

BSc Thesis Creative Technology

**The influence of a choice on the
sense of presence for older adults
in digital nature**

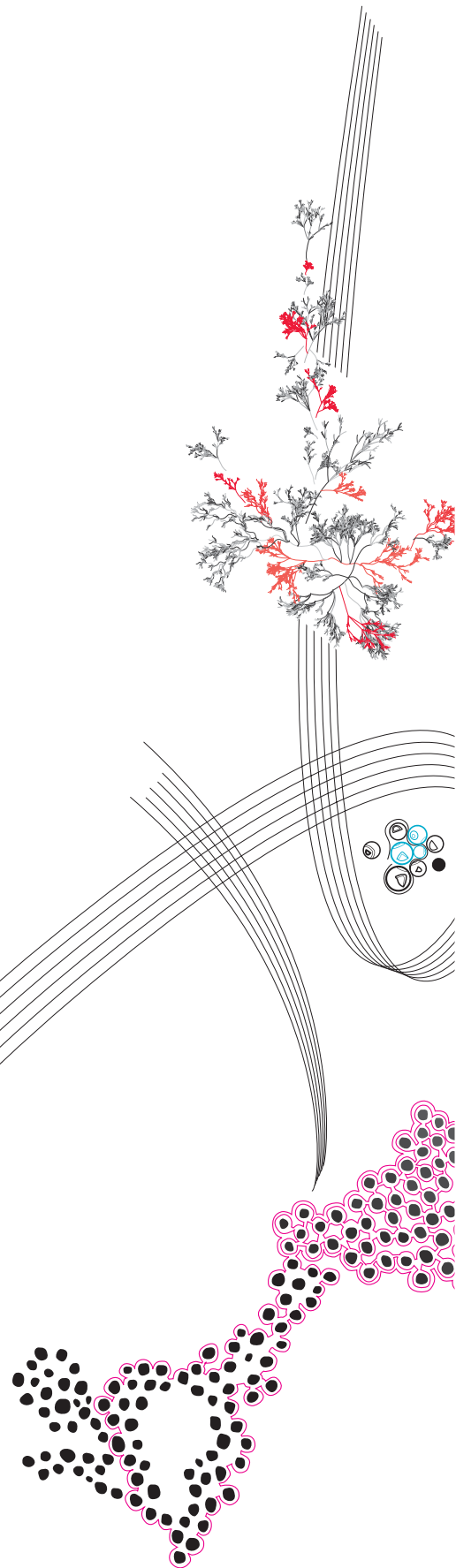
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Abstract

This paper discusses the importance of allowing older adults to choose how they explore nature in a digital environment. The study focuses on how individual choices affect the sense of being present while exploring virtual nature scenes. The idea is to understand how people feel when they make choices in a digital environment. By giving older adults the option to choose how they interact with digital nature, they can find the experience more enjoyable. This study aims to examine the impact of individual decisions on the sense of presence felt while exploring virtual natural settings. It emphasizes the importance of choice in interactions with digital nature. The ultimate goal of this research is to make nature experiences accessible to everyone, enhance technical skills, and maximize the benefits of nature.

The study consists of two groups: an experimental group and a control group. The aim is to examine the impact of decision-making on the sense of presence, focusing on older adults aged in the pension range. Participants in the experiment group will be given the freedom to choose nature scenes, and the study will explore the relationship between decision-making in the virtual world and the real world in relation to the sense of presence.

Adding a choice element to digital experiences enhances the experience for older adults, both in passive and active interactions. However, the sense of presence was experienced by both groups, regardless of whether they were given the option to choose their path. To investigate the relationship between choice and sense of presence among older adults in digital environments, a larger number of participants is needed.

1 Introduction

As people age, older adults face increased levels of loneliness, social isolation, and physical deterioration. These factors negatively impact their physical and mental health [1]. Thus, social well-being is a public health concern, especially older adults' well-being. Research has shown that being in nature can promote a sense of connectedness in people. However, for individuals with mobility disabilities, experiencing nature may present challenges. To overcome this, digital nature stimuli can be used as a substitute to provide a similar positive impact on well-being, as reported in [2].

A sense of presence refers to feeling present in a virtual setting or a sense of "being there" in virtual scenarios with natural perception. At the same time, immersion pertains to technical aspects that can isolate an individual from the external world [3]. According to [4], a strong feeling of presence increased positive emotions among the participants. A sense of presence can improve cognitive abilities such as decision-making and affect how individuals engage with cognitive tasks in a virtual environment [5]. Nature plays an important role in the physical and mental health of humans. Nature has many definitions: green space, a landscape like woodland and forest, waterscapes like wetlands and beaches, animals, and ecosystems opposite of human-made objects/places. Experiences with nature, such as green space and forests, can affect human health and well-being [6].

According to [7], experiencing nature indirectly, meaning through any means other than being in nature, can positively impact cognitive function and overall well-being. Therefore, it is important to develop a digital nature that allows older adults to experience nature without leaving their homes, especially those with mobility restrictions. Maas has also claimed in [2] that "living close to nature can reduce feelings of loneliness and enhance feelings of social support." Given these benefits, it is important to understand how digital nature experiences affect emotions in older adults. Being close to nature can also reduce loneliness and enhance the perception of social support, as demonstrated in [8]. It is important to ensure that digital experience allows them to connect with nature with their physical and support limitations. According to a previous study [9], a sense of freedom allows older adults to maintain intellectual activity. The challenge in the current thesis is to find a way to increase excitement and engagement while keeping the interaction simple and accessible for those with limited mobility and older adults. It is hypothesized that giving older adult independence and control to make their own choices and decisions will positively impact their sense of presence.

This leads to our research question: "*Does having a choice affect the sense of the presence of older adults in digital nature?*" Thus, the proposed approach is to increase interactivity by offering the users the freedom to choose between digital nature scenes.

An additional part of the thesis will be concerned with how experiencing a mysterious and non-mysterious path can affect the choice, which may also influence the overall sense of presence. As demonstrated in [10], mystery served as a powerful predictor in recognition performance, and recognition performance improves more for images perceived as highly mysterious compared to those low in mystery. Besides recognition performance, the mystery positively correlates to preference [11]. According to [12], who sought to understand users' preferences through a *preference matrix*. Mystery is one of the predictors that could increase the encouragement of the user to explore environmental settings. This backs up the hypothesis that adding mysterious and non-mysterious options to the virtual nature experience could further increase the sense of presence.

Summarizing, the hypothesis for this project will be:

- Providing an opportunity for older adults to make a choice in a digital nature positively influences their sense of presence.
- Older adults have a positive attitude towards digital nature due to the added choice element.
- Adding a mysterious path in the choice enhances the sense of presence in older adults.

At the end of this project, users will be free to make decisions and take actions that can impact their virtual surroundings, ultimately increasing their understanding of connectedness to the digital world and enhancing their feeling of presence within the virtual environment. Furthermore, by exploring how providing choices can improve the sense of presence, a step will be made toward developing more efficient implementations of a digital nature for older adults with limited mobility.

2 Background Research

Throughout this work, the term digital nature experience will refer to showing a representation of a natural environment to older adults through immersion devices. Two main components affect the delivery of a digital experience: the first is the device used to show the media, and the second is the actual content shown, irrespective of the device used. For example, the same movie can be played on a laptop, a TV, or a cinema, and each will provide a different sense of presence. Another challenge related to this topic is the influence of the actual content of the indirect nature regardless of the immersion display device used to show it. These two components will be shown in the state of art Section 2.4. Since the choice in interaction within a digital nature has yet to be well related to the sense of presence, it will be introduced at the beginning of this section.

2.1 Sense of presence

Sense of presence is "a sense of being there," which is a feeling or perception of being physically present in a non-physical or virtual environment. It is typically associated with virtual reality (VR) experiences, which immerse users in a digital environment and make them feel as if they are physically present in it, even though they are actually elsewhere [13].

Achieving a strong sense of presence in VR involves several factors, including realistic graphics, real-time movements, realistic sounds, interactivity, and minimizing any barriers that remind users of the real world [14]. When these elements work together effectively, users can experience a stronger sense of immersion and presence within the virtual environment. Presence can be experienced in other contexts, such as virtual reality, video games, and even books [14]. When a person achieves presence, they may feel fully engaged in the world they are experiencing, and their sense of time and space may be altered. This can lead to a powerful and transformative experience that can be exciting and challenging.

2.1.1 Measuring sense of presence

Several questionnaires were used to measure the sense of presence. The questionnaires used are The Sense of Presence Inventory (ITC-SOPI) and Igroup Presence Questionnaire (IPQ), where each consists of its own four subscales that refer to the sense of presence and focus on different elements. For example, the IPQ measures general presence, spatial presence, involvement, and perceived realism [13]. While the ITC-SOPI measures physical space, engagement, ecological validity, and negative effects [15]. This report will conduct an interview by using a questionnaire list, which will be adjusted based on the list provided [16]. The IPQ items are suitable for both groups: those interacting in the virtual environment and those not. The interview questions can be found in the Appendix C.

2.2 Number of choices

As mentioned earlier, this paper would like to add value for older adults to feel freedom in the virtual environment by adding the possibility to make a choice. However, a concern arises when deciding the number of choices to be presented to the users. A choice is "an act of choosing between two or more possibilities" [17]. The simplest choice consists of only two possibilities and is called a binary system. There are many binary terms in human decision processes or computer language. The binary choice for the human term is a choice that presents only two options, such as yes or no [18].

As observed in [19], older adults prefer fewer options than younger adults from which to choose. They preferred fewer options in healthcare decisions than daily decisions, and older

adults may not have as positive beliefs about making choices as younger people. Although in [19], it is shown that everyday decisions have a more significant impact than healthcare decisions, there is no evidence that this result is irrelevant to personal relevance. Therefore, when creating a tool for older adults, it is necessary to consider the number of choices available, ensuring that it is not too overwhelming or too personal. In [20], the claim is supported that older adults with high self-efficacy in managing their emotions and believing in their ability to control their environment tend to gravitate towards fewer negative stimuli.

In order to simplify the decision process for older adults in the digital environment of this thesis report, a binary choice will be used instead of multiple options that could be overwhelming; a binary choice will be used in the experimental group where the user has to choose the left and right path, see more in Section 3.2.2.

2.3 Preference matrix

Kaplan [12] created the *preference matrix*, which displays environmental preferences based on information needs (understanding and exploration) and a dimension that considers the accessibility of information. In other words, the *preference matrix* is a table that simplifies environmental attributes, orders the need for information, and determines the level of interpretation required to obtain information about the environmental scene [21]. The *preference matrix* table consists of coherence, complexity, legibility, and mystery.

Kaplan [12] defined mystery as "the promise that one could learn more." The promise should offer more details, suggesting the viewer can explore the scene further. This additional information could be presented from a different perspective, encouraging the viewer to venture forth and discover hidden details [21]. When there is a continuation, one can generate and explore different possibilities. It involves both deduction and the feeling of discovery. In other words, inference and exploration. Examples of such changes could include a bend in the path, a partially obstructed view, or even a slight change in the surrounding environment [12]. Another definition of mystery is the "inability to see the landscape with any distinctness or a lack of distance of view" [12].

2.3.1 Varying levels of mystery

Mysterious settings are more likely to capture attention and evoke interest without any effort [10]. To create a meaningful path, a mystery element can be added. The paper [11] mentioned that curving pathways, partial concealment, and shadows enhance the mystery of a path. There are two levels of mystery: i) a mysterious path and ii) a non-mysterious path. The mysterious path is curvier, where it is hard to see the upcoming view, while the straight line, so non-mysterious makes it easy to predict the destination or the upcoming moment. The mysterious path is a narrow trail that winds around, making it impossible to see what lies ahead. It could have multiple paths to walk through. On the other hand, the non-mysterious path is a straight and wide-open path that allows visitors to see the end of their destination. Figure 1 shows the mysterious and non-mysterious paths used in [10].

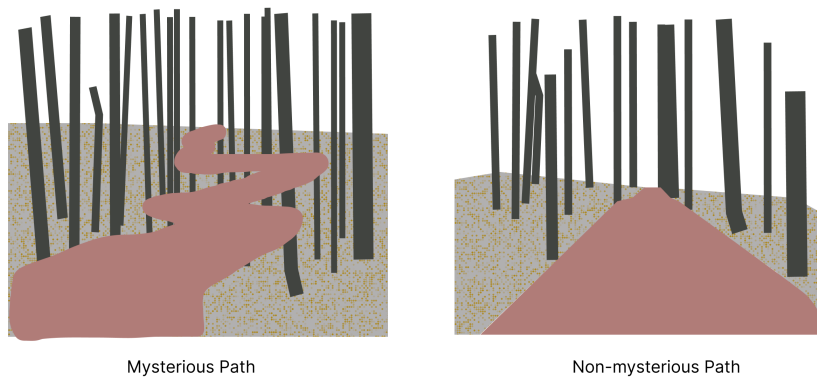


Fig. 1: Two illustrations to illustrate the difference between a mysterious and non-mysterious path.

The level of mystery in a landscape scene depends on the viewer's perspective. The setting is mysterious if the current viewpoint presents the possibility of further exploration ahead. Moreover, the more clues in the landscape that hint at what is coming, the greater the sense of mystery in the setting [11]. In addition, the mystery involves fascination, engagement, and recognition performance. The recognition performance has better results in higher mystery levels and yields higher ratings of perceived fascination [10]. Marois *et al.* [22] cited several studies indicating that increasing the mystery level resulted in greater attentional engagement and improved memory recall. Furthermore, the result showed that a higher rating in the high mystery nature was more attractive, with the same result as Szolosi [10]. Therefore, the design process will incorporate a mysterious element that has a significant impact on human cognition and emotion.

2.4 State of the art

The state of the art is taken from the literature review [23] made at the start of this thesis, specifically the sections on immersive technology 2.4.1 and nature content 2.4.2 topics. It will be focused on identifying and evaluating different types of immersive technologies that can be used to create the experience. The second part will examine the various kinds of digital nature content already available and identify the attributes and characteristics suitable to measure during an experiment.

2.4.1 Immersive technology

As mentioned in the introduction, the choice of device plays a critical role in the outcome of a digital experience. Furthermore, the technology for creating indirect contact with nature can be affected by the user's physical and mental limitations [24]. It will play an important role in conveying the content and, ultimately, achieving the goal of increasing the sense of presence and positive feelings. Nowadays, there are many options when choosing an immersion device. To compare them, the three categories of immersion devices discussed by [25] will be used:

- No-immersion level: as suggested by the name, this category involves devices that do not provide any degree of immersion. Examples are text, illustrated text, printed pictures, and narrations.

- Low-immersion level: this type of device provides a certain level of stimuli that immerse the user in the experience. This category includes TVs, computer displays with speakers, or PC monitors.
- High-immersion level: these devices submerge the users in the experience and isolate them from other stimuli. Examples would involve any head-mounted display with headphones, big screens in dedicated rooms such as cinema or wall projectors, or VR headsets with movement tracking.

It is important to note that only some of the technologies listed in the examples were available in 2002 [25]. However, an effort has been made to classify some newer devices into the same categories. Having these categories clear, the next step consists of summarising previous research in the area of immersive technologies and later analyzing their methods and claims to choose the most effective immersion device for the goal of this project. Therefore, using a high-immersion level device for this graduation project is important to allow older adults to perceive a higher sense of presence during the experiment.

Identification of an appropriate immersion device

Determining which immersion devices are the most effective for displaying digital nature experiences is crucial for enhancing a perceived connection to nature. In [26] the same 360 videos on low-immersion devices, such as a PC screen or smartphone, are compared against a high-immersion device, namely a VR headset. They concluded that a high-immersion device has a higher spatial presence, and users feel more connected to nature than a low-immersion device. Similarly, in comparing both low and high-immersion devices, a study was conducted where they compared the use of a PC screen, which is a low-immersion device, with high-immersion devices like a wall projector and VR headsets. They used a natural scene and observed that the high-immersion devices created a stronger sense of presence than the PC screen [27]. On the other hand, another research paper [28] stated that the type of immersion devices in PC screens against VR headsets, the outcomes of sense of presence were not influenced by watching videos. After all, not all immersion devices can fully convey the potential of digital nature experiences in enhancing the sense of presence. However, after analyzing the results, it has been concluded that high-immersion devices are more effective in providing a sense of presence. This is because they enhance positive emotions and well-being more effectively than low-immersion devices. To strengthen the sense of presence, it is recommended to use high-immersion devices such as wall projectors and VR to display digital nature content.

Most suitable immersion devices to convey digital nature

Among the high-immersion devices, finding the most suitable for older adults would be valuable. A research paper [29] was conducted by sending an online survey of virtual representations of nature (VN) images for older adults to choose from with a PC or laptop. As both are low-immersion devices, they are unlikely to have affected the result of this study, and it suggested in practical implications that VN images can be used to present in a nursing home with various immersion devices like wall projections and digital picture frames to enhance older adults' well-being [29]. Because not all older people are acquainted with high-immersion devices and find their controls too complex, the wall projector appears to be the most suitable for older people. Banos [27] compared a PC screen (low-immersion device) in contrast with high-immersion devices such as a wall projector and VR headsets. When using a natural scene, they observed that the high-immersion devices create a greater sense of presence than a PC screen. In contrast, when using an emotional scene, the PC screen and the wall projector

enhance the sense of presence more than VR headsets [27]. In addition, VR headsets were not evaluated as giving the most sense of presence due to user discomfort during the setup because the head tracking device leads to negative effects by making navigation more difficult, making the VR headset undesirable when compared to a projector for any given scene and user age.

2.4.2 Different types of media content

It is important to determine which attributes of nature have been used to allow the user to perceive the sense of presence. The research paper [27] mentioned that Ijsselsteijn states, "the basic appeal of media still lies in its content, the storyline, the ideas and emotions that are being communicated." The presentation of content still influences how the audience perceives emotions from the device. Digital nature consists of nature content to convey to the user, in which specific nature characteristics are shown to the participant to perceive different emotions.

Types of nature scenes that convey as content

There have been many attempts to create digital nature content based on different ecosystems. A research paper [30] investigated which virtual nature environments are the most effective in awe and sense of presence and compared four distinct environments: forests, high snow mountains, seeing the earth from deep space, and neutral green space. Chirico *et al.* [30] concluded that mountains are more likely to induce awe and a sense of presence than the forest. Moreover, forests and mountains enhance the sense of presence more effectively than the natural grass scene with few trees and flowers. In [29], a set of four virtual representations of nature (VN) images of water, hills, high-density trees were provided, and an extra night image of a nature scene. The result showed that after participants saw all VN images, there was a high score in positive valence and personal engagement with VN images with hills. On the other hand, [31] conducted a Dutch nature film from *Vereniging Natuurmonumenten*, which consists of a semi-open nature landscape with a closeup of flowers, plants, trees, water, and non-threatening animals like sheep and birds. They focused solely on immersive devices used in restoration research and did not explore the types of virtual environments.

The suitable nature scene for digital nature content

Forests and hills are the most relatable among all the possible nature scenes that have been reproduced. In [4], older adults selected their preferred natural environment, either a mountain or an ocean scene, to experience new environments after playing a game in a forest scene. These differences in natural environments can be easily visualized and compared to real-life experiences. In [30], the Earth view is unique and unfamiliar to experience in reality, as users can see from the TV or the internet. Despite enhancing the sense of connectedness, the experiment found that the Earth view had the lowest perceived sense of presence. In [32], an underwater virtual environment was used to induce relaxation. Although most users enjoyed the scene, some felt uncomfortable due to the presence of open water and feared encountering water animals such as jellyfish. It is expected to see forests, mountains, green spaces, and oceans in real life. However, unfamiliar scenes like the Earth's view or deep ocean are rare and have limited potential for users to experience directly, which can reduce the sense of presence when experiencing these scenes. The existing types of digital nature content, such as forests, mountains, oceans, and green space, are determined as suitable attributes for experimental measurement.

Types of interactions within the digital nature

Interaction with the content increases the sense of presence. A study represented a virtual environment with two mini-games for older adults. There is a virtual dog as a narrator to navigate users along the virtual environment, resulting in users perceiving a high sense of presence. The users interacted and talked to the virtual character, indicating a strong sense of presence and positive emotions of the virtual environment that makes the user feel present [4]. Supported by another study, a nature video called *Under the canopy* presents a journey through a rainforest and is narrated by a local on the importance of nature. It indicates that participants felt more connected to nature through digital nature but cannot completely replace the connection between nature and humans [26].

Verbal interaction seems valuable in virtual and real-life settings, enhancing the sense of presence and connectedness. An emotional scene can have influences as well. A sad virtual environment scored higher on reality judgment and emotional engagement, while a normal park scene scored higher on emotional indifference. A sense of presence in a non-emotional virtual environment depends mainly on immersion [27]. It is still important to add some extra elements in the virtual environment or the scene to connect with the user, for instance, verbal interaction or emotional elements that require a specific characteristic in designing the scene. The existing types of interaction are suitable attributes for experimental measurement in the virtual environment content.

Conclusion of the state of the art

Given the above information, it is reasonable to conclude that high-immersion devices are preferable to low-immersion ones [26],[27], [28]. Wall projectors and VR headsets are suitable high-immersion devices that offer users an immersive experience with a sense of presence. However, VR may not be the best option for older adults due to the discomfort they may experience in setting up the device and having some navigation difficulties [27]. On the other hand, a wall projector may not offer as much immersion as VR, but it strikes a better balance between a sense of presence and ease of use for older adults. As a result, for this graduation project, a wall projector will be used for an experiment with older adults due to ease of accessibility and use.

Virtual environments can simulate various real natural environments, including forests and mountains/hills, to create a sense of presence [29], [30]. People are more attracted to real environments than unfamiliar or artificial ones, so it is important to reproduce these natural environments in a realistic and relatable way. Interaction plays an important role in a virtual environment to maintain interest and increase the sense of presence [4], [26]. However, it is important to ensure that the interaction does not reveal the artificial nature of the environment, as it can lead to a loss of sense of presence. Interactivity can either improve or break the flow of virtual experiences. Therefore, it will be a challenge to add both a forest and a mountain in the scene while adding interaction to enhance the sense of presence in a virtual environment for the graduation project.

3 Methodology

Before conducting the experiment with participants, it is essential to consider methods for finding participants. In this project, there are several ways to contact older adults, including those who live in their own homes and those who reside in nursing homes.

3.1 Gathering participants

The intended research population is from four to ten adults older than 65 years. The research participants will be split into two groups: an experimental and a control group. The exact role of these groups will be further explained in Section 3.2.2. No specific criteria exist for splitting the population into groups because they will be assigned randomly. To include a participant, they must be mentally able to give informed consent, capable of understanding the goals and procedure of the experiment, willing to participate in the study, and capable of signing a consent form. The steps that were followed to gather participants for this experiment were:

1. Contacting prospects aged 65 and above from personal acquaintances.
2. Prospects were asked if they wanted to participate in the experiment.
3. If the answer was positive, they received information about the experiment's goals, and further details can be found in the information letter in Appendix A.
4. Once they had confirmed their participation, the experiment's date, time, and place were scheduled based on the participant's availability.

3.2 Step by step in experiencing digital nature

Before users can fully experience the experiment, they must complete several essential steps. These steps are divided into three main sections represented in Figure 2: set-up (blue), experiment (orange), and evaluation (green). Users will get the necessary materials to read and approve during the set-up phase. The experiment phase involves conducting the actual experiment, while the evaluation phase requires analyzing the results. Each stage was essential and contributed to the overall success of the experiment. The process highlighted each phase in different colors to make it easier to understand. Additionally, there were explanations provided at the bottom of the timeline to help users understand each phase better.

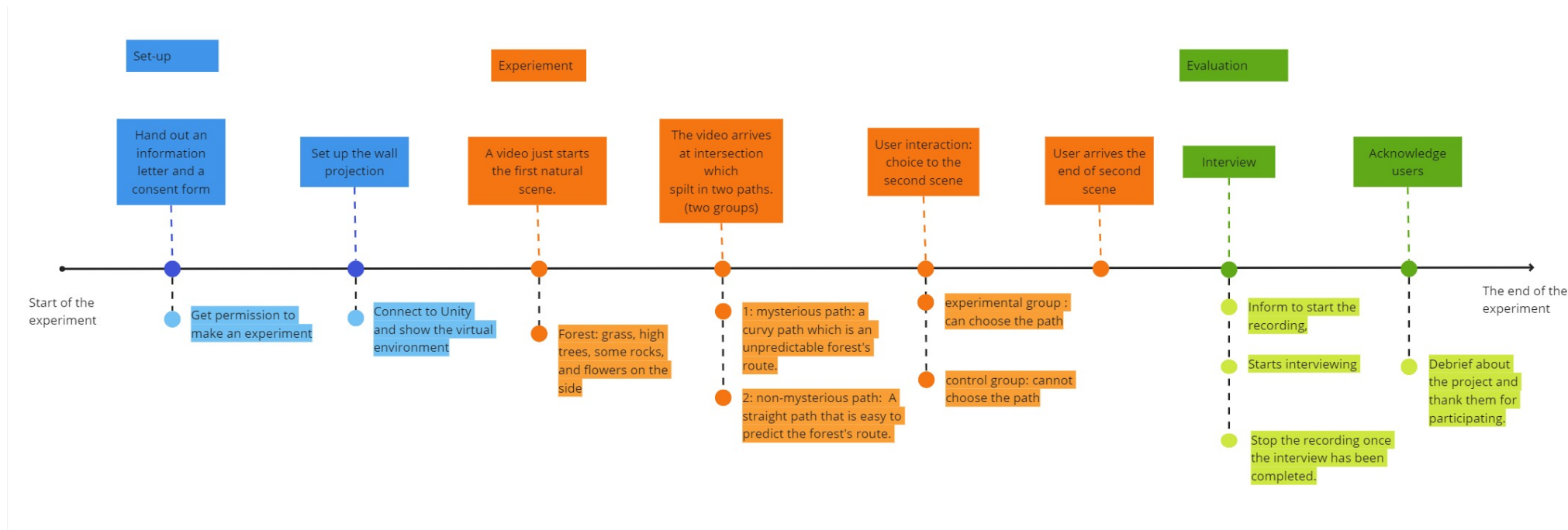


Fig. 2: Overall of the methods from the beginning of the experiment until the end: set-up (blue), experiment (orange), and evaluation (green).

3.2.1 Set-up of the device

The participant signed the consent form as the researcher set up the device. The digital display was projected on a canvas screen using a laptop and a projector. The projector needs a suitable surface to present the digital nature, so it needs to be checked if the room has a white wall because it can reflect the medium. The digital nature will be presented through a projector, which needs to ensure that the size of the projector is well-centered and optimized for 3D quality. Not all participant's homes may have a white wall, so a portable and suitable canvas screen of appropriate size for the experiment was used instead. Figure 3 gives a better idea of what the setup looked like.



Fig. 3: Picture of the wall projector and the screen.

The projector screen consists of a canvas, a stick to hold the canvas, clip holders, and a tripod. The participants will be comfortably seated behind the projector. The height of the tripod is adjustable to accommodate varying participant locations. Once the participants have approved the consent form, the digital nature of the experiment will be displayed on a wall projection screen, and the observation of their behavior will commence.

3.2.2 Experiment groups

There was an experimental group and a control group to investigate the effects of making a decision that may impact the sense of presence. By giving older adults the freedom to choose nature scenes, there will be an exploration of the relationship between the virtual world and the real world regarding decision-making. However, the sense of presence may be affected without the freedom to choose the scenarios. Figure 4 illustrates the experimental condition split into two groups (i.e., an experimental group and a control group) and shows scenarios where in the experiment, both groups will enter the same environment scene with low grass on the mini hills, with a path that the camera navigates like the user is walking in nature. At the end of the first natural scene, the path will be split into two natural scenes, as provided by a directional sign at the intersection. Two groups will interact differently at this stage:

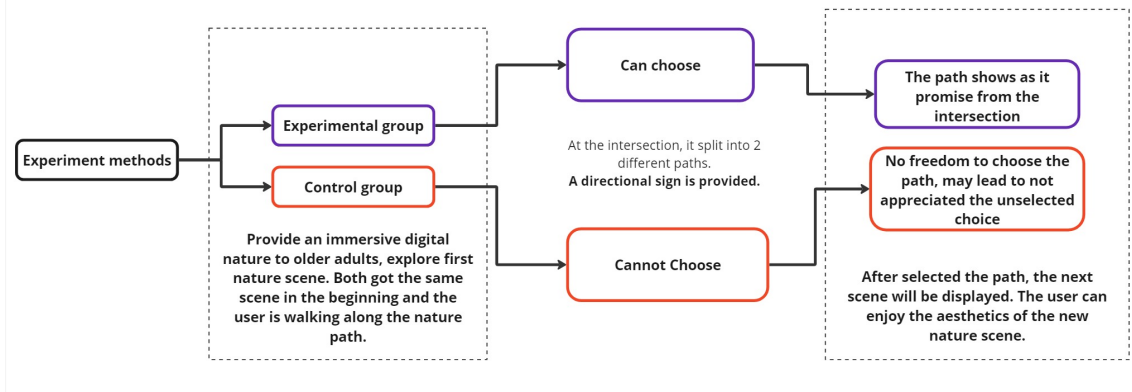


Fig. 4: Overview of scenarios based on the experiment methods.

- Group 1 (experimental): A controller with left and right buttons will be given to the participant. The participant will be instructed on how to use it. The participants will be shown a video of an open natural scene where the camera will navigate until it reaches an intersection point. When the camera arrives at an intersection point, the participants can choose the direction where they want to go.
- Group 2 (control): The participant is shown the same video as the experimental group. The decision on which path to take at the intersection, either left or right, will be randomly assigned to each participant. Unlike the experimental group, the control group will not receive a controller as they cannot choose the path, they will only see the path navigating itself because it is randomly chosen within the scene.

Next, after the path has been selected either by the users' preferences or randomized, the users will explore nature until the end of the scene. While the users experience the digital nature, they will be observed through the respondents' body and verbal reactions by noting the result. As an example, this user scenario will illustrate how user scenarios should look.

- Firstly, the user explores the first scene (open green space) and walks along the path.
- Secondly, the user arrived at the intersection divided into two different nature scenes. The directional sign will hint at how the path would look like.
- Lastly, the user will navigate to the second scene (mysterious or non-mysterious paths) after the path is assigned.

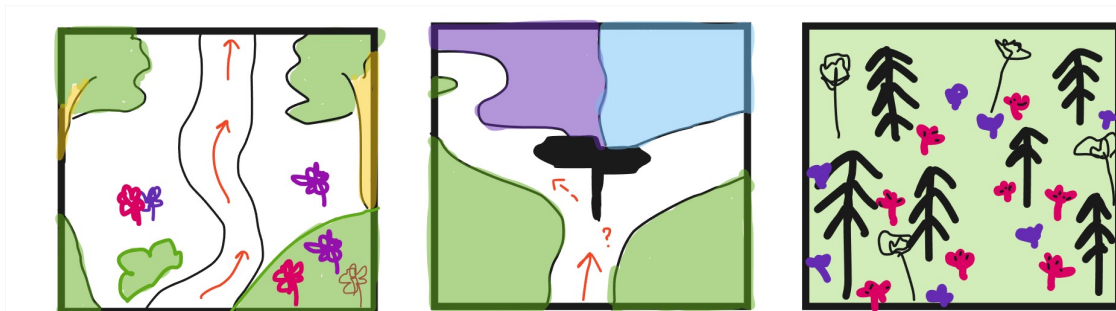


Fig. 5: Overview of scenarios based on the experiment methods.

3.2.3 Interview: Evaluation

After the experiment, an interview will be asked the following demographic questions and open questions on their experiences and thoughts about the experiment. At this stage, the users will be asked for a recording to collect data after the interview, ensuring that all data collection is correctly written. The interview questions can be found in Appendix C, and the summary of the results can be found in Section 7.

Demographic information

The participants are Dutch aged 65 to 78; all information, such as the information letter in Appendix A, consent form in Appendix B, and interview questions in Appendix C, were translated from English to Dutch. Before starting the interviews, an information letter and a consent form were given to the older adults in their own language. For the greatest comfort of the participants, the interviewer will ask questions in Dutch. It is important to conduct the experiment in a comfortable environment, so it may be better to allow participants to express their feelings and opinions in their native language to ensure accuracy and comfort.

3.3 Duration of the experiment

For every experiment, a time slot of 5 to 10 minutes should be reserved to set up the equipment (projection screen, laptop). Participants will have approximately 5 minutes to interact with the prototype and 30-45 minutes of interviews and questionnaires. In total, the participant will spend 1 hour per meeting.

4 Ideation

In order to develop a digital environment that offers interaction, it was necessary to conduct a brainstorming session. Brainstorming allowed us to generate many ideas and then evaluate which idea holds the most promise for addressing the challenge of designing for older adults aged 65 and above who will be interacting with the digital environment.

4.1 Brainstorming

Generating and analyzing multiple ideas is a helpful approach to identifying potential limitations and problems. This, in turn, can lead to finding a suitable solution for the project. This digital nature's main objective is to allow older adults to choose different paths. These paths will incorporate natural characteristics and elements they can interact with. The idea is to create awareness among older adults that they must make a decision between two different paths, which can be called an intersection.

Interaction at the intersections

Upon reaching the intersection, it may evoke an awareness of an interaction and making a decision. The intersection allows the user to choose between two paths representing different natural characteristics. The first path leads to a mysterious, fascinating nature scene with intriguing and unpredictable elements. The second path, in contrast, leads to a calm and peaceful environment as a non-mysterious scene. The purpose of adding two paths for older adults to choose is to help them recognize the significance of their choices. To add interactivity to the experiment, three ideas have been proposed to guide the users in making decisions:

- Human guidance: having a personal interaction, informing the participant when the action is needed as guidance.
- Virtual guidance: offer virtual companionship to older adults. The virtual character will ask them to choose a path.
- Directional signs: provide a directional sign at intersections to guide older adults toward nature scenes.

4.1.1 Human guidance

Human guidance is an idea that allows older adults to experience the digital nature without worrying about technical skills. Adding personal interaction and face-to-face response to the older adults might be an option. This approach can eliminate the need for technical skills but it has a disadvantage, as the virtual and real worlds overlap significantly. Once older adults have to choose the scene, they will hear a question from the examiner asking, "*which path do you prefer?*" This may not increase the sense of presence and could reduce their engagement in enjoying the digital scene since the voice-over breaks the flow.

4.1.2 Virtual guidance

Virtual guidance is an idea that creates more personal interaction with older adults, which is similar to human guidance but replacing human guidance with an animate character that will guide older adults through nature until the end of the experience. During certain moments, older adults will be prompted with a voice-over of the virtual character to interact with. For example, during the walk, the virtual guide will say, "*there is an animal on your left*" or "*did*

you see the deer?" The guide will act as a friend, providing companionship for older adults as they explore the forest, creating a friendly and safe environment. However, some older adults may prefer to experience digital nature without virtual guidance. In this case, the virtual guide will only provide commands for older adults to choose the path. After older adults decide on the nature scene, the virtual character can ask if they prefer to walk alone for the next scene. If they do, the virtual character will not appear. This method will provide two main choices for older adults during the experiment: i) whether they prefer a virtual character to accompany them for the next scene. ii) whether they do not prefer a virtual character to accompany them for the next scene. Virtual guidance can be presented as an animal or a human. If an animal is chosen, it should be friendly, like a dog. According to Graf *et al.* [4] using a virtual dog to guide older adults resulted in them talking to the dog, which created a sense of presence and emotional connection. However, a human form can be used instead to avoid using animals that some older adults might not like or be afraid of. This human form can be represented as an older adult with gray hair in the scene. This approach allows the user to feel no barriers between ages and species.

4.1.3 Directional signs

The directional sign offers a traditional approach to navigation, where individuals can make their own decisions without relying on others. Older adults can read these signs and navigate to their destination without the need for virtual or human guidance. Older adults will encounter a directional sign guiding them to the next scene as they explore the nature trail. The sign will offer two options: mysterious and non-mysterious paths. The mystery path will be to the left and provide clear information about the scene's main elements without spoiling the details. For example, the sign may say "waterfall" to indicate that the scene features a dense forest with a waterfall scene. In the mystery scene, the trees will be tall, and sunlight will be scarce, making it difficult for older adults to predict what lies ahead. The mystery scene will provide excitement, adventure, and an unforgettable experience of an uncommon forest that can be found in real life.

4.2 Chosen idea

After considering three different ideas for navigation assistance - human guidance, virtual guidance, and directional signs - it has been determined that directional signs are the best option. This decision was based on several factors, such as technical skill, familiarity with the proposed ideas, and the potential negative consequences that could result from each option. Directional signs have several advantages over the other two options. They are easy to recognize and understand and are a familiar sight to most people. Directional signs are commonly used in various settings, such as traffic signals and airports, to efficiently assist people in navigating their surroundings. Although human guidance is a conventional method of navigation, it can sometimes disrupt the flow of an experience. On the other hand, virtual guidance could be a great option, but only if the users are familiar with digital technology. In the given scenario, directional signs were identified as the best option.

A directional sign with two arrow plates will be placed to indicate the appropriate direction. The aim is to reduce the gap between the virtual and real world. Three ideas are being considered for displaying information on the plates: text, images, and augmented animations. These ideas will be evaluated to determine their potential to present a choice in a digital nature.

4.2.1 Text

Many text types can describe a virtual experience, such as a long narrative, a single word, or a series of keywords. To keep the experience exciting and keep the information private, certain key elements should be included in the description to maintain an element of surprise.

For example, in a scene set in a dark forest with a large lake and flickering lights from the stone, the sign might say “Lake” to avoid being too predictable and to maintain the mysterious atmosphere. Alternatively, if all the keywords, such as “mysterious, hills, and tall trees,” are included, the surprise factor may be reduced. A long narrative text option, such as:

“Once upon a time, people said there was a mystery lake deep in the forest that was not meant for humans. If you enter this forest, you might see a fairy, but there is no guarantee of what else might be there.”

It could be used to further engage users with a story, but too much text could overwhelm some users’ reading skills.

4.2.2 Image

Images are powerful elements that can convey meaning on their own, whether it is a realistic photograph or an icon representing the main element of the scene, such as a castle. While a castle image on the directional sign can provide direction, it does not necessarily convey the scene’s atmosphere. Alternatively, providing a photo of the scene can help older adults preview what is to come, but it may also remove the element of surprise.

4.2.3 Pop-up animation

Rather than still images, animated images, such as water cascading down from a waterfall, can be utilized. This concept originated from augmented reality, where users can scan a particular area, and a pop-up of animated objects emerges from the real-world object. However, only animated objects can represent the scenarios in a virtual environment. It could also decrease the sense of presence due to unfamiliarity.

4.3 The final idea of digital nature

Expressing the entirety of the natural world through a single word or even a sentence can be challenging. Different languages and cultures may have varying perspectives, and using text alone can sometimes lead to misunderstandings and difficulties in comprehending the information. The pop-up animation would be an interesting idea using AR technology, but in a simple display of digital nature through wall projection, an animation may create a misunderstanding of the content.

Therefore, providing an image may be the best option because it promises that the user will experience the path shape without knowing it is a setting form of mysterious natural settings. By displaying the path the user will experience, it gives an overview of the upcoming experience. Still, it does not give too many hints that may decrease the sense of engagement and involvement.

5 Specification

After selecting the final concept in the ideation phase, the next step is to develop the product by specifying functional and non-functional requirements. This is done in the specification phase. In order to ensure that the final product fulfills its purpose, it is important to have a clear understanding of its essential requirements. One way to do this is by using a MoSCoW prioritization framework, which can help clarify the project's requirements. This framework will be presented in Table 1.

5.1 MoSCoW prioritization

The MoSCoW acronym is used to specify the priority of requirements in a project. It stands for four categories: must have, should have, could have, and won't have. The MoSCoW prioritization method categorizes requirements into functional and non-functional ones. This helps identify which elements should be given priority, ensuring that essential digital components are included. By prioritizing tasks based on their significance, this method can facilitate the development of a digital workflow.

Table 1: Preliminary functional (present in blue) and non-functional (present in green) requirements based on MoSCoW prioritization method

| Must have | Should have | Could have | Won't have |
|---|--|-----------------------------|-------------|
| The digital nature must show 3D nature environment (forest) | Only one user should interact at a time | Wind mechanism | Any animals |
| The user can navigate to the 2nd scene | Additional flowers, trees and grasses | Additional hills, mountains | |
| The camera must move as it is navigating | Looks realistic | Included ambient sound | |
| The digital nature must be presented with a projector and a beamer | Directional signs hint the split paths | | |
| The digital nature must have an intersection that splits into two paths | The user should notice the directional sign. | | |
| The digital nature must have a directional sign | | | |

Functional
Non-Functional

5.2 Software: digital nature

Unity is a platform for developing 2D and 3D applications in real-time, such as games and simulations. making it an excellent choice for creating digital nature scenes. It has features like realistic simulation in wind mechanisms and terrain generation tools. A designer can design and craft landscapes with ease. This project used;

- Unity Hub 3.6.1
- Unity Installation editor 2022.3.15f1
- Used 3D core Unity's built-in renderer.

Unity is a platform capable of providing terrain tools, graphics, rendering, and animation. To design a virtual forest, the terrain may be made by using *Unity*'s terrain tools. Once the terrain is ready, the digital nature can be further developed. The next step is to create a path to which the camera will be attached. This will represent the digital nature that the user is walking in. A path is required to create this effect, and the interaction between the scene and the user is required.

5.3 Path

The first step of creating a path is using the terrain tools and painting the path with different ground textures. A path can be designed to show users different directions to experience nature. In reality, the surroundings are the same regardless of the path's direction. However, by creating different paths, users can interact with the scene and decide which route they prefer to take to experience nature. When the path was determined, trees, flowers, and grass were added to give it a forest-like appearance. However, to fully comprehend the path's shape and purpose, it is important to understand that those two paths have a meaning behind their creation. Figure 6 consists of two paths after it splits at the intersection point: i) a mysterious path and ii) a non-mysterious path. The description of the mystery element can be reviewed in Section 2.3.1.

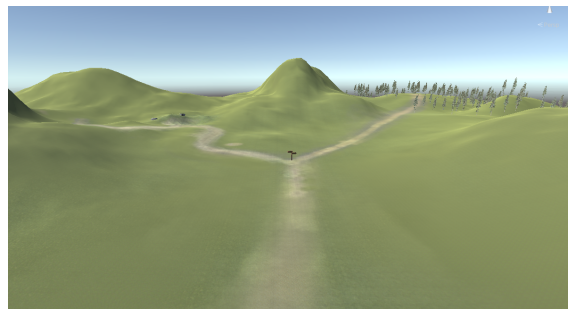


Fig. 6: Intersection splits into two paths: mysterious (left) and non-mysterious (right) paths.

After adding forest elements, such as trees, flowers, and grass, to the terrain, it is important to ensure they are not placed on top of the path. This creates a safe environment with no trees on the path that could obstruct or disturb navigation. Regarding navigation, the path's appearance is important in guiding the user through the scene. To create a feeling of walking in nature, the camera should face the path in a first-person view, giving the impression that the user is walking through the scene. To create this function, the Bézier Path Creator asset was used, which makes it easy to create a path for showcasing digital nature. These are the steps on how to convey the scene:

1. importing the "Bézier Path Creator" asset from the Unity asset store,
2. adding the empty object and adding the path creator script,
3. ensuring that this path is placed on the path painted on the terrain,
4. after creating the path above the terrain, attach the camera with the "path follower," and
5. the camera will follow the path where it was placed and adjust the height based on the preference.

To attach the camera to the scene, it is necessary to create a path first. Additional paths can be created by repeating steps 2 and 3. A camera path can be added either before or after adding all forest elements to the scene. However, in this project, the camera path was added before all forest elements were added to the scene, to check the technical aspect quickly. To ensure that the technical aspect of the digital nature works smoothly, the camera should follow the path and stop at the end of the path. The design of the forest, which includes various trees, grass, and flowers, can be done without requiring any technical skills. If the technical part of the digital nature is successful, it will reduce stress during the implementation of the digital nature.

5.4 Forest

The scene will feature a forest theme and a hill for older adults to experience nature in the virtual environment. This includes trees, grass, flowers, and a path. These objects can either be modeled or imported from the asset store. Lists of assets that will be used in the digital nature will be provided in the later stage.



Fig. 7: Initial design of the forest that consists of trees, flowers, grass, and path.

The Unity asset store provides free assets that contain 2D or 3D objects that can be used with the terrain tool. By adding and arranging these objects, a 3D environment that resembles a forest can be created. During the initial design, three assets were utilized: i) tree assets named "Conifers [BOTD]¹," ii) grass and flower assets "Grass Flowers Pack Free²," and iii) ground texture on the terrain asset "Outdoor Ground Textures³." These free assets were used to cover the forest elements. Specifically, this was represented as a conifers forest.

5.5 Interaction

After adding paths and a camera to follow, the interaction element must be functional in a digital nature as well. The camera follows the first path and stops at the end of the first path, where it splits into another two paths. The next step is adding the interaction at the intersection point, where the user arrives at the intersection point or faces the directional sign.

Directional sign

As the user approaches the intersection, the user will notice a helpful directional sign that provides guidance on which path to take. In Figure 8, the sign indicates what the upcoming paths look like, allowing the user to make a choice.

¹<https://assetstore.unity.com/packages/3d/vegetation/trees/conifers-botd-142076>

²<https://assetstore.unity.com/packages/2d/textures-materials/nature/grass-flowers-pack-free-138810>

³<https://assetstore.unity.com/packages/2d/textures-materials/floors/outdoor-ground-textures-12555>



Fig. 8: The directional sign indicates two paths with left and right plates.

This directional sign was modeled using *Blender*, a free open-source software used for modeling 2D and 3D designs. This directional sign consists of a stand and two plates with a pointy arrow. The design of the plates is based on the mysterious path mentioned in Section 2.3.1. The texture of this design was hand painted, which can be seen in the close-up of the plates in Figure 9.



Fig. 9: Close-up of the directional sign's plates.

Coding of the interaction

The interaction will be activated once the camera stops at the directional sign. To implement the interaction in a digital nature, it needs some coding to command the scene. Relocating the camera to the next path requires all paths to be assigned to allow the program to know which paths were attached to the camera. Once the camera arrives at the end of the individual path, it will stop moving and wait for the next command. In coding, a conditional statement can be used to move the camera left or right along a given path. Pressing the "L" key relocates the camera to the beginning of the path on the left while pressing "R" moves it to the path on the right. Once this function is implemented successfully, the digital nature of the program is ready to be tested. This can be used with any device with L and R keys, such as a keyboard or a controller that reassigns the input to the L and R keys.

5.6 Hardware: controller

There are various types of controllers available for all users, including older adults. However, their technical skills will determine which one is suitable. A controller shown in Figure 10 has two buttons that function exactly as the keyboard's L and R keys. This makes using this controller easier than using a keyboard because a keyboard contains many keys, which can be frustrating. Creating a simple controller with only two buttons is a good option to avoid discomfort.



Fig. 10: A customized, wireless, 3D printed controller with left and right buttons.

The controller has been designed to be user-friendly, providing a simple and intuitive means of navigating a digital environment. Its straightforward controls allow users to move left or right without unnecessary complications. The device's simplicity is a great advantage for older adults, who may need to become more familiar with technology but still desire to engage actively with digital media. The controller provides a non-intrusive digital experience, allowing users to focus entirely on their digital activities without unnecessary stress or frustration.

This controller is powered by an ESP32 microcontroller, programmed to function as a keyboard with left and right arrow keys. When connected to a computer via Bluetooth, it can navigate to the left and right as if the corresponding keyboard buttons were pressed. The controller runs on a 9V battery, and its electronic components are covered by a 3D-printed case that allows users to grip the device without accidentally disconnecting any of the components.

6 Realization

When analyzing a design to determine the areas that need improvement, it is crucial to be specific. This means examining the design thoroughly to identify any minor technical and design issues that require attention. These issues could be broken links, poor image quality, confusing navigation, or inconsistencies in layout. To address these issues, it is necessary to go through a series of processes and make decisions for the final version of the design. This could involve making changes to the design itself or the underlying code. It is important to carefully consider the implications of any changes made, as they could affect other areas of the design. In conclusion, identifying and addressing technical and design issues is a complex process that requires careful decision-making and consideration of the overall aesthetic and functionality of the design.

6.1 Design

The first iteration of the design of the nature scene contained only conifer trees as well as terrain with high and low areas. However, there were no differences in the nature experience after the user selected the path and the diversity of flowers and elements made the experience too plain. It was then determined that, in order to make the nature scene more exciting and complete, a second iteration where the terrain changes after making the decision and including a larger variety of trees, flowers, and grass would be beneficial. While searching for additional assets for trees, flowers, and grass, some additional assets of logs and rocks were discovered. These new elements were used to further highlight the hills and mountains of the second iteration. Figure 11 shows a comparison of the first and second iterations.

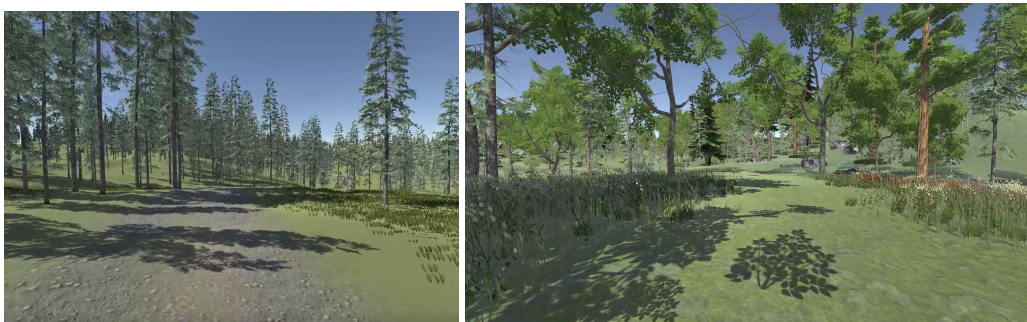


Fig. 11: Comparison between first (left) and second (right) iterations.

In order to create a natural environment, it is important to arrange the various natural elements in a way that feels cohesive and authentic. While it is easy to add more variety of natural elements, designing the overall environment requires a bit more attention to detail. Unfortunately, only limited options are available when it comes to finding free assets to use in a virtual environment. While it is possible to model each component, this takes a significant amount of time and effort, especially when it comes to creating branches, leaves, and flowers. Therefore, importing free assets is often the best option due to its cost-effective solution and diverse selection, obtaining high-quality resources without financial investment. However, it is important to use these assets thoughtfully and in a way that enhances the overall design rather than simply adding them carelessly. If not used carefully, they may actually detract from the feeling of experiencing nature because they can disrupt the intended realism of the environment.

6.2 Technical realization

While the technical realization comprises many steps belonging to programming and use of the software. The main challenges that need to be solved are the tilt of the camera, the implementation of the wind mechanism, adjusting the level of detail (LOD), troubleshooting rendering shortcomings, and general problems found when using imported assets.

6.2.1 Camera movement in Unity

In the first development stage, the camera was attached to the path directly. A problem with this approach is that the camera's angle was not parallel to the horizon. It is challenging to fully present nature when the camera angle is tilted with respect to the horizon, which detracts from the calming effect because humans tend to align the eye level to the horizon while walking, so the camera should remain level to create a more realistic experience. Figure 12 shows how the digital nature experience would look when it has a tilted camera.



Fig. 12: A scene that appears to be tilted due to the camera's transformation.

To solve the problem of the tilted camera, an empty object was added to the path, and the camera was commanded to follow the empty object in every degree of freedom except the alignment to the horizon. This will keep the camera parallel to the horizon, even if the terrain is not smooth.

Wind mechanism

While working on implementing a wind mechanism to the scene, it became clear that some adjustments were necessary to ensure consistency in tree movement. Initially, only the conifer trees swayed naturally, while other trees remained static. After failing to add the wind mechanisms to all the terrain components, an empirical solution was found to give the impression of movement consisting of strategically planting conifer trees near non-swaying counterparts to maintain visual coherence and placing the camera lower to the ground to emphasize the swaying of the grass.

Level of detail

Some problems arose after new assets were added. The new trees were not swaying as intended and appeared blurry when the scene was viewed from a distance. However, when the camera got closer, the trees became clearer. This issue was later found to be related to the LOD. If a participant observes a blurry object in a scene, it can negatively impact their experience. This is especially evident when the surrounding objects in the scene are highly detailed, with realistic textures, shadows, and colors. As shown in the left of Figure 13, such blurriness can be unpleasant. After investigating the issue, it was discovered that the trees in the package were missing an LOD level. Adding an LOD component to each tree in the scene resolved the issue.

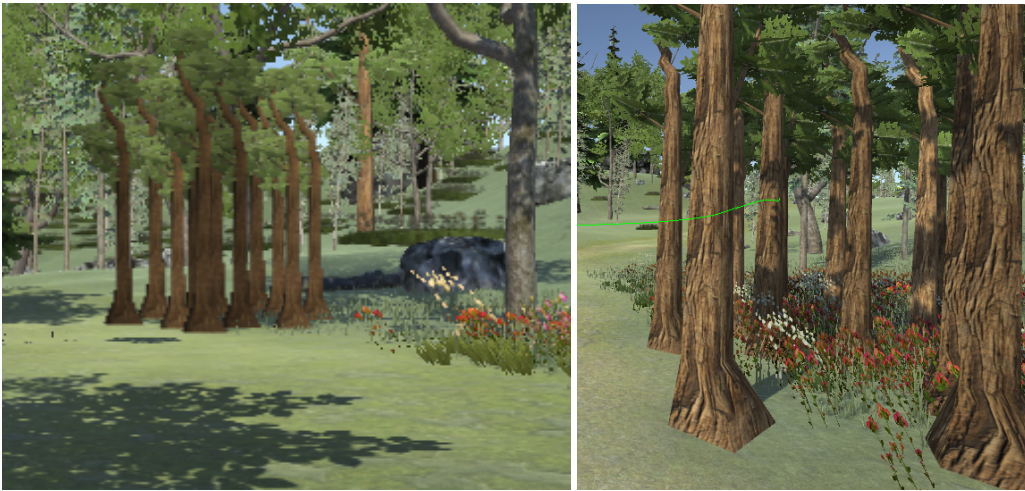


Fig. 13: The level of details on the asset trees.

Rendering

After conducting the test, it was observed that the trees, grass, and flowers were popping up as the camera moved closer to these objects during rendering. Although the problem was attempted to be solved by adjusting the camera range, the issue still persisted. While this problem was not entirely solved, it served as a useful indicator to determine whether or not participants were aware of the technical issue.

6.2.2 Use of imported assets

It is important to note that not all assets used in digital design come from the same designer, meaning that the styles and textures might not match. While it is preferable to have realistic trees like the conifers asset, it can be challenging to find trees that fit together seamlessly. Therefore, it is necessary to carefully select suitable trees. A list of all the assets that were used is provided in Table 2.

At the beginning of the experiment, only the three digital assets (marked in blue in table 2) were used to create a forest-themed. These assets included trees, grass, and flowers. However, the forest appeared to be a coniferous forest and to create a more diverse experience, various types of trees, flowers, and grass must be added. As a result, the experiment requires the addition of more assets to improve the experience in digital nature. Additional assets that were added can be found in Table 2 (no marked color), the collection of assets includes the

"Tree Collection Pack 2017"⁴ and "Fallen Tree Barrier - Free"⁵ for trees, "Materials Sample Vol.1"⁶ for the ground, grass and flowers in addition to "Terrain Sample Asset Pack"⁷ and "Rocky Hills Environment - Light Pack"⁸ for rocks. All these types of assets can also be found in the asset called "Flooded Grounds"⁹.

Table 2: All forest assets that were used in the digital nature

| Trees | Grass and Flowers | Ground | Rocks | All |
|----------------------------|---------------------------|-------------------------|--------------------------------------|-----------------|
| Conifers [BOTD] | Grass Flowers Pack Free | Outdoor Ground Textures | Rocky Hills Environment - Light Pack | Flooded Grounds |
| Tree Collection Pack 2017 | Terrain Sample Asset Pack | | | |
| Fallen Tree Barrier - Free | | Materials Sample Vol.1 | | |

After discovering some free forest assets, not all had the expected mechanisms. The wind mechanism and the level of detail needed to be fixed with the new assets added to enhance the nature experience with various trees, flowers, and grass. When considering adding new assets to the system, it is important to keep in mind that not all of them will be compatible with wind and LOD support. This means that certain assets may not have been designed to work with these features and may not function correctly if added to the system. Therefore, ensuring that any new assets added are compatible with wind and LOD support to avoid any issues. Due to the limited free asset components, even if they are not compatible with the wind and LOD support initially, some solutions could solve the problem.

6.3 Pilot test

During a pilot test, an interviewer from the Netherlands who was 69 years old conducted interviews with actual participants. This pilot test was conducted in English. The user was given a controller to select the course for a pilot test. While experiencing the virtual environment, the user felt relaxed. However, there seemed to be an issue with the directional signs, as the user stated, "I tried to figure it out, but I don't know what it means." After conducting a test, it was found that the directional sign was difficult to comprehend as it was placed too far away from the camera's view. Upon further investigation, it was discovered that the sign was positioned in an inconvenient location. To address this issue, the path was extended closer to the sign, ensuring that it is easily visible and comprehensible to users.

⁴<https://assetstore.unity.com/packages/3d/vegetation/trees/tree-collection-pack-2017-76974>

⁵<https://assetstore.unity.com/packages/3d/fallen-tree-barrier-free-49089>

⁶<https://assetstore.unity.com/packages/2d/textures-materials/floors/materials-sample-vol-1-39745>

⁷<https://assetstore.unity.com/packages/3d/environments/landscapes/terrain-sample-asset-pack-145808>

⁸<https://assetstore.unity.com/packages/3d/environments/landscapes/rocky-hills-environment-light-pack-89939>

⁹<https://assetstore.unity.com/packages/3d/environments/flooded-grounds-48529>

7 Evaluation

Choosing within the virtual nature scene is the core element of the project, to see the relationship between the freedom to make choices and the sense of the presence of digital nature. Two experiment groups were conducted in this project, as explained in Section 3.2.2. To compare the effect of being able to choose, one group (experimental group) received a controller to choose the nature scene at a certain point in the video. In a second group (control group), the path will be randomly assigned, and automatically navigate to the next scene without making their own decisions.

After all participants' opinions were collected, the results were categorized and summarized. Figure 14 summarizes the results from the experiment involving six participants divided into two groups. The summary focuses on their overall impressions, sense of presence, opinions regarding the directional signs, and choices. Figure 14 shows the number of participants, their groups, ages, and matched/unmatched opinions.

| Group | Experimental group (could choose) | | | Control group (Could not choose) | | |
|---|--------------------------------------|-----|-----|-------------------------------------|-----|-----|
| | PA1 | PA2 | PA4 | PA3 | PA5 | PA6 |
| Participants | | | | | | |
| Age | 65 | 70 | 71 | 73 | 73 | 78 |
| Overall impressions | | | | | | |
| The experience is realistic | | | | | | |
| I found the experience beautiful. | | | | | | |
| The experience made me curious | | | | | | |
| Sense of presence | | | | | | |
| I felt connected to nature | | | | | | |
| I felt present | | | | | | |
| I was focused | | | | | | |
| Directional sign (intersection) | | | | | | |
| I find the sign clear | | | | | | |
| I did not pay attention to the sign | | | | | | |
| Choice | | | | | | |
| I would like to have more choices available | | | | | | |
| I prefer to make a choice | | | | | | |
| I prefer the left path | | | | | | |

Agree
 Disagree
 Not mentioned

Fig. 14: Summary of the participant's result.

7.1 Evaluation on overall impressions

After analyzing the feedback from the participants, it was found that the majority of them had a positive experience with the digital nature. The use of technology not only enhanced the overall experience but also heightened appreciation for natural scenery through the use of high-definition imagery and virtual tours of nature. However, the analysis also revealed some negative feelings associated with the experience. To provide a comprehensive understanding of the feedback, quotes will be used to showcase the positive and negative aspects of the participants' experience.

Experimental group who could choose the path

During the experiment, the majority of participants chose to take the left path, which was described as the mysterious path. Participant 2 had positive feelings towards the digital nature due to the realistic component where there is a connection between him and digital nature.

"I feel connected to that nature in the overall picture because, for me, it had a certain realism." - PA2,

Participant 4 experienced a state of relaxation and enjoyed and was impressed by the beauty of the environment.

"I found it relaxing, I liked it. My first impression was really beautiful." - PA4

The left path, being the preferred option for most participants in the experimental group, may have contributed to the overall success of the experiment by creating a sense of intrigue and excitement among the participants. In contrast to the positive feelings of PA2 and PA4, it was evident that PA1's experience was not entirely positive after choosing the right path despite being presented with both options.

"(It was) boring because it was just the straight path, and I went up slowly, and the environment was always the same." - PA1,

When asked about the reason behind choosing the right path, PA1 answered that he chose the path that appeared to be the shortest one. The negative feelings towards the experience could be explained by the camera's speed or the environment's similarity before and after the choice.

Control group who could not choose the path

Although the participants in the control group were unable to choose the path they desired, the results showed both positive and negative outcomes. Participants 5 and 6 experienced the left path, while participants 3 experienced the right path. Participant 5 expressed a complex emotional response to the path, indicating a mixture of excitement and optimism. This emotional state was considered to be positive.

"Almost too good to be true." - PA5

Participant 6 appreciated and enjoyed the beauty of the environment and found it interesting.

"I liked it, when I see things like that, I find it interesting." - PA6

Similarly to the experimental group, the participants who experienced the Left path reported positive feelings, while the participants who experienced the Right path reported negative feelings.

Participant 3 was the only one who was randomly assigned to the path on the right, which is not the path that he preferred to experience. PA3 was curious about the surroundings of nature and asked whether it was international or Dutch nature. Curiosity arose while experiencing, which was considered as both positive and negative feelings. However, once a negative feeling was mentioned, the overall feeling turned negative.

"I saw big boulders, it makes me curious, seems foreign to me." and "I found the path to be boring, monotonous to go straight," - PA3

Observation about overall impressions

Both PA1 and PA3 experience the right path, which is non-mysterious. There is no conclusive result if the overall feeling is affected by the non-mysterious path or even the sense of presence because they do not feel connected to the environment. The interesting part here is that these participants, PA2, 4, 5, and 6, are the participants who experienced the left path. They enjoyed the virtual environment, expressed a positive impression of the digital nature, and experienced feelings of interest, relaxation, and appreciation for the beauty of the environment.

7.2 Evaluation on sense of presence

In both study groups, the older adults reported feeling a sense of presence and even described it as if they were walking around in the environment. Sense of presence means "sense of being there." Being present or felt there seems to fall under this direct definition. Not all participants experienced a sense of presence, such as participant 1, who had no feeling of a sense of presence. There are different ways to define the sense of presence based on the participant's perception. It can be expressed as a direct feeling or described descriptively. Sometimes, it is challenging to express the sense of presence, as experienced by participant 3.

Experimental group who could choose the path

Participants 2 and 4, who chose the left path, experienced a sense of presence. They expressed feelings directly linked to the definition of the sense of presence term. They also mentioned that they felt connected to the virtual environment. PA2 felt connected to the digital nature due to a realistic level of nature, allowing the participant to portray himself more with nature. There is another factor that may influence the sense of presence.

"I felt present" - PA2, and
"I really felt there" - PA4

In contrast, participant 1 selected the right path, but he experienced a lack of presence and connection with the virtual environment. It is unclear whether this is due to technical aspects where the participant mentioned the speed, difficulty to see the plate on the directional sign, or a subjective experience on the participant's part.

"No. I had no feeling with the digital environment" - PA1

Control group who could not choose the path

As previously mentioned, participants 5 and 6 were randomly assigned to take the left path. They both reported experiencing a sense of presence without choosing the path. Their descriptions of this sensation were quite detailed and clear, indicating a strong understanding of their feelings.

"You were pulled into it. It was like you're walking there" - PA5
"I just had the feeling that I was pushed in a wheelchair" - PA5

"You actually walked through a kind of valley, and everything went up, what you can see." - PA6

Participant 3 could not describe the feeling as clearly as the other two participants. He felt a sense of presence proven by his reply to the questions *Did you feel present in the digital nature? Can you describe it?* ":

"Yes, I felt something about it." -PA3

Observation about sense of presence

The study showed that all participants in a control group experienced a sense of presence without being given a choice in the digital environment. In comparison, the experimental group was given a choice, and not everyone experienced a sense of presence. On the other hand, the experimental group could describe the sense of presence directly in its definition and felt a connection to the virtual environment, while the control group only had a vague understanding of the sense of presence in the virtual environment.

Apart from the sense of presence and connectedness, realistic elements were mentioned by both groups. This recognition triggered a memory recall for the participant, leading to whether the landscape is Dutch or not. In the **experimental group**, participant 2 mentioned feeling a sense of realism and asked if the landscape was from the Netherlands.

"Realistic, the composition of the landscape is sensible. From here in the Netherlands, huh?" - PA2

Similar to a **control group**, Participants 3 and 6 recognized the place. PA3 asked if it was a Dutch or international landscape because it made him curious. He further asked if the environment could refer to the landscape he knew. Both PA3 and PA6 mentioned the realistic composition of the landscape in the first impression of the digital nature. PA6 recognized and compared the virtual environment to the real one, the same as PA3.

"Seems foreign to me, maybe Yellowstone or something?" - PA3

"I recognize it, like the dolmens (hunebedden) in Drenthe." - PA6

7.3 Evaluation on directional signs

There were questions about whether the directional sign was clear enough and if it affected decision-making at intersections. The control group did not have the chance to make a decision, so their interaction was considered passive. Meanwhile, the experimental group had active interaction where they could choose their path. It was important to investigate both interactions to determine whether the directional sign was necessary or if it created an awareness of the participants experiencing digital nature. During the interview, participants described the appearance of directional signs that indicated two paths. However, they had different interpretations of them. Some participants understood the signs and described one path as winding while the other as straight. On the other hand, others had difficulty understanding the signs or did not notice them.

Experimental group who could choose the path

When asked about the feelings he experienced when finding the directional sign and about the extent to which the directional sign was clear, Participant 4 answered:

"One was a straight road, I didn't find that interesting and the other one went like (meandering) that, I found it much more exciting." - PA4

"A straight road and a winding road, so that's very clear" - PA4

Participant 1 had contradictory observations regarding the directional sign. During the experiment, participant 1 found it challenging to see the plates, and when asked whether the directional sign was clear, he pointed out that the directional sign was not clear. In contrast, during the interview, he was able to identify that the plates on the left and right indicated the path to follow, which led to confusion as to whether he understood or did not understand the directional sign.

"Yes, difficult to see and I discovered that one was a straight path up and the other was a winding path up." -PA1 and "No, it wasn't clear" - PA1

Participant 2 mentioned that the directional sign was clear but did not describe it as the other two participants did. Instead, he relied on his intuition and how it came from his curiosity.

"Yes, very clearly. With a directional sign, you never know what you will encounter, if you haven't been there before, so it's matter of making a choice" - PA2
"What's on the sign? It doesn't really matter that much for me. I just have the curiosity somewhere inside me to want both sides." - PA2

Control group who could not choose the path

The fact that participants in experimental groups noticed the directional sign provided an insight into their assigned condition. The control group was different because they could not choose the path; once they arrived at the intersection point, they stopped at the direction sign for approximately 10 seconds before the scene randomly moved to the next path. Participants 5 and 6 did not notice the sign or the directional sign. They stated:

"I didn't really pay attention to that. I paid more attention to the surroundings"- PA5
"I didn't see any arrows. Didn't notice, I'm interested in the green" - PA6

Some people are not paying attention to the directional signs and are instead distracted by the beautiful natural environment on the side. This may be because the participants in the control group were not given a controller to choose their path. Other participants also did not mind not having a chance to choose their own path, and PA3 preferred the left path. He is the only one who noticed the signs and described the paths.

"Arrow to the left indicated how do I get to a winding path and the right arrow says that way straight ahead" -PA3 and "It was clear to me" - PA3

Observation about directional signs

The participant was presented with a directional sign displaying two distinct paths, allowing them to choose their preferred path. While some rely on their intuition or a reason to make a decision, those who prefer passive interaction may find the directional sign useless if they cannot choose a path.

7.4 Evaluation on the choice element

The reason behind the decision-making is individual. It could be based on intuition, the easiness of the path, or the prospect of adventure.

Experimental group who can choose the path

Participants could describe the direction sign, but not all based their decision on the images. The sign was clear, but it did not matter if PA2 followed his curiosity and chose based on his intuition. PA2 and PA4 were pleased to have the opportunity to choose, while PA1 was indifferent to the options presented.

"Followed my instinct" - PA2

"I found it more interesting." - PA4

PA1 has no feeling about making a choice. It was initially interpreted as contradictory, but upon further discussion with PA1, it was revealed that he had no emotional attachment to the digital nature by stating that it is possible that the participant's interest in digital nature influenced the outcome.

"Shortest path" - PA1

Control group who cannot choose the path

During the experiment, PA5 and PA6 were unable to make a decision. However, they were comfortable with being limited in their decision-making abilities and did not express any frustration or dissatisfaction. Despite their indecisiveness, they still enjoyed the overall experience of being in nature.

"(without a choice) fine, no problem." - PA5

"I didn't mind, it's just a matter of waiting and seeing." - PA6

In contrast to PA3, who is in a control group along with PA5 and PA6, this participant prefers to choose the left path if given a chance. The right path was randomly assigned to him, which differs from PA5 and PA6, who got the left one.

"Yes, then I would have chosen the left. Because there was a winding path. I think twists and turns are more varied than straight." - PA3

Observation about the choice element

People's preferences for choosing a path appear to be influenced by their past experiences. Moreover, some individuals may have personal reasons for making a choice that is not directly related to directional signs. For instance, some participants may prefer to follow the scene rather than be curious about whether they have the option to choose. They may enjoy the digital nature without any choice, which could also be related to their personality and preferences.

8 Discussion

This research aimed to investigate the impact of providing older adults with a choice to interact with the virtual environment on the sense of presence and perception within the digital nature environment. By giving them control over the elements in the scene, we can determine if this approach makes digital nature more accessible to older adults, who may not be as acquainted with the use of technology. Adding choice as a fundamental aspect of the experience can help us understand if this approach is suitable for older adults and can pave the way for further improvements in digital nature. It leads to the research question:

"Does having a choice affect the sense of the presence of older adults in a digital nature?"

The hypothesis for this question states that providing older adults with an opportunity to make a choice in a digital environment will positively influence their sense of presence compared to those who do not have such an opportunity. An experiment was conducted to evaluate this hypothesis.

The digital nature design included a choice element where users could select their preferred path from two options. The interaction took place at the intersection, clearly showing the path split into two paths, and the descriptions can be seen on the directional sign's plates. To evaluate the impact of this choice element, two conditions were tested: one where the user could control the scene (experimental group) and the other where they could not (control group). A controller was provided to the experimental group, allowing them to choose their path.

8.1 Interpretation of Findings

After analyzing the results, both groups of participants reported enjoying their digital nature experience. The experimental group showed a clear preference for two out of three participants on the left path and mentioned that they preferred to have control, indicating that allowing older adults to control their digital nature experience can enhance their enjoyment. It should be noted that not all participants held the same opinions about the decision-making process. Only participant 1 chose the path on the right and had no particular preference regarding control. On the other hand, the control group enjoyed the experience without controlling it, as they were not aware of the directional sign. The fact that they were not distracted by the directional sign and were focused on and involved in their surroundings indicates that they were enjoying the scene.

Experimental group who could choose the path

In this experiment, this group was given the freedom to choose the path without direct guidance. They made the choice without asking the researcher when they had to make a choice. This freedom allowed them to rely on their intuition to guide their choices. The simplicity of the controller facilitated intuitive interaction, as participants could easily interpret the direction cues provided by the button with left and right directions.

Intuitive decision-making is possible even in digital environments. This discovery opens up the potential for intuitive interaction with digital technology. In this experiment, participants were only presented with two options. Based on feedback, participants have suggested that adding more choices would make the experience more engaging. Participant 3 mentioned a crossroads which could mean adding another path in the middle of the two existing ones. It

would be useful to conduct further research by incrementally adding more options to explore whether older adults prefer the same path or are open to exploring new ones. Next to that, besides the choice and sense of presence variables, this experiment found a sense of realism and sense of agency that could be used to explore the future relation with the digital nature because this group's behavior showed that giving people a choice can affect their sense of realism and agency.

- Participants mentioned realism as a first impression, and the sense of presence was experienced. There could be some experiences that compare the realistic and non-realistic, like a low poly environment. Instead of splitting the path into two paths that have similar natures, the path can be split into the level of realism.
- Participants prefer to make a choice and are happy to be able to choose. Participants mentioned that they had control over the choice. Even then, it was mentioned that during the path, it is not possible to control, where the participant missed to be able to stop at some point.

"Yes, I had control over the choice, I had to go left or right." -PA1

"You no longer have any control over that path. The only thing I missed was being able to stop at things that were interesting to me." -PA2

"Well, good, that I was in control." -PA4

Control group who could not choose the path

In contrast to the experimental group, the control group users were not provided with a controller to choose the path. At the intersection, the scene paused for a few seconds before randomly moving on to the next path. Although a directional sign was present in front of them, the users were unaware of it as they were enjoying the surroundings.

The participants in the control group felt a sense of presence when they were not given a choice. However, when asked about their preference, only participant 3 was enthusiastic about having a choice. Despite the lack of active interaction, the passive experience still gave the users a feeling of being present in the virtual environment. Therefore, the size of the controlling group should be increased to obtain more statistical data about their responses.

"Yes, then I would have chosen the left" - PA3

"Fine, no problem. (no preference)" - PA5

"I didn't mind, it's just a matter of waiting and seeing" -PA6

8.2 Implications and Insights

Including interactive features, such as controllers that allow older adults to make choices within the virtual environment, can enhance their engagement and satisfaction. This element showed that it has important implications for the development of digital nature, especially for older adults. Therefore, the designer should consider offering various paths or options to meet individuals' preferences. Based on the results, some participants prefer having more choices in the digital nature. This can be achieved in various ways to fit the participant's preferences. During the experiment, participants were only given one chance to make a choice and had to choose between just two paths. To improve the experience, more paths could be presented, such as three or four options, or there could be several choices after the previous one. Participants expressed a desire for more choices, so adding a second or even a third round of choosing a path to better meet their expectations is possible.

9 Conclusion

The experimental group's results indicate that giving older adults the chance to make a choice in a digital environment positively impacts their overall feelings and experiences. The experimental group chose their path and reported experiencing a sense of presence, being happy with their decision, and preferred having the ability to choose. The use of a simple controller enabled them to select their path, and the participants had a positive attitude toward accessibility. On the other hand, the control group experienced a sense of presence without making a choice. They did not mind experiencing a passive interaction. Showing that older adults without a choice also have a positive attitude towards digital nature. The results do not fully prove that providing an opportunity for older adults to make a choice in a digital nature positively influences their sense of presence compared to those who do not. The study results indicate that providing a choice can improve the participants' feeling of being present in the experience. However, it is important to note that this feeling may still occur without a choice. Therefore, the study results are not conclusive.

Regarding the question of whether a mystery element is valuable in this type of virtual experience. Participants who chose by themselves and randomly chose the right (non-mysterious) path had a negative feeling and less sense of presence due to needing to feel connected to the digital nature. In contrast, participants of both groups who experienced the left (mysterious) path showed positive overall feelings. There is still no conclusive result due to only two participants experiencing the path on the right(non-mysterious); the element of mystery may enhance the sense of presence in older adults if there are more participants who conducted both paths (mysterious and non-mysterious).

10 Limitation and Further research

One of the main limitations is the small sample size. Although the study included a sufficient amount of participants to conduct the experiment, the results may need to be more generalizable to larger populations. Therefore, it is recommended that the study be replicated with larger samples to confirm the findings.

At the moment of this study, all participants are living in their homes; in the future considering others living in nursing homes could be valuable. It is important to note that the study only included individuals aged 65 and above, and this could affect the results. For instance, those 65 years old may still be active and mobile, while those 85 years old may have more difficulty leaving their homes due to mobility issues. Therefore, focusing on older adults with mobility difficulties may be more appropriate. Additionally, different age groups may have different mobility abilities, so future research should be specifically targeted toward individuals with mobility disabilities.

The experience of the digital world can differ from person to person and can be influenced by factors such as mood, personality, time of day, and weather conditions. To overcome this challenge, it is important to narrow down the experience to fit the individual. One way to do this is by creating a survey for each participant to determine what kind of digital nature they would like to see. Personalizing the experience according to their preferences can mitigate the impact of external factors, such as their mood. For example, if a participant feels down on the day of the experiment, they may not be in the mood to engage with digital nature. However, incorporating elements they enjoy or prefer seeing can help them have a more positive experience and enjoy interacting with the digital environment. Making digital content personalizable based on the user's mood is an excellent way to enhance their experience. For example, if a user has an off day, they would appreciate the option to choose content that matches their mood. If this feature is implemented, it would be a great advantage for users. According to the participants' suggestions, adding more animals, diverse landscapes, and interactive features would enhance the appeal of digital nature. For instance, incorporating waterscapes like rivers and ponds or including a bench for them to take a break.

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Appendices

A Information letter

Informatiebrief

Titel: Het ontwikkelen van een digitale naturomgeving voor personen van 65+

Doel: Het doel van de gebruikersevaluatie is om een prototype te testen. Dit is onderdeel van het afstudeerproject van de onderzoeker als student van Creatieve Technologie. Het project ontwikkelt een digitale naturomgeving voor personen van 65+, dat de onderzoekers in staat stelt om het interactieve gedrag in een virtuele natuurlijke omgeving te bekijken.

Procedures: Voordat het project begint, zullen er algemene vragen worden gesteld over uw recreatieve activiteiten die voornamelijk plaatsvinden in de natuur, zoals bijv. wandelen. En algemene informatie van de deelnemer zoals bijv. leeftijd.

Gedurende de sessie zal u worden gevraagd te kijken naar een video, welke op een muur geprojecteerd wordt gedurende maximaal 5 minuten. In het experiment wordt een natuurlandschap getoond, u volgt een pad een T-splitsing, waarna u naar de volgende omgeving wordt geleid. Daarna zal de deelnemer worden geïnterviewd; dit duurt ±30-45 min om de ervaringen van de test te delen.

Tijdens het kijken, zullen de onderzoekers mogelijk aantekeningen maken van hoe u reageert op de video, inclusief hun mondelinge en gezichts-expressies. Als toevoeging zal de audiorecorder worden gestart vanaf het begin van het interview tot het eind van het interview.

Belangrijk: Het is niet de bedoeling om persoonsgegevens te gebruiken tijdens of na deze test, en alle opgenomen data zal anoniem worden gemaakt. Indien gewenst kan de deelnemer op ieder moment de deelname stoppen.

Duur: Ongeveer 45-60 minuten

Confidentiële informatie: Deelnemers zijn niet verplicht persoonsgegevens te delen, de verzamelde gegevens zijn anoniem en worden alleen gebruikt voor de afstudeeropdracht van de onderzoeker. Het zal online worden gepubliceerd als onderdeel van de database van de Universiteit Twente. De audio-opnames worden uiterlijk in maart vernietigd, terwijl de geschreven tekst (anoniem gemaakt) behouden blijft voor onderwijs en onderzoek.

Contact gegevens van de onderzoeker: Naam: Jintana Lammerts van Bueren

Email: j.lammertsvanbueren@student.utwente.nl

Ethisch formulier goedgekeurd door de EEMCS Ethisch Commissie: ethicscommittee-cis@utwente.nl

B Consent form

Formulier toestemming om een digitale natuurbeleving te ontwikkelen voor personen van 65+

U KRIJGT EEN KOPIE VAN DIT TOESTEMMINGSFORMULIER

| <i>Gelieve de te kiezen vakjes aan te vinken</i> | Ja | Nee |
|--|-----------------------|-----------------------|
| Deelnemen aan de studie | | |
| Ik heb het studiemateriaal gelezen en begrepen d.d. (DD/MM/YYYY), of het is mij voorgelezen. Ik was in staat om vragen te stellen over de studie en mijn vragen zijn naar mijn tevredenheid beantwoord. | <input type="radio"/> | <input type="radio"/> |
| Ik geef op vrijwillige basis toestemming om deel te nemen aan de studie. | <input type="radio"/> | <input type="radio"/> |
| Ik begrijp dat ik antwoorden op vragen mag weigeren. | <input type="radio"/> | <input type="radio"/> |
| Ik kan op elk ogenblik de studie stopzetten zonder opgave van reden(en). | <input type="radio"/> | <input type="radio"/> |
| Ik begrijp dat met het deelnemen aan de studie een interview wordt afgenomen van ongeveer 30 minuten en ik een video van een digitale natuurbeleving zal zien gedurende 5 min. In totaal zal het experiment ongeveer 45-60 minuten duren. Het interview zal schriftelijk naderhand worden opgeschreven, en deze tekst zal als anonieme informatie worden verwerkt. De audio-opnames worden uiterlijk in maart vernietigd, terwijl de geschreven tekst behouden blijft voor onderwijs en onderzoek. | <input type="radio"/> | <input type="radio"/> |
| Gebruik van de informatie van de studie | | |
| Ik begrijp dat informatie die ik aanlever zal worden gebruikt voor een afstudeerverslag. | <input type="radio"/> | <input type="radio"/> |
| De verzamelde data gedurende het onderzoek zal helpen te bepalen hoe een keuze in de digitale natuur beleving kan leiden tot een gevoel van aanwezigheid. | <input type="radio"/> | <input type="radio"/> |
| Het verslag zal beschikbaar zijn in de databank van de Universiteit van Twente, en het zal ook worden gedeeld met het studieteam. | <input type="radio"/> | <input type="radio"/> |
| Ik begrijp dat persoonsgegevens zoals (bijv. mijn naam of waar ik woon), NIET zal worden gedeeld binnen het studieteam. | <input type="radio"/> | <input type="radio"/> |
| Ik ga akkoord dat geanonimiseerde antwoorden worden genoemd in onderzoeksrapporten. | <input type="radio"/> | <input type="radio"/> |
| Wederzijdse toestemming om te worden gefilmd/opgenomen | | |
| Ik ga akkoord met het maken van audio opnames. Dit zal beginnen bij het gebruik van het prototype en zal eindigen als het interview stopt. | <input type="radio"/> | <input type="radio"/> |
| Toekomstig gebruik en hergebruik van de informatie voor derden | | |
| Ik geef toestemming dat mijn persoonlijke informatie van het interview, onherkenbaar wordt gemaakt, en dat deze gearhiveerd zal worden in de databank van de universiteit Twente zodat het gebruikt kan worden voor toekomstig onderzoek en leerproces. | <input type="radio"/> | <input type="radio"/> |
| Ik geef de onderzoekers toestemming om mijn contactinformatie te houden en om mij op de hoogte te houden voor toekomstige onderzoeksprojecten (dit is optioneel). | <input type="radio"/> | <input type="radio"/> |

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Handtekeningen

Naam van de deelnemer

Handtekening

Datum

Voor deelnemers die niet kunnen tekenen, vink het vakje in plaats van handtekening



Ik ben getuige van het correct doorlezen van het formulier van wederzijdse toestemming met de potentiële deelnemer en de persoon in kwestie heeft de gelegenheid om vragen te stellen. Ik bevestig dat de persoon in kwestie uit vrije wil deelneemt.

Naam van de getuige

Handtekening

Datum

Ik heb het informatieblad accuraat aan de potentiële deelnemer voorgelezen en, in al mijn eerlijkheid, verzekerd dat de deelnemer begrijpt dat er uit vrije wil toestemming is gegeven.

Jintana Lammerts van Bueren

Naam onderzoeker

Handtekening

Datum

Studie contact details ter informatie:

Jintana Lammerts van Bueren

j.lammertsvanbueren@student.utwente.nl

Contact informatie voor vragen over de rechten van de onderzoeksdeelnemer

Als u vragen heeft over de rechten van de onderzoeksdeelnemer, of informatie wilt verkrijgen, stel vragen, of bespreek eventuele bezwaren over deze studie met iemand anders dan de onderzoeker(s), gelieve in dat geval contact op te nemen met het Secretariaat van de Ethische Commissie Informatie & Computerkunde: ethicscommittee-CIS@utwente.nl

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C Interview questions

| Demografisch | |
|--|--|
| Vragen | Questions |
| Wat is uw leeftijd? | How old are you? |
| Wat is uw woonsituatie (alleen, verpleeghuis) | What is your living situation (alone, nursing home) |
| Kunt u alleen naar buiten? (geen fysieke beperkingen, rolstoel etc.) | What is your ability to go outside alone? (no physical limitations, wheelchair) |
| Welke natuurgerelateerde activiteiten doet u? | What nature-related activities do you do? |
| Hoe vaak per week gaat u naar buiten/de natuur in? | How frequently do you engage in outdoor/nature-related activities during a week? |
| Wat voor natuur is er te vinden in uw omgeving? | What kind of nature can be found in your area? |

| Eerste indruk | First impression |
|--|---|
| Wat was uw eerste indruk van de digitale natuurscene? | What was your first impression of the digital nature scene? |
| Gevoel van aanwezigheid | Sense of presence |
| Voelde u zich aanwezig in de getoonde scene? Kunt u dit omschrijven? | Did you feel present in the digital nature? Can you describe it? |
| In hoeverre was u zich bewust van uw werkelijke omgeving terwijl u zich bezighield met de digitale omgeving? (d.w.z. geluiden, kamertemperatuur, andere mensen, etc.)? | To what extent were you aware of your real-world surroundings while engaged in the virtual environment? (i.e., sounds, room temperature, other people, etc.)? |
| Kruispunt | Intersection |
| U bereikte op een gegeven moment borden met twee pijlen, kunt u omschrijven wat u daarvan vond? | Can you explain in detail what did you felt when you reached the directional sign? |
| In hoeverre vond u de richtingsborden, duidelijk? | To what extent do you understand the directional sign, was it clear? |
| Controlerend (experimentele groep die het pad kan kiezen) | Controlling (Experimental group that can choose the path) |
| Waarom heeft u voor het pad gekozen? | Why did you choose the selected path? |
| Als u terugkijkt op uw beslissing in de digitale natuurscène. Wat vond u ervan dat u kon kiezen welke kant u op ging, hoe voelde u zich daarbij? | Looking back at your decisions in the digital nature scene. How did you feel about being able to choose which direction to go? How did that make you feel? |
| In hoeverre had u het gevoel controle te hebben over het vervolg van het pad? Wat voor invloed had dat op u? | To what extent did you feel you had control over the continuation of the path? How did that affect you? |
| Als ik u zou vertellen dat deze beslissing willekeurig en zonder uw controle kan worden genomen, zou u daar dan de voorkeur aan geven? | If I told you that this decision could be made randomly without your control, would you prefer that? |

| Controlerend (controlegroep die het pad kan niet kiezen) | Controlling (Control group that cannot choose the path.) |
|--|---|
| Kunt u uw ervaring beschrijven met het navigeren op het toegewezen pad in de digitale natuurscène? | Can you describe your experience with navigating the assigned path in the digital nature scene? |
| Waren er momenten waarop het willekeurig gekozen pad uw algehele ervaring in de digitale omgeving beïnvloedde? | Were there moments when the randomly assigned path affected your overall experience in the virtual environment? |
| In hoeverre had u het gevoel geen controle te hebben over het vervolg van het pad? Wat voor invloed had dat op u? | To what extent did you feel you do not have control over the continuation of the path? How did that affect you? |
| Gevoel van aanwezigheid + besluitvorming | Sense of presence + decision making |
| In hoeverre heeft u momenten ervaren waarin u deel uitmaakte van de digitale natuurscène of, omgekeerd, u niet verbonden voelde? | To what extent did you experience moments of feeling immersed in the virtual nature scene or, conversely, feeling disconnected? |
| Verbetering | Improvement |
| Heeft u opmerkingen van deze digitale ervaring? | Do you have any comments of this digital nature? |
| Wat zou u ervan vinden om meer keuzes te hebben in deze digitale natuurscène? | How would you feel about having more choices in the digital nature scene? |
| Heeft u suggesties voor het verbeteren van de besluitvorming en aanwezigheid in digitale omgevingen, zoals deze? | Do you have any suggestions on how to improve decision-making and presence in virtual environments? |
| Wil u het nog eens zien? | Would you like to see it again? |

D Result of participant 1

Person 1: Male

| Demografisch | | |
|--|---|--|
| Vragen | Antwoord (Dutch) | Answer (English) |
| Wat is uw leeftijd? | 65, net geworden. | Just turned 65. |
| Wat is uw woonsituatie (alleen, verpleeghuis) | Zelfstandig, samen met mijn vrouw Elma in een vrijstaande woning. | Independently, together with my wife Elma in one detached house. |
| Kunt u alleen naar buiten? (geen fysieke beperkingen, rolstoel etc.) | Ja, dat lukt nog | yes, that still works. |
| Welke natuurgerelateerde activiteiten doet u? | Dat is een moeilijke vraag, is golfen een natuur gerelateerde activiteit? Dan golf, Zwemmen in zee? Ja dat soort dingen. | That's a difficult question, is golf a nature-related activity? Then golf, swimming in the sea? Yes, things like that. |
| Hoe vaak per week gaat u naar buiten/de natuur in? | Niet vaak, ja een keer per week. | Not often okay, yes once a week. |
| Wat voor natuur is er te vinden in uw omgeving? | Een keer per week. We zitten hier vlakbij Brug en Bos. Dat is een mooi bos waar je een mooi rondje kunt wandelen. Maar ook andere natuurgebieden eigenlijk zijn hier in in de omgeving; heel veel klompenpaden en die zijn alleen voor wandelaars. Er zijn dus veel mogelijkheden om te wandelen en dat doen we ook nog wel eens. | Once a week. Just saying. We live close to Brug en Bos. That is a beautiful forest where you can take a nice walk. But there are also other nature reserves here in the area. There are many clog paths in the area and they are only for walkers, so you can only walk there, so there are many opportunities for walking and we do that sometimes. |

| Eerste indruk | | |
|--|---|---|
| Wat was uw eerste indruk van de digitale natuurscene? | Saaï Ja, omdat het gewoon een recht pad was en ik ging langzaam naar boven en de omgeving was steeds hetzelfde eigenlijk paar rotsblokken en ook een paar bomen en een geplaveid pad. | Boring... Yes, because it was just a straight path and I went up slowly and the environment was always the same, basically a few boulders and also a few trees and a paved path. |
| Gevoel van aanwezigheid | | |
| Voelde u zich aanwezig in de getoonde scene? Kunt u dit omschrijven? | Nee | No |
| In hoeverre was u zich bewust van uw werkelijke omgeving terwijl u zich bezighield met de digitale omgeving? (d.w.z. geluiden, kamertemperatuur, andere mensen, etc.)? | Nee, werd niet afgeleid. Ik kon goed concentreren. | No, wasn't distracted. I could concentrate good enough. |
| Kruispunt | | |
| U bereikte op een gegeven moment borden met twee pijlen, kunt u omschrijven wat u daarvan vond? | Ja, moeilijk zichtbaar en ik haalde eruit dat de ene een recht pad was naar boven en het andere was een kronkelpad naar boven. | Yes, difficult to see and I discovered that one was a straight path up and the other was a winding path up. |
| In hoeverre vond u de richtingsborden, duidelijk? | Niet, was niet duidelijk. | No, it wasn't clear. |

| Controlerend (experimentele groep die het pad kan kiezen) | | |
|--|---|--|
| Waarom heeft u voor het pad gekozen? | Kortste weg. | Shortest path |
| Als u terugkijkt op uw beslissing in de digitale natuurscène. Wat vond u ervan dat u kon kiezen welke kant u op ging, hoe voelde u zich daarbij? | Geen gevoel erbij. Ik dacht gewoon van ja, ik moet even beide kiezen, dan kies ik maar het kortste pad | No feeling about it. I just thought yes, I have to choose both, then I will choose the shortest path |
| In hoeverre had u het gevoel controle te hebben over het vervolg van het pad? Wat voor invloed had dat op u? | Ja, ik had controle over de keuze, ik moest naar links of naar rechts | Yes, I had control over the choice, I had to go left or right. |
| Als ik u zou vertellen dat deze beslissing willekeurig en zonder uw controle kan worden genomen, zou u daar dan de voorkeur aan geven? | Nee, Zou voor mij geen voorkeur hebben | No, yes, no, Wouldn't be a preference for me |
| Gevoel van aanwezigheid + besluitvorming | | |
| In hoeverre heeft u momenten ervaren waarin u deel uitmaakte van de digitale natuurscène of, omgekeerd, u niet verbonden voelde? | Ik voelde me niet verbonden met de digitale omgeving. | I had no feeling with the digital environment. |
| Verbetering | | |
| Heeft u opmerkingen van deze digitale ervaring? | Dat bord zou beter leesbaar moeten zijn en dat voor mij mogen we wel wat sneller doorheen hobbelen. | Which should be easy to read and for me we could do with a bit more speed through it. |
| Wat zou u ervan vinden om meer keuzes te hebben in deze digitale natuurscène? | Leuker. Ja weet ik niet, Misschien beesten of ander soort bos. Nu was het een glooiend landschap, gingen eigenlijk steeds een beetje naar boven, Maar het is ook mooi als je andere landschappen ziet. Als wij gaan mountainbiken dan pakken we de ene keer waar veel hei is, dat heel mooi is als dat in bloei staat en de andere keer pakken we een dicht bos en de derde keer pakken we bij Arnhem waar je mooie heuvels hebt, dus gevarieerder landschap. | More fun. Yeah, I don't know, maybe animals or some other kind of forest. Now it was a rolling landscape that actually went up a bit, but it is also beautiful when you see other landscapes. When we go mountain biking, one time we go where there is a lot of heather, which is very beautiful when it is in bloom, and the other time we take a dense forest and the third time we go near Arnhem where you have beautiful hills, so a varied landscape. |
| Heeft u suggesties voor het verbeteren van de besluitvorming en aanwezigheid in digitale omgevingen, zoals deze? | Dat heb je al gedaan eigenlijk verbeteren. | You've already done that, actually improve it, previous answer. |
| Wil u het nog eens zien? | Nee | No |

E Result of participant 2

Person2: Male

| Demografisch | | |
|--|--|---|
| Vragen | Antwoord (Dutch) | Answer (English) |
| Wat is uw leeftijd? | 70 | 70 |
| Wat is uw woonsituatie (alleen, verpleeghuis) | Getrouwd, woont zelfstandig | Married, lives independently |
| Kunt u alleen naar buiten? (geen fysieke beperkingen, rolstoel etc.) | Ja, geen fysieke beperkingen | Yes, no physical limitations |
| Welke natuur gerelateerde activiteiten doet u? | We zitten hier natuurlijk in een hele mooie omgeving van Apeldoorn, dus ja wandelen, mooie boswandeling maken, fietsen. We trekken er vaak op uit in de natuur. En inderdaad bij mooi weer stappen we heel vaak even op de fiets en heerlijk de omgeving door. | We are of course in a very beautiful area of Apeldoorn, so yes, walking, taking a nice walk in the woods, cycling. We often go out into nature. And indeed, when the weather is nice, we often get on our bikes and explore the surroundings. |
| Hoe vaak per week gaat u naar buiten/de natuur in? | Zeker, zeg maar 2 keer in de week. | Certainly, say twice a week. |
| Wat voor natuur is er te vinden in uw omgeving? | Vooral bossen en rivieren | Especially forests and rivers |

| Eerste indruk | | |
|--|---|--|
| Wat was uw eerste indruk van de digitale natuurscene? | Realistisch: de samenstelling van het landschap is voelbaar. Van hier van Nederland, hè? Want dat is je directe omgeving. Ja en tastbaar wel het idee dat dat zou kunnen. | Realistic: the composition of the landscape is sensible. From here in the Netherlands, huh? Because that is what your immediate environment feels like. Yes, and there is a tangible idea that could be possible. |
| Gevoel van aanwezigheid | | |
| Voelde u zich aanwezig in de getoonde scene? Kunt u dit omschrijven? | Ja, ik voelde me wel aanwezig, Maar ik miste...misschien komt die vraag nog verderop in het verhaal. Ik miste even stilstaan bij je eigen interesses. Dus om duidelijk te maken, als er een vennetje is, dan zou ik daar even stoppen, even willen kijken. Heel concreet of er vissen inzitten. Dat is wat ik zou doen als ik in de natuur ben. | Yes, I felt present, But I missed...maybe that question will come later in the story. I missed taking a moment to consider your own interests. So to make it clear, if there is a small lake, I would stop there and take a look. Very specific whether there are fishes in it. That's what I would do when I'm in nature. |
| In hoeverre was u zich bewust van uw werkelijke omgeving terwijl u zich bezighield met de digitale omgeving? (d.w.z. geluiden, kamertemperatuur, andere mensen, etc.)? | Ik was wel gefocust, met een paar beperkingen. Een van die dingen was dan dat ik zou zeggen van: Stop even hier even, dit wil ik. Even zien van dichtbij. En dat, was eigenlijk hetgeen wat ik miste. Voor de rest was het realistisch. Voor mijn gevoel. Was ik in die natuur, dat absoluut ja. | I was focused, with a few limitations. One of those things was that I would say: Stop here for a moment, this is what I want. Let's see more closely. And that was actually what I was missing. The rest was realistic. In my opinion, I was in that nature, that absolutely yes. |

| Kruispunt | | |
|--|---|---|
| U bereikte op een gegeven moment borden met twee pijlen, kunt u omschrijven wat u daarvan vond? | Nou ja eigenlijk ook wel realistisch! Keuzes maken, ja. Het is allebei. Nieuwe avontuur, links of rechts. Nieuwsgierigheid? Ja, maar die heb ik dan bij beide. En, daar moet je dan een keuze in maken? Ja, ik zou. Ook van die andere kant nog even willen zien. | Well, actually realistic too! Making choices, yes. It's both. New adventure, left or right. Curiosity? Yes, but I have that with both. And, should you make a choice? Yes, I would have chosen also the other side. |
| In hoeverre vond u de richtingsborden, duidelijk? | Ja heel duidelijk, met een richtingsbord weet je nooit wat je tegenkomt. Als je er al niet eerder bent geweest. Dus het is een kwestie van keuzes maken maar met mijn nieuwsgierigheid had ik wel duidelijk zoiets van, zal ik links gaan, zal ik rechts gaan. En wat er op dat bord staat? Maakt voor mij dan eigenlijk niet zo heel veel uit. Ik heb gewoon ergens in mij de nieuwsgierigheid om beide kanten te willen. Vanuit mijn nieuwsgierigheid was het een keuze voor links of rechts zonder een duidelijke aanwijzing op de borden. Ik vond het duidelijk een multiple choice vraag | Yes, very clearly, With a directional sign you never know what you will encounter. If you haven't been there before. So it's a matter of making choices, but with my curiosity I clearly thought: should I go left, should I go right? And what's on that sign? It doesn't really matter that much to me. I just have the curiosity somewhere inside me to want both sides. From my curiosity it was a choice for left or right without a clear indication on the signs. I thought it was clearly a multiple choice question. |
| Controlerend (experimentele groep die het pad kan kiezen) | | |
| Waarom heeft u voor het pad gekozen? | Niet duidelijk, Ik heb niet duidelijk daarin ja niet op basis van de gegevens. Niet op basis van ratio, gewoon instinctief. | Not clear, I am not clear in that yes not based on the data. Not based on reason, just following my instinct. |
| Als u terugkijkt op uw beslissing in de digitale natuurscène. Wat vond u ervan dat u kon kiezen welke kant u op ging, hoe voelde u zich daarbij? | Nou, dat is het avontuur. En daar hou ik van. Ik hou van keuzes maken, Ik ben ook iemand die snel beslist en dan op zo'n punt kan ik me heel goed voorstellen dat ik in het bos loop en dat ik denk van, wat ga ik doen? Ik ben daar nooit geweest, Ik ben daar ook nooit geweest, ik maak een keuze voor links. | Well, that's the adventure and I like that. I like making choices. I am also someone who decides quickly and at that point I can easily imagine myself walking in the woods and thinking, what am I going to do? I've never been there, I've never been there either, I make a choice for the left. |
| In hoeverre had u het gevoel controle te hebben over het vervolg van het pad? Wat voor invloed had dat op u? | Je hebt eigenlijk natuurlijk geen controle meer over dat pad. Het enige wat ik dan inderdaad miste is bij voor mij interessante dingen te kunnen stoppen. Het is heel persoonlijk, Ik ben gewend in mijn leven keuzes te moeten maken en als ik die dan maak, dan sta ik daar voor in mijn gevoel helemaal achter, dan ga ik daarvoor. | Of course, you no longer have any control over that path. The only thing I missed was being able to stop at things that were interesting to me. It is very personal, I am used to having to make choices in my life and when I make them, I fully support them in my feelings, then I go for them. |
| Als ik u zou vertellen dat deze beslissing willekeurig en zonder uw controle kan worden genomen, zou u daar dan de voorkeur aan geven? | Nee klopt, maar wel met twee richtingen. Zou mijn nieuwsgierigheid winnen van de beslissing van het systeem op het moment, maar dan moet wel duidelijk iets aangegeven zijn, krijg een splitsing. Daar staat een bord bij, daar kun je dat zien en daar kun je dat zien. Dan zou ik heel graag daar even bij stilstaan en ja, zelf die keuze maken. | No, that's right, but in both directions. Would my curiosity win over the decision of the system at the time, but then something must be clearly indicated, get a split. There is a sign there, you can see it there and you can see it there. Then I would really like to think about that for a moment and yes, make that choice myself. |

| Gevoel van aanwezigheid + besluitvorming | | |
|--|--|---|
| In welke mate heeft u momenten ervaren waarin u deel uitmaakte van de digitale natuurscène of, omgekeerd, u niet verbonden voelde? | Ja ik voel me verbonden in het totaalplaatje met die natuur, omdat het voor mij, wel bepaald realisme had. Zeggen van dat moment van de film of dat moment van de film kan ik me meer afficheren met die natuur? Dat had ik niet, niet specifiek. | Yes, I feel connected to that nature in the overall picture, because for me it had a certain realism. Saying that moment of the film or that moment of the film can I portray myself more with that nature? I didn't have that, not specifically. |
| Verbetering | | |
| Heeft u opmerkingen van deze digitale ervaring? | Nou ja, buiten dat het voor mij wel wat spannender mag zijn. Bij de rotsformatie zou een grot kunnen zijn. Dat zou voor mij een ding zijn, wat uitnodigend is om even te kijken. Meer mysterieus. | Well, except that it could be a bit more exciting for me. There could be a cave near the rock formation. That would be something for me that would be inviting to take a look. More mysterious. |
| Wat zou u ervan vinden om meer keuzes te hebben in deze digitale natuurscène? | Dan zou ik me voor kunnen stellen een jachttoren, of hoe noem je dat zo? Uitkijk toren, ja, maar voor de jagers, die zie je heel veel in het bos, een boomhut of voor vogels spotting, meer interactie. | Then I could imagine a hunting tower, or what do you call it? Lookout tower, yes, but for hunters, you see a lot in the forest, a tree house or for bird watching, more interaction. |
| Heeft u suggesties voor het verbeteren van de besluitvorming en aanwezigheid in digitale omgevingen, zoals deze? | Meer highlights, meer interacties die interesses opwekken, ja, meer persoonlijke interesse opwekken en hoe meer van die dingen Er zijn, dan is er voor iedereen een keuze. Een vind dat helemaal niet interessant, Maar dat wel. Dat zou ik eraan toe willen voegen. | More highlights, more interactions that arouse interests, yes, more personal interest and the more of those things there are, then there is a choice for everyone. One doesn't find that interesting at all, but it does. I would like to add that. |
| Wil u het nog eens zien? | Niet per se. Ik heb de wereld gezien. Ik ben redelijk visueel ingesteld en dat zou ik leuk vinden. Niet op basis van wat ik al gezien heb, wel een nieuwe versie, met aanvullingen. | Not necessarily. I've seen the world. I'm quite visual and I would like that. Not based on what I have already seen, but a new version indeed, with additions. |

F Result of participant 3

Person 3: Male

| Demografisch | | |
|--|---|--|
| Vragen | Antwoord (Dutch) | Answer (English) |
| Wat is uw leeftijd? | Bijna 73 jaar | Almost 73 years |
| Wat is uw woonsituatie (alleen, verpleeghuis) | Alleen, zelfstandig | Alone, independent |
| Kunt u alleen naar buiten? (geen fysieke beperkingen, rolstoel etc.) | Ja, geen fysieke beperkingen | Yes, no physical limitations |
| Welke natuurgelerateerde activiteiten doe u? | Ik fiets graag de natuur in. Ik wandel graag de natuur in. Ik heb in het verleden veel gefietst. Denk erover om vissen weer op te pakken. | I like cycling into nature. I like to walk in nature. I have cycled a lot in the past. Thinking about taking up fishing again. |
| Hoe vaak per week gaat u naar buiten/de natuur in? | In de zomer, bijna elke dag in de buurt | In the summer, almost every day in the neighborhood |
| Wat voor natuur is er te vinden in uw omgeving? | Veel bossen en heide | Lots of forests and heathland |

| Eerste indruk | | |
|--|---|---|
| Wat was uw eerste indruk van de digitale natuurscene? Welke emotie had je erbij? | Is dit een Nederlands plaatje of internationaal? Want ik zag grote rotsblokken. Het maakt me nieuwsgierig, lijkt me buitenlands, misschien Yellowstone of zo? Beetje on-Nederlands. | Is this a Dutch picture or international? Because I saw big boulders. It makes me curious, seems foreign to me, maybe Yellowstone or something? A bit un-Dutch. |
| Gevoel van aanwezigheid | | |
| Voelde u zich aanwezig in de getoonde scene? Kunt u dit omschrijven? | Ja, ik voelde er wel wat mee. Jawel, vooral de bloemen. Ja een vogeltje die voorbij vliegt, zou misschien wel leuk zijn. | Yes, I felt something about it. Yes, especially the flowers. Yes, a bird flying by might be nice. |
| In hoeverre was u zich bewust van uw werkelijke omgeving terwijl u zich bezighield met de digitale omgeving? (d.w.z. geluiden, kamertemperatuur, andere mensen, etc.)? | Nee, ik bleef wel geconcentreerd. | No, I stayed focused |
| Kruispunt | | |
| U bereikte op een gegeven moment borden met twee pijlen, kunt u omschrijven wat u daarvan vond? | Pijl naar links die gaf aan, hoe kom ik op een kronkelend pad en de rechter pijl zegt die weg uit rechtuit. | Arrow to the left indicated how do I get to a winding path and the right arrow says that way straight ahead. |
| In hoeverre vond u de richtingsborden, duidelijk? | Ja, voor mij was het duidelijk, | Yes, it was clear to me, |

| Controlerend (control groep die het pad kan niet kiezen) | | |
|--|---|---|
| Kunt u uw ervaring beschrijven met het navigeren op het toegewezen pad in de digitale natuurscène? | Ik liet het gaan, vond het een beetje een eentonige weg worden. | I let it go, I thought it was becoming a bit of a monotonous road. |
| Waren er momenten waarop het willekeurig gekozen pad uw algehele ervaring in de digitale omgeving beïnvloedde? | Ik vond dat pad saai worden, eentonige weg om rechtuit te gaan. | I found that path to be boring, monotonous to go straight. |
| In hoeverre had u het gevoel geen controle te hebben over het vervolg van het pad? Wat voor invloed had dat op u? | Ja, ik had geen idee. Waar komt dat pad uit? Nou, het liep door. | Yeah, I had no idea. Where does that path end? Well, it continued. |
| Als ik u vertelde dat u links of rechts had kunnen kiezen, zou u dat dan liever hebben? | Ja, dan had ik links gekozen. Want er zat een kronkelend pad. Ik denk kronkels is gevarieerder dan recht door. | Yes, then I would have chosen the left. Because there was a winding path. I think twists and turns are more varied than straight. |
| Gevoel van aanwezigheid + besluitvorming | | |
| In hoeverre heeft u momenten ervaren waarin u deel uitmaakte van de digitale natuurscène of, omgekeerd, u niet verbonden voelde? | Ik voelde me niet echt gebonden. | I didn't really feel connected. |
| Verbetering | | |
| Heeft u opmerkingen van deze digitale ervaring? | Ja, iets meer leven met een vogel wat opvliegt of voorbij vliegt. Meer geluiden, misschien een beetje wind door de bomen, geruis. | Yes, a little more life with a bird that flies up or flies by. More sounds, maybe a little wind through the trees, rustling. |
| Wat zou u ervan vinden om meer keuzes te hebben in deze digitale natuurscène? | Ik denk dat dat beter zou zijn. Ja. Je zou kunnen kiezen, in de natuur pak ik ook wel eens een pad, even kijken, waar komt dat uit? | I think that would be better. Yes. You could choose, in nature I sometimes take a path, let's see, where does that end? |
| Heeft u suggesties voor het verbeteren van de besluitvorming en aanwezigheid in digitale omgevingen, zoals deze? | Bijv., i.p.v. rechtuit of linksaf kunnen gaan, ook een kruising maken | For example, instead of going straight or turning left, you also have to make an intersection |
| Wil u het nog eens zien? | Ik heb het wel op een netvlies staan, ja, als het kan linksaf, dan kan je mij linksaf sturen. | I have it on my mind, yes, if you can turn left, then you can send me to the left side. |

G Result of participant 4

Person 4: Female

| Demografisch | | |
|--|---|--|
| Vragen | Antwoord (Dutch) | Answer (English) |
| Wat is uw leeftijd? | 71 | 71 |
| Wat is uw woonsituatie (alleen, verpleeghuis) | Samenwonend, gehuwd. | living together / married. |
| Kunt u alleen naar buiten? (geen fysieke beperkingen, rolstoel etc.) | Ja, dat wel | Yes, that's true |
| Welke natuurgerelateerde activiteiten doet u? | Wandelen | to walk |
| Hoe vaak per week gaat u naar buiten/de natuur in? | Weinig, 2 keer per maand, met rollator | little, twice a month |
| Wat voor natuur is er te vinden in uw omgeving? | Nou, het zijn parken, twee parken en een noemen we de Bernisse, een gecreëerd recreatiegebied. En bos want je hebt bos in Oostvoorne. | Well, they are parks, two parks and one is called the Bernisse, a recreational area. And forest because you still have forests in Oostvoorne |

| Eerste indruk | | |
|--|---|---|
| Wat was uw eerste indruk van de digitale natuurscene? | Nou, ik vond het rustgevend. Ik vond het wel lekker. Eerst dacht ik, Het gaat te snel, maar toen vond ik het eigenlijk wel lekker. Het is een onthaasting. Want het gaat niet zo heel snel natuurlijk, maar je loopt ook niet zo snel Als je dit hebt of In de rolstoel zit. En nou, ik voel die vogels heel fijn. Waar ik wel om moest lachen, was dat je in ineens die bloemen zag oppoppen. Dat zijn mijn details waar ik dan op let, maar mijn eerste indruk was echt wel mooi, lekker ja lekker om daar te zijn, weet je wel heerlijk. | Well, I found it relaxing. I liked it. At first I thought, It's going too fast, but then I actually liked it. It's a relief. Because it's not going very fast, of course, but you're also not walking so fast If you are in the wheelchair. And well, I feel those birds very nicely. What made me laugh was that you suddenly saw those flowers popping up. Those are the details that I pay attention to, but my first impression was really beautiful, nice, yes, nice to be there, you know, wonderful. |
| Gevoel van aanwezigheid | | |
| Voelde u zich aanwezig in de getoonde scene? Kunt u dit omschrijven? | Ik voelde me daar echt wel. en ik vond het ook leuk. Op een gegeven moment vond ik het wel een beetje teveel hetzelfde, allemaal dezelfde bloemen. En dezelfde bomen, dat weet ik ook wel. Bossen zijn vaak hetzelfde, Maar het was een beetje hetzelfde. Op een gegeven moment dacht ik van nou, ik wil nu wel een ander bos zien. | I really felt there. and I liked it too. At one point I thought it was a bit too much the same, all the same flowers. And those same trees, I know that too. Forests are often the same, But it was kind of the same. At one point I thought, well, I want to see other forests. |

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| In hoeverre was u zich bewust van uw werkelijke omgeving terwijl u zich bezighield met de digitale omgeving? (d.w.z. geluiden, kamertemperatuur, andere mensen, etc.)? | Nee hoor, daar heb ik geen last van. Maar ik kan heel goed focussen. Ja, maar ik vond het ook wel lekker. Eigenlijk denk ik zo, dat moet ik gewoon meer hebben, dan kan ik even lekker onthaasten. Weet je wel, ik geloof dat het zelfs niet eens voor mensen is die niks kunnen, maar ook voor mensen die heel druk zijn in hun leven is dit ook heel lekker? Ja, want niet alleen de doelgroep die niks kan en oud is. | No, that doesn't bother me, but I can focus very well. Yes, but I liked it too. Actually, I think, I just need more of that, so I can relax for a while. You know, I don't think it's even for people who can't do anything, but also for people who are very busy in their lives, is this also very nice, right? Yes, because not only the target group that cannot do anything and is old. |
| Kruispunt | | |
| U bereikte op een gegeven moment borden met twee pijlen, kunt u omschrijven wat u daarvan vond? | Waarom ik daar links gekozen heb. Ja precies kan ik zo zeggen. De ene was een rechte weg. Dat vond ik niet interessant. En die ander die ging zo (kronkelend), dat vond ik veel spannender. | Why I chose the left there. Yes, I can say it exactly. One was a straight road. I didn't find that interesting. And the other one went like (meandering) that, I found it much more exciting. |
| In hoeverre vond u de richtingsborden, duidelijk? | Duidelijk, door de bochten de spanning dat je denkt van oh, wat zou daar komen? Weet je, dat houdt je aandacht vast. Een rechte weg is saai. | Through the bends there is a tension that makes you think, oh, what could come next? You know, that keeps your attention. A straight road is boring. |
| Controlerend (experimentele groep die het pad kan kiezen) | | |
| Waarom heeft u voor het pad gekozen? | Ja, want dat zag ik gelijk al, ik had het al gezien ik denk ik wel naar links, want ik zat al te kijken, misschien is het wel een instinker, misschien komt er wel iets heel spannends, maar daar stond alleen een rechte weg en een kronkel weg, dus dat is heel duidelijk. | Yes, I already saw it, I think it was to the left, because I was already seeing it. Maybe it's a decoy, because then I see a straight road, but maybe something very exciting will come. A straight road and a winding road, so that's very clear. |
| Als u terugkijkt op uw beslissing in de digitale natuurscène. Wat vond u ervan dat u kon kiezen welke kant u op ging, hoe voelde u zich daarbij? | Ja, een goed idee, dat vond ik fijn. Als je al weinig keus hebt van bewegen waar het onderzoek over gaat, dan is het heel fijn dat je toch een keus kan maken van wat je wilt. Wil ik dan die rechte weg en kijken wat er gebeurt? Of wil ik die andere spannende weg? | Yes, a good idea, I liked that. Everyone wants to have a choice and I think, if you already have little choice of moving where the research is about, then it's really nice that you can make a choice about what you want. Do I want to take that straight road and see what happens? Or do I want that other exciting path? |
| In hoeverre had u het gevoel controle te hebben over het vervolg van het pad? Wat voor invloed had dat op u? | Nou, goed, dat ik 'in control' was. | Well, good, that I was in control. |
| Als ik u zou vertellen dat deze beslissing willekeurig en zonder uw controle kan worden genomen, zou u daar dan de voorkeur aan geven? | Ik ben blij dat er een keuze was. Ik denk ook juist als je het ontspannen wil houden, moet je juist mensen zelf die keuze laten doen, anders dan krijg je stressmoment. Maar een keuzemoment kan ook stress zijn. | I'm glad that there was a choice. I also think that if you want to keep it relaxed, you have to let those people make that choice, otherwise you will get a moment of stress. But a moment of choice can also be stressful. |

| Gevoel van aanwezigheid + besluitvorming | | |
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| In hoeverre heeft u momenten ervaren waarin u deel uitmaakte van de digitale natuurscène of, omgekeerd, u niet verbonden voelde? | Nou, ik voelde me heel erg verbonden tot ik die bloemen ineens zag oppoppen, in de echte natuur heb je dat niet en die rotsblokken, zo groot, schijnen te zweven, dacht ik, Ik heb. Natuurlijk ja, dat is technisch, dat is het. Maar ik moet je zeggen, voor de rest vond ik het echt lekker. Al was het nep dat, zag ik natuurlijk. | Well, I felt very connected until I suddenly saw those flowers popping up, but in real nature you don't have that and those boulders, so big, they seem to be floating sometimes. But of course yes, that's technical, that's it. But I have to tell you, otherwise I really liked it. Even if it was fake, I saw that of course. |
| Verbetering | | |
| Heeft u opmerkingen van deze digitale ervaring? | Ja, weet je wat ik een verbetering zou vinden dat er iets meer afwisseling was tussen planten, want die is een beetje hetzelfde, maar in de echte natuur heb je dat natuurlijk niet. Of ook wel, maar anders. Dit is natuurlijk heel erg digitaal. Het is erin gezet en dat zie je, maar dat vind ik ook niet erg, maar dat je dus steeds eigenlijk hetzelfde landschap hebt. Zelfde boompjes de herhaling, Maar dat vind ik niet echt erg. Maar als je het echt gaat ontwikkelen, dan moet dat. Anders en ik zou eigenlijk wel heel spannend vinden als je dan zo'n rondje maakt, zo een bochtje en dan zie je daar een watertje lopen. Dat zou wel een iets leuks zijn, land, water en lucht zijn natuurlijk de dingen die we leuk vinden. | Yes, you know what I would think would be an improvement if there was a little more variety between plants, because it is a bit the same, but in real nature you don't have that of course. Or yes, but different. This is of course very digital. It has been put in and you can see that, but I don't mind that either, but that you always have the same landscape. Same trees the repetition, But I don't really mind that. But if you're really going to develop it, then you have to. Different and I would actually find it very exciting if you make a circle like that, a winding road like that and then you see a stream of water running there. That would be something nice that makes that it more exciting, land, water and air are of course are the things that we like. |
| Wat zou u ervan vinden om meer keuzes te hebben in deze digitale natuurscène? | Ik zou wat meer uitdaging willen, ik zou wel meer keuzes willen. Dan zou ik misschien een pad inslaan waar wat water was. En op een bankje zitten waar je eventjes kan kijken naar een vallei. Misschien wel spannender. Want dit kan je niet lang volhouden, 5 minuten is leuk, maar geen uur. Ken je Zen TV nog? Dan kon je ook zoiets krijgen, bijv. hadden ze allerlei yogaoefeningen op een berg, dan was iemand yoga te doen, 1 per dag hadden ze twee uur lang die oefeningen bijv. aan een kust of kabbelend water en dan bijvoorbeeld in Frankrijk of Mauretanië, dat vond ik zo lekker. | I would like a bit more of a challenge, so I would like to have more choices. Then maybe I'd take a path where there was some water and sitting on a bench where you can take a look at a valley. Maybe more exciting. Because you can't keep this up long time, 5 minutes are ok, but not for an hour. Do you know Zen TV? That was a while ago, then you could get similar types of scenes and there they had e.g. all kinds of yoga exercises on a mountain then someone was doing yoga, once a day for two hours, e.g. alongside a coast or rippling water, for example in France, Mauritania, that I liked so much. |

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| <p>Heeft u suggesties voor het verbeteren van de besluitvorming en aanwezigheid in digitale omgevingen, zoals deze?</p> | <p>Wat ik erg goed vind, een positief punt, is dat je niks ziet aan beesten. Je hoort ze wel die beesten, maar je ziet geen mensen lopen, want die onthaasting krijg je juist door niet zoveel mensen te zien hè? Door niks te zien. Je hebt het gevoel dat je daar zelf loopt, dat je eigenlijk alleen bent waardoor je rust krijgt. Want zodra jij iemand ziet daar, dan ben je afgeleid. Nu is de natuur eigenlijk het hoofdbestanddeel. Ja en geen dieren, ook geen bewegende dieren, dan wordt het een natuurserie dieren en nu is het een onthaastende film.</p> | <p>What I like the most and very positive point., is that you don't see animals. You hear those animals, but you don't see any people walking, because you get that relaxation by not seeing so many people, right? By not seeing anything. You have the feeling that you are walking there yourself, that you are actually alone, which gives you peace. Because as soon as you see someone there, you are distracted. Now nature is actually the main ingredient. Yes, and no animals, no moving animals either, then it becomes a nature series of animals and now it is a relaxation film.</p> |
| <p>Wil u het nog eens zien?</p> | <p>Ja vind ik wel leuk eigenlijk. Dan kan ik heel anders gaan kijken ook.</p> | <p>Yes, I actually like it. Then I can look at it from a different angle.</p> |

H Result of participant 5

Person 5: Male

| Demografisch | | |
|--|--|---|
| Vragen | Antwoord (Dutch) | Answer (English) |
| Wat is uw leeftijd? | 73 | 73 |
| Wat is uw woonsituatie (alleen, verpleeghuis) | Gehuwd, samenwonend | live together |
| Kunt u alleen naar buiten? (geen fysieke beperkingen, rolstoel etc.) | Ja | yes |
| Welke natuurgerelateerde activiteiten doe u? | Nou gewoon niet. | well, just not. |
| Hoe vaak per week gaat u naar buiten/de natuur in? | Misschien één keer per maand weet ik niet precies. | Maybe once a month I know. I really don't know exactly. |
| Wat voor natuur is er te vinden in uw omgeving? | Bos en en watergebied. | Forest and wetland. |

| Eerste indruk | | |
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| Wat was uw eerste indruk van de digitale natuurscene? | Idyllisch, bijna te mooi om waar te zijn. Ja. Dat is mijn eerste indruk. | Almost too good to be true. Yes. That's my first impression. |
| Gevoel van aanwezigheid | | |
| Voelde u zich aanwezig in de getoonde scene? Kunt u dit omschrijven? | Ja, ik vond het goed, in zoverre goed dat je meegetrokken werd ,als het ware liep je mee. | Yes, it was good, you were pulled into it, it was like you're walking there . |
| In hoeverre was u zich bewust van uw werkelijke omgeving terwijl u zich bezighield met de digitale omgeving? (d.w.z. geluiden, kamertemperatuur, andere mensen, etc.)? | Nee, ik heb goed kunnen concentreren. | No, I was able to concentrate well. |
| Kruispunt | | |
| U bereikte op een gegeven moment borden met twee pijlen, kunt u omschrijven wat u daarvan vond? | Ja dat links of rechts, hè? Geloof ik je met die splitsing. Ja, Dat is een soort Y splitsing is dat hè? Viel niet echt op. Ik zag alleen dat het ene pad ergens heenging, waar weet ik niet. En het pad dat gevolgd werd, dat liep uiteindelijk dood. Ja, Dat was het rechte pad en het linker pad werd gevolgd.En op een gegeven moment kon ik, daar niet verder, tenminste het loopt dood | Yes, that's left or right, right? I believe you with that split. Yes, that's a kind of demand split, isn't it? A long journey split or igrec split becomes either. It wasn't really noticeable. I only saw that one path went somewhere, I don't know where. And the path that was followed ultimately led to a dead end. Yes, that was the straight path and the left path was followed. And at a certain point I couldn't, at least we couldn't go any further there. Dead end |
| In hoeverre vond u de richtingsborden, duidelijk? | Nou om je de waarheid te zeggen, heb ik daar niet echt op gelet? Nee, Ik heb meer | Well to tell you the truth, so I have. I didn't really pay attention to that? No, I paid more |

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| | gelet op de omgeving en daar omheen. Maar ik heb me voortdurend zitten afvragen wat dat grijze was, maar dat waren dus op een gegeven moment zag ik dat het iets van rotspartijen waren. | attention to the surroundings. But I have a persistent If you ask what that gray was, But it was so at some point you would think it was something like rocks. |
| Controlerend (control groep die het pad kan niet kiezen) | | |
| Kunt u uw ervaring beschrijven met het navigeren op het toegewezen pad in de digitale natuurscène? | Prima, geen probleem. | fine, no problem. (no preferences) |
| Waren er momenten waarop het willekeurig gekozen pad uw algehele ervaring in de digitale omgeving beïnvloedde? | Nee, want het liep verder naar mijn idee vrij door na wat daarvoor was dus aan beide zijden of soms aan één kant. Bloemen, tulpen zag ik veel of of weet ik het wat het waren en dan andere kant rotspartijen en In de verte zou ik rotspartijen. Maar dat was aan het begin ook toen dit nog een pad was. | Because in my opinion it continued freely after what happened before, so on both sides or sometimes on one side. I saw a lot of flowers, tulips or I don't know what they were and then on the other side there were rocks and in the distance I could see rocks but that was also at the beginning when this was still a path. |
| In hoeverre had u het gevoel geen controle te hebben over het vervolg van het pad? Wat voor invloed had dat op u? | Geen invloed, want ik heb gewoon gevolgd wat de camera deed. Nee, heb geen invloed willen hebben. | No influence, because I just followed what the camera did. No, I didn't want to have any influence. |
| Als ik u vertelde dat u links of rechts had kunnen kiezen, zou u dat dan liever hebben? | Nee, | No |
| Gevoel van aanwezigheid + besluitvorming | | |
| In hoeverre heeft u momenten ervaren waarin u deel uitmaakte van de digitale natuurscène of, omgekeerd, u niet verbonden voelde? | In het begin moet je even wennen, maar op een gegeven moment kreeg ik wel het gevoel van, ik ben dan aan het meelopen of rijden of wat dan ook met een route die uitgezet is. Ja, ik voelde me wel meegenomen daarin. Meelopen of meerijden. | Well, I thought it was nice to formulate it well. At a certain point in the beginning you have to get used to it, but at a certain point I got the feeling that I am walking along or making out or whatever with a route that has been set out. So yes, I felt included in that. Walk along or come along. |
| Verbetering | | |
| Heeft u opmerkingen van deze digitale ervaring? | Nou, op den duur vond ik de invulling van het landschap wel wat eentonig worden, want het was voortdurend aan beide zijden of aan een zijde, bloemen. En dan had je van die rotspartijen aan linker of rechterzijde of beide zijden en dan van die rare bomen, vooral die naaldbomen vond ik nogal typisch eruit zien. Dan denk je van, ja, nou heb ik het wel gezien. En toen liep het gelukkig dood. | Well, in the long run I found it as far as the layout of the landscape was concerned, because the layout of the landscape had become a bit monotonous, because it was constantly showing flowers or flowers on one side. And then you had those rocks on the left or right or both sides and then those strange trees, especially those coniferous trees that look quite typical. Then you eventually think, yes, well I have seen it. And then it appeared to be a dead end. |

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| <p>Wat zou u ervan vinden om meer keuzes te hebben in deze digitale natuurscène?</p> | <p>Ik zou wel eens wat uitgebloeide bloemen willen zien. Of wat dieren? Ik mis daar ook dieren erin of vogels bijvoorbeeld. Zou zelf wel eens een mooie vogel langs willen zien vliegen, snap je? Of misschien wel wolven.</p> | <p>Well, I would like some dead flowers. Or what about some animals? I also miss animals there, birds for example. E.g. would you like to see a beautiful bird flying over, or maybe wolves?</p> |
| <p>Heeft u suggesties voor het verbeteren van de besluitvorming en aanwezigheid in digitale omgevingen, zoals deze?</p> | <p>Nou ja, en als ik het even zo overzie, moet even proberen om dat goed te formuleren, want ik vond het eigenlijk best leuk. Maar ter verbetering zou ik zeggen, er moet aan die bomen gewerkt worden. Met name de naaldbomen. Die vond ik niet helemaal overtuigend. Dat dacht ik wat een rare bomen zijn dat. Oké, het moet ook niet een overmaat aan bloemen zijn, want dat is onzin. Dat vind je niet in de natuur zo. Dat er hier en daar bosjes bij bloemen staan. Dat kan oke, Dat is er nog een ja wat nog meer, maar even denken water riviertje of een beekje of wat dan ook, dan zou het mooi zijn erin en dat geeft ook wel een rustgevend geluid. Dus dat zou ik ook heel leuk vinden. Voor de rest moet ik zeggen dat het een mooie animatie is, dat wel. Dat is mooi van kleur en ook dat het feit dat je dus als het ware in een wagentje of zo meegetrokken wordt of geduwd. Ik had net even het gevoel dat ik in een invalide wagentje zat. Als bejaarde word ik door de natuur gejaast.</p> | <p>Well yes, and if I look at it like this, I have to try to formulate that well, because I actually quite enjoyed it. But it was fun, but I would like to say that there might be an improvement. Those trees need to be modified, especially the conifers, which I didn't find entirely convincing. So I thought what a strange trees.trees. Okay, it shouldn't be an excess of flowers either, because that's nonsense. You don't find that in nature. That there are bunches of flowers here and there. That's okay, that's one more thing, yes, but let's just think about water, a river or a pond or whatever, that would be nice in it and that also gives a relaxing sound. So I would really like that too. For the rest I have to say that it is a nice animation, though. That's a nice color and also the fact that you are, as it were, being pulled or pushed along on a cart or something. I'm sitting there, I just had the feeling that I was pushed in a wheelchair for disabled persons.</p> |
| | <p>Het is heel geleidelijk, het gaat heel rustig en langzaam. Misschien om het spannender te maken, is het leuk om wat meer tempo. Voor wisseling erin te brengen, dus een stukje wat sneller. En dan dan weer langzaam dat dat geeft. Ik vond hem dus wat wat decor betreft en wat wat opzet betreft, heel leuk. Dat is zonder meer zo, want ja, ik heb ook met belangstelling zitten kijken, maar als je dan vraagt naar wat zou er beter kunnen of anders kunnen?</p> | <p>It is very gradual. It goes very quietly and slowly. And yes, maybe to make it more exciting, it would be nice to speed it up a bit. Can be added for change, so a bit faster. And then slowly again that gives. So I liked it in terms of decor and in terms of design. Very nice that is. That is certainly true, because yes, I am also interested, but if you then ask what could be improved or different?"</p> |
| <p>Wil u het nog eens zien?</p> | <p>Ja, maar dan nog met aanvullingen.</p> | <p>Yes, but with possible additions.</p> |

I Result of participant 6

Person 6: Male

| Demografisch | | |
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| Vragen | Antwoord (Dutch) | Answer (English) |
| Wat is uw leeftijd? | 78 | 78 |
| Wat is uw woonsituatie (alleen, verpleeghuis) | Alleen | Alone |
| Kunt u alleen naar buiten? (geen fysieke beperkingen, rolstoel etc.) | Ja, kan alleen naar buiten | Yes |
| Welke natuurgerelateerde activiteiten doet u? | Nou, in de zomer doe ik wel meer. Loop wel eens met een hondje door het park. Zoek de natuur niet echt op. | Well, I do more in summertime Sometimes I walk with a dog in the park. Not specifically searching for nature. |
| Hoe vaak per week gaat u naar buiten/de natuur in? | 2 keer in de week per fiets. | Cycling twice a week. |
| Wat voor natuur is er te vinden in uw omgeving? | Mijn zoon woont bij Kinderdijk, dan ga wel eens meewandelen met de hond langs de molens, 1x per maand. | My son lives near Kinderdijk, then I walk with him and the dog alongside the mills, 1x per month. |

| Eerste indruk | | |
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| Wat was uw eerste indruk van de digitale natuurscene? | Hartstikke mooi. Ja, ik vond het opvallend, die bomen ook mooi, waarschijnlijk samengestelde beelden, en wat erin lag, die boomstammen en die betonblokken. Ja, dat viel me wel op. Net als je in Drenthe de hunebedden hebt. Daar heb ik wel veel gewandeld, want toen had ik 2 honden. | Very nice. Yes, I thought those trees were striking and beautiful, and those trees, yes you probably put the images together, but those trees,, trunks and those concrete blocks. I recognize it, like the dolmens (hunebedden) in Drenthe. There I walked a lot because i had 2 dogs at that time. |
| Gevoel van aanwezigheid | | |
| Voelde u zich aanwezig in de getoonde scene? Kunt u dit omschrijven? | Ja, ik vond het mooi. Als ik zulke dingen zie, dan vind ik dat wel interessant. | Yes, I liked it. When I see things like that, I find it interesting. |
| In hoeverre was u zich bewust van uw werkelijke omgeving terwijl u zich bezighield met de digitale omgeving? (d.w.z. geluiden, kamertemperatuur, andere mensen, etc.)? | Nee, werd niet afgeleid, ik heb echt zitten kijken, vond het mooi. Ja en dan ga je het toch weer extra aantrekken. | No, I was not distracted, I really watched, just sitting and watching and I liked it. |
| Kruispunt | | |
| U bereikte op een gegeven moment borden met twee pijlen, kunt u omschrijven wat u daarvan vond? | Ik heb die pijlen niet gezien. Niet opgevallen Nee, ik ben meer geïnteresseerd in het groen. | I didn't see any arrows. Didn't notice, No, I'm interested in the green. |
| In hoeverre vond u de richtingsborden,duidelijk? | Niet, maar ik heb het niet doorgehad, want het was gewoon beredeneerd door die bomen en het groen. . Als je nou van tevoren had gezegd er zijn gewoon twee borden, dan let ik erop. Ik vond de natuur belangrijker dan het bord. | Not clear, I didn't realize that, because I was distracted by those trees and the greenery in such a way. If you have told me in advance, then I'll would have been more alerted to it. I think that nature is more important than the plate. |

| Controlerend (control groep die het pad kan niet kiezen) | | |
|--|---|--|
| Kunt u uw ervaring beschrijven met het navigeren op het toegewezen pad in de digitale natuurscène? | Ja, vond ik wel ok, want je liep eigenlijk dieper, dat staat natuurlijk wat het gezicht was. Je liep eigenlijk meer door een soort dal en dan alles naar boven kan kijken | Yes, I felt ok to follow the chosen path, because you actually walking deeper, in the scene.. You actually walked through a kind of valley and everything went up, what you can see. |
| Waren er momenten waarop het willekeurig gekozen pad uw algehele ervaring in de digitale omgeving beïnvloedde? | Ja, ik vond het interessant, wat ik zei, omdat je al die dingen ziet liggen. Die beelden of die gemaakte beelden wat het ook zijn en die boomstammen en daar ook die mooie bomen. Daar hebben ze recht voor je hebt staan. | Yes very interesting, what I said because you see all those things, right? Those images or those images that have been made and that tree is standing there and there are also those beautiful trees. They are there in front of you. |
| In hoeverre had u het gevoel geen controle te hebben over het vervolg van het pad? Wat voor invloed had dat op u? | Vond ik niet erg. Dat was een kwestie van afwachten. | I didn't mind, it's just a matter of waiting and seeing. |
| Als ik u vertelde dat u links of rechts had kunnen kiezen, zou u dat dan liever hebben? | Nee, dit vind ik wel aantrekkelijk. | No, this is attractive. |
| Gevoel van aanwezigheid + besluitvorming | | |
| In hoeverre heeft u momenten ervaren waarin u deel uitmaakte van de digitale natuurscène of, omgekeerd, u niet verbonden voelde? | Ik voelde me wel verbonden. Ik vond het heel aantrekkelijk. | I felt connected, it was attractive, yes. |
| Verbetering | | |
| Heeft u opmerkingen van deze digitale ervaring? | Nee, lijkt me positief. | No, seems positive to me. |
| Wat zou u ervan vinden om meer keuzes te hebben in deze digitale natuurscène? | Nou, Ik vind dat als je niet weet wat er nog meer is, dan is dit een hele mooie keuze. Niet van tevoren worden geïnformeerd, gewoon aan de rechtse kant kan je dat nog zien of aan de linkse kant kan je dit zien, dat vond ik wel prima. | Well, I think if you don't know if there is more, then this is a very nice solution. Not being informed about this in advance, just going to the right and see that or going to the left and seeing this, that was good enough for me. |
| Heeft u suggesties voor het verbeteren van de besluitvorming en aanwezigheid in digitale omgevingen, zoals deze? | Misschien wil je eens een keer hert zien lopen of zo. Dat vind ik dan wel mooi, hetzelfde als ik in het bos ben, dan wil ik dat toch wel meemaken, als het bestaat. Ja, dat betekent ook wel dat wij dikwijls op een bruggetje staan, of op een bankje en dan blijven we net zo lang zitten totdat er een ree voorbijkomt. Dat vond ik wel leuk. | Maybe you want to see a deer walking or something else. I like that the same if I'm walking in the forest, then I want to experience such thing, if it exists. Yes, that also means that we often were on a bridge or on a bench, until a deer passed by. |
| Wil u het nog eens zien? | Allemaal wel, ja vond ik wel mooi. Zeker voor herhaling vatbaar. | All, yes, I liked it. May be repeated again. |