

Team GDD

Task 1	2
1.1. Core Gameplay	2
Outer Wilds	2
Life is Strange	4
Disco Elysium	6
Horizon	8
Pokémon FireRed & LeafGreen	10
1.2. Team up	14
1.3. Create conflict	16
Set#1	16
Set#2	17
Set#3	18
Set#4	19
Set#5	20
1.4. Create Team Conflicts	21
Construct combinations in the team from your individual conflict sets	21
Describe the resulting core gameplay for a sketch	21
Tests the core gameplay in a common prototype in Unity under the following premise	22
Elaborate rules and design a conflict	22
Choose a setting and describe the boundaries	23
Task 2	24
2.1 Think about the two most important experiences for your game and describe them	24
Two most important experiences of our game:	24
2.2 Game Feel Steps	24
Improve the game feel of your game	24
2.3 Unique kinetic gameplay	25
Improves the game's kinetics	25
Task 3	26
3.1 Decisions and predictability	26
Improve the decisions in our game	26
3.2 Beta optimization	27
Task 4	28
4.1 Gameplay Examination	28
Observation	28
Develop open questions from this about your game design	28
Develop two hypotheses	28
4.2 Game Evaluation	28
Plan and implement an evaluation that collects data from metrics and questionnaire	28
Game Metrics (Add additional version of our game)	29
Create a poll	29

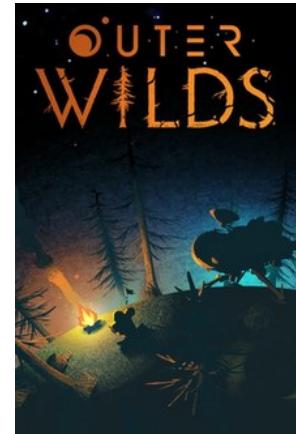
Do a dry run within the team	33
4.3 Game Data Analysis	34
Evaluate the data	34
Describe the results	34
Game Metrics	34
Demographics	34
System Usability Score	36
Game Experience Questionnaire	37
Discuss and interpret the results	44
What effects do the results have on your development?	45

Task 1

1.1. Core Gameplay

Outer Wilds

by Kevin Ehlen



Players

- Single player (Player vs Game)
- The player character is an Astronaut and Explorer

Objectives

- Exploration objective
- Players explore the solar system to find out about it, as well as the ongoing time loop
 - o Mini objectives: Each planet contains multiple puzzles, where a player needs to learn about the planet to solve them.
- The game begins on a small planet with a community of creatures that valorize explorers and daredevils
 - o Players share the goal of the main character to unveil the mystery of this solar system
- Players want to resolve the mystery of the time loop as well as find out about the solar system

Procedures/Actions

- The player can move and rotate with 3 DoF thanks to a jetpack. They can also control a spaceship with the same controls. Players can also interact with objects (mostly switches) and characters. The player also gains the ability to reset to the beginning of the time loop at some point during gameplay
- Most methods of interaction are always available to the player. Objects and characters can only be interacted with in a certain area around them

Rules

- If the player touches certain materials, runs out of air to breathe or is eaten, they die and are reset to the beginning of the time loops. After a certain time has elapsed in a time loop, the game resets the player to the beginning of the time loop. Certain things in the solar system change within a time loop, but all changes are reset at the end of a loop.

- Due to the time limit imposed by the time loop, players must plan out the order in which they visit locations in the solar system. The constant changes happening they also affect that schedule
- Most rules within the game are obvious (things fall down, ice melts in the sun, big scary monsters hurt you). Less obvious things, like the lethal substance are explained to the player via digetic text. There is also a learnable rule about how certain objects react if you look at them (they change states when you stop looking at them)

Resources

- The main resource affecting the player is time. As most of the events in the game happen according to a timer, the player constantly makes decisions in relation to the current time.
- While the player is outside of their spaceship, they have limited fuel and breathable air, which sometimes limits a player's ability to explore small spaces, where the ship can't go
- When the player or spaceship collides with objects they may take damage. This is rarely relevant, as the player can repair the ship an unlimited amount and the spaceship contains a health kit, which restores the player's health.

Conflict

- The conflict in the game is mostly mental. Players must learn about the solar system and solve puzzles to achieve their goals.
- The player is limited by time.
- To learn about the solar system the player must overcome a set of obstacles mostly in the form of puzzles. The knowledge gained in this way allows the player to achieve their goal and reach the ending of the game.

Boundaries

- Like most video games the game world is physically separated from the player by a screen.
- The in-game solar system has a boundary at its edge. If the player reaches that boundary, they receive one of the game's endings and are returned to the main menu.

Outcome

- The game has three endings, which are all achieved by reaching certain locations in the solar system and interacting with objects there.

Life is Strange

by Alina Becker

Player

- Single Player
- You are a student called Max Caulfield studying photography in a small town
- You gain the special ability to rewind time in the beginning
- It is a calm game with many relaxed moments in between with dramatic twists.
- You interact with your environment and NPCs



Objectives/Goals

- Find out the meaning of your nightmare you had in the beginning of the game
- What is the reason you can rewind time?
- Who and where is Rachel Amber and what happened to her?
- Help other students on campus
- Take a picture for the national photo competition “Everyday heroes”
- Take pictures of specific motifs to collect them

Procedures

- Move Max via left joystick (run with ZR) and the camera via right joystick in a 3D-world.
- Do actions with X, B, Y and A
- You can open the diary where Max writes down everything that has happened so far and shares her feelings. She also writes short portfolios for every character she met so far in the game. She also sticks Polaroid photos in her diary of the specific motifs you can collect
- You can read her text messages in her phone

Rules

- The Rewind Time power does not affect Max, so she can use her movement to “teleport”. She keeps the information and objects she has obtained before rewinding time.
- When you interact with NPCs, you have to make decisions that can have consequences. (those are made visual with a butterfly symbol in the corner of the screen)
- You can rewind time to use gained information to access blocked paths (e.g. a student only will only let you fly her drone if you can tell her the model number of the drone. After she tells you the model number, you can rewind time and unlock the path to fly the drone.)

Resources

- Information gained through interaction with NPCs or items found through exploration.

Conflict

- Difficult decisions in dialogs
 - For some decisions there are only options, none of them the player wants, so it is hard to decide
- Some interactions can freeze time when a major decision needs to be made (those have bigger consequences).
- You cannot rescue everyone.

Boundaries

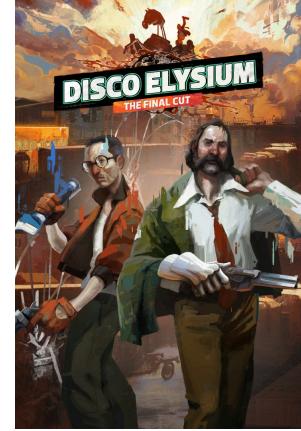
- You can pause the game at any time (not during the cut-scenes)
- You can move freely within the given area, but you cannot leave it. You have to follow the story to get to a different area.

Outcome/Feedback

- The game has two possible endings that depend on the last major decision. How you decide depends on how you perceived the game and how you engaged with the world and the people that you were introduced to.

Disco Elysium

by Dennis Okkel

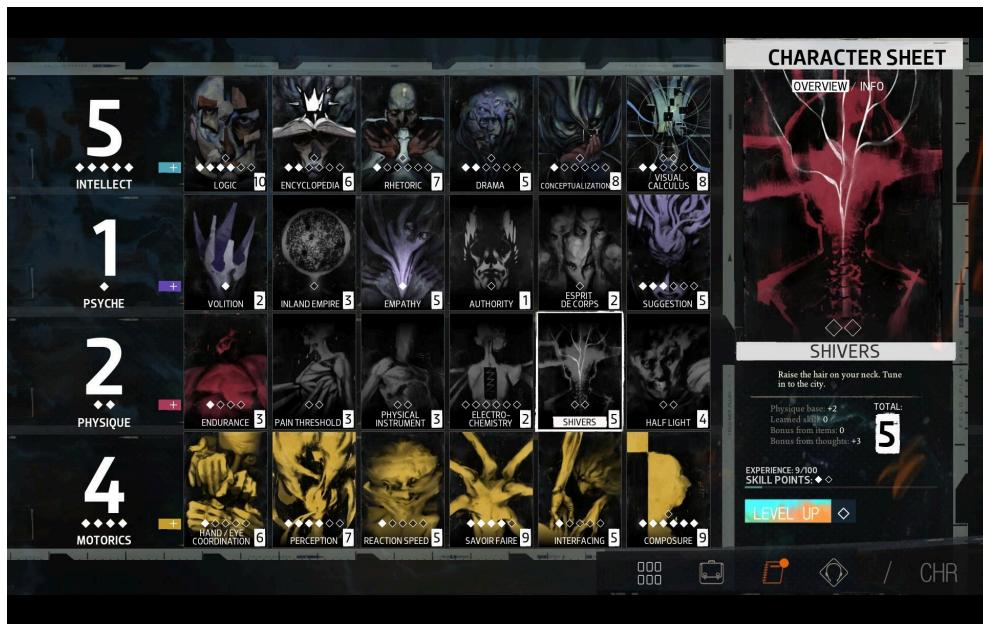


- Players
 - Single Player
 - You have the role of a cop/detective that has lost his memory
 - Interactions only with npcs and objects in the game
- Objective
 - Solve the case
 - Find out who you are
 - Level up to boost your stats
 - Gather information by talking to people and exploring the world
 - Solving quests
- Procedures
 - The player can move in the world(via mouse click or wasd)
 - The areas that you can access are limited at the start and get unlocked with story progress
 - You can interact with people or objects by clicking on them
 - If you interact, a dialogue begins in which you can select different dialogue options



- Rules
 - The dialogue options that you get depend on your skills
 - Whether someone wants to talk to you depends on your personality and ideology
 - Some dialogue options require a skill check
 - The chance to pass depends on your skills
 - If you fail something bad happens(you don't get information, you lose health etc.)
 - Depending on your skills aspects of your personality will “talk” to you during a dialogue

- for example if you have a high empathy value then your empathy will intervene in your dialogue and tell you about the potential feelings of the NPC you are talking with



- Resources
 - Health
 - Mental health
 - health and mental health can be lost or gain within dialogues or healed with items
 - Money
 - Clothes
 - Different clothes can be found in the game world
 - They influence your skills
- Conflict
 - Difficult choices in Dialogues
 - Choices how you use your skill points
 - What kind of cop do I want to be?
 - What ideology does my character have?
 - Which faction do I want to help?
 - None of the factions is completely good or bad
 - Where to spend my money?
- Boundaries
 - You can pause and save/load the game at any point
 - The areas you have access to are restricted by time and story progress
- Outcome
 - The outcome is defined by your choices
 - Did you solve the case?
 - What kind of cop did you play?

Horizon

by Lennart Gillberg

This is a single player action roleplaying game, in which the player gets to slip into the role on an expert huntress named Aloy.



The player's role, gameplaywise, can vary between warrior, hunter(archer) and assassin.

Objectives/Goals

Dangerous machines roam a slowly dying world. Those machines have been getting more aggressive over the years. The player has to investigate this growing corruption, who created the machines and what happened to them.

- defeating enemies
- gathering resources
- crafting
- exploration

The main goal in the game is to uncover who left the ancient ruins the player has to explore, what happened to those people and why do giant machines roam the earth.

Procedures / Actions

The game is most commonly played using a game controller but can also be played using a mouse and keyboard. The controls stay the same almost the entire game, without new aspects being added. Progression can be achieved by crafting new gear.

- move - left joystick
- camera - right joystick
- scan env. - L3
- use spear
- use bow
- ...

Rules

Enemies take damage when they're hit with different types of weapons. How much damage is dealt exactly depends on the enemies weaknesses, which the player can learn by scanning them.

The amount of weapons the player can equip is limited, so you have to think about which weapons to use before engaging an enemy.

- different weapons can lead to different playstyles

All rules are obvious or learnable.

- Don't get hit by enemies (obvious)
- enemy weaknesses - visible cues (learnable)

Resources

- health - if you have none left, you die
- money (metal shards) - obtained by looting enemies and completing quests
- machine parts - needed to craft gear, also obtained by looting
- ...

Conflict

The obstacles the player faces mostly focus on the enemies, that have to be defeated

- enemy patterns / attacks have to be recognized
- enemy weaknesses have to be exploited
- correct choice of weapons makes the game easier
- pay attention to surroundings - don't attract too many enemies

There are almost no dilemmas (storywise), since the game is completely linear.

Boundaries

The game can be paused at any time - nothing happens while it is paused.

The game progress has to be saved manually, although there are automatic savepoints.

Saving the game is not possible if the player is in a fight.

In-game boundaries are physical. The open world is surrounded by mountains, that cannot be climbed. If the player somehow manages to do so and goes too far, he or she dies.

Outcome / Feedback

The player finishes the game, once he has completed all main quests. The instant reward for this would be the conclusion of the story itself.

Also a 'new game+' is available, once the game has been finished once. That means the player can restart the game with all his current equipment. In addition to that, new gear can be crafted.

For each completed quest the player gets new items. Progressing in the story and killing certain kinds of enemies enables the player to craft new gear.

Pokémon FireRed & LeafGreen

by William Dutra

High Concept

In a universe where creatures with special abilities live alongside humans, the pokémon battle fever arises, in which humans (players) train their companions to face off in friendly competitions against friends and gym leaders in the quest to become the best pokémon trainer in their region.

Player

The basic structure of the game involves controlling a single character (represented in either male or female form), a pokémon trainer who has just turned 12 and now has his mother's permission to explore his region in pursuit of his dream of becoming the greatest pokémon master.

The game follows the idea of 1 player, i.e. a solo journey, but there is still the possibility of trading pokemons between friends.

The character's objective is basically a reflection of the player's own objective when they start playing, which means that the player's feeling when controlling their character is almost as if they were controlling a reflection of themselves in that universe, which favors immersion in both the story and the gameplay.

Objectives

The title has a very specific objective, as already mentioned, to become a Pokemon master, but on top of this macro objective, there are many points that the player needs to work towards. (**Exploration**)

In short, the main thing is to capture pokemons and increase their levels, teaching them new skills during their journey, all with the aim of becoming strong enough to defeat the gym leaders, because on defeating them, the player will receive a badge as proof of their victory.



By defeating the 8 gym leaders and collecting their badges, the player is allowed to challenge the group of the best pokémon trainers in their region, and by winning, they become the pokémon master of Kanto (the region in which the game is set).

In addition to the main objective, there is also a secondary one, which is given to us right at the start of the game and which also usually interests players, which is to capture all the pokemons in your region, i.e. 151 pokemons.

Procedures/Actions

As this is an old RPG, the control structure is basic, meaning that manual actions are limited to walking and selecting which attack the pokémon should use.

The key point is the decisions the player has to make throughout the story, about which pokemons they want to use, as well as the skills they want to teach.

The pokemons have a series of attributes that show their strengths or weaknesses, opening up possibilities for various strategies, either by these attributes or by their elements, since every pokémon has a specific element that is consequently strong against other elements.

In addition, there is a specific point in the journey, which is the evolution of the pokemons, where the vast majority have evolutions that can change both their element and their form of combat.

Rules

- Every pokémon has its own life bar. As soon as this bar is depleted in combat, the pokémon faints and can only be used again if it is healed at a pokémon center.
- Some elements are stronger than other elements. When this happens, attacks usually deal 2x their damage, but if the opposite happens, only half the damage is counted.
- The player will only be able to carry a maximum of 6 pokemons with them, all the others captured will be kept with the “teacher”, however the player will be able to change their pokemons whenever they want, but always keeping to the limit of 6 pokemons

	Defender	Normal	Fire	Water	Grass	Electric	Ice	Poison	Fairy	Fight	Psychic	Bug	Rock	Dragon	Dark	Steel
Attacker	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Fire	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Water	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Grass	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Electric	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Ice	Normal	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Fighting	Normal	Normal	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Poison	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Fairy	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Fight	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal	Normal
Psychic	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal	Normal
Bug	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal	Normal
Rock	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Weak	Normal	Normal	Normal
Dragon	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Weak	Normal
Dark	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Weak
Steel	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal

Resources

There are 3 main assets, money, pokemons and pokemon experience (XP). Both are obtained in combat, becoming part of the core loop, where the player needs to get strong to defeat their opponents and earn money, using the money then to buy items in order to

capture new pokemons, in turn receiving more XP which increases both the level and attributes of their pokemon.

Money: Obtained only by defeating human opponents or completing missions (whether primary or secondary).

XP: Obtained whenever a battle is concluded with your victory, whether against human opponents or wild pokemons.

Pokemons:

Pokemon's health bar:



POKEMON SKILLS		PAGE
Lv70	CHARIZARD	3
HP	209/209	HP
ATTACK	138	
DEFENSE	124	
SP.ATK	160	
SP.DEF	129	
SPEED	160	
EXP.	344960	
EXP. POINTS		
NEXT LV.	15878	
ABILITY	BLAZE	EXP.
Ups FIRE moves in a pinch.		

Conflict

It is not possible to directly challenge the “Elite Four”, which is the group that the player needs to defeat in order to gain access to and defeat the current pokemon master, because the game itself is restricted to being guided by the storyline, and this storyline cannot be skipped.

So, yes, the player needs to challenge and defeat all 8 gym leaders, get their badges and finally reach the elite 4.

If for any reason the player tries to skip this route, they will be prevented in countless different ways, be it by the map, by NPCs or even by the narrative itself.

What's more, whenever you walk in a wild pokemon area, the chances are high that you'll have to fight one of them, leading to constant conflicts. As well as other pokemon trainers (NPCs) who are in your way, they can challenge you and you have no choice but to defeat them.

Boundaries

In addition to being a game with instantiated environments, on the map itself the player already knows its "physical" limits, which routes can or cannot be explored, as well as the means that need to be used (swimming, walking or flying).

Outcome

For all challenges there is a corresponding reward, which is listed from lowest to highest reward.

Defeating Wild Pokemon: Receives Experience (EXP)

Defeating Pokemon Trainers: Receive Experience (EXP) and Money

Defeating Gym Leaders: Receive Experience, Money and a Gym Badge

Defeating an Elite Four trainer: Receive Experience, Money and the permission to move on to the next member of the "Elite Four", until you defeat them all.

Defeating the current Pokemon Master: Completes the game objective

However, even with the objective of the game completed, the player can still continue to play and capture new pokemons as long as they want.

In short, winning the game is not about luck, but about having strategy and knowing your own pokemons, something that is built during your journey.

1.2. Team up

The members of the team are:

- Alina Becker
- William Dutra
- Kevin Ehlen
- Lennart Gillberg
- Dennis Okkel

Alina Becker			
Informatik/Bonn			
Life is Strange			
Game Arts	■	■	■
Game Design	■	■	■
Game Program.	■	■	■
Unity Engine	■	■	■
User Evaluation	■	■	■

Dennis Okkel	
Computer Science/Visual Computing in Siegen	
Civilisation, Witcher 3, Elden Ring, Disco Elysium, Baldurs Gate 3	
Game Arts	■ ■ ■
Game Design	■ ■ ■
Game Program	■ ■ ■
Unity Engine	■ ■
User Evaluation	■ ■

Kevin Ehlen Bachelor Informatik Köln Outer Wilds, Hotline Miami	
Game Design Game Engineering Unity Engine Game Art Game Evaluation	



Lennart Gullberg

Informatik Bsc. / Siegen
AVG / Sankt Augustin



Horizon's Zero Dawn
Minecraft
 Jedi's Fallen Order

Game Arts

Game Design

Game Program

Unity Engine

User Evaluation

None Inter-
mediate Pro

Game Arts	Red	Red	Yellow
Game Design	Red	Red	
Game Program	Red	Red	Red
Unity Engine	Red	Red	
User Evaluation	Red		

Name
William H. Costa Dutra

Prev. Edu.
BSc System Information / Brazil

Favorite Games
Pokémon, Super Mario World,
Kingdom Hearts (History)

Skills Level

Game Arts	◆
Game Design	◆◆◆
Game Program.	◆
Unity Engine	◆◆
User Evaluation	◆◆

1.3. Create conflict

Set#1

by Dennis Okkel

Random words: shame, sense, scenario

Players:

- Single player
- Player/Character lost his eyesight/senses

Objectives:

- Find checkpoints to gain back your senses
- Fight monsters, do jump passages and puzzles to get to the checkpoints

Procedures:

- Walk with “wasd” or analog stick
- Jump with “space” or Controller Button “A”
- Fight with “E” or Controller Button “X”
- Activate checkpoint → get some of your senses/ abilities back
- With new abilities/senses, you are able to solve puzzles/passages that you couldn't before

Set#2

by William Dutra

Procedures/Actions

Keyboard commands via directional keys with the mouse taking on the role in the character's line of sight. The mobile device will have a touch interface that simulates the same structure.

Keyboard/Mouse

"D" key: moves to the right

"A" key: moves to the left

"S" key: move backwards

"W" key: moves forward

Left mouse click: Uses the proton backpack

Shift key: The character uses the dash

Key "1": red shot

Key "2": blue shot

Key "3": yellow shot

Esc: Opens the settings menu

Rules

Rule 1: Whenever the player has 0 HP, they will be kicked out of the Mansion by the ghosts.

Rule 2: The mansion will always restructure when the player is kicked out (procedural).

Rule 3: It will not be possible to move on to the next room without defeating all the ghosts in the current room.

Rule 4: Ghosts will only receive damage from shots of their respective color, i.e. yellow ghosts will not receive damage from red shots.

Outcome

The Mansion is made up of 3 stages, each stage has 5 rooms that are structured procedurally, in the last room of each stage you'll meet one of your friends, until you finally reach the last fight against Mansion itself.

By defeating the BOSS, the game is over and the player will have succeeded in saving his co-workers and friends.

Set#3

by Alina Becker

Random generated words: heart, genuine, bake

- **Players**

- Single Player vs Game
- Player controls a baker who owns a bakery
- Player can select different avatars for character

- **Resources**

- Prestige: If you bake genuine, then customers will be more pleased. The more they are pleased the more hearts you gain.
- Hearts: The more hearts you have, the more customers come and the more they pay.
- Currency: Buy better equipment (e.g. oven)
 - Faster and better quality of products
 - With better quality, customers get pleased more
- Terrain: Make your bakery bigger, so you can serve more customers and have space for more equipment.
- Time: Open bakery for a given time
 - In-game a day

- **Outcome/Feedback**

- predefined ending
 - Happens if the player gained enough hearts for their genuineness
 - The baker's goal of becoming the best baker in the world has come true. He lives happily ever after.

Set#4

by Lennart Gillberg

Random words: nap, friend, mutter

Procedures:

For the most part the basic controls are the same as in most other games:

- move - left joystick / w, a, s, d
- jump - x / space
- interact - triangle / E

If wanted:

- attack - square / mouse (left)
- block - L1 / mouse (right)
- evade - circle + left joystick / shift

Finding runes/books unlocks special abilities. Using them the player can perform special actions, when interacting with objects around him.

The runes have to be muttered / whispered by the character in order to take effect.

- runes/spells can be used on specific objects or a whole area

BSP:

- wind / storm
- rumbling earth
- rising water
- nature growth
- growing and shrinking objects
- rain ...

Perhaps the main character can meet a companion along his journey, which fills some kind of support role - "Lost in Random"

Rules:

Runes can only be used (with the desired effect), if certain visual or audio cues are present

- a specific object has a certain glow
- a whole area is marked in a certain way

Using a runes that don't fit the visible cues could cause certain penalties

An array of traps could be implemented, all recognizable by certain characteristics, so player can avoid them.

Boundaries:

- Pausing and saving the game is possible at any time.
- Physical boundaries to limit area of movement
 - walls, trees, ... (depending on setting)

Set#5

by Kevin Ehlen

Words: Punch, Quantity, Action

Objective: Reduce your opponent's life by hitting them. Reduce the to 0 twice to win the game

Resources: Life (starts at full, reduces when you are hit, you lose when it becomes 0), Special Move Charges (start at 1 each, slowly recharge over time until a given number is reached, need to be expended to perform special move), Energy (starts at 0, charges when you hit opponent, can be expended to empower attacks)

Outcomes:

Rewards:

Intrinsic: Hitting the opponent rewards the player with energy, Reducing the opponent to 0 life rewards the player with a point, if they get 2 points before the opponent they win

Extrinsic: Playing the game makes the player better, enabling them to overcome greater challenges (i.e. stronger opponents)

Is there a way to win the game?

Yes, but individual wins are less important than long term personal progress

1.4. Create Team Conflicts

Construct combinations in the team from your individual conflict sets

As the individual conflicts are very different, we have tried to combine them in the best possible way. However, not all of them could be taken into account.

We take Dennis Okkel's basic idea that the player has to regain their senses by reaching checkpoints respectively crystals. To get to the crystals, the player has to solve puzzles.

Once a crystal has been reached, the player enters a new stage respectively act. Only when the puzzles have been solved, the player can leave the current area and move on to the next one (see William Dutra's idea).

Each act is assigned to a sense: The first to feel, the second to hear and the third to see.

The senses of smell and taste are not planned for the alpha version. They might be added in the beta version.

(written by Alina Becker)

Describe the resulting core gameplay for a sketch

Player:

- Single Player vs Game
- Player lost his eyesight and sees everything blurry (needs glasses to see clearly)
- Player lost hearing and feeling sense

Objectives/Goals:

- Puzzles to find glasses and better ones

Procedures/Actions:

- Walk with WASD
- Put on glasses with Q
- Interact with environment with E (e.g. start a riddle/puzzle)
- Open settings menu with ESC (maybe add in beta version for slower camera movement against motion sickness)

Rules:

- Solve puzzles to get better glasses
- Solve puzzles to further progress in the environment (paths are blocked?)
- If the power bar of the glasses is empty, the player has no energy left to wear them. They have to put them down.

Resources:

- Glasses to see
- Power bar for glasses

Conflict:

- Player has limited eyesight
- Player needs glasses to see further
- Player needs Level 1 glasses before they can get Level 2 glasses

Boundaries:

- Pausing the game is possible at any time
 - automatic saving at checkpoints for user evaluation
- Physical Boundaries to limit area of movement

Outcome/Feedback:

- By getting the best glasses the player can see everything clearly, nothing is blurred anymore

The final project is described [here](#).

Tests the core gameplay in a common prototype in Unity under the following premise

min. 3 procedures:

- wasd - Movement
- mouse - move the camera
- e - Interact with environment (to begin puzzle)
- q - improve vision

min. 1 dynamic object:

- glasses of different Levels
 - higher level -> vision gets clearer
- sound source in maze that moves if player gets closer

min. 2 resources:

- focus to see (need to concentrate and it's exhausting -> power bar)
- power bar gets better after each level in act three

min. 3 forms of feedback/outcome:

- By getting clearing all levels, player has perfect vision and does not need a power bar anymore
 - outcome different
- sound source in maze that moves if player gets closer
- use crystal to get to new scene
 - act 1 outcome: player can hear
 - act 2 outcome: player can see blurry
 - act 3 outcome: player can see perfectly

min. 1 static or dynamic camera:

- First person perspective

Elaborate rules and design a conflict**conflict:**

The goal of the game is to regain the lost senses (feeling, hearing, seeing). The player must first regain one sense before he can move on to the next. This rule is ensured by the boundary that the player can only move in a certain area and can only move to a new area

once the corresponding sense has been obtained. To regain senses, the player must interact with their environment and solve puzzles. (written by Alina Becker)

obvious rule:

- When using improved vision, power bar gets lower
- Player falls if they leave the platform at an edge

learnable rule:

- Some levels are only solvable with better vision, so easier levels have to be solved before
- The player must find the crystals (checkpoints) in order to reach a new area
- Staircase to the finish crystal get completed step by step after solving the puzzles

(written by Alina Becker)

Choose a setting and describe the boundaries

Setting: For countless years, a man found himself surrounded by darkness, by a true emptiness, where he could neither feel, touch, hear or even see anything. Until he finally lost himself, forgetting not only his "senses", but also his very existence.

But in the midst of years of darkness, a light of hope appears, trying to guide him and remind him not only of his senses, but also of the meaning of life, before it's too late. (written by William Dutra)

Boundaries: Bound by the rules of their understanding, the player can only move within the specified area and cannot leave it until they have completed the puzzles. (written by Alina Becker)

Task 2

2.1 Think about the two most important experiences for your game and describe them

- the aesthetic sensation of control
- the pleasure of learning, practicing and mastering a skill
- extension of the senses
- extension of identity
- interaction with a unique physical reality within the game

Two most important experiences of our game:

1. extension of the senses
 - The perception of the senses is limited at the beginning and in the progress of the game, when the player has solved puzzles and reached checkpoints, the player regains the senses. The implementation in the game offers another opportunity to discover one's senses. Not only in reality, but also virtually.
(written by Alina Becker)
2. extension of identity
 - The player has to find themselves in the game. Perhaps this encourages the player to reshape and rediscover themselves in the reality outside the game.
(written by Alina Becker)

2.2 Game Feel Steps

Improve the game feel of your game

- For the most important experiences (see 2.1)
- Applies the three most important steps to Swink:
 - 1) Map input signals to motion
 - **Motion with wasd:** Kevin Ehlen/Lennart Gillberg
 - **Grab objects:** Kevin Ehlen
 - 2) Create a space and objects to give that motion frame of reference
 - Stage where player can move gives motion frame of reference
 - **Main menu with graphics:** Alina Becker
 - **Pause menu:** Alina Becker
 - **Option menu:** Alina Becker
 - **Story Text:** Alina Becker
 - **Transition Scene between Stages:** Lennart Gillberg
 - **Stage 1:** Lennart Gillberg
 - **Audio Effects:** Lennart Gillberg
 - **Crystal Movement:** Lennart Gillberg
 - **Stage 2:** Kevin Ehlen
 - **Audio Effects:** Kevin Ehlen

- **Maze**: Dennis Okkel/Kevin Ehlen
- **Stage 3**: Dennis Okkel
 - Puzzles (Here in brackets is the respective name used in the presentation):
 - **Stone puzzle (Sliding Block Puzzle)**: Alina Becker
 - **Grabbing platform puzzle (Moving Box Puzzle)**: Kevin Ehlen
 - **Moving platform puzzle (Moving Platform Puzzle)**: Dennis Okkel
 - **Taste/Smell puzzle (Market Puzzle)**: William Dutra
 - **Placement of environment Assets**: Kevin Ehlen/Lennart Gillberg
 - **Staircase**: Dennis Okkel
 - **Powerbar for glasses (implementation of Asset)**: Kevin Ehlen
- 3) Define behavior of camera
 - **first-person POV camera**: Kevin Ehlen

(written by Alina Becker)

2.3 Unique kinetic gameplay

Improves the game's kinetics

Movement:

We move the player with a simulated physical force. The force is calculated from the normalized move-direction-vector and multiplied by a movement speed.

(written by Dennis Okkel)

Jump:

To jump, we check if we are standing on an object that is on the ground-layer. If so, we also use a force that moves our player up.

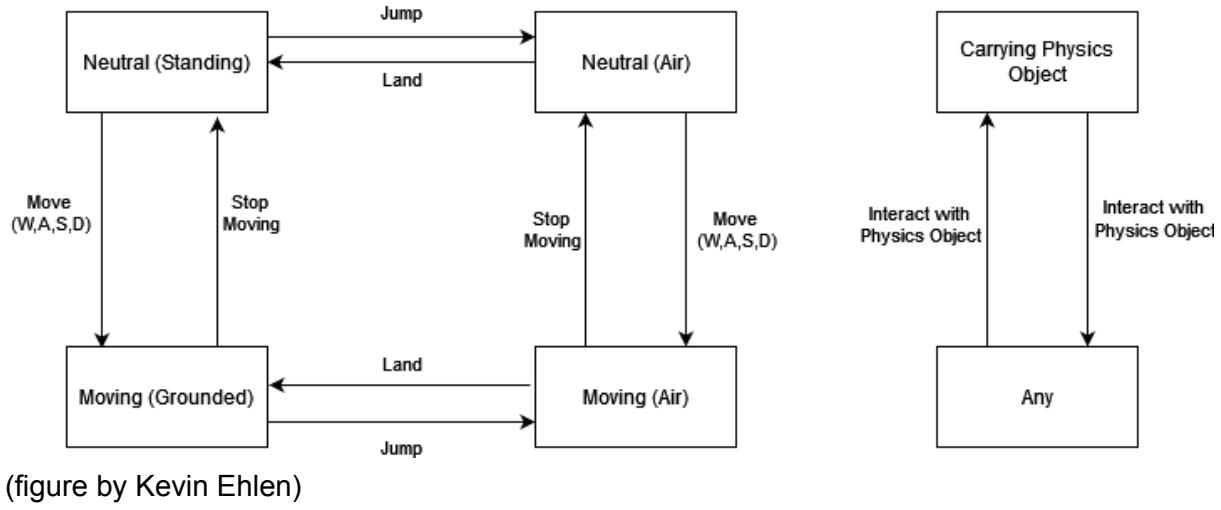
(written by Dennis Okkel)

Carrying Physics Object:

When you interact with a carryable physics object, the object becomes attached to the player and hovers a fixed distance in front of them. Interacting with the object again causes the object to become unattached.

(written by Kevin Ehlen)

Interaction Loop < 240 ms resulting from our own parameters and calculations for the individual stats:



(figure by Kevin Ehlen)

Task 3

3.1 Decisions and predictability

Improve the decisions in our game

- What decisions are there?
 - stage 2: Which path do I take in the labyrinth?
 - stage 3: In which order do I solve the puzzles?
 - stage 3: grabbing puzzle:
 - When to jump?
- What is the respective scope?
 - The respective scope is very small, as there is only one correct solution/decision for the first two bullet points
 - The respective scope of the grabbing puzzle is bigger because the player can fall off the platforms (but it has no consequences, the player will be respawned)
- How do you achieve partial predictability?
 - The player does not know the puzzles. As they are very varied, the player doesn't know what to expect when they start a puzzle. Only when they have the puzzle in front of them, they can think of a solution.
- How much information is there? (Where is Starvation, where is Ember? / Break that up! -> Hide or reveal information to player)
 - The player only knows that they have to solve puzzles
 - The player only gets information from their surroundings and the story text that is displayed

(written by Alina Becker)

3.2 Beta optimization

For the Beta we added the following optimizations:

- Transition Scenes between Stages
 - For a smoother connection, we have built in a transition.
- Story Text
 - For a better understanding and higher personification with the character, we have added a story. This tells the player the current situation in a vague way, so that the player's curiosity is aroused.
- Vision
 - Vision can be temporarily improved by pressing Q
 - In the bottom left corner is an indicator that shows how long the player still has the improved view until it has to recharge.
- Game Progress
 - The player's progress is saved in order to analyze data for user evaluation.
- Option Menu
 - The setting for the Field of Vision for large screens and the sensitivity of the camera for players who tend to get motion sickness quickly have been added.
- Character Controls
 - We have improved the movement of the character in order to make it feel better to move in the game, so that the player feels like they are in a different world.

(written by Alina Becker)

Task 4

4.1 Gameplay Examination

Observation

Let others play your game

- Some get lost in overworld
- Puzzle with movable stones hard to solve
- Do not know what to do in LevelX (Moving Platform Puzzle)
- Confused to suddenly be called by a name and voice over in the market level

Develop open questions from this about your game design

- To what extent does Blur influence the difficulty of solving levels?
- Does the player know what they have to do at all times?
- Does the player get enough information to know where to go?

(written by all)

Develop two hypotheses

Variant A: Marked paths in the overworld and other hints in some levels for orientation

Variant B: Less blurriness

first hypotheses regarding game metrics: (playtime)

- Variant A reduces playtime in the overworld compared to Variant B
- Variant B reduces playtime in most levels compared to Variant A

second hypotheses regarding user experience: (pathfinding)

- Variant B increases usability compared to Variant A
- Pathfinding in Variant B is more frustrating for players compared to Variant A

(written by all)

4.2 Game Evaluation

Plan and implement an evaluation that collects data from metrics and questionnaire

For the evaluation, we planned to let the participants play the game and observe them in the process. Our idea was to see directly how they got on with the game and to recognize where there were still difficulties that could possibly be improved.

In addition, the following game metrics are saved along the way:

Collected metrics in game:

- Playtime per Level
- Overall playtime
- Skipped levels (Puzzles can be skipped via the pause menu if the player is stuck)

In the final step of the evaluation, participants are asked to complete a survey (a poll).

(written by Alina Becker)

Game Metrics (Add additional version of our game)

We added an additional version of our game where paths are marked in the overworld that lead to the crystals for entering puzzles. It also contains audio hints in some puzzle levels. This is Variant A.

For variant B, we have set the degree of blurriness lower.

These variants were created by Kevin Ehlen and Dennis Okkel. You can find the build files via these Sciebo links:

Variant A: <https://h-brs.sciebo.de/s/k6XQHNCUeJPCf1n>

Variant B: <https://h-brs.sciebo.de/s/LkBeBB4sqfK6cqn>

(written by Alina Becker)

Create a poll

→ Create an experimental design, declaration of consent, etc.

We have created a survey with SosciSurvey. It begins with a declaration of consent and can only be processed with its confirmation. Next, demographic data is requested: gender, age, current country of residence and highest level of education.

This is followed by the questionnaire on the System Usability Scale, in which we have replaced the word “system” in the questions with “game” and translated it into German. This is followed by the Game Experience Questionnaire, which was also translated into German. Finally, the participants have the opportunity to write a comment.

The survey was created by Kevin Ehlen, Lennart Gillberg, Dennis Okkel and Alina Becker. Pictures from the survey are shown next.

(written by Alina Becker)

Umfrage zum Spiel "The Lost Senses"

Einverständniserklärung

1. Ich stimme zu, dass meine Daten aus dieser Umfrage für wissenschaftliche Zwecke benutzt werden.

Ich bin einverstanden.

Weiter

Alter und Geschlecht

2. Gib den Code an, den du vor dem Spielen erhalten hast

Dein Code:

3. Wir möchten dich noch um einige Angaben zu deiner Person bitten.

Du bist:

Ihr Alter: Jahre

Zurück

Weiter

Beruf, formale Bildung

4. Welches ist der höchste Bildungsabschluss, den du hast?

- Noch Schüler
- Schule beendet ohne Abschluss
- Hauptschulabschluss/Volksschulabschluss
- Realschulabschluss (Mittlere Reife)
- Fachhochschulreife (Abschluss einer Fachoberschule)
- Abitur, allgemeine oder fachgebundene Hochschulreife (Gymnasium)
- Hochschulabschluss
- Anderer Schulabschluss:

Zurück

Weiter

Geografie und Anmerkungen

5. In welchem Land leben Sie derzeit?

Deutschland

Österreich

Schweiz

Anderes Land:

[Zurück](#)

[Weiter](#)

6. Markiere wie stark du den Aussagen zu dem Spiel zustimmst.

stimme
gar nicht
zu

stimme
voll zu

Ich kann mir sehr gut vorstellen, das Spiel regelmäßig zu spielen.

Ich empfinde das Spiel als unnötig komplex.

Ich empfinde das Spiel als einfach zu spielen.

Ich denke, dass ich technischen Support brauchen würde, um das Spiel zu spielen.

Ich finde, dass die verschiedenen Funktionen des Spiels gut integriert sind.

Ich finde, dass es im Spiel zu viele Inkonsistenzen gibt.

Ich kann mir vorstellen, dass die meisten Leute das Spiel schnell zu beherrschen lernen.

Ich empfinde die Bedienung als sehr umständlich.

Ich habe mich bei der Nutzung des Spiels sehr sicher gefühlt.

Ich musste eine Menge Dinge lernen, bevor ich das Spiel spielen konnte.

[Zurück](#)

[Weiter](#)

7. Wähle bitte aus, wie du dich gefühlt hast während du das Spiel gespielt hast.

	Überhaupt nicht	Sehr
Ich fühlte mich zufrieden.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich geschickt.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich war an der Geschichte des Spiels interessiert.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fand es unterhaltsam.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich war vollständig mit dem Spiel beschäftigt.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich glücklich.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Es versetzte mich in eine schlechte Stimmung.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich habe über andere Dinge nachgedacht.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fand es anstrengend.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich kompetent.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fand es schwierig.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Es war ästhetisch ansprechend.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich habe alles um mich herum vergessen.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich gut.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich war darin gut.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich gelangweilt.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich war gut darin.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich einfallsreich.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich hatte das Gefühl, dass ich Dinge erkunden konnte.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Es hat mir Spaß gemacht.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich habe die Ziele des Spiels schnell erreicht.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich genervt.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich unter Druck gesetzt.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich gereizt.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich habe die Zeit aus den Augen verloren.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich herausgefordert.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fand es beeindruckend.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich war sehr konzentriert im Spiel.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich frustriert.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Es fühlte sich wie eine intensive Erfahrung an	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich habe den Bezug zur Außenwelt verloren.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich fühlte mich unter Zeitdruck gesetzt	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
Ich musste mich sehr anstrengen	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	

Zurück

Weiter

Anmerkungen

8. Möchtest du zu dieser Befragung oder zum besseren Verständnis Ihrer Antworten noch etwas anmerken?

Ist dir während der Teilnahme an dieser Befragung etwas negativ aufgefallen? Waren die Fragen an einer Stelle nicht klar oder war dir die Beantwortung unangenehm? Bitte schreibe kurz ein paar Stichworte dazu.

Zurück

Weiter

Vielen Dank für deine Teilnahme an unserer Umfrage.

Do a dry run within the team

→ after that: make appointments with each other, test and have them tested

We have tested the game once to check if there are any bugs or errors. As we found none, we made appointments with testers to test the game for evaluation. We had a total of 11 people testing the game.

(written by Alina Becker)

4.3 Game Data Analysis

(This section (4.3) was written by Alina Becker)

Evaluate the data

We have written a Python script to evaluate the data. This evaluates all the data collected in the survey and creates corresponding diagrams. The script was written by Alina Becker.

Describe the results

Game Metrics

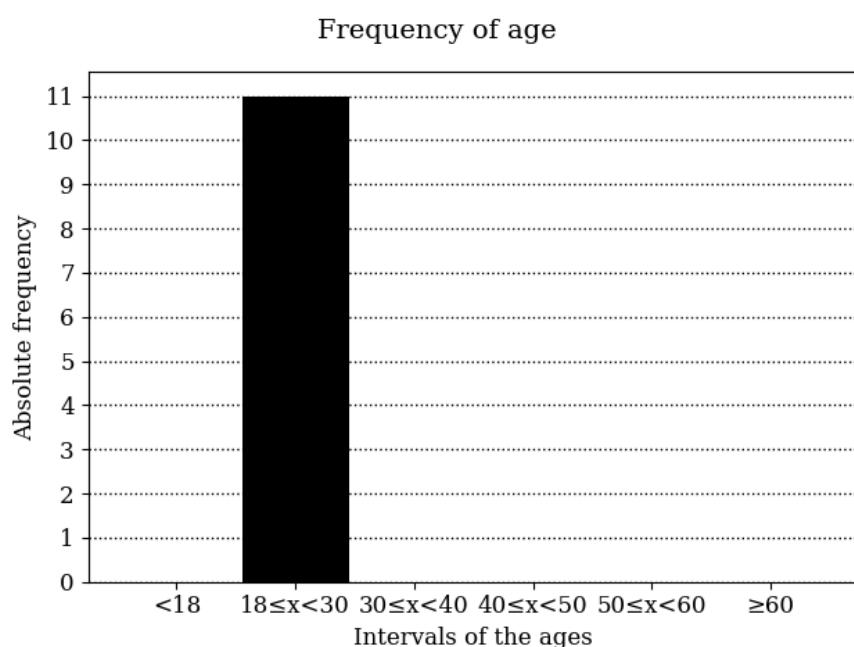
Average Time in Seconds	Total	Act 1	Act 2	Sliding Block Puzzle	Moving Box Puzzle	Moving Platform Puzzle	Market Puzzle
Group A	2435,54	45,41	133,16	510,15	70,00	219,70	376,04
Group B	3270,79	93,49	155,31	323,99	173,68	302,44	618,59

Group A had an average total playing time of approximately 40.59 minutes and Group B approximately 54.51 minutes. However, there was one outlier in Group B who took around three times as long as the others. If this is removed, Group B has an average total playing time of around 40.93 minutes. This is very similar to the playing time of Group A. In addition, all participants in group B took longer than the participants in group A to solve the puzzle levels in which blurriness was important. Those puzzle levels are the moving box puzzle, the moving platform puzzle and the market puzzle.

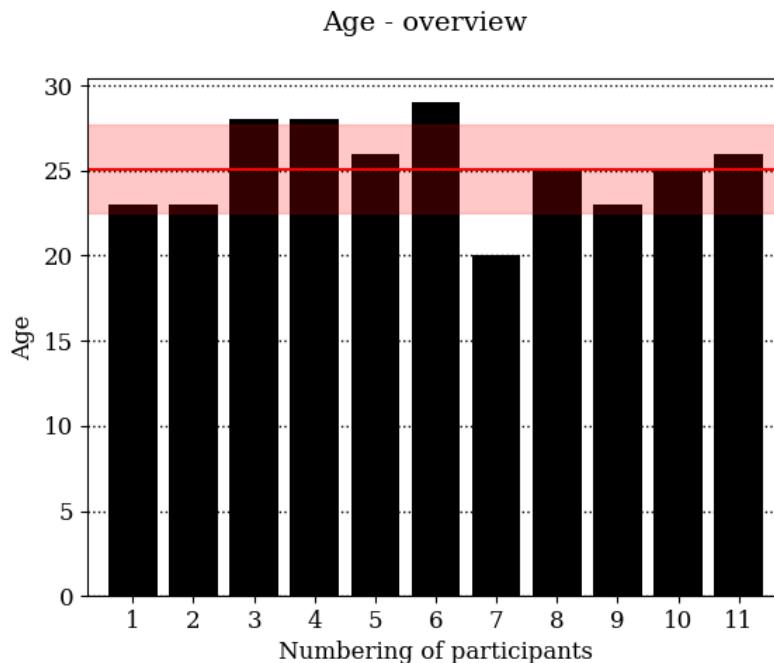
Demographics

Age

This age overview shows that all participants come from the 18 to 30 age group.



Considering that we only have 11 participants, we have created a more detailed age overview that shows the age of each participant.



The average of 25.09 years is marked with a red line. The light red area marks the standard deviation of 2.57 years. The youngest person was 20 years old and the oldest 29 years old.

Gender

Three (27%) of the participants were female and eight (73%) were male. No one stated that they were non-binary.

Current country of residence

All participants stated that they currently live in Germany.

Highest level of education

Three people stated that they had completed secondary school. One person currently has a high school diploma as their highest level of education. Four others have a university degree.

Three stated that they had a school-leaving certificate other than the high school diploma, vocational diploma, intermediate school leaving certificate or lower secondary school leaving certificate.

Annotation Responses

The annotations have been translated from German into English. It has been attempted to retain the wording as far as possible. Any statements that identify a person have been censored.

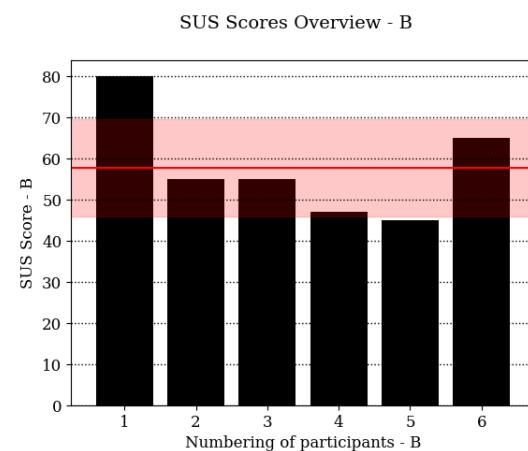
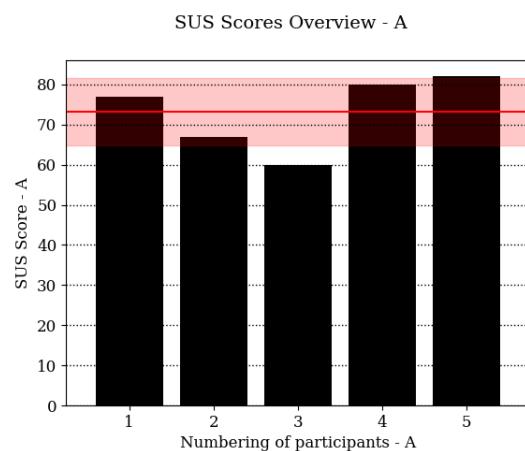
- “One lvl was too bright for light-sensitive people.”
- “In the number puzzle: It's hard to recognize the number if you do it first.”
- “I couldn't finish the game, but I think it's because of my system, actually it was entertaining.”

- “Questions seem very general and you have to interpret what aspect of the game the question refers to. Plus one double question.”
- “Yes the questions were sometimes not clear to me, but SOMEONE helped me out.”
- “Ataxia in the right arm”
- “Duplicate questions, sometimes not formed precisely enough (sometimes it was not quite clear what was being asked in relation to the game (e.g. inconsistency - technical, audio visual, video visual etc.))”
- “FOV does not change properly.”

System Usability Score

The figures for all participants can be found in the Evaluation/figures-folder. They are also shown in the script file. For a better overview, only the diagrams that are divided into A/B-groups are shown here.

The diagram on the left shows the individual System Usability Scores (SUS) for the

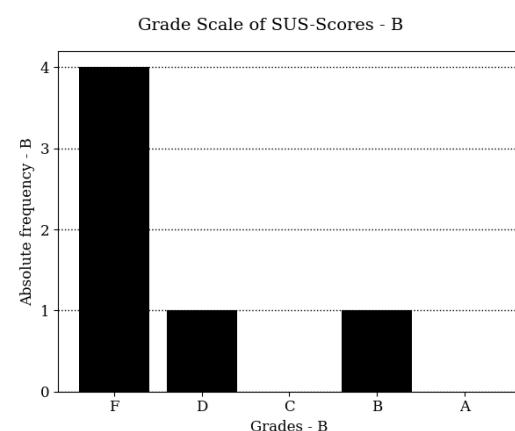
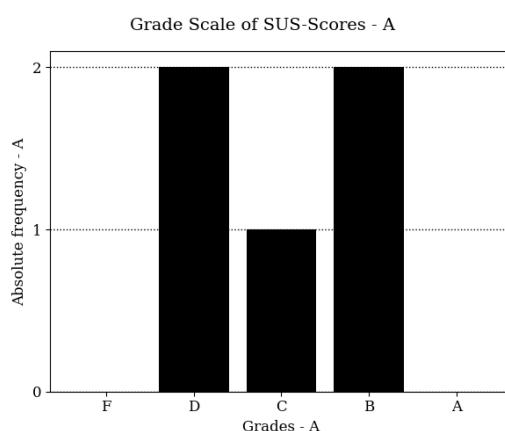


participants in group A and on the right the diagram for the participants in group B.

The maximum value that can be achieved is 100.

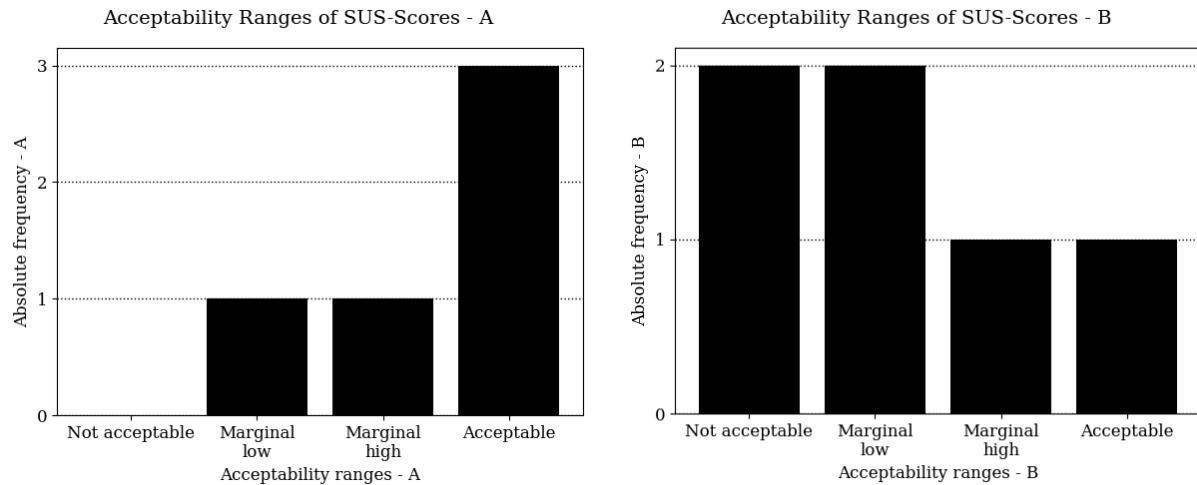
Group A has an average SUS of 73.2 and Group B of 57.83.

These scores can be sorted into Grades, Acceptability Ranges and Adjective Ratings. These are presented one after the other below.

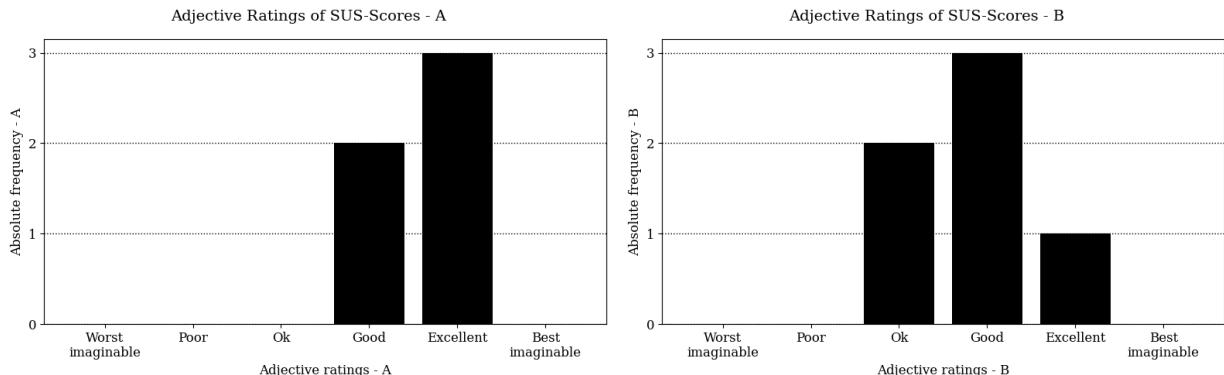


If you translate the scores into grades, then the distributions are as in the diagrams above.

A is the best grade and F is the worst. For group A, the distribution is symmetrical, there is no clear majority for a good or bad grade. In group B, four out of six end up in the F grade range.



The SUS can also be sorted into an acceptability range. The diagrams for this can be seen above. There are the ranges “not acceptable”, “marginal low”, “marginal high” and “acceptable”. In group A, the majority is in “acceptable”. There is no clear majority in group B, but most are in the lower range of “not acceptable” and “marginal low”.



Now we come to the last type of classification of the SUS, the adjective ratings. The adjective ratings are categorized as “worst imaginable”, “poor”, “ok”, “good”, “excellent” and “best imaginable”. In group A, the participants are divided into the categories “good” and “excellent”. 40% are in the “good” category and 60% in “excellent”.

In group B, the participants are divided into the categories “ok”, “good” and “excellent”, with the majority (50%) in the “good” category.

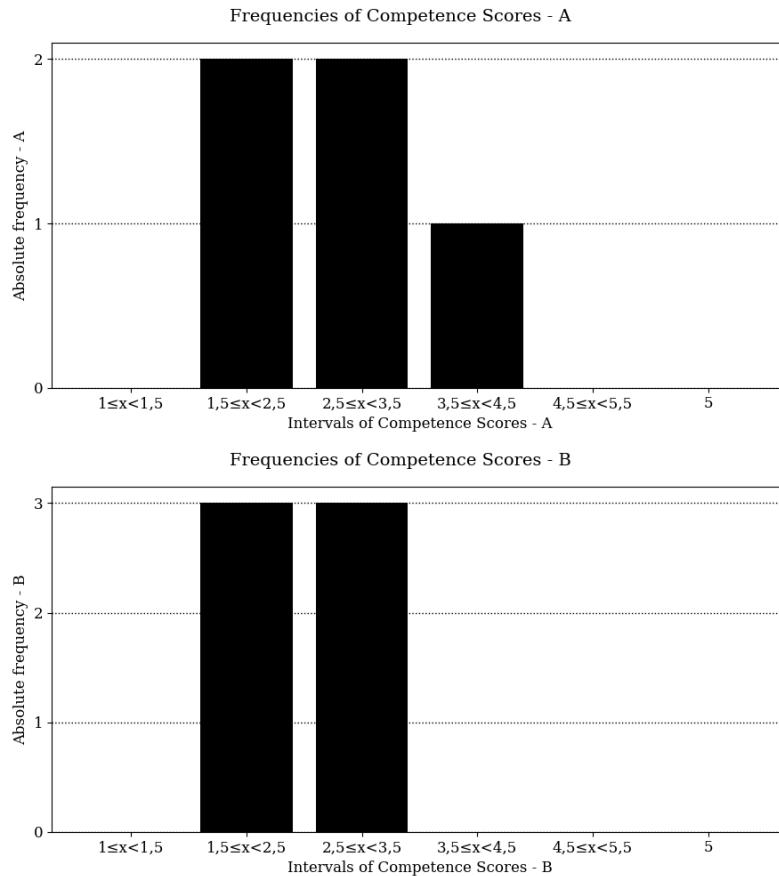
Game Experience Questionnaire

Moving on to the Game Experience Questionnaire (GEQ). We have concentrated on the core module of the GEQ. This consists of the seven components “Competence”, “Sensory and Imaginative Immersion”, “Flow”, “Tension/Annoyance”, “Challenge”, “Negative affect” and “Positive affect”. The components are scored in an interval from one to five. One means weak and five means strong. Due to time constraints, we have only focused on the

components of negative and positive affect in our presentation. Here we also show the results of the other components.

Competence

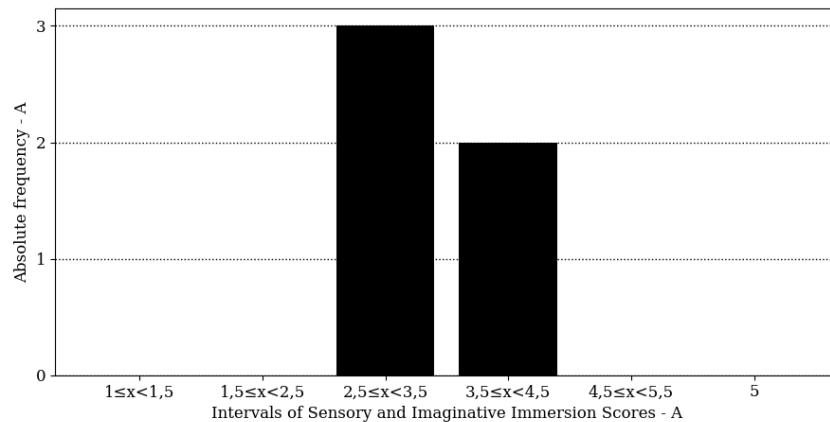
Here you can see the frequencies for the competence intervals.



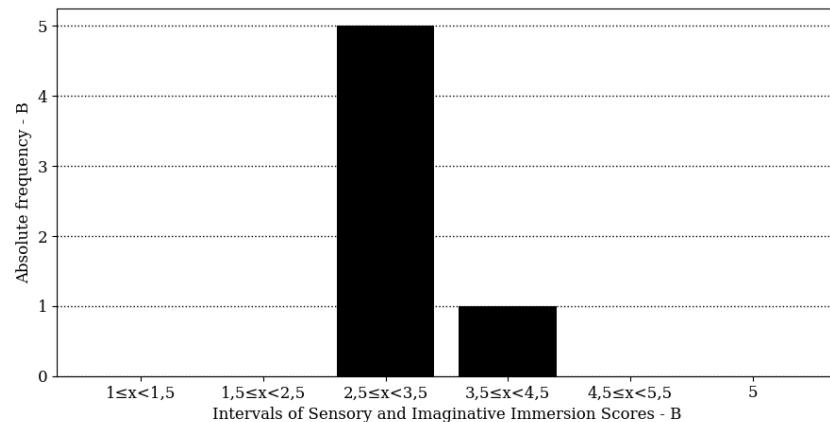
The distribution for groups A and B looks very similar. Both are mainly in the intervals of 1.5 to 2.5 and 2.5 to 3.5.

Sensory and Imaginative Immersion

Frequencies of Sensory and Imaginative Immersion Scores - A

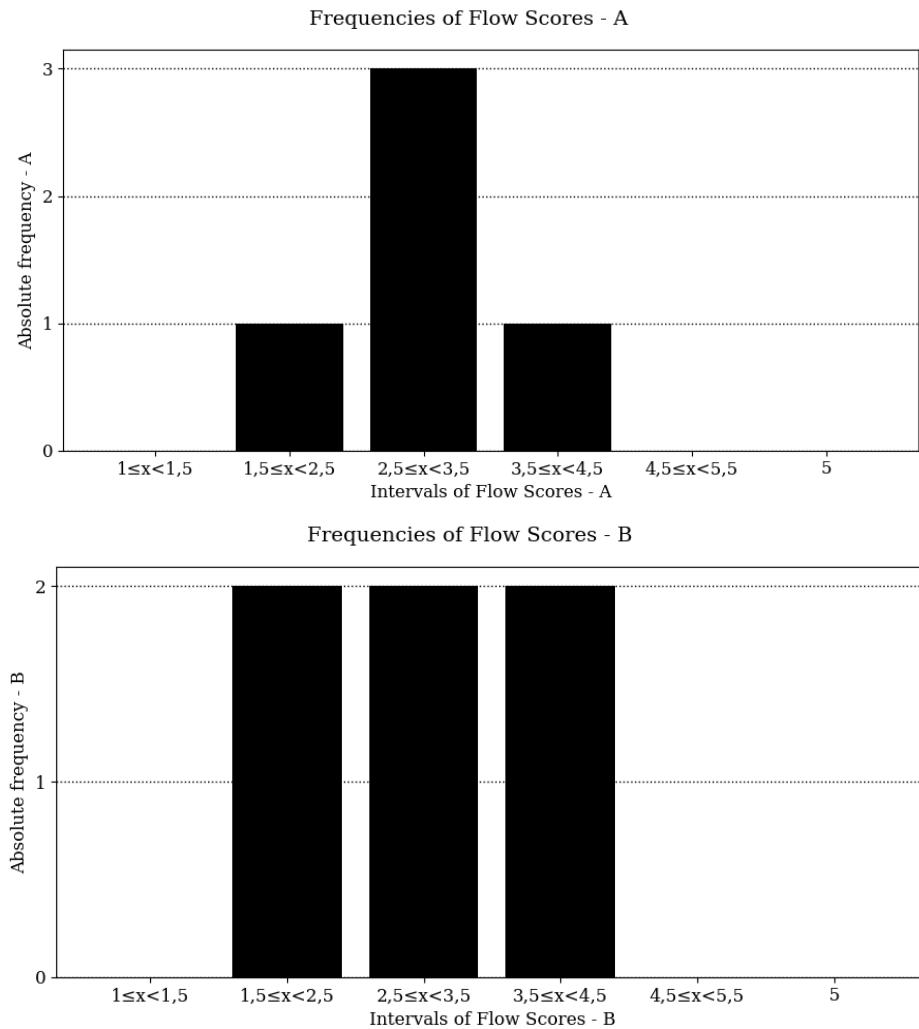


Frequencies of Sensory and Imaginative Immersion Scores - B



In the case of sensory and imaginative immersion, three in Group A are in the 2.5 to 3.5 interval and two are in the 3.5 to 4.5 interval. This means that sensory and imaginative immersion is slightly greater in Group A than in Group B, where 5 out of 6 are in the 2.5 to 3.5 interval.

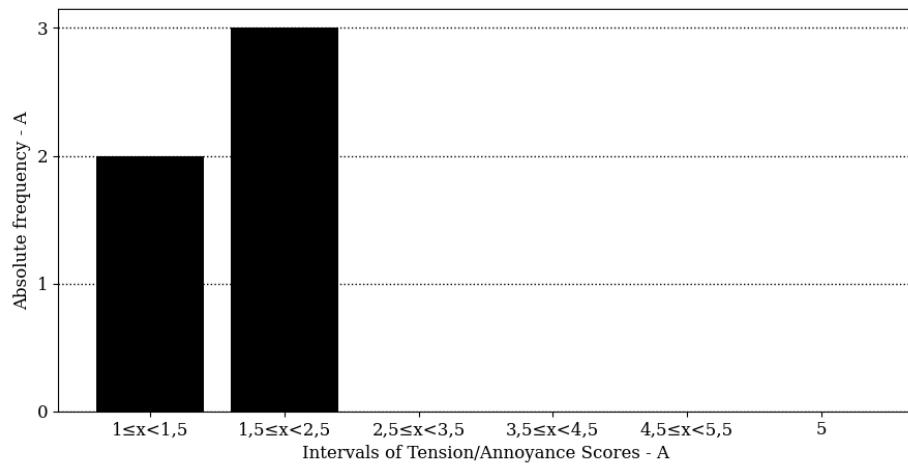
Flow



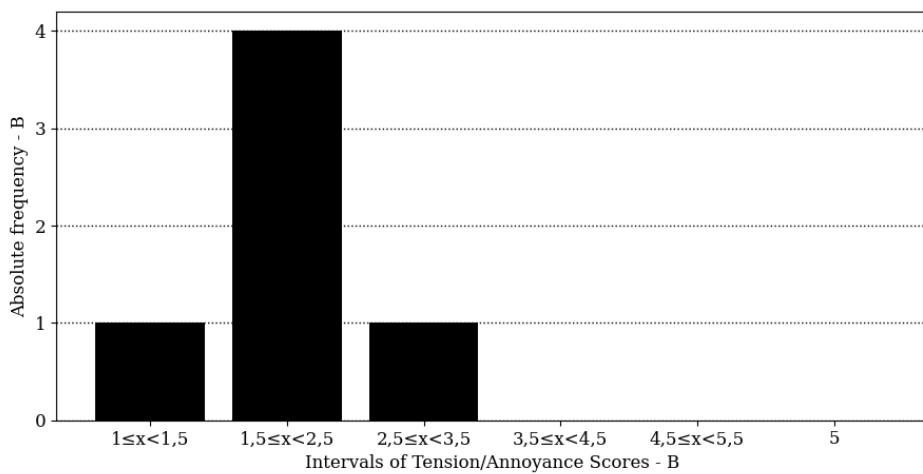
In terms of flow, most (60%) of Group A are in the interval 2.5 to 3.5. Group B has no clear maximum, but is evenly divided between the three intervals 1.5 to 2.5; 2.5 to 3.5 and 3.5 to 4.5.

Tension/Annoyance

Frequencies of Tension/Annoyance Scores - A

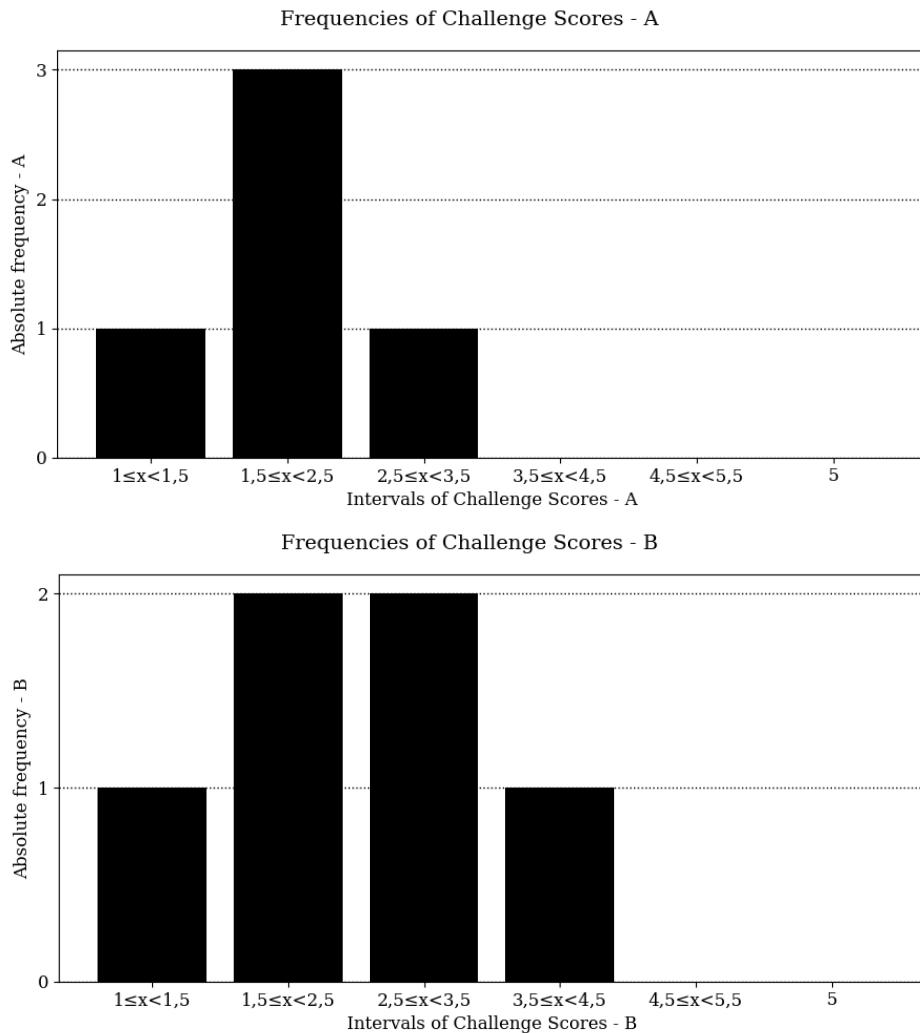


Frequencies of Tension/Annoyance Scores - B



Tension and Annoyance are in the lower range for both groups. In group A, all participants are either in the 1 to 1.5 interval or in the 1.5 to 2.5 interval. In group B, most (66.67%) are in the 1.5 to 2.5 interval.

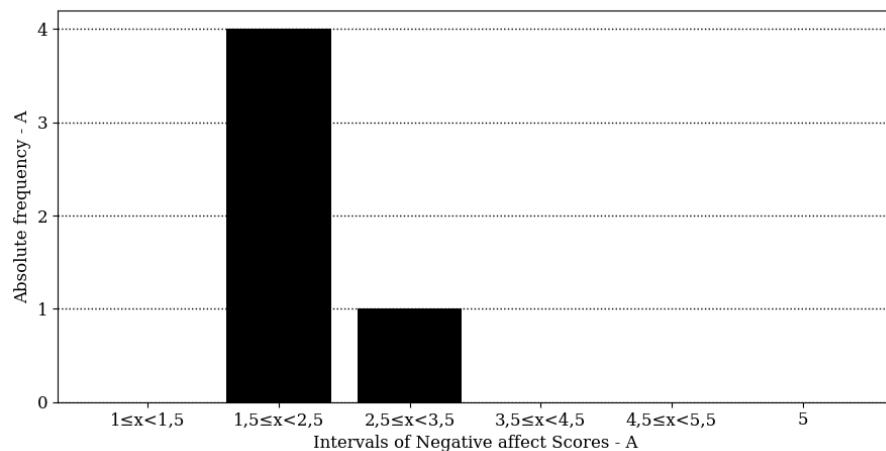
Challenge



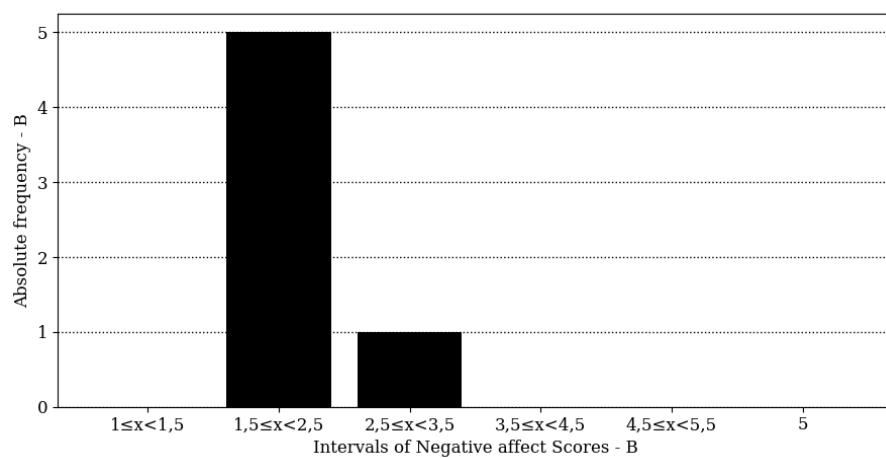
Both groups are also at the lower end of the scale when it comes to the challenge component.

Negative affect

Frequencies of Negative affect Scores - A

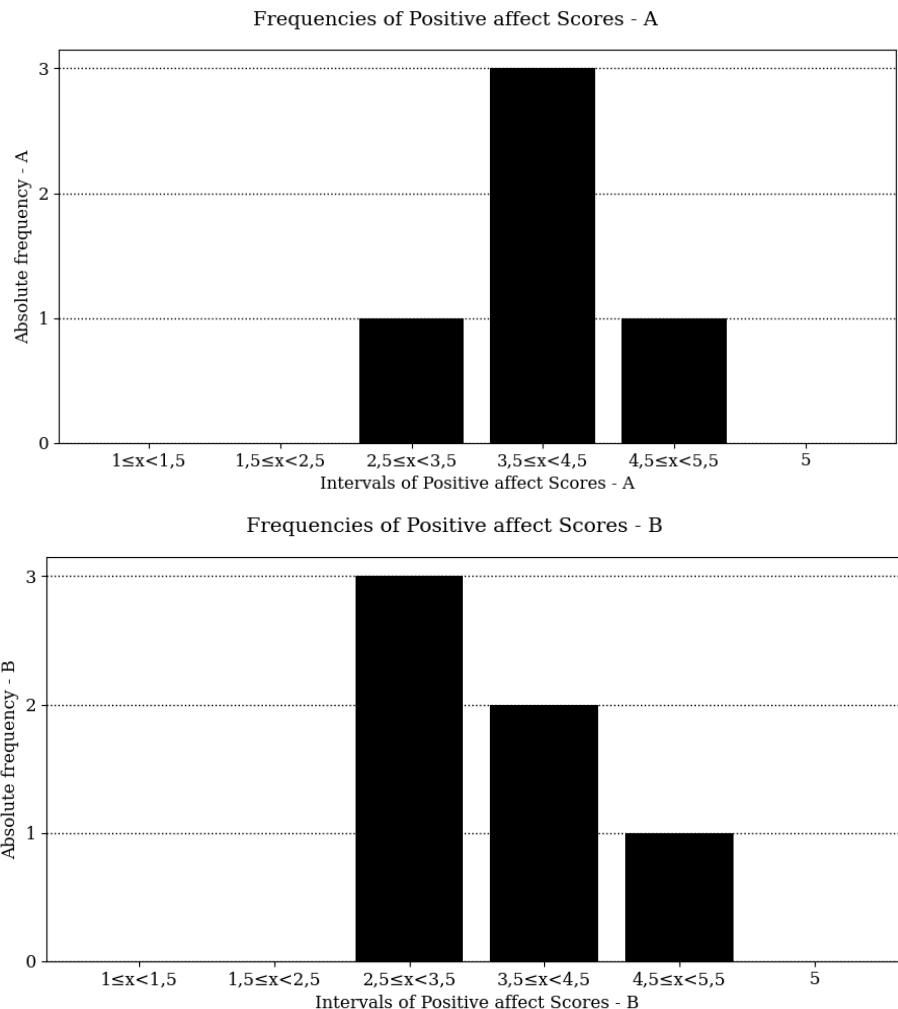


Frequencies of Negative affect Scores - B



The distribution for the negative affect value is very similar for both groups. Only one person from group B is additionally in the interval 1.5 to 2.5. Otherwise, they match.

Positive affect



The two groups are also similar in terms of positive affect, although Group B has a slight downward tendency with three participants scoring in the interval between 2.5 and 3.5. In Group A, the majority are in the interval 3.5 to 4.5.

Discuss and interpret the results

Regarding our hypotheses

From the SUS you can see that most of the participants in group B have handed in an F grade. Compared to group A, which is divided into grades D, C and B, group B has a significantly lower grading. It can be concluded that variant A of the game, where paths were marked, provides better usability. In addition, variant A of the game has a better rating for acceptability ranges. In group A, the majority are in the acceptable range, whereas in group B the majority are in the “not acceptable” and “marginally low” ranges. It follows that variant A has better usability, which is the opposite of our hypothesis.

The GEQ can be used to make a number of interpretations. Sensory and imaginative immersion is in the middle range for both groups. This means that a feeling of presence could not really be created. This can also be seen in the flow, which is also in the middle range. The aim should be for the player to identify with the character of the game.

Furthermore, the Tension and Annoyance are in the lower range for both groups, which is good. This means that the players were only slightly stressed and on edge when they played

the game. The challenge is also in the lower to medium range for both groups, which shows that the game could be a little more demanding.

The positive affect is in the upper range, close to the maximum value of 5, which is very good. The negative affect, on the other hand, is in the lower range, but could be reduced somewhat.

Essentially, there is no difference between Group A and Group B in terms of total playing time, as they are very similar. This means that our first hypothesis on the game metrics, that variant A would reduce the total game time compared to variant B, is not confirmed.

Furthermore, the reduced blurriness of variant B does not seem to be as effective as the marked paths and hints of variant A. The participants of variant B took longer than the participants of variant A for all puzzle levels in which the reduced blur played a role. This corresponds to the opposite of our hypothesis.

Since the total playing times of the two groups were very similar, if the outlier from group B is ignored, this contradicts our initial hypothesis that variant A shortens the total playing time.

Since the total playing times of the two groups were very similar, if the outlier from group B is ignored, this contradicts our initial hypothesis that variant A shortens the total playing time.

Furthermore, the participants in group B took longer on average to complete certain puzzle levels than the participants in group A. This also contradicts our hypothesis that variant B shortens the playing time in the individual levels.

Other observations:

The sliding block puzzle is difficult to impossible to solve. The physics in the puzzle breaks sometimes, causing stones to leave the board making the puzzle unsolvable. The only known solution is to finish most of the puzzle and to then glitch one stone through the other. (written by Dennis Okkel)

In the jumping level with the moving platforms players had trouble finding the seven-segment-display.

The taste level has complex rules that are not communicated to the player. For example the player can only get three clues per food, but the text is only shown for a short period of time. Therefore several test subjects clicked three times on the same clue because they did not manage to finish reading and thus only got one clue for the first food.

In terms of accessibility the game could be improved.

1. It is not playable for people only able to use one hand reliably.
2. One level could be problematic for people that are sensitive to light.

Also compare the two groups from the two colleges

What effects do the results have on your development?

→ Optimize the gameplay accordingly for the final submission and document the changes.

- Some players suggested a warning, when clicking on the Main-Menu-Button in the pause menu.
- Some Assets have to get colliders in order to stop the player from walking through them.

- When displaying text, there should be something that invites the player to press a key on the keyboard or a button on the mouse in order to continue the game
- The texts displayed when looking at the crystals in the ‘overworld’ have to be adjusted, in order to look less like code
- The texts that appear in the overworld the first time the player enters it, appear every time they enter it.
- Change the tile order in ‘puzzle stone’ in order to make it solvable
- Change the location of the 7-segment-display in ‘Level X’, so the players can spot it more easily
- Show texts in ‘puzzle_Taste’ longer, and allow players to enter foods in arbitrary order

These changes were implemented in our game by Dennis Okkel, Kevin Ehlen, Lennart Gillberg and Alina Becker.