The Mission: Sense deprivation as a resource for designing a playful experience

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ABSTRACT

Framed as an explorative and design-based research, the paper introduces the game The Mission and the methodological thoughts behind the process of making it. The Mission was developed as an investigation of working with sense deprivation and sound sense stimuli as a way for design exploration.

The design process consisted of a series of experiments and prototyping in an iterative process of experiments, prototyping and reflections. As opposed to the mainstream way, the process started not from the game mechanics and definition of the rules, but from the exploration of human senses and extracting possible playful experiences from it. Exploring the playful potential of sensing sound and sense deprivation was the starting point of the concept. Game mechanics and rules were built on top of the aesthetic qualities of the play. As a result of the process, we made an embodied, sensory game, which was played indoors by 4-5 people on a public event.

The final game concept benefited from our methodological approach. By exploring the playful potential of senses, we created a wide range of experiments, and formed an understanding of the opportunities of different sensory elements. Moreover, we have made a game for sensory experience balancing between game and play and with room for player exploration.

Author Keywords

Interaction Design; Playful experience; Embodied sensory game; Aesthetics; Practice-based research.

ACM Classification Keywords

H.5.2 [User Interfaces:] *Prototyping, Theory and methods.*

General Terms

Design; Experimentation; Theory.

1. INTRODUCTION

Playful experience is closely connected to the human sensations and realisation of those sensations. Play triggers laughter, frustration and excitement by engaging our body in some more or less structured aesthetic experience. What makes a game different from a play has been discussed by many authors [3][2][7]. In practice however, those terms can vary depending on the design, players' interpretation and perceived experience. We look at the relationship of play and game as games being a subset of play. We closely relate our definition of play to Salen and Zimmerman's way of stating that "play is free movement within a more rigid structure" [7]. This 'rigid structure' of the play can be altered and the rules adjusted by the player themselves. Players can find new ways of keeping the experience challenging and interesting, for example by tricking their opponents. By using this notion of transformative play, we can define its nature as open-ended and imaginative.

A more precise definition of games by Salen and Zimmerman is: "A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" [7]. According to this definition, games are systems where rules are applied, and there is a quantifiable outcome. In other words, we can define games as close-ended and having a limited imaginative property in a way.

This paper introduces the game The Mission and the methodological thoughts behind the design process. We carried out our investigation around sense deprivation and sound sense stimuli as a frame for our exploration. Our process consisted of a series of experiments in an iterative manner: experimentation and reflection. The paper argues that the final game concept benefits from the methodological approach.

1.1. Background theory

Salen & Zimmerman [7] use the three part model: sensory input, player output, and cognitive decision to describe the general structure to understand a player's experience. Rozin states that sensory pleasure and sensory input is tied together and thereby physically localizable. He lists three types of pleasure: sensory, aesthetic, and accomplishment pleasures. Sensory pleasure is tied to sensory input (physically localizable), aesthetic pleasure is more abstract though still linked to sensory input, and accomplishment pleasures stem from achieving something of value through mastery [6].

Niedenthal defines three main clusters of existing meaning in game research and design around the term 'game aesthetics', defining aesthetics as having to do with senses, art, and experience. Especially the first and third cluster is interesting in the context of this paper, since it uses game aesthetics to create a frame of how to understand the connection between the game

experience and the sensory elements of the game. In the first cluster, game aesthetics refers to the sensory phenomena that the player encounters in the game. The third cluster relates to game aesthetics as an expression of the game experienced as pleasure, emotion, sociability, and formgiving. Here, games can be approached as artifacts with the potential to give rise to an aesthetic experience [5]. Further on, he argues that aesthetics is rather performed in the course of play, "[...] a particular kind of pulling out of aesthetic pleasure from the game mechanics through the experience of our bodies." [5].

This view of aesthetics is interesting in the perspective of a collaborative playful sensory experience. We found this a useful tool for creating an understanding of how the sensory experience constitutes the playful experience through the interaction with the game system and other players, if at all.

2. METHOD

Our investigation of sense deprivation, sound sense stimuli and the development of our game concept is anchored in an explorative design and practice-based research.

Sense deprivation and sound sense stimuli were the frame for our exploration. We made a series of experiments iteratively, prototyped and reflected on each to gain insights of its qualities. The process was manifested by a series of experiments and prototyping in an iterative process of experiments, prototyping, and reflections. Similar to the programmatic research process, but in a very short time frame, we had a practice-based approach driven by design experiments, where programs act as a frame for carrying out a series of design experiments [1].

In game design, iterative design refers to a design process where design decisions are made based on the experience of playing the game - with an emphasis on playtesting and prototyping [7]. We have put ourselves in the role of the player, being the ones experiencing, merging the role of researcher, designer and player. A focus on experiencing the embodied aesthetic experience through our own bodies, using bodystorming techniques, has been the source of the iterative process of creating the prototypes that lead to the final game concept The Mission.

The notion of the researcher playing an active part in the process is known in other fields. For example, in ethnography this notion is similar to participant observation, where the researcher understands through immersion and participation: "Using embodiment and bodily practices as a means to gain insight requires the researcher to explore the physicality of experience" [4]. Likewise in performance ethnography, the designer explores a design solution in all sensory and cognitive modalities by performing it [4].

2.1. Process

In the first phase of our explorative process, our main focus was on sound that we came up with based on a shared interest for sound and senses. We did observations at the library, where our final design was expected to take place during Malmö Playdays 2013, which was required by the course we were undertaking. Afterwards we used these insights for experiments and rapid prototyping in the lab; later, we brought the prototypes back to the library for testing. As we had many iterations of this observe-experiment-prototype-test cycle, we gradually refined our research and exploration context. The experiments were based around four

categories: light and sound, sound through touch, binaural recordings and sense-changing. For these categories, we made several iterations of rapid prototyping. For 'light and sound' for example, we used a webcam to detect light and darkness that would generate a simple soundscape. Working with sound and light was inspired by the atmosphere and the architecture of the library. This is why in the iterations of rapid prototyping we had a focus on navigating by light to sound feedback. It worked well as a spatial investigation in the library exploring the sound of the architecture in relation to the natural light.

For 'sound and touch', we made low-fidelity, 'wizard of oz' prototypes for talking through a tube, wearing a cardboard box on the head. With the sound recorders, we captured place-specific sounds at the library, eg. the sound of a book falling to the ground and different background noises. Furthermore, we were navigating the space of the library wearing headphones connected to a sensitive recorder, which created an interesting surreal soundscape. The notion of distance became the most promising sense experience, which felt like a superpower.

As for 'sense-changing', experiments with some technical equipment lead to the idea of changing peoples' sensory ability by empowering one and weaken another: the ability to hear what people were talking about from a distance for example.

The second phase was characterized by the need to narrow down and work towards a game concept, while maintaining the focus on prototyping. We worked simultaneously with the design of digital and physical material, narrative, the details of transforming the experience into a game concept, ideating, bodystorming and prototyping.

After the second phase, the idea of using the players' breath emerged as a strong connection between physicality and senses, which came from experimenting with sound recorders. Also, complete deprivation of vision became a part of the sensory experience. We found sensory deprivation particularly interesting, due to its innate property of playfulness and a very fruitful conversation starter around views on senses.

The challenge was to make the gameplay fit the balance of free explorative play and game while having it as a collaborative and not an individual experience. Therefore, the game element was shaped by adding competitiveness between two groups of players and playfulness was supported by a narrative that made the experience somewhat similar to Larp games (live action role play).

3. THE MISSION

In the final concept of the game, The Mission, players acted as secret agents entering an underground military research facility. A chemical rocket was about to launch and they had to press the stopping buttons to prevent that. Additionally, because the rocket was leaking poisonous gas, they had to wear a protective mask. Players with the masks became the Agents, while the rest of the players became the Double agents, whose job was to launch the rocket. The gameplay can be summarized as three players (the Agents) were using their hearing senses to locate the switching buttons that emitted sound in a dark 'Bunker' environment. While doing this, they were wearing a mask amplifying the sound of their own breath making it harder to find where the sounds were coming from.

Meanwhile, one or two players (the Double agents) in the 'Control Room' were monitoring the positions of the Agents in the Bunker, trying to formulate a strategy to prevent them from finding the stopping buttons. Double agents were able to swap the location of the sounds and generate white noise in the Bunker area to confuse the Agents (see figure 1).
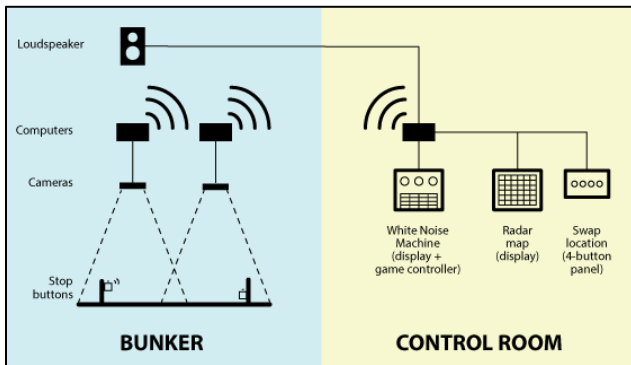

Figure 1. Overview of the technical schematics used at the site.

The actual play session was designed for at least four players. In the Bunker, all lights were turned off and the Agents entered with masks on their heads, which enhanced the sound of their breath and gave details of their whereabouts. Out of the four stopping buttons at the Bunker, two emitted a sonar-like sound effect, which is referred to as 'active buttons'. The Bunker consisted of a maze that was arranged by six plywood walls. The Agents in the Bunker had to navigate this maze in the dark to find the buttons giving out the sound.

The Control Room was visually separated from the Bunker with normal light conditions. The Double Agents could use two tools: the White Noise Machine (screen-based minigame) and a radar map with a four-button panel. By entering a sequence of eight random characters through the White Noise Machine, the Double Agents were able to trigger white noise sound in the Bunker as a distraction for the the Agents in the Bunker. The radar map showed a visual representation of the maze and the Agents location and movements inside the Bunker. They also had the option to change the location of the two active stop buttons using the four-button panel restricted to five swaps during the playtime limit (four minutes).

There were three possible outcomes of the game. Either the Bunker won by pressing the two active stop buttons, the Control Room by having at least one active stop button at the end of the play session, or neither of them succeeded if there was one stop button pressed that was not active.

3.1. Testing The Mission

During the public play event called Malmö Playdays at the Malmö City Library, we made a series of playtesting sessions, where we fine-tuned small details in the game. The event ran from 11.00 to 16.00 with 8 groups of 4-5 players. The participants were either visitors or organizers within the Malmö Playdays, or random visitors at the library. Primarily these were people between 20 - 35 years old.
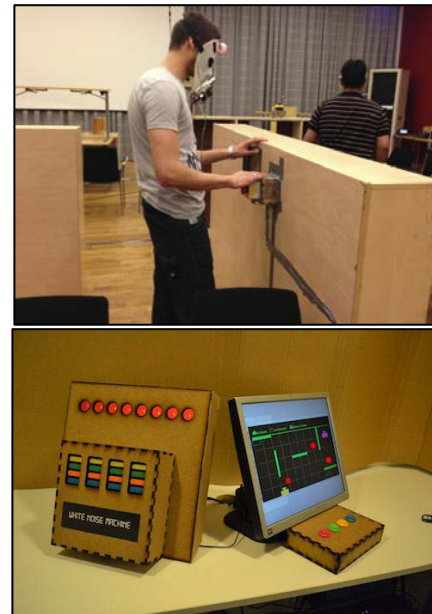

Figure 2. Top: Testing at the Bunker after a game session. Bottom: In the Control Room.

Most interestingly, we found out from the follow-up interviews that the concept was successful in making an open-ended play experience in the bunker, which allows players to have free exploration and perception. Furthermore, the game showed a compelling balance between game and play represented by the two sides: the playful bunker and the strategy-like game in the control room. Based on the fact that the game had a complex rule system we anticipated that it could be hard for players to fully understand the game before playing it. We also noted that the information before the game was confusing for the players, resulting in them forgetting some of the rules. The winning rate was approximately 50/50 between the teams of the Agents and the Double Agents, which shows that the difficulty level for both teams was in balance.

In the Bunker, the anticipation and mystery invoked by the narrative, preparing and leading people into the game environment was a strong tool in setting a playful mood. When the game masters guided the Agents into the Bunker, there was a moment of creating trust, confidence and playful mood through the physical contact (holding hands or shoulders) and informal talk.

The Double Agents in the Control Room were playing in a completely different physical and sensory setting. Their experience can be associated with game, as there was a quantifiable result, conflict, competition and strictly defined rules, while the sensory deprivation was excluded.

According to the players' feedback and observations, sense deprivation played an important role in the experience at the Bunker and it was an essential part of the game mechanics. During the follow-up interviews after each play session, most of the players described their feelings in relation to their movements and emotions they experienced.
Intentional sense deprivation in itself, is playful, as this subtractive feature is outside of our normal behaviour and we do it voluntarily [3][2]. The embodied interaction between a moving person in the maze and the audio feedback of the buttons made the game more

specific in its mechanics, but provided slightly different sensory experiences for different Agent players depending on the personal perception. The interviews with them after each play session showed the difference between their sensory focus that determined their physical movement.

As the whole experience is framed as a game, participants are anticipating it as playful. In addition to being perceived as playful, we also found the combination of the sense deprivation and biometric feedback to act as playful elements, especially when this is related to a navigation objective.

4. METHODOLOGICAL REFLECTION

Through an iterative design exploration, we have designed a sensory experience and framed it as a narrative gameplay. This made room for the players' input and for them to actively participate in the gameplay as well as having a subjective sensory experience. As such, our use of sense deprivation and sound sense stimuli served as a playful experience situated between game and play.

By exploring the sensory experience and developing the gameplay based on our own experiences, we developed the design solutions through senses, aesthetics and embodiment, as opposed to game mechanics and rules. This approach proved to add focus on designing for specific experiences in the development of the final game concept and allowed intuition, emotions and free play to be part of the design process.

However, this approach should be combined with playtesting, with players unfamiliar of the concept, at different stages in the design process. It would be beneficial to receive more objective reflections that are not influenced by our pre-existing knowledge of how the technology, the expected sensory experience or how the game is intended to be played. Using our own sense experience was a great inspiration throughout the process, although the final game concept would have clearly benefited from more playtesting - to shape a better flow of the narrative and the collaborative experience across and within the teams.

The fact that we conducted experiments and prototypes in an iterative manner as an explorative design research, proved to be beneficial for identifying specific sensory experiences that were used in a game structure afterwards. Having a wide range of experiments with clear reference to the framing worked as a solid background knowledge, helping to balance and understand the opportunities of different sensory elements during the rest of the design process.

4.1. Game design vs. Interaction deign

There is an interesting point in the relation of game design and interaction design as we noted throughout our design process. We, as the latter type of designers were concerned with how to create an interactive product focusing on the word interaction as the key to making it right. An important part was trying to understand how and why people in our game act and react like they do. A key elements of designing is the ability to anticipate and therefore design for these action and reaction patterns.

Salen and Zimmerman [7] and many other game design scholars turns to Huizinga's way of defining play in Homo Ludens [3] when they themselves have to define what play is. Huizinga states

that play is at the very center of what makes us human. He opens his book with the statement that "Play is older than culture" [3]. He argues that play is a central part of being human and exist in various places in human culture [3].

With this in mind, play seems an important factor in all design related fields, thus in interaction design as well. This holds true not only when looking at the human being as being playful, but also when addressing games as interactive systems and comparing the structure of games to a simple model for interactive designs. Salen and Zimmerman state the following about playing games: "Every action results in a change affecting the overall system" [7]. Which is very similar to the simple way of thinking of interactive systems design. A user gives input, that alters the state of the system and produces an output, which the user again acts upon. We see that blurring borders between game, play and exploration as well as between game design and interaction design has the potential to bring new layers to the future of user-centered design in today's fast-changing world of ubiquitous technology.

5. CONCLUSION

Through our exploration of sense deprivation and sound sense stimuli, we have designed a sensory experience and framed it in a game context that supports playful experiences situated between play and game.

We have designed a game, The Mission for sensory experience balancing between game and play, and a potential room for exploration. We achieved this by finding connections between specific sensations and their playful abilities in a free-form play context. This made it possible for each player to freely experience and create meaning through their own perception of the sensory game.

Our exploration of the design solution through our own bodies proved to add a great focus on experience and allowed intuition, aesthetics and free play to be part of the design process. However, the final gameplay would have been stronger, if we had combined it with playtests with players unfamiliar to the concept at different stages in the design process.

The final game concept benefits from our methodological approach by exploring the playful potential of senses in an explorative, practice-based manner. We created a wide range of experiments within the frame, and an understanding of the opportunities of different sensory elements.

6. ACKNOWLEDGMENTS

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