# Realism and Restoration: A Virtual Nature Perspective

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**ABSTRACT**

Immersion in forest atmospheres has the potential to relieve stress and restore mental resources. People who regularly suffer from chronic stress, such as those who live in big cities, often lack access to the restorative benefit of nature. Virtual reality can deliver similar benefits in situations where real nature is not accessible, yet there is much to investigate about how to use virtual reality towards this end. This paper proposes an investigation into the importance of biomass realism for a virtual environment with the optimal restorative benefit. In this experiment, two environments were created with high and low realism. The hypothesis was that these environments only differed in realism. A within subjects study was conducted, and after each environment, participants filled out a questionnaire. The questionnaire had questions from the Presence Questionnaire to evaluate the interface, sensory aspects, and overall immersion. The Perceived Restorativeness Scale was also used to evaluate how people felt in the environment. The low realism environment was perceived to have a significantly better interface as well as significantly more fascinating, indicating that the environments need adjusted until they are more equal before running a full study on the importance of realism. There were interesting mixed opinions observed within the results, so a larger study on realism is necessary.

## 1 INTRODUCTION

Stress is a prevalent issue in society at large, yet in some areas, resources to effectively address and mitigate stress are lacking. In fact, some living environments are even conducive to stress increase, and urban, indoor lifestyles have been linked to chronic stress [4]. Additionally, the Environmental Protection Agency (EPA), reports that 86.9% of one's life is spent indoors [9]. Spending this much time indoors, in urban environments and in workplaces increases and sustains stress. This leads to cognitive overload, which is a situation of mental overwhelm that causes mental resource exhaustion and a variety of other negative health effects [17]. Considering the widespread presence of stress and associated negative impacts, innovative ways of relieving stress are important to investigate.

Forest bathing, or shinrin-yoku, is designed to counteract stress and restore depleted mental resources after cognitive overload. Forest bathing is a practice where one becomes immersed in a forest environment [10]. While the benefit of the practice is perfect for counteracting the stress of indoor life, many people have little access to the nature needed for the practice. For example, people in large urban areas or nursing homes cannot step out into nature whenever they please. Thus, the people with the most dire need for this nature practice have rare access to it. Virtual reality (VR) has the potential to help remedy this issue.

VR head-mounted displays (HMD's) like the Oculus Quest 2 are becoming more affordable and accessible. At the same time, engines like Unity and Unreal Engine are improving to offer more lifelike experiences. Through the immersivity of VR and the continually improving graphics offered by game engines, it is possible to create an effective nature environment in VR. In fact, a subject of current research investigates what benefits VR forest bathing can provide with those to limited access to nature [3]. While VR nature immersion experiences can provide benefits similar to those of real nature, VR nature does not provide the exact benefits of real nature. Regardless, VR can act as a substitute for when real nature is not directly accessible. Then, the question becomes how to create an optimally effective virtual nature experience.

Since VR nature is different than real nature due to its technical aspect, there are issues that call for research when investigating an optimal environment. One of these issues is realism. Due to technological limitations, it is impossible to reproduce reality exactly in VR. Despite this, since VR is an immersive experience of another 'world,' it is possible that realism operates differently when creating an immersive experience. For example, while VR games are not entirely realistic and sometimes even contain very low detail models, they can be very immersive and enjoyable. Similarly, high realism models can cause users to become disoriented and cybersick due to the "visual flow" of the environment [14]. Since realism is a complex issue, it is necessary to investigate with respect to VR nature.

This work examines the question: to what extent is the benefit of VR nature dependent on the realism of the virtual environment. This question contributes to the field by investigating a new topic; how important realism is for the immersivity and restorativeness of a virtual forest bathing application. The research presented will also shed light on a preferred level of realism and how well that level matches with real nature. In the rest of this work, related literature, methodology, results, discussion of results, experiment limitations, and direction of future work are all presented.

## 2 RELATED WORK

### 2.1 Stress and Restoration Theories

There are two theories as to why nature exposure relieves stress and restores mental resources. Stress Recovery Theory (SRT) states that people have an innate connection with nature such that nature immersion is restorative via affect responses [15]. These affect responses are measured via psychological and physiological means [16].

Attention Restoration Theory (ART) is a second theory that pairs with SRT and focuses on the cognitive effects of nature immersion. This theory states that prolonged focus depletes attention capacity, leading to fatigue. Nature immersion restores attention capacity via 'involuntary attention' or 'fascination,' where one becomes interested in natural artifacts that are innately interesting [7]. ART is split into four components: Being Away, Extent or Coherence, Fascination, and Compatibility [7, 8]. This theory suggests that natural environments have restful qualities, and introduces the concept of 'nearby nature,' which is the practice of keeping natural elements nearby in non-natural areas. The Perceived Restorativeness Scale (PRS) was developed as a valid measure of restorativeness to aid the linking of environmental factors to psychological outcomes. Using ART as the basis, the 16 question PRS was developed and split into the categories: Being Away, Coherence, Fascination, and Compatibility. This scale was tested, verified effective, and is used as a common way to measure restorativeness [5].

### 2.2 Forest Bathing

Shinrin-yoku, or forest bathing, involves immersion in a forest atmosphere for the purpose of stress relief and restoration. Research by

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Park revealed that urban environments elicit stress, whereas forests promoted parasympathetic and reduced sympathetic nerve activity [10]. This effect illustrated that the forest promoted relaxation, but it suggested that other natural environments could have similar effects. Since other nature could provide similar effects, it is possible that lower fidelity, virtual nature environments could be created in such a way they resonate with people in similar ways.

### 2.3 Immersion, Presence, and Realism

VR is unique because it uses virtual worlds to create experience that resonate with people like reality. Immersion, presence, and realism are factors in the delivery of the experience that can affect the attachments people make with their experience. Immersion can be described as the extent to which computer simulation can deliver a realistic and detailed depiction of reality [12]. Presence can be described as the response that humans have to immersion and relates more closely to the experience [6]. Realism is the accuracy of a depiction.

#### 2.3.1 Immersion and Nature

Immersivity is necessary to reap the full benefit of the forest bathing experience. De Kort completed a study to determine the effects of different screen sizes on the immersivity of a video of a digital nature environment [3]. The results were inconclusive, but since De Kort's medium was limited, De Kort suggested using VR for immersive effect in future work. This study extends De Kort's work by investigating the necessary level of realism in VR nature for proper immersivity.

#### 2.3.2 Presence and Flow

Flow, a term created and researched by psychologist Mihaly Csikszentmihalyi, is the concept that every person has an activity or skill that they are able to become fully immersed in, or achieve optimal presence in, to the point where they do not even notice the world around them [2]. For example, a champion athlete may become so immersed in the sport that they are 'in the moment' when they are in the game, entering what is called a flow state. Avid hikers, craftsmen, and anyone with a skill that they participate in can experience flow states. Wanzer et al investigated how flow experiences relate to aesthetics, specifically for people experiencing flow while viewing art [18]. Wanzer's research led to the creation of the Aesthetic Experience Questionnaire (AEQ), which factors together environment aesthetics, flow experience, and presence. A more generalized questionnaire foundational to the AEQ, the Presence Questionnaire (PQ) developed by Witmer et al. [19] will be incorporated to ensure that despite realism differences, the environments created for this research have controlled aesthetic appeal.

#### 2.3.3 Realism

Realism is the focus of the current research objective. Appleton researched a potential 'sufficient' level of realism for computer images for the purpose of understanding how people relate to digital images. The level of detail of a variety of computer images was manipulated, and foreground vegetation and type of ground cover had significant effects on ratings [1]. While Appleton did not find a 'sufficient' level of realism, realism ratings increased with the level of detail, and as realism ratings increased, people felt more strongly that they could relate to the environment depicted by the image. This research investigates two levels of realism for virtual nature in order to determine how realism affects user presence in the virtual environment.

## 3 Methodology

This experiment is designed to ensure that the environments being created are equal in terms of aesthetic, openness, curiosity, and other related factors. An evaluation using psychological questionnaires detailed below was be performed to ensure the environments only differ regarding realism. The null hypothesis is that there is no difference in aesthetic factors aside from realism.

### 3.1 Participants

Ten participants were recruited from the Colorado State University Computer Science community. Participants were excluded if self-reported vision was below 20/60, if they had previous self-reported history of heart conditions, or if they had history of seizures. 9 participants were male, and 1 participant was female. The mean age for participants was 25 years old with a standard deviation of 4 years. 8 participants had used a VR headset before, and 2 had not. Participants were also asked to report the average number of hours per week spent on the computer, which yielded a mean of 37.2 hours and a standard deviation of 21.5 hours. Participants reported how many hours per week they spend using VR, and 4 reported a non-zero number. The mean was 1.55 hours with a standard deviation of 2 hours.

### 3.2 Materials

The experiment was conducted at a desk with a computer, and a HTC Vive Pro 2 in a lab environment. The environments were created in and administered using Unreal Engine. All questionnaires were administered via Google Forms and completed at the desk on a laptop. There was an air vent blowing cool air at the experiment location.

### 3.3 Procedure

#### 3.3.1 Psychological Measurements

Two scales were used to measure the presence, immersion, and aesthetic of the forest environment. First, the PRS was used to measure presence in the environments [5]. Also, the PQ was used to measure and assess equal aesthetic [19]. Some questions were extracted from the PQ because they were not applicable to the context of this experiment. These questions and the reason for extraction are detailed in Figure 1. Both questionnaires are likert scales, integrated into Google Forms for easy administration. These measurements were taken for the purpose of verifying that realism was the only differing factor of the environments, rather than immersivity or potential design errors affecting relaxation.

#### 3.3.2 Virtual Environments

Two virtual nature environments were created using Unreal Engine, one with low realism as seen in Figure 3.3.2 and one with high realism as seen in Figure 3.3.2. The low realism environment used the "Dreamscape Nature : Meadows - Stylized Open World Environment" package from the Unreal Engine marketplace [13]. The high realism environment referenced from the tutorial offered by Serge Ramelli Photography [11]. The user was stationary in the environments, surrounded by a virtual forest. The forest included ground plants and trees. During the creation of the virtual environments, similar looking assets were found for each environment in order to ensure that realism was the only environmental difference. The high realism map was created first. The low realism map was made by copying the high realism map then replacing the trees and ground cover assets individually. This was done to ensure the maps were structured identically aside from realism. Assets were placed in the same position on both maps, making both environments have an identical layout.

#### 3.3.3 Experiment Procedure

Participants arrived at the laboratory and were informed that psychological measures would be collected. Before participating in the experiment, subjects were informed of the potential risks and benefits of participation in the experiment and that they could leave the experiment at any time. The subjects then signed an informed

| Category | Question Removed from Presence Questionnaire | Reason for Removal |
|---|---|---|
| Involvement | How much were you able to control events? | It was a passive experience, control was not applicable. |
| | How responsive was the environment to actions that you initiated (or performed)? | It was a passive experience, actions were not applicable. |
| | How well could you move or manipulate objects in the virtual environment? | It was a passive experience, there was no manipulation. |
| | How easy was it to identify objects through physical interaction, like touching an object, walkingover a surface, or bumping into a wall or object? | It was a passive experience, there was no physical interaction. |
| Sensory Fidelity | How much did the auditory aspects of the environment involve you? | The experiement was only testing visuals, there was no sound. |
| | How well could you identify sounds? | The experiement was only testing visuals, there was no sound. |
| | How well could you localize sounds? | The experiement was only testing visuals, there was no sound. |
| | How well could you actively survey or search the virtual environment using touch? | It was a passive experience, there was no touch. |
| Adaptation/ Immersion | Were you able to anticipate what would happen next in response to the actions that you performed? | It was a passive experience, actions were not applicable. |

Figure 1: Questions Extracted from Presence Questionnaire

Figure 2: Low Realism Nature Environment

Figure 3: High Realism Nature Environment

consent form. This experiment was IRB approved under the class IRB. The experiment was completed with no more than one participant in the room at one time. The participants were each assigned an experiment number that they used to fill out the questionnaires. This experiment followed a within subjects design. Each participant was exposed to both environments in a random order. Exposure time was five minutes. After exposure to each environment, the participant completed the questionnaires for the respective environment. The experiment lasted approximately twenty minutes.

## 4 Results

All results were analyzed and visualized using Microsoft Excel tools.

### 4.1 Statistical Analysis

Both questionnaires were analyzed the same way. First, the mean and standard deviation of all participants for each question was calculated for the high realism and low realism environments. Then, each questionnaire was broken into subcategory scores for each participant. The subcategory scores for each questionnaire were calculated by summing the scores of the questions in the subcategory. The mean subcategory scores and standard deviations were calculated for the sample for each environment. T tests were performed on each subcategory between the two environments using the subcategory scores per participant as the input data.

### 4.2 Presence Questionnaire

Figure 5 details the subscale means and standard deviations for the PQ. The means are also plotted in Figure 4. For the Involvement subscale, the lowest possible score is 0 and the highest 48. For Sensory Fidelity, the minimum score possible is 0 and the maximum was 12. Adaptation/Immersion has a score range of 0-42. Interface Quality has a range from 0-18. For information on the means and standard deviations of each individual question, see Figure 8 in Appendix A.

T-tests were also performed for each subscale between the two environments. There was not a significant difference in Involvement ($t(9) = -0.43, p = 0.34$), Sensory Fidelity ($t(9) = 0, p = 0.50$), or Adaptation/Immersion ($t(9) = -0.88, p = 0.20$) between the high realism and low realism environments. Interface Quality did produce significant results ($t(9) = 1.92, p = 0.04$). For the high realism environment, Interface Quality had a higher mean yet also a higher standard deviation (M = 4.30, SD = 3.23) than the low realism environment (M = 2.70, SD = 2.11).

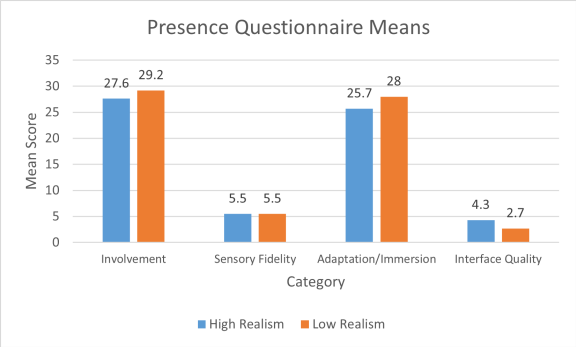


Figure 4: Presence Questionnaire Subcategory Means

| Presence Questionnaire Means | | | | |
|---|---|---|---|---|
| | High Realism | | Low Realism | |
| Category | Mean | Std | Mean | Std |
| Involvement | 27.6 | 11 | 29.2 | 11.24 |
| Sensory Fidelity | 5.5 | 3.27 | 5.5 | 4.28 |
| Adaptation/Immersion | 25.7 | 8.59 | 28 | 10.71 |
| Interface Quality | 4.3 | 3.23 | 2.7 | 2.11 |

Figure 5: Presence Questionnaire Subcategory Data

### 4.3 Perceived Restorativeness Scale

The PRS subscale means are shown in Figure 7. The means are also plotted in Figure 6. Being Away has a score range from 0-12. Fascination ranges from 0-30. Coherence ranges from 0-24. Compatibility ranges from 0-30. For information on the means and standard deviations of each individual question, see Figure 9 in Appendix A.

T-tests were performed for each subscale between the two environments. There was not a significant difference in Being Away ($t(9) = -1.18, p = 0.13$), Coherence ($t(9) = 1.24, p = 0.12$), or Compatibility ($t(9) = -1.67, p = 0.06$) between the high realism and low realism environments. Fascination did produce significant results ($t(9) = -2.66, p = 0.01$). The low realism environment had a higher mean and lower standard deviation (M = 25.40, SD = 6.06) than the high realism environment (M = 20.20, SD = 8.00).

## 5 Discussion

Overall, there were very few significant differences between the two environments. In this case, since the purpose of the experiment was to verify that realism is the only differing factor and eliminate any differences that make one environment less restorative than the other, the lack of significant differences is a good trend. Specifically, the lack means that, for the most part, the two environments have been created to have equal restorative potential, with the exception of the two variables that did differ significantly between the two environments, Interface Quality from the PQ and Fascination from the PRS.

### 5.1 Interface Quality Rating

The Interface Quality of the high detail environment had a higher mean than the low detail environment, but also a higher standard deviation. Since the questions for this category are framed in a negative context, a higher score indicates lower quality. While the high detail environment was rated overall to have a worse interface, there were also a larger variety of mixed opinions about the quality of the interface. There were three questions asked about the quality.

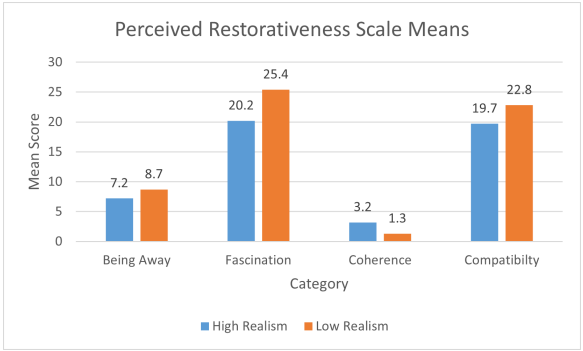


Figure 6: Perceived Restorativeness Scale Means

| Perceived Restorativeness Scale Means | | | | |
|---|---|---|---|---|
| | High Realism | | Low Realism | |
| Category | Mean | Std | Mean | Std |
| Being Away | 7.2 | 3.39 | 8.7 | 3.2 |
| Fascination | 20.2 | 8 | 25.4 | 6.06 |
| Coherence | 3.2 | 4.52 | 1.3 | 1.42 |
| Compatibilty | 19.7 | 7.18 | 22.8 | 6 |

Figure 7: Perceived Restorativeness Scale Subcategory Data

The first asked about delay, and the high detail environment had a higher mean and standard deviation for the question responses (M = 1.00, SD = 1.25) than the low detail (M = 0.80, SD = 0.92). This is likely due to the fact that more detailed assets are more difficult to render, especially in VR, so there is bound to be more latency even if it is largely unnoticeable in a high detail environment. The second question asked about how distracting the quality of the visual display was, and the higher detail environment had a higher mean and standard deviation (M = 2.10, SD = 1.52) than the low detail (M = 1.20, SD = 1.14). This could be due to the better visuals of the high detail environment, which gave the participants more details to observe, which could have been distracting. The third question asked about control device interference, which was greater for the higher detail environment (M = 1.20, SD = 1.62) than the low (M = 0.7, SD = 1.16). This may be due to how quickly the headset rendered the environment as the participants looked around, as looking around in the headset was the only control the users had, and overall, the high detail environment is likely to render more slowly. Considering delay and distraction with the graphics, the fact that the interface quality for the high environment was rated as worse with respect to the lower detail environment indicates that some work needs done to make the interfaces more equal.

### 5.2 Fascination Rating

The low realism environment had a higher mean and lower standard deviation (M = 25.40, SD = 6.06) than the high realism environment (M = 20.20, SD = 8.00). This indicates that the low realism environment was more consistently viewed as more fascinating than the high realism. Fascination has 5 component questions. The first asked if there are fascinating things in the scene, and low realism had a higher mean (M = 5.00, SD = 1.33) than high realism (M = 4.30, SD = 1.42). Additionally, the second asked if the scene drew attention, and low realism had a higher mean (M = 5.20, SD = 1.40) than high realism (M = 3.60, SD = 1.74). These results indicate

that the low realism environment was more captivating than the high realism environment, which may be due to the fantasy-like assets used in the environment. The third asked if the participant wanted to know the place better, and low realism had a higher mean (M = 5.00, SD = 1.33) than high realism (M = 3.90, SD = 1.92). The fourth asked if the participant wanted to explore, and low realism had a higher mean (M = 5.40, SD = 0.97) than high realism (M = 4.60, SD = 1.69). The fifth asked if the participant wanted to stay in the environment longer, and low realism had a higher mean (M = 4.80, SD = 1.67) than high realism (M = 3.80, SD = 1.78). These results indicate that the participants may have felt more involved or adventurous in the low poly environment, which may be due to the graphics of the low poly environment more resembling a game or fantasy world.

### 5.3 Post-Experiment Open Questions

After the experiment, the participants gave feedback on the experiment through a series of open questions. All participants reported that they felt no cybersickness, which was the goal of creating a stationary, passive experience. They were asked which environment they prefered, and 4 participants reported the realistic environment while 6 reported the low realism environment. Participants were also asked to report which environment they found most relaxing, and it was an even split between the two environments. Participants reported that they liked how calming, simple, and visually pleasing the environments were as well as the assets used and the whimsical nature of the low detail environment. Participants reported that the environments could be improved by adding sound as well as an area beyond the trees. One interesting thing that participants reported was that they liked the air vent that they happened to be sitting next to because it made the wind feel more real, which is a consideration for future work. Also, the whimsical nature of the low realism environment may explain some of the appeal, and it may be of interest to take into account gaming background in future experients.

### 5.4 Limitations and Future Work

The main limitation of this work is the difficulty of creating the virtual environments. It is challenging to match the aesthetic of high and low detail environments such that realism is the only differing factor. Object placement may be the exact same, but high realism objects are more difficult to render, and there are other factors that need considered when gauging visual interest in an environment, such as novelty and accuracy with respect to what the environment is intended to imitate. It may also be of interest to investigate uncanny valley effects. Additionally, time frame was a limitation of this project, as it needed to be completed within few months. Follow up studies to further assess and tweak the visuals would be beneficial for further understanding the results presented. In the future, these environments need tweaking until they are more exactly aesthetically similar, and sound will need to be incorporated to create a more truly immersive experience. After this work is complete, full experiments investigating the importance of biomass realism in the creation of a maximally restorative virtual forest bathing experience can be completed. Then, additional future work could investigate other important aspects of the virtual forest.

## 6 Conclusion

Overall, the environments created were fairly well balanced, only differing significantly in two respects, Interface Quality and Fascination, which gave grounds to reject the null hypothesis. These two components will need further investigation and adjusting before running a full experiment. Also, adding more depth to the environments is a necessary next step to create an optimal experience in the environments. Given the interesting insights reported in the post-experiment open questions, adding sound and keeping the air vent may improve the overall immersivity of the experience, which is a separate consideration to keep in mind while preparing the full experiment. Additionally, it may be necessary to further investigate how different preference factors are affecting people's responses, since there are mixed opinions in the results from this experiment. Once these factors are accounted for, a full experiment investigating the extent to which biomass realism is important for a restorative virtual nature experience can be investigated.

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## A Additional Data

| Presence Questionnaire | | High Realism | | Low Realism | |
|---|---|---|---|---|---|
| Category | Survey Question | Mean | Std | Mean | Std |
| Involvement | How natural did your interactions with the environment seem? | 3.8 | 1.55 | 3.8 | 1.87 |
| | How much did the visual aspects of the environment involve you? | 3.1 | 1.85 | 2.4 | 2.12 |
| | How natural was the mechanism which controlled movement through the environment? | 3.1 | 2.08 | 3.9 | 2.18 |
| | How compelling was your sense of objects moving through space? | 2.7 | 2.16 | 3.5 | 2.07 |
| | How much did your experiences in the virtual environment seem consistent with your real world experiences? | 3.7 | 1.57 | 3.9 | 1.29 |
| | How completely were you able to actively survey or search the environment using vision? | 4.7 | 0.67 | 5 | 1.56 |
| | How compelling was your sense of moving around inside the virtual environment? | 2.9 | 2.37 | 3 | 2.49 |
| | How involved were you in the virtual environment experience? | 3.6 | 1.65 | 3.7 | 1.7 |
| Sensory Fidelity | How closely were you able to examine objects? | 2.8 | 1.23 | 3 | 2.26 |
| | How well could you examine objects from multiple viewpoints? | 2.7 | 2.21 | 2.5 | 2.07 |
| Adaptation/Immersion | How quickly did you adjust to the virtual environment experience? | 4.3 | 1.57 | 4.5 | 1.27 |
| | How proficient in moving and interacting with the virtual environment did you feel at the end of the experience? | 3.6 | 2.07 | 3.9 | 2.13 |
| | How well could you concentrate on the assigned tasks or required activities rather than on the mechanisms used to perform those tasks or activities? | 4 | 1.05 | 4.1 | 1.66 |
| | How completely were your senses engaged in this experience? | 3.6 | 1.17 | 4.1 | 1.66 |
| | Were there moments during the virtual environment experience when you felt completely focused on the task or environment? | 3.6 | 1.43 | 4 | 1.7 |
| | How easily did you adjust to the control devices used to interact with the virtual environment? | 3.4 | 2.17 | 3.8 | 2.3 |
| | Was the information provided through different senses in the virtual environment (e.g., vision, hearing, touch) consistent? | 3.2 | 1.93 | 3.6 | 2.22 |
| Interface Quality | How much delay did you experience between your actions and expected outcomes? | 1 | 1.25 | 0.8 | 0.92 |
| | How much did the visual display quality interfere or distract you from performing assigned tasks or required activities? | 2.1 | 1.52 | 1.2 | 1.14 |
| | How much did the control devices interfere with the performance of assigned tasks or with other activities | 1.2 | 1.62 | 0.7 | 1.16 |

Figure 8: Presence Questionnaire Question Breakdown

| Perceived Restorativeness Scale | | High Realism | | Low Realism | |
|---|---|---|---|---|---|
| Category | Survey Question | Mean | Std | Mean | Std |
| Being Away | It is an escape experience. | 3.3 | 1.85 | 3.6 | 2.46 |
| | Spending time here gives me a good break from my day to day routine. | 3.9 | 2.02 | 5.1 | 1.66 |
| Fascination | The setting has fascinating qualities. | 4.3 | 1.42 | 5 | 1.7 |
| | My attention is drawn to many interesting things. | 3.6 | 1.74 | 5.2 | 1.4 |
| | I would like to get to know this place better. | 3.9 | 1.92 | 5 | 1.33 |
| | I want to explore the area. | 4.6 | 1.69 | 5.4 | 0.97 |
| | I would like to spend more time looking at the surroundings. | 3.8 | 1.78 | 4.8 | 1.67 |
| Coherence | There is too much going on. | 1.3 | 1 | 0.8 | 1.03 |
| | It is a confusing place. | 0.7 | 1.27 | 0.3 | 0.48 |
| | There is a great deal of distraction. | 0.7 | 1.19 | 0.2 | 0.42 |
| | It is chaotic here. | 0.5 | 1.2 | 0 | 0 |
| Compatibility | I can do things I like here. | 3 | 1.79 | 3.7 | 1.77 |
| | I have a sense that I belong here. | 3.7 | 1.85 | 4.5 | 1.43 |
| | I have a sense of oneness with this setting. | 4.3 | 1.35 | 4.5 | 1.08 |
| | Being here suits my personality. | 4 | 1.73 | 4.8 | 1.32 |
| | I could find ways to enjoy myself in a place like this. | 4.7 | 1.19 | 5.3 | 1.16 |

Figure 9: Perceived Restorativeness Scale Question Breakdown