of view, it is especially important that the players can relate to what the character feels and feels compassion for the characters situation and his fate.

2. Create a longing within our players to further explore the game and keep playing to see how the story around our character evolves.

Based on the circumstances that we are telling a story filled with a lot of negative experiences, it is especially important that while creating an emotional relation, we do not overwhelm the player with

just negative feelings and experiences. This means that we need to offer something that motivates the player to continue playing.

Out of these goals we can form a question for our research:

Are we able to immerse the player to a degree where they can relate to the narrative of the game while feeling the urge to explore the further development of the story?

Or in shorter form:

Does the immersion of our narrative support our goal of creating awareness for mental health issues?

To operationalize this research question, we now need to define what immersion means, what **dimensions** it is built on and which *indicators* could help us measure them. Following that we can decide which dimensions are important for our game and which of the indicators help us to get the desired feedback.

Immersion is the extent to which players feel engaged, dedicated to the game and motivated to return. This happens by triggering aspects of **sensitivity**, **structure**, and **engagement**. (Qin, 2009)

- **Sensitivity** means that the player is entering into the imaginary world. If done successfully creating a high level of emotional investment. Indicators for the degree of sensitivity can be *emotional involvement, perceived behavioral control (or confidence), exploratory behavior* and *positive subjective experiences*.
- **Structure** describes the ability of the player to exercise a sense of control over the characters and the game world and a feeling of a relative difficulty in game narrative for the players. It can be measured with evaluating if the players feel *sensory immersion, feel challenged* and how they *percept their control over the game* and its world.
- **Engagement** describes the arousal of senses and cognition of players and whether they feel attracted to explore the game's narrative. It also displays the extent to which players can concentrate on the games narrative and is measured by the *temporal dissociation, degree of focused immersion, and time distortion*.

Since we aim to make an interactive novel our focus lies on creating immersion trough sensual and engaging elements. Because of that the structural dimension is less important to us and will not be measured.

3.1. Research methods

As we desire a lot of feedback about the extent to which players feel immersed in our game, we have decided to use a **questionnaire** as our main method. On the one hand we will give the written story to players to evaluate which parts of it are increasing there feeling of immersion and which parts are working against it. To get more detailed feedback we will add a **short interview** to the questionnaire. On the other hand, we will also do some **playtesting** with chosen parts from our game to evaluate whether the already implemented parts are in line with our goals for the immersion.

3.2. Research design

3.2.1. Data collection

The following table should summarize the operationalization of our immersion research:

Construct	Definition			
Immersion	Immersion engages the player, keeping them dedicated to the game, and later motivates them to return. This happens by triggering aspects of sensitivity, structure, and engagement.			
Dimension	Definition	Indicators	Data collection methods	Unit
Sensitivity	Mentally entering the imaginary game world. high level of emotional investment if they are immersed.	- Emotional involvement	Interview: How did the game affect the player? What emotions did the game provoke within the players? Were they emotionally invested?	- qualitative data (opinion)
Engagement	Arousal of senses and cognition and attraction to explore game narrative. Ability to concentrate on the game narrative.	- Temporal dissociation - Focused immersion - Time distortion	Questionnaire: Was the player motivated to progress? Were they able to lose track of real life/time and fully concentrate?	- qualitative data (opinion)

To test the immersion of our game we will (for now) mainly test its narrative. To do that we will give parts of the current story to participants to let them read through it. To measure both operationalized dimensions, we will first conduct an interview, to get feedback on the participant's emotional involvement. After that, the participants will fill out a questionnaire to provide us with feedback on their feeling of engagement.

3.2.2. Participants and tools

Resulting from the description of our target audience we can define requirements for our participants. Our participants should be aged 16+ years old, be relatives or friends of a person suffering from depression and be in a close enough relationship with those people to feel the obligation to deal with the issue. As we are, after all, producing a game, it would be preferred if the participants had some experience with games, especially with games that are similar to ours, like "Beyond: Two Souls", "Life is Strange", etc. as they might be able to give more informed feedback.

It would also be helpful if some of the participants had some experience with storytelling, especially with storytelling in games, as they could provide us with more informed feedback in the interview part for the first part of our research.

For the second part of the research, it would be useful if the participants would vary in their experience with games. Since we are not presenting the participants with actual game footage but only the written script of the story, it would be helpful to have some more experienced gamers, as they might be able to translate how the story might feel as a game more easily.

The minimal number of participants that we need is three to avoid getting 50/50 feedback. As a result of the arguments stated above, they should all be part of our target audience (16+ years old, relative/friends of people who suffer from depression) and vary in their experience with games to get the best possible data.

The following list describes the demographic background of a few people who we might recruit to participate in this research and their relatedness to our target audience:

Participant No.	Gender	Age	Relation to depressive person	Gaming experience
1	Female	19	Close friend	Casual gamer
2	Male	20	Close friend	none
3	Female	20	Experienced depression herself	Very experienced
4	Male	24	Relative	Casual gamer

To conduct our research there are a few tools that we need for the testing sessions:

- Hardware: A webcam to record the participants
- The questionnaire as well as a way to document the direct feedback from the interview
- Consent forms
- Story script

3.2.3. Test structure/ procedure

Related to the current Covid-19-situation we will have to assume that we cannot perform the tests locally but instead have to do it online. As a result of this the participants will be given two choices:

- **Choice 1:** We will provide the different tools to the participants and conduct the test via Discord.
- **Choice 2:** The participants will be coming to the home of the conductor and participate in the test there with all the needed equipment set up there and following the Covid-19-rules.

Choice 1 procedure:

Before the participants arrive, it should already be assured, that all Covid-19 measures are taken care of, disinfectants should be ready, and all equipment should be disinfected. Once the participant arrives, they will be asked to sit down. The conductor will then read the introduction to them (see attachments). If there are no additional questions about the testing session, they will be given the written story script to read and once they are finished, the conductor will do the short interview with them and afterwards they will be given the online questionnaire to fill out.

After finishing the test and filling out the questionnaire they should be thanked for their participation.

Choice 2 procedure:

Once the participant confirms wanting to participate, they should be added in Discord and a time should be scheduled for the play testing. Once it is time for the test the conductor calls the participant on Discord and gives them an introduction and an online version of the consent form to fill in. The rest of the procedure is just like with the IRL testing session. They will first get the story script for reading,

then the conductor will do a short interview with them and after that they will receive a link to the online questionnaire.

After finishing the test and filling out the questionnaire they should be thanked for their participation.

Note:

- *The participants will all be invited at a different time/date so that they will not be influenced by seeing and hearing the other participant play test.*
- *Only if the participant gets stuck and cannot continue the testing, should they be given help or instructions.*

3.1. Preparation and execution

3.1.1. Recruitment of participants

Recruitment happened within the creators' network. Participants were asked to read out a script and either fill in an engagement questioner, give a short interview stating their opinion on how emotionally involved they got with the story, or do both. All four participants agreed to fill out the questioner, and two of them agreed to be interviewed as well.

The participants were the following:

Questioner

Participant No.	Gender	Age	Relation to depressive person	Gaming experience
1	Female	19	Close friend	Casual gamer
2	Male	20	Close friend	none
3	Female	20	Experienced depression herself	Very experienced
4	Male	24	Relative	Casual gamer

Interview

Participant No.	Gender	Age	Relation to depressive person	Gaming experience
1	Female	20	Experienced depression herself	Very experienced
2	Male	24	Relative	Casual gamer

3.1.2. Execution of a pre-test

The pre-test consisted of giving the GDD/script to the participants one day in advance of the questioner and interview. Before being given the questioner, the participants were asked to confirm that they have read and given document, and they signed a consent form, stating that they consent to their information being used for improvement purposes.

For the interview the participants were questioned on the spot without being given the question beforehand as it was planned to ask questions based on the questioner answers. Unfortunately, due to technical issues the interviews have no audio recordings, but the conductor did take full notes of the answers.

3.1.3. Execution of the test

The test was executed with the participants being given the questioner and unlimited amount of time to fill it in. On average filling it in less than 5 minutes, and if the participants consented to it, the interview after that took about 5 minutes as well.

Apart from minor technical issues concerning the recording of the interviews, the participants were made comfortable and had no issues with answering the given questions.

3.2. Description and analysis of research results for sensitivity

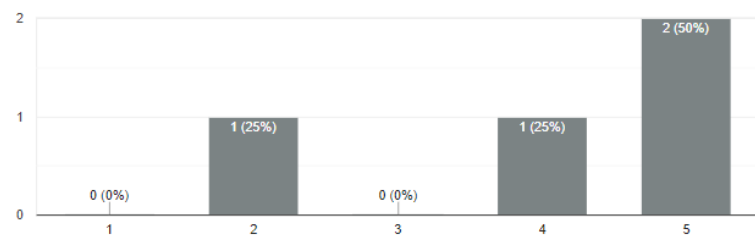
The questions were targeting the topics of Sensitivity and Engagement, falling under the umbrella term of Immersion. The questions were regarding both of those factors, with the interviews delving deeper into the sensitivity aspect. *The answers range from 0 (least) to 5 (most).*

The results were close to our expectation, and we were able to draw useful conclusions from them.

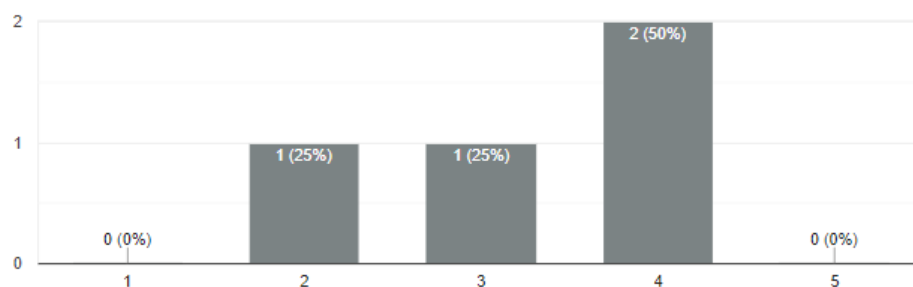
Most testers were mostly able to identify themselves with the story with the exception of the last participant (interview #2)

who said he had no experience himself with mental health issues, so it was normal for him to recognize himself less in the events the story depicts.

To what extent could you picture yourself in the events shown in the game?
4 responses

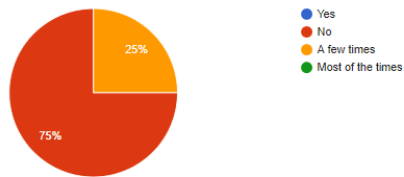


To what extent did you relate to the main character?
4 responses



Testers were also able to recognize themselves with the main character, although no one could full relate to his experience. That is great as we want to have an authentic story that players will not find anywhere else, but still keep it with real life issues the player might have experienced.

Were there any times where mental illness seemed misrepresented in the game?
4 responses

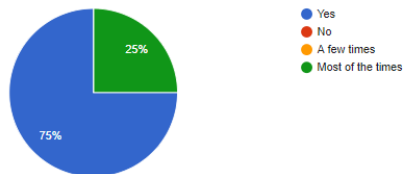


We were happy to see that mental health was represented respectfully and was not misinterpreted in the script.

50% of the testers said they had similar experiences as the character in their life, and 25% said they has similar reactions, which leads us to believe the script is generally relatable but not catered to everyone.

One tester said they events in the game might not have been triggering, but the situation reminded her of instances she

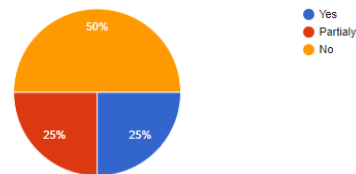
Do you think mental illness was represented respectfully in the game?
4 responses



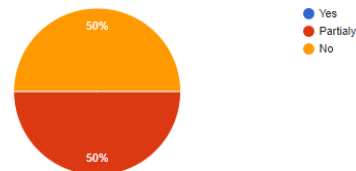
was bullied in high school which provoked similar emotions. After further questions outside of the questioner she said it wasn't triggering, she just didn't expect to remember that.

Testers had varying levels of relating to the characters life and experience, which based on the previous answers and goal of the script was expected.

Have the events in the game reminded you of real-life situations you were in?
4 responses



Did the events in the game provoke similar emotions?
4 responses



3.3. Conclusions and future improvements for sensitivity

Generally, the feedback we received was close to what we were expecting, but still gave some interesting insight on the participants experience and how close the script was to them.

One person said that they did not have mental health issues, so they could not relate to the character, which is something that needs looking into. We would want to have a story that can be interesting to the majority of player, no matter if they personally experienced mental health issues or not, and not relating to the character might lead to less interest in the game.

An especially important piece of information we gathered was the relatability of the characters action in the described situation. As much as we want to keep an authentic story, we should keep the characters actions realistic, and if people cannot justify the characters action, they will lose interest or get irritated at the game. A future improvement would be to investigate people's personal stories and gather better information from situations similar to the characters and update the story to be closer to them.

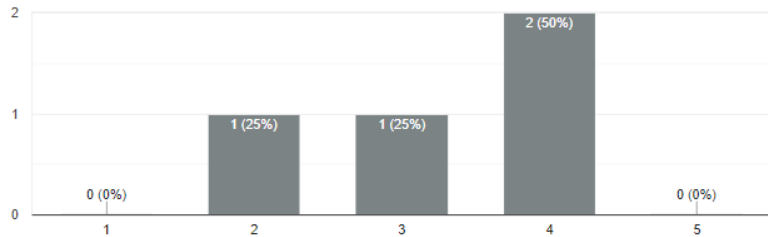
3.4. Description and analysis of research results for engagement

The script mostly held the participants attention, with one exception in which the participant was not extremely interested.

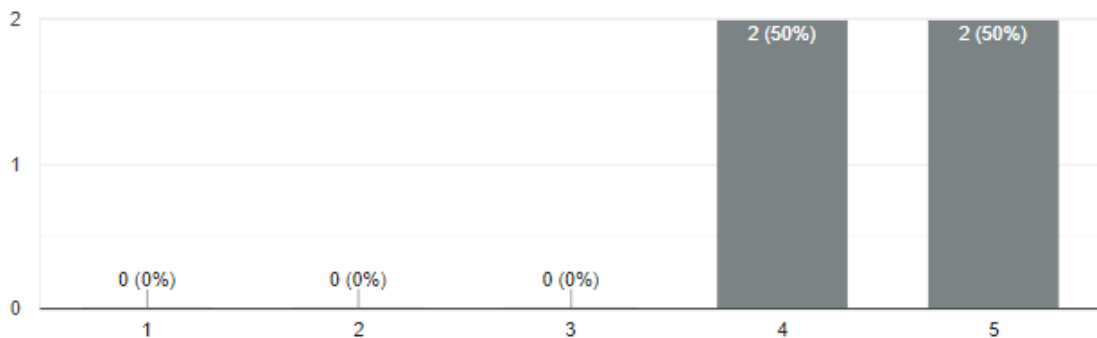
The participants were able to semi-forget their daily life and get immersed, but we expected a bit more in that category. The same goes for the participants being aware of their surroundings.

No one wanted to give up reading it, but these was not huge eagerness to do it either, or the participants were mildly motivated to read through it.

To what extent did the game hold your attention?
4 responses



To what extent were you interested in seeing how the game's events would progress?
4 responses



Interestingly enough, all participants were interested in how the story would unfold and wanted to see the progression. One participant said that the script was a bit too long.

3.5. Conclusions and future improvements for engagement

The conclusion is that the scenario held the reader's attention a bit less than anticipated, but they were interested in the actual story.

Putting the story in the game would greatly improve the over-all player experience as proven by the previous (sensitivity) research and some of the answers there, so we are not too worried about that yet, but more engagement tests would be made after the game is in a more polished state to confirm that the engagement has risen.

For now, a change that can be done is improving the pacing of the story to make it more engaging from the get-go. The whole experience would also be improved with the changes in the sensitivity aspect of the story, but we mostly believe we got these results were because the current script is to be built in a game and not so much to be read as a separate piece of literature and the testers were

not prepared for that. That is also another thing that can be improved on is to prepare the testers better and to give them realistic expectations of what to expect when reading that type of document.

4. Research UI & controls

Our UI & controls are there to support the storytelling and to help the players immerse themselves into the role of the character this could be summarized with the goal being “to give a UI to life”.

Aiming for this goal our UI as well as the controls must achieve two things:

1. The UI & controls are intuitive and efficient to use.

The player will get frustrated if not able to understand the UI or to achieve whatever is going on in the game. So, our goal is to make the UI as well as the controls as intuitive as possible.

2. Being consistent with the style of our game

Since we are trying to create an experience that is close to “experiencing life” the UI must be as minimal as possible and with that support the immersion of our game.

With these two goals in mind, the question for our research can be formed:

Is the usability of our UI & controls of good quality? (Meaning that it is minimal (consistent with the style of our game), yet intuitive and efficient to use.)

Based on these requirements we can define what the usability (of the UI & controls) specified for our case is and what **dimensions** it is built on and which *indicators* can help to measure the quality of each dimension:

Usability is the extent to which the UI & controls can be used by the users to achieve specified goals with **effectiveness**, **efficiency** and **satisfaction**.

- **Intuitiveness/Effectiveness** describes the accuracy and completeness with which users achieve specified goals. *It can be measured with numbers of errors the user makes when performing a task and can be put in relation to the total numbers of tasks completed.*
- **Efficiency** describes the amount of different resources expended by the user trying to perform a task. *Examples of those resources can be the time or the number of actions it takes a user to perform the task successfully.*
- **Satisfaction** describes how much the users like using the system. As the satisfaction is much more specific to each user (subjective) than the other dimensions *it is best measured by requesting direct personal feedback from the user in terms of finding it consistent and attractive and if the users feel like there are missing any features.*

4.1. Research Methods

Since the results of our research are heavily based on getting feedback from the player, we have decided to use **playtesting** as the main method for evaluating our UI. By letting our users play parts of our game, giving them certain tasks and documenting the indicators for effectiveness and efficiency we want research in how far we meet the described requirements for our UI & controls.

To further evaluate how satisfied the users are with the usability we will also create a **questionnaire** to measure the satisfaction related to specified parts of our UI & controls.

4.2. Research design

4.2.1. Data collection

The following table should summarize the operationalization of our usability research:

Construct	Definition			
Usability	The extent to which the UI & controls can be used by the users to achieve specified goals with effectiveness, efficiency and satisfaction . (ISO, 1998)			
Dimension	Definition	Indicators	Data collection methods	Unit
Intuitiveness/ Effectiveness	... describes the accuracy and completeness with which users achieve specified goals.	- numbers of errors the user makes when performing a task - total numbers of tasks completed	- Playtesting : Documenting what the users did, what they did different from the intended way?	- quantitative data (errors done while completing tasks)
Efficiency	... describes the expended amount of different resources by the user trying to perform a task.	- time or the number of actions it takes a user to perform the task successfully	- Playtesting : Documenting how long and how many actions it took users to complete task	- quantitative data (time until completion of task)
Satisfaction	... describes how much the users like using the system.	- direct personal feedback from the user in terms of finding it consistent and attractive and if the users feel like there are missing any features	- Questionnaire : Did the users find the UI/controls consistent with the rest of the game elements (e.g., art-style)? Did the users find the UI/controls complete or did they miss any features?	- qualitative data (opinion)

Since the goal is to test our UI & controls, we will split up the test into those 2 major components which results in the following things to be tested:

- **UI (menu of the game)** – done through a playable Unity prototype.
- **In-game UI & Controls** – done through different playable Unity prototypes, reflecting different parts of the game (one part being one of the day sequences and the other one being one of the night sequences)

4.2.2. Participants and Tools

Our participants for this test groups should still be part of our target audience, as described in “3.2.2. Participants and tools” for the immersion research.

However, since one of the goals of the usability of our UI & controls is to intuitive and effective it would also be of good use to have participants that are not familiar with games as it would be a great chance to see if the controls are easy to learn and understand.

Again, like described in “3.2.2. Participants and tools” the minimal number of participants that we need is three to avoid getting 50/50 feedback. As a result of the arguments stated above, they should

all be part of our target audience (16+ years old, relative/friends of people who suffer from depression) and vary and their experience with games to get the best possible data.

The following list describes the demographic background of a few people who we might recruit to participate in this research and their relatedness to our target audience:

Participant No.	Gender	Age	Relation to depressive person	Gaming experience
1	Female	20	Experienced depression herself	little
2	Female	20	Close friend	Few times per month
3	Female	20	Close friend	none
4	Male	21	Friend	Very experienced

To conduct our research there are a few tools that we need for the testing sessions:

- Hardware: A webcam to record the participants + a laptop for the participants to play the test on
- Software: OBS to record the screen + running prototypes which could be within Unity or as installable applications
- The questionnaire as well as a way to document the direct feedback from the interview
- Consent forms
- Task scenarios for the participants
- Task scenarios for the test conductor (to tally the number of errors made at each task scenario)

4.2.3. Test structure/ Procedure

Related to the current Covid-19-situation we will have to assume that we cannot perform the tests locally but instead must do it online. As a result of this the participants will be given two choices:

- **Choice 1:** We will provide the different tools to the participants and conduct the test via Discord.
- **Choice 2:** The participants will be coming to the home of the conductor and participate in the test there with all the needed equipment set up there and following the Covid-19-rules.

Choice 1 procedure:

Before the participants arrive, it should already be assured, that all Covid-19 measures are taken care of, disinfectants should be ready, and all equipment should be disinfected. Once the participant arrives, they will be asked to sit down. The conductor will then read the introduction to them (see attachments). If there are no additional questions about the testing session, they will be given the form of consent to read and sign, then they will be given the task scenarios. While they get time to read it through the test conductor can turn on the Webcam as well as OBS for screen recording and open the first prototype for the UI (the menu).

After they finished reading, the participant can then start testing the first prototype. Once the first test is finished the conductor will give them the online questionnaire about the UI to fill out and afterwards do the short interview with them.

Following this the conductor will then give the next task scenario for the second prototype (the controls) to the participant and use the time while they read it to start the prototype. Once they are done reading, they can start testing the second prototype and fill out the second online questionnaire about the controls of the game once they are done testing.

After finishing both tests and filled out the questionnaire they should be thanked for their participation.

Choice 2 procedure:

Once the participant confirms wanting to participate, they should be added in Discord and a time should be scheduled for the play testing. Once it is time for the test conductor calls the participant on Discord and gives them an introduction and an online version of the consent form to fill in. Then the test conductor sends them the prototypes through google drive and, if necessary, helps them with opening the prototypes and setting up OBS. The rest of the procedure is just like with the IRL testing session. They will get a word document with the task scenarios and after reading it can proceed with play testing both UI prototypes. After that they get a link to the UI questionnaire. Then they can start doing the task scenarios of the controls prototype and after that fill in the last questionnaire. After filling in the last questionnaire they should be thanked for their participation.

Note:

- *The participants will all be invited at a different time/date so that they will not be influenced by seeing and hearing the other participant play test.*
- *Only if the participant gets stuck and cannot continue the testing, should they be given help or instructions.*

4.3. Preparation and execution

4.3.1. Recruitment of participants

All participants were from the test conductors' network. After reaching out to the possible participants mentioned in '4.2.2. Participants and tools' nearly all of them choose to take part in the tests. However, since time was rare for most of them, we allowed them to decide if they want to take part in both sub-tests (playing the menu prototype as well as the Ingame-/Controls-prototype) or to only take part in one of both tests. All of them decided to take part in both tests so the list of participants is as follows:

Participant No.	Gender	Age	Relation to depressive person	Gaming experience
1	Female	20	Experienced depression herself	little
2	Female	20	Close friend	Few times per month
3	Female	20	Close friend	none
4	Male	21	Friend	Very experienced

4.3.2. Execution of a pre-test

Unfortunately, we were not able to perform a pre-test. This happened mainly due to time pressure as well as the circumstance that we had only few participants available. Still, from performing the tests, we can summarize what we should do better or differently in future tests to make them more

effective.

One thing, that was obvious after performing the tests, was the way that we provided the prototypes to our participants. Since we planned on doing both sub-tests in one testing session, we created a prototype that would start with a menu that lets the person choose which prototype they want to play. This was only meant as an organizational help but ended up confusing the users as they thought this was already the menu that they were supposed to evaluate, when truly, it started after clicking on “Menu” or “Gameplay”. This also led to the two different tests being mixed up and participants completing the task as a wild mix of both scenarios. This led to many errors, that we had to ignore as they happened because of this mix and are of no use for the feedback on our prototype. However, these errors are still of use for preparing the next tests. So, for future tests we should pay more attention to narrow the prototypes down to what we are testing and if we are testing with different prototypes, we should split them in a more distinguished way.

Another circumstance that might have caused some issues for this test was that the conductor of the test (Hannah) was different to the person who designed it (Umberto). Though having the written introduction and the procedure for the test, it would have been helpful if the designer of this test had been present for the test.

After all, a pre-test would have been helpful, but with the feedback that we have got we are able to improve our next testing sessions as well as the game itself.

4.3.3. Execution of the test

The execution of the tests went smooth. The procedure was followed for the tests respectively, meaning that depending on which prototype they were testing, the participants were introduced to the test, given the consent forms as well as the task scenarios and performed them. After that they filled out the appropriate questionnaire.

The playing of the prototypes was bug free, so every participant was able to perform the tasks without external problems.

4.4. Description and analysis of research results

To describe the most important results of our tests, the analysis of our results will be done respectively for both of our prototypes. For that we will first analyze what has happened while participants played each prototype. After that we will have a look at their answers in the questionnaire and put it into context.

4.4.1. Analysis of menu prototype play testing research results

Participant No.	Errors in task “Change volume”	Errors in task “Start new game”	Errors in task “Load savegame”	Errors in task “Quit application”
1	0	0	0	0
2	0	0	0	Not performed
3	0	0	0	0
4	1	0	3	0

Looking at the errors that occurred while completing tasks in the menu, it can be said, that overall, only few errors were made. The second participant did not perform the last task of quitting the application, which happened due to the mix up of both prototypes.

Only the last participant had struggles performing some of the tasks. These errors mainly also happened due to confusion but in this case less because of the priorly mentioned organizational menu but instead because of certain functions that related to the tasks were not implemented into the prototype. When he tried to load a save game for example he got confused as the game was not loading the save game (since the loading function does not exist in our game yet). So basically, he was able to perform the tasks but for future tests it would be important to not only have the buttons of the menu being laid out but also implementing the connected functions.

This increased number of errors might also relate to the participant being more experienced with games than the others, as this made him expect a more distinguish change in volume or a loading screen once he clicked on loading the file. Likewise, he asks at the beginning of the test, if there is supposed to be sound, which shows that he expects some more elements in the game other than just the visual representation of buttons.

Besides these insights, it can be said that the participants where able to perform most tasks with no errors and did not take long to complete them.

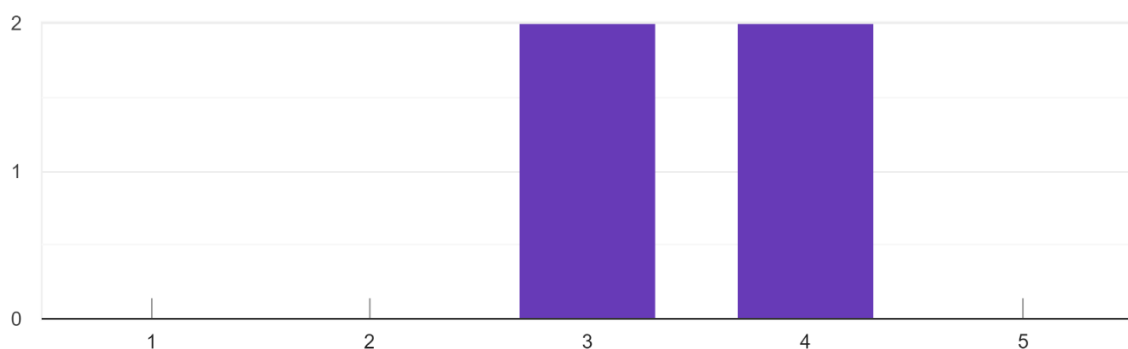
4.4.2. Analysis of menu prototype questionnaire results

Since we created the questionnaires with Google Forms, we will use some charts and graphics that are generated by it. *It should be noted that the different answers will always range from 1-5 which translate to 1 being 'strongly disagreeing' with the statement and 5 being 'strongly agreeing' with the statement.*

A point that weighs heavily on the quality of our results is, as mentioned before, the confusion of the participants due to the extra menu at the beginning. As one of the stated in the questionnaire: "The two menus were really confusion, at one point I thought it wouldn't be able to enter the game."

1. The menu was clear and easy to use

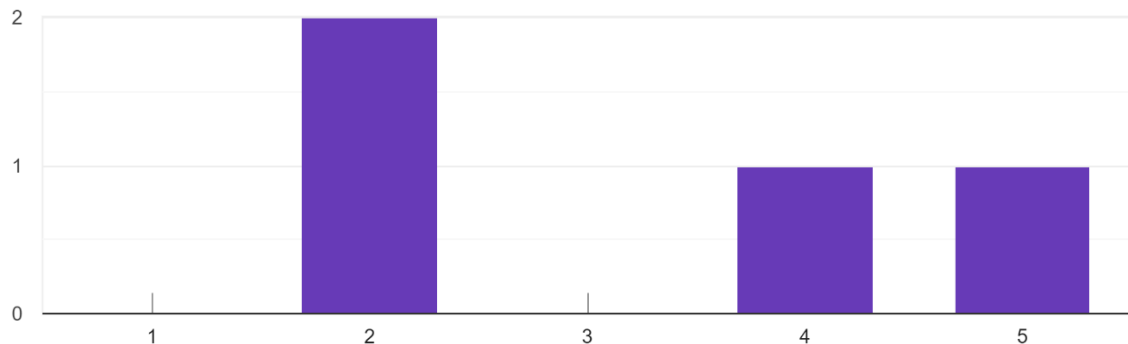
4 Antworten



Keeping that in mind, it is understandable that some of the participants only had a neutral opinion of the usability of the menu (they were able to perform tasks with no errors and within a short time but only AFTER dealing with the mentioned confusion).

5. Using the menu frustrated me

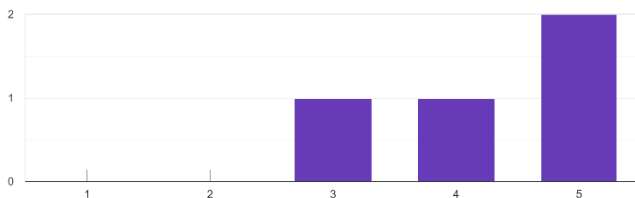
4 Antworten



This assumption is in line with the answers to whether the menu was frustrating or not where two of the participants were either strongly agreeing or agreeing, meaning that they were frustrated. As mentioned, this might be a result of the confusion from having to use menus but maybe also from the missing functions like loading a save game.

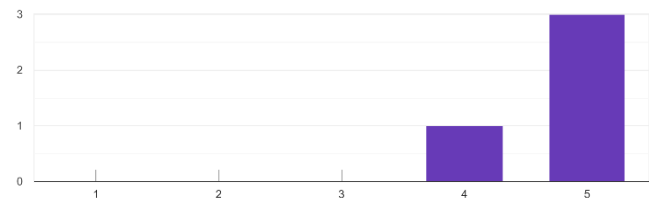
4. The design of the menu was attractive

4 Antworten



3. The design of the menu was consisting

4 Antworten

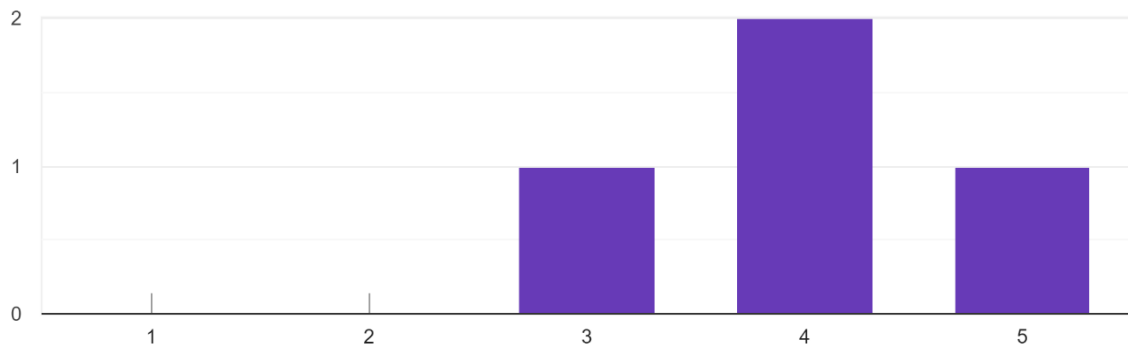


However, the overall consistency of the menu design got positive feedback, showing us that the design is precepted to create a proper atmosphere in advance to playing the game. This also aligns with the feeling of most participants that the menu was attractive.

The results also show that the participants also felt like the menu was complete, which shows us that the menu covers most of the expected functions. While the menu as a main menu at the beginning of the game might be sufficient, the additional feedback from our participants also showed us that we will need another in game menu, that offers functions like pausing the game, adjusting the volume while playing and more.

6. The features of the menu felt complete

4 Antworten



4.4.3. Analysis of controls prototype play testing research results

Participant No.	Errors in task "Walk around apartment"	Errors in task "Wash dishes"	Errors in task "Go to bed"	Errors in task "Escape dream"
1	0	0	0	2
2	0	2	0	5
3	0	1	0	4
4	0	0	0	5

None of the participants struggled to move around the apartment. This might relate to the circumstances, that we are using the widely used WASD-controls for moving, which are used in almost any video game when played with keyboard and mouse.

In contrast to that, some participants struggled to perform the second task which was to wash the dishes, which might be a result of the circumstance that in most games the "interact with an object" button is assigned differently (for example using left mouse-click). We tried to avoid that with putting an overview of controls in the starting menu, but as one of the participants stated, they just forgot the controls after leaving the menu.

When performing the 3rd task none of the participants struggled, which might have happened as they had to use the same button to interact with the bed like before with the dishes.

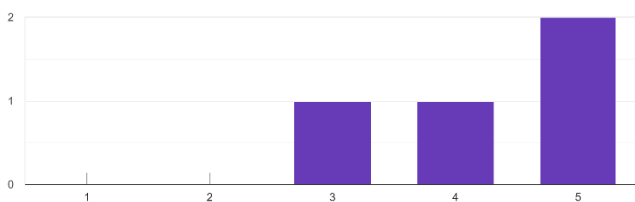
The 4th and last task, however, has an outstandingly high number of mistakes. In the recordings most of the participants state that they are confused with what they must do and start looking around the environment for some opportunity to escape the dream (so we basically counted an error whenever they looked away from the focus point. After some time, all the participants escaped the dream, though it often happened more by accident.

4.4.4. Analysis of controls prototype questionnaire results

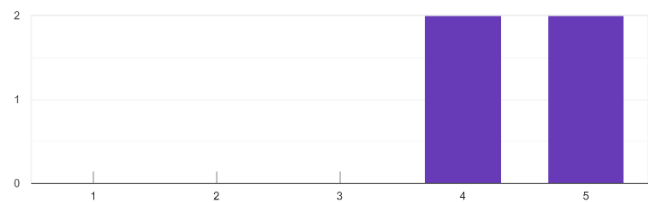
Since we created the questionnaires with Google Forms, we will use some charts and graphics that are generated by it. *It should be noted that the different answers will always (except for questions 7 & 8) range from 1-5 which translate to 1 being 'strongly disagreeing' with the statement and 5 being 'strongly agreeing' with the statement.*

First, it can be said that the results of this questionnaire are likely to be of much higher quality. This assumption comes from the circumstance that the participants did not associate the confusion of the additional menu with this prototype but only with the one for the menu.

1. The controls were easy to understand
4 Antworten

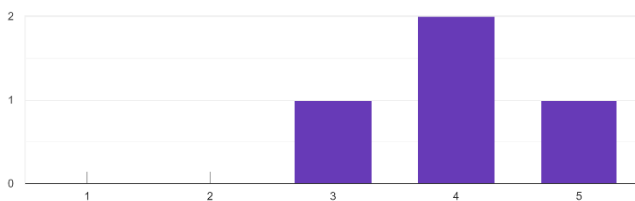


The controls were easy to use
4 Antworten

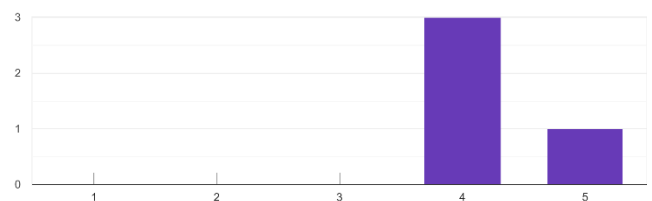


Overall, the controls were easy to understand and to use, the same goes for the understanding of the UI and the feeling of it being consistent.

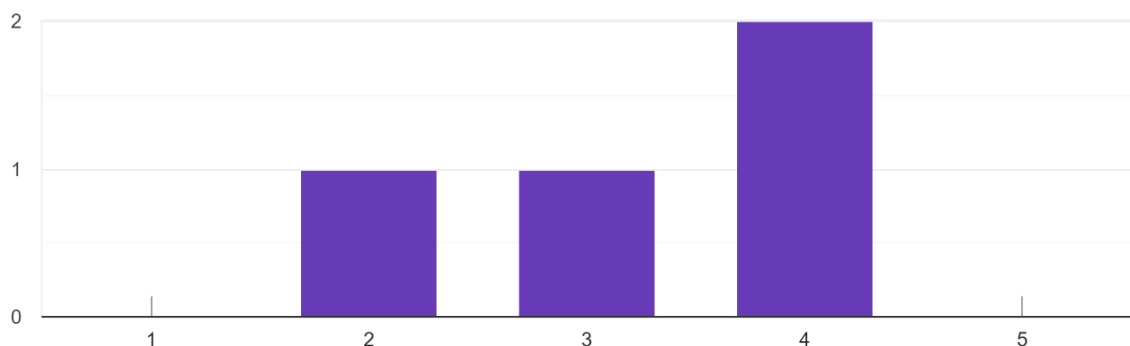
2. The UI was easy to understand
4 Antworten



3. The design of the UI was consistent
4 Antworten



4. The design of the UI was attractive
4 Antworten



When it comes to the design of the UI however, there is still some work to be done, as some of the participant disagreed with it being attractive or at least could not agree (answered neutral).

In addition to the answers which provided feedback with a positive baseline, we were also able to gather a lot of additional feedback from our participants with suggestions on what to improve next.

4.5. Conclusion and future improvements

Looking back at the tests and the results that came out of it, we draw conclusions and give some recommendations for future improvements.

The most obvious and severe founding was the general design of our test. As mentioned already a couple of times, we decided to put both prototypes into one demo, that was supposed to allow an easy procedure. However, this decision confused our participants and mixed up the testing of both prototypes. Therefore, we recommend a better differentiation between the different prototypes and a better overview of when the tests start.

Furthermore, the choice of the task scenarios should be accompanied with a proper implementation of the tested functions or a better way of notifying the participants when a task is completed.

These circumstantial insights aside, we now want to focus on answering our research question:

Is the usability of our UI & controls of good quality?

To do that, we need to answer some sub-questions (that relate to the dimensions of usability) for the results on both prototypes respectively, starting with the results of the menu prototype.

4.5.1. Conclusion of menu prototype results

As described at the beginning of chapter 4, the usability consists of 3 dimensions: Intuitiveness, Efficiency and Satisfaction.

When projecting the results from our menu prototype onto these dimensions it can be said that we have a lot of things to fix. While the current structure of our menu was relatively easy to use and – as far as our participants viewed it – consistent in style, some of them were still frustrated, which might have come from the other menu that was added before the one that was to be tested, but which might also come from the missing implementation of certain functions.

When looking at the requirements for the UI in our games (which are also mentioned at the beginning of chapter 4) we can conclude that while our menu is mostly consistent with the design of the rest of our game, we need to work on its intuitiveness.

Thanks to the feedback from our participants, we also know that we should create an In-Game menu, that allows to pause the game and offers functionalities like quitting the application, changing options, etc. and implement it as soon as possible.

So, to answer our research question in relation to this prototype we come to the conclusion that, while we are on a good way with some elements of our menu, **much has to be done yet to have a UI of good quality.**

4.5.2. Conclusion of gameplay prototype results

Looking at the results of the gameplay prototype, which tackled In-Game controls and UI, we can say that we were able to use efficient and intuitive controls. Relying on commonly used controls like WASD-controls for moving allowed the participants to adapt the quickly. Meanwhile, the tests also showed that we should think about how to introduce the controls to the participants. Since just displaying them at the beginning led to some of them forgetting the controls again once the game has started, we should think of alternatives, like a short tutorial or more precise prompts (for example “Press E to wash dishes” instead of “Wash dishes”).

Still, with the results from our test we can say that we at least went into the right direction when it comes to the intuitiveness and efficiency and – since there were no major issues or bugs when controlling the character – also the satisfaction of our controls.

When it comes to the In-Game UI, however, overhauling our UI elements would be the next step. While most of the participants viewed the UI as consistent, some of them did not find it attractive, which means that we should re-design these elements and see how we can make them more appealing.

Relating to the extensive feedback that we received from our participants, we also came to realize that, while having proper visual elements in the game is only a small part of the total UI. We will now aim to process this feedback and add elements, like sounds, animations, and properly designed interactions with different elements (meaning that you actually wash dishes instead of just picking the object up).

4.5.3. Future improvements

The following list of activities should summarize our learnings from the test and help to organize future improvements on the game:

- Implementing completely functional main menu (with all functions that are currently visually shown as buttons, being implemented)
- Implementing an In-Game menu
- Overhauling the In-Game UI to be more attractive and easier to understand
- Implementing a tutorial/better overview of In-Game controls
- Creating more diverse In-Game UI with the use of sounds, animations, etc.
- Conducting more tests to analyze the effects of new/changed features

After all, we are happy with the results and feedback that we received. Using this, we are now able to work on the different elements in our game and adjust them to fulfill the requirements for our game. We also learned a lot about organizing such tests and how well everything must be thought through.

Appendix

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Material for immersion research

List of required materials:

- Hardware: A webcam to record the participants
- The questionnaire as well as a way to document the direct feedback from the interview
- Consent forms
- Story script

Introduction for test session

Thank you for coming to this test session. The purpose of this test session is to help improve a part of the game my group is working on. You will receive parts of the written story script of our game for reading. If you want to, you can say out loud what you are thinking while reading, as to provide us more insights and feedback, but unless necessary, I will not respond to any comments that you make. This is to mimic a realistic scenario of you playing alone. That will give us the best results to

improve our game. After you have read the script, I will conduct a short interview. Following that, I have a short survey for you to fill to help me get further information to improve the game. Just like with the interview the data will only be used to improve the game and not be given anyone besides the ones analyzing this research and the teachers.

Do you have any questions? If not, then I would like you to read and fill in these consent forms for voluntary participation...

Consent form

Please read and sign this form.

The goal of this test is to improve the immersion and narrative design our game. During this play test:

- You will be asked to read through the story script.
- You will be asked to fill in a survey after having read the script.

I consent to the use of the conducted interview as well as use of the data that is being collected with the questionnaire.

I understand that the participation in this play test session is voluntary and that I may withdraw at any moment.

I have read and understood the information on this form and all my questions have been answered.

Signature _____ **Date** _____

Story script

Prologue

“Golden hour is so underappreciated. The colours... the serenity... the smooth love songs on the radio... This is my favourite time of day. Everything calms down for just a moment.”

He thought while he was driving home.

“The air seems fresher during this time. And much less squeezy. It makes sense considering I’ve been blessed with the privilege of a funky smelling office cubicle all day. I don’t typically leave work with a bad taste in my mouth, but it’s baffling how it is never pleasant either. It’s no matter, I have time to myself now. I only need to focus on the road.”

He drove ahead.

Some time passed.

...

He came home.

"Finally. I am absolutely spent. It's not that I don't like to go outside, which is totally accurate, but it would be much easier not having to put up with people. They don't impress me, really. They are not everything they're cracked up to be."

He dropped his suitcase. Paperwork flew out.

"Damn..."

He picked up the paperwork and put it on the kitchen counter to his left.

*"Actually, as soon as our economy isn't a big pile of poop anymore, I should get a laptop. Who does paper presentations anymore? And you never know, maybe I'll stumble upon some hot m*lfs in my area in the process!"*

"That joke was... awful."

To his right was a wall phone. The little light was blinking. He had a voicemail.

BEEP!* "Hi, this is Doctor Smith's office. I'm calling to inform you that our latest shipment has been delayed indefinitely due to the crisis. We're so sorry for the inconvenience. We'll get in touch with you as soon as we know more, but it'll likely be at least a few days. In the meantime, we'd strongly advise you to try and find some distraction to avoid... Uhmm... Incidents... If you have any questions, do call us." *BEEP!

"Well... that was some bullshit. Couldn't they have told me this when I ran out yesterday? You know what, fuck it. It is what it is."

The evening played out. Nothing eventful, just well-earned silence in a spacious apartment, save for the TV.

He went to bed.

He fell asleep...

"I'm uncomfortable. It's one of those nights you just can't find your comfy spot."

It was watching you.

"My feet are so cold."

Uhmm... Incidents...

He woke up and quickly sat up straight in bed. He was short of breath.

Then, he calmed down. And seamlessly, he fell back into his pillow. He found comfy silence.

He fell back asleep.

Questionnaire

<https://forms.gle/4Awwb7Y95Ynnb55Y6>

https://docs.google.com/forms/d/1_gQc9uZi4g8hUrkQj02XlgBDTqDvxAnsm9VfuJWlzlC/edit?usp=sharing

Interviews

As mentioned above, the interviews were conducted right after the participants filled in the feedback. The questions asked were:

- 1. What emotions did the script provoke in you? Can you point out which parts?**
- 2. Have you experienced similar situations to the character?**
- 3. If you did, how did people around you react?**
- 4. If you've had negative experiences with societies opinion on mental health (that being either your mental health or some close to you), how did that affect you/them? How did you/they cope with it?**
- 5. Have you ever been on anti-depression medication? How did that affect you? Do you see similarities between your effects and the characters experience?**
- 6. Would you be emotionally invested in a game with the script you just read?**

We wanted to compare the characters experience and the participants experience for more accuracy in the script. The questions were partially based on the participants questioner answers and they were being adapted to the answers during the interview as well.

The responses were:

#1: Female, 20, experienced depression

- 1. What emotions did the script provoke in you? Can you point out which parts?**
 - It has a general unsettling feel to it. It starts from the beginning with the little elements like dropping the suitcase that kind of make you feel like it's just one of "those days" and I feel like it's a pretty good representation of depression, as when you're in that place, every day is "one of those days" when just nothing works out like you wanted to.
- 2. Have you experienced similar situations to the character?**
 - Not exactly the same, but I have been diagnosed with depression, that is thankfully under control now and I can see where this is coming from.
- 3. If you did, how did people around you react?**
 - Again, I never had exactly the same experiences because my issues rooted from something else, but in my case, everyone was pretty supportive (with a few exceptions) and tried their best to help me get better.

4. *If you've had negative experiences with societies opinion on mental health (that being either your mental health or some close to you), how did that affect you/them? How did you/they cope with it?*

- I had some negative experience, not really with society but more with distant family members that completely disregarded mental health when mentioned, which was not the best thing to hear when you are already feeling weak and there is something wrong with you. Thankfully I had a great support system, but I can see how I would've spiraled down if I didn't have that.

5. *Have you ever been on anti-depression medication? How did that affect you? Do you see similarities between your effects and the characters experience?*

- No I haven't, my psychiatrist mentioned them and that I might need them but I wasn't very keen on the idea and didn't agree to it.
- ***Why didn't you want to take them?***
- I didn't want to face the side effects, plus I felt like I should be able to go through this myself. I also just don't like pills in general, so that's another reason.

6. *Would you be emotionally invested in a game with the script you just read?*

- I think so! It sounds really interesting and quite relatable for now, I think visuals would make it even better and if everything matches together and is well made I can definitely see this being a really cool game to play that will leave you thinking about it afterwards.

#2: Male, 24, relative with depression

1. *What emotions did the script provoke in you? Can you point out which parts?*

- I was mostly curious about what's going to happen next, I seemed like a cool story but I can see it working a lot better when it was actually out into a game.

2. *Have you experienced similar situations to the character?*

- As I said earlier (*referring to pre-test*), I never really had issues with depression, I was sad at times of course but I wouldn't say it was depression. I had an uncle though who went through a really hard time after he lost his wife, my aunt, so I think of him when someone mentions depression.
- ***Are you close with him, how well can you describe his experience?***
- We're pretty close, I'm not sure if he's ok with me sharing a lot about it but if it's anonymous I'm sure he wouldn't mind. As for how well I can describe it, we were talking at least once a week for about a year until he got a bit better, so I would say I have a pretty good insight.

3. *If you did, how did people around you react?*

- I'm just going to describe his situation again. The family was supportive, but he said he had issues at work because he wasn't performing at his best but he couldn't really say that it was mental health because it's not really considered a valid reason in our country (Bulgaria). He didn't really lose his job, thankfully, but he was demoted to a lower position which really didn't help him at this time.

4. *If you've had negative experiences with societies opinion on mental health (that being either your mental health or some close to you), how did that affect you/them? How did you/they cope with it?*

- Think my previous answer sums it up pretty well. As for coping, he did start drinking a lot during that time but he got it back together after about 2 months, so it didn't really grow into something super serious.
- 5. ***Have you ever been on anti-depression medication? How did that affect you? Do you see similarities between your effects and the characters experience?***
 - Again, I haven't, I don't think he was as well because as I mentioned, in my country there is a big stigma that if you have mental health issues you're "crazy", which is so stupid, but people don't really go see doctors if they have issues just so that people don't see them like that. That's the reason why he didn't go to a psychiatrist even though me and a few other people were begging him to go.
- 6. ***Would you be emotionally invested in a game with the script you just read?***
 - For sure! I hope it doesn't remind me too much of uncle though, I'm really happy that he's better now but it was still a really sad situation when he was at his lowest.
 - ***Do you think if even if the story is similar and it remind you of him, if the end is unfolding in a nice way it would be worth playing?***
 - Probably, that depends on the actual gameplay though, if it's good it will be worth it, if not- not really. But I think if the gameplay is bad you wouldn't really be invested in the game or story, so I'm taking this into consideration. But in short, yea, I can be a very emotional game based on the scenario.

Material for usability research

List of required materials:

- Hardware: A webcam to record the participants + a laptop for the participants to play the test on
- Software: OBS to record the screen + running prototypes which could be within Unity or as installable applications
- The questionnaire as well as a way to document the direct feedback from the interview
- Introductory text & consent forms
- Task scenarios for the participants
- Task scenarios for the test conductor (to tally the number of errors made at each task scenario)

Introduction for test session

Thank you for coming to this test session. The purpose of this play testing session is to help improve a part of the game my group is working on. For the first part of the play testing, you will try out our prototype of a part of the game on a laptop. You will be given tasks like "walk towards the nearest tree" or "play the first note". If you want to, you can say out loud what you are thinking while playing, as to provide us more insights and feedback, but unless necessary, I will not give you any instructions or help you when you get stuck. This is to mimic a realistic scenario of you playing alone. That will give us the best results to improve our game. However, keep in mind that you cannot make any mistakes, if you do not understand how to do something it is an indicator to us that we need to improve our game. Whilst you test our prototype, I will be taking some notes. I will also record the screen on which you are playing so I can later re-watch which buttons you are clicking etc. You

yourself will also be recorded whilst playing so I can go back and take more notes. Me and my teacher will be the only one seeing these recordings.

After you have play tested the prototype, I have a short survey for you to fill to help me get further information to improve the game. Just like with the interview the data will only be used to improve the game and not be given anyone besides the ones analyzing this research and the teachers.

Do you have any questions? If not, then I would like you to read and fill in these consent forms for voluntary participation...

Consent form

Please read and sign this form.

The goal of this test is to improve the usability our game. During this play test:

- You will be asked to perform certain tasks while using the prototype of the game.
- You will be asked to fill in a survey after having played the prototype.

I consent to the test session being recorded. I am aware that only the test conductor will see my face, for anyone else my face will be blurred.

I consent to the use of the video and audio recordings by No-Name-Group and understand that these recordings are for research purposes only.

I understand that the participation in this play test session is voluntary and that I may withdraw at any moment.

I have read and understood the information on this form and all my questions have been answered.

Signature _____ **Date** _____

Task scenarios

The task scenarios will be in English as the mix of participants is very international.

Menu task scenario

- You have played this game a few times now, but you decided you want to start over again.
- The next day you want to play again but first you want to change the volume.
- After that you want to load your existing savegame.
- After playing for some time, you want to quit the application.

Controls & In-game UI task scenario

- Walk around the apartment.
- Wash the dishes in the apartment kitchen.
- Go to bed.
- Escape the dream.

Questionnaires

Game menu questionnaire: <https://forms.gle/JRNYUJYYLbRrm4HJA>

In-game UI and controls questionnaire: <https://forms.gle/xkKvoqg8vLppPSzc7>

Game menu questionnaire with access to view answers:

https://docs.google.com/forms/d/11XlxhtSe4h_Oglg9McSQul6aBoO6QNWJ-PaR2B8Y9Rg/edit?usp=sharing

In-Game UI and controls questionnaire with access to view answers:

<https://docs.google.com/forms/d/1EpgxJfaHSpENSqdGCSYjkrFtQbGtggM7PQ-8p33Z2RU/edit?usp=sharing>