

Introduction to this document

Text in Italics are things that are said out loud to the participant. These can be questions or explanations. These are the questions that have to be asked and the things that must be explained. More might be explained if the participant has questions or needs more help. More might be asked depending on the participant's answers.

Events and activities during the experiment

One test participant and two interviewers per session.

One interviewer writes, while the other talks.

- consent form
- questionnaire 1
 - general information
 - previous VR experience
 - general museum interest
 - general art interest
 - previous VR museum experience
- pre-hallway to setup headset
- tutorial
 - tutorial instructions (spoken)
 - none -> stylized -> extending
 - none -> extending -> stylized
- empty hallway, take off headset
- informal interview 1
 - opinion on the illusions
 - general (VR) museum interest
- real test
 - explore instructions
- questionnaire 2 and informal interview 2.1
 - panas-variant on paper about the styles
 - informal interview on results of panas-variant
- informal interview 2.2
 - opinion on the illusions
 - general (VR) museum interest
 - general art interest
- questionnaire 3 & 4
 - enjoyment (likert scale)
 - memory test

Consent form

Experiment: Virtual Reality Museum 1

Experimenters: Bibi de Boer, Wouter Florijn, Xhi Jia Tan

Affiliation: Utrecht University

You are invited to participate in a research study that tests a Virtual Museum setup. In the experiment, you will be wearing a head-mounted display.

Risks: The head-mounted display may cause temporary nausea and temporary dizziness in some users. The procedure will be stopped immediately when you indicate you are experiencing these or any other type of discomfort.

Participant's Rights: If you have read this form and have decided to participate in this experiment, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty. You have the right to refuse to answer particular questions. Your individual privacy will be maintained in all published and written data resulting from the study.

If you agree with the above-stated conditions and are willing to participate in the experiment, please sign below. By signing the form, you confirm that you meet the following conditions:

- You have read the above consent form, understood it and you agree to it.
- You want to participate in the above-mentioned experiment.

Name: _____

Date: _____ Signature: _____

Questionnaire 1

Pre-experiment questionnaire

The goal of this survey is to acquire information about the participants. Additionally, it will be used to measure their initial interest in art.

1. **Name:**

2. **Age:**

3. **Gender:** M / F / Other

4. **Do you have any previous experience with virtual reality (VR)?**

None OOOOO A Lot

5. **If you have any experience, with which VR devices?**

6. **How often do you visit museums to look at paintings?**

7. **Please rate your level of interest in art.**

Not interested OOOOO Very interested

8. **Please rate your level of interest in paintings.**

Not interested OOOOO Very interested

9. **What would you say (if anything) do you like about viewing art?**

10. **Do you have any previous experience with virtual museums?**

O Yes O No

Tutorial instructions

- Comment on VR museum experience from Questionnaire 1. If yes ask more.
- *You are going to visit a Virtual Reality museum. You are first going to visit a tutorial floor. There are three doors leading to three rooms. Each room has one painting in it.*
- *Show the three icons on paper. The doors have icons on them. Each icon corresponds with a different type of room. Each icon occurs once.*
- *Show headset. Explain sliders. Put on headset. You are in a hallway. Move the lenses until you can see clearly.*
- *Turn your chair around. You can look around the entire room in this way. Do you see the elevator behind you? You can go to the next floor with it.*
- *You can now see the three doors with the icons on them. You are going to enter the room with a <No effect icon> first.*
- *You can admire the painting. If you are done, the door back to the hallway is behind you. Tell me when you are back in the hallway.*
- *×2: You are going to enter the room with the <First/second effect icon>.*
 - *For the Extended illusion: You can replay this animation with the button at your feet, or just admire the result.*
- *When you are finished with this floor, you can use the elevator.*
- *Take off your headset. We are going to talk about what you saw.*

Informal interview 1 after tutorial

Ask the following questions, skip a question if they already made a specific statement about it.

- 1. What did you think of the different rooms?**
- 2. Which room did you like the most? Why?**
 - a. What did you like most about it?**
 - b. What did you dislike?**

Make sure they have made some statements about each illusion.


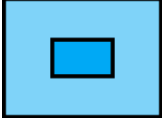

- 3. Now that you have seen this setup, what do you think of VR museums?**
- 4. Would you like to visit VR museums like this one? Why?**
 - a. Would you like to visit VR museums if they did not have visual effects like the ones you just saw? Why?**
- 5. Would you like to visit real museums if they added effects like these? Why?**

Explore instructions before real experiment

You are now going to visit a three floor museum. You can explore the rooms in any order you want, and visit them as often as you'd like. After you have visited each room, you can use the elevator to go to the next floor. You can only visit each floor once. The elevator does not go down.

Panas variant Questionnaire 2 + Informal interview 2.1

Please indicate to what extent you have felt during the test for each type or room.

			
Enthusiastic	Not at all OOOOO Extremely	Not at all OOOOO Extremely	Not at all OOOOO Extremely
At ease	Not at all OOOOO Extremely	Not at all OOOOO Extremely	Not at all OOOOO Extremely
Joyful	Not at all OOOOO Extremely	Not at all OOOOO Extremely	Not at all OOOOO Extremely
Amazed	Not at all OOOOO Extremely	Not at all OOOOO Extremely	Not at all OOOOO Extremely
Bored	Not at all OOOOO Extremely	Not at all OOOOO Extremely	Not at all OOOOO Extremely
Distressed	Not at all OOOOO Extremely	Not at all OOOOO Extremely	Not at all OOOOO Extremely
Irritated	Not at all OOOOO Extremely	Not at all OOOOO Extremely	Not at all OOOOO Extremely
Sleepy	Not at all OOOOO Extremely	Not at all OOOOO Extremely	Not at all OOOOO Extremely

Positive words:

1. Enthusiastic
2. At ease
3. Joyful
4. Amazed

Negative words:

1. Bored
2. Distressed
3. Irritated
4. Sleepy

In the ideal case, the user will assign high values to the positive words and low values to the negative words. After they have filled in the form, their answers will be checked to see if he has indeed rated the words in that way. Also, we will check for the cases where the rating is (almost) the total opposite of the ideal case. In these scenarios, we will ask the user to elaborate on his decision to find out what has caused that rating.

Informal interview 2.2 after real test

Ask the following questions, skip a question if they already made a specific statement about it.

- 1. Which rooms did you like the most? Why?**
 - a. What did you like most about it?**
 - b. What did you dislike?**

Make sure they have made some statements about each illusion.

- 2. What do you think of VR museums after seeing this more elaborate setup?**
- 3. Would you like to visit VR museums like this one now? Why?**
 - a. Would you like to visit VR museums if they did not have visual effects like the ones you just saw? Why?**
- 4. Would you like to visit real museums if they added effects like these? Why?**
- 5. Do you have a different view about art now?**

End Questionnaire

Enjoyment Questionnaire 3

- 1. I liked the experience**

Disagree OOOOO Agree

- 2. The experience was relaxing**

Disagree OOOOO Agree

- 3. I was bored during the experience**

Disagree OOOOO Agree

- 4. I don't want to experience this ever again**

Disagree OOOOO Agree

- 5. I enjoyed the experience**

Disagree OOOOO Agree

Memory test Questionnaire 4

Setup concept:

Paintings depend on experiment setup paintings.

Four paintings in each row: at least one that was in the museum, one of the same painter, one of the same subject, and one of the same subject as the other painting of the same painter.