Section A: Participant Code

A1. Enter the participant code.

A2.

Which application does the participant complete first?

Does the participant complete the City-Condition first and than the RFT, or first the RFT and then City?

City ☐

RFT ☐

Section B: Introduction

- Ask the participant to disinfect their hands

- Thank them for their participation

- Let them put away their belongings undisturbed

- Have them take a seat (table and chair where the eye test will take place)

- Give the participant 1x participant information sheet

- Have the participant complete 1x privacy policy/consent form

- Give the participant gloves (sizes S/M/L)

B1.

Have the privacy policy and the consent form been fully fillled out by the participant?

Yes ☐

No ☐

Section C: FrACT

Instructions for FrACT:

You're seeing rings in front of you, which are each open to one of 8 possible positions. On the keypad you will indicate the orientation of the opening. Should you be unsure of the answer, please guess. Please do not move your head closer to the screen than the indicated marker.

Instruction for Stereo Vision Test:

Please put on these glasses and then tell me, which one of these 3 circles appears three-dimensional!

Section D: Demographic questionnaire

Please fill out this questionnaire truthfully!

D1. Gender:

- male ☐
- female ☐
- non-binary ☐

D2. How old are you?

☐☐☐☐☐☐☐☐☐☐

D3.

Have you been more prone to dizziness than usual in the past 6 days, including today?

- Yes ☐
- No ☐

D4.

Have you been more prone to nausea in the past 6 days, including today?

- Yes ☐
- No ☐

D5.

Have you already participated in other studies on visuospatial orientation in virtual environments?

- Yes ☐
- No ☐

D6.

Do you need visual aids (glasses or contact lenses)?

- Yes ☐
- No ☐

D7.

Have you already used virtual reality (e.g. games or simulations in a professional or private context)?

Definition virtual reality:

The user immerses themself in a non-real, computer-generated world in which they can move (freely) and interact with the environment.

Distinction:

In comparison to virtual reality, you cannot interact with 360-degree films, you can only view them in a 360-degree panoramic view and change the field of view by moving your head left, right, up or down.

Augmented Reality: In AR, the real environment is displayed on the screen by the camera(s) and supplemented by digital content.

- [ ] Yes
- [ ] No

D8.

How much time have you spent in virtual reality applications so far?

- [ ] less than 30 minutes
- [ ] 30 minutes to 5 hours
- [ ] more than 5 hours

Section E: Please contact the experimenter!

Please inform the experimenter that you have completed the demographic questionnaire!

Section F: Trackpad and questionnaire explanation

- Give the participant the two printed questionnaires and let them read them with the request that they let you know if anything is unclear/words are unknown, etc., as the questionnaires can only be answered verbally during the experiment

- Give the participant a controller in their dominant hand (either the controller for left or right depending on that)

- Explain where the trackpad is (round button in the center) and where the trigger is (at the back of the controller under the index finger)

- Ask the participant to stand on the marker with a straight posture

- Put the HMD on the participant and adjust it (first the top Velcro fastener, then those at the sides, having the participant to hold the HMD in place)

- Inform the participant that if they remove the HMD themselves, they should grasp the front of the HMD and pull upward

- If the image in VR is blurry, adjust the interpupillary distance (turn the knob on the bottom right of the HMD)

- Start the Unity application (City or RFT)

- If necessary activate num. lock

- Enter the participant number and then press Start (Enter key).

- Deactivate "Gray Room" (0-key) and ask the participant to keep their head still/move as little as possible during the following questionnaire

Section G: SSQ pre City1

We're interested in how you feel in relation to the interaction with virtual reality right now. I'll start with a general question and then get more specific.

You can answer these questions as follows: none, slight, moderate, or severe.

G1.

1. Are you feeling any <u>general discomfort</u> from your interaction with the VR environment?

Do you feel any physiological discomfort related to the head (disorientation), the eyes (oculomotor), and/or the stomach (nausea)?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G2. **2. Are you feeling any <u>fatigue</u>?**

Are you feeling any weariness or exhaustion from exertion or stress from the VR environment?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G3. **3. Are you feeling any <u>headache</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G4. **4. Are you feeling any <u>eyestrain</u>?**

Are you feeling any eye fatigue?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G5. **5. Are you feeling any <u>difficulty focusing</u>?**

When you look at text, do your eyes having problems focusing on it?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G6. **6. Are you feeling any <u>increased salivation</u> (mouth watering)?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G7. **7. Are you feeling any <u>sweating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G8. **8. Are you feeling any <u>nausea</u>?**

Do you feel any stomach distress with a distaste for food or an urge to vomit?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G9. **9. Are you feeling any <u>difficulty concentrating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G10. **10. Are you feeling any <u>feeling of fullness of head</u> (overloaded head feeling)?**

Do you feel any sensation that your head is "full" or "overloaded"?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G11. **11. Are you feeling any <u>blurred vision</u>?**

Do things appear fuzzy to you?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G12. **12. Are you feeling any <u>dizziness</u> - with <u>eyes open</u>?**

Do you feel dizzy or faint when your eyes are open?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G13. **13. Are you feeling any <u>dizziness</u> - with <u>eyes closed</u>?**

Do you feel dizzy or faint when your eyes are closed?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G14. **14. Are you feeling any <u>vertigo</u> (loss of orientation)?**

Do you feel any loss of orientation with respect to being vertically upright?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

G15. **15. Are you feeling any <u>stomach awareness</u> (that's short of nausea)?**

Do you feel a feeling of discomfort just short of nausea?

- ☐ none
- ☐ slight
- ☐ moderate
- ☐ severe

G16. **16. Are you feeling any <u>burping</u>?**

- ☐ none
- ☐ slight
- ☐ moderate
- ☐ severe

G17. **Do you feel capable to begin the experiment?**

- ☐ Yes
- ☐ No

Section H: MISCpre City1

Inquire the MISC every 2 minutes using a stopwatch!

Instruction City:

You'll soon find yourself in a virtual city. Your task for the next minutes is to locate as many checkpoints as possible.

These are clearly marked and located everywhere inside and outside the city. You can navigate using the trackpad.

Hold your thumb on the upper side and you walk forward. You can determine a direction using your head orientation, meaning you can rotate around your own axis.

After the time is up, you will return to the gray "waiting room".

If you feel nauseous or unwell and unable to continue the experiment, please let us know. Then we will stop the experiment in time.

H1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

pre-measurement

- ☐ 0 - no problems
- ☐ 1 - some discomfort, but no specific symptoms
- ☐ 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 6 - little nausea
- ☐ 7 - rather nausea
- ☐ 8 - severe nausea
- ☐ 9 - retching nausea
- ☐ 10 - vomiting

Section I: MISC2 City1

I1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

after a total of 2 minutes

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section J: MISC4 City1

J1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

after a total of 4 minutes

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section K: MISC6 City1

K1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

after a total of 6 minutes

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section L: MISC8 City1

L1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

after a total of 8 minutes

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section M: MISCpost City1

M1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

post-measurement

after a total of 10 minutes

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section N: SSQ post City1

We're interested in how you feel in relation to the interaction with virtual reality right now. I'll start with a general question and then get more specific.

You can answer these questions as follows: none, slight, moderate, or severe.

N1. 1. Are you feeling any <u>general discomfort</u> from your interaction with the VR environment?

Do you feel any physiological discomfort related to the head (disorientation), the eyes (oculomotor), and/or the stomach (nausea)?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N2. **2. Are you feeling any <u>fatigue</u>?**

Are you feeling any weariness or exhaustion from the VR environment?

Spüren Sie Müdigkeit oder Erschöpfung aus der VR -Umgebung?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N3. **3. Are you feeling any <u>headache</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N4. **4. Are you feeling any <u>eyestrain</u>?**

Are you feeling any eye fatigue?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N5. **5. Are you feeling any <u>difficulty focusing</u>?**

When you look at text, do your eyes having problems focusing on it?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N6. **6. Are you feeling any <u>increased salivation</u> (mouth watering)?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N7. **7. Are you feeling any <u>sweating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N8. **8. Are you feeling any <u>nausea</u>?**

Do you feel any stomach distress with a distaste for food or an urge to vomit?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N9. **9. Are you feeling any <u>difficulty concentrating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N10. **10. Are you feeling any <u>feeling of fullness of head</u> (overloaded head feeling)?**

Do you feel any sensation that your head is "full" or "overloaded"?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N11. **11. Are you feeling any <u>blurred vision</u>?**

Do things appear fuzzy to you?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N12. **12. Are you feeling any <u>dizziness</u> - with <u>eyes open</u>?**

Do you feel dizzy or faint when your eyes are open?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N13. **13. Are you feeling any <u>dizziness</u> - with <u>eyes closed</u>?**

Do you feel dizzy or faint when your eyes are closed?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N14. **14. Are you feeling any <u>vertigo</u> (loss of orientation)?**

Do you feel any loss of orientation with respect to being vertically upright?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N15. **15. Are you feeling any <u>stomach awareness</u> (that's short of nausea)?**

Do you feel a feeling of discomfort just short of nausea?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

N16. **16. Are you feeling any <u>burping</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

Section O: Break

Break before the second application

- Take off HMD

- Offer drinks/sweets

- Only continue if the participant seems to be fine

Section P: SSQ pre RFT

We're interested in how you feel in relation to the interaction with virtual reality right now. I'll start with a general question and then get more specific.

You can answer these questions as follows: none, slight, moderate, or severe.

P1. **1. Are you feeling any <u>general discomfort</u> from your interaction with the VR environment?**

Do you feel any physiological discomfort related to the head (disorientation), the eyes (oculomotor), and/or the stomach (nausea)?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P2. **2. Are you feeling any <u>fatigue</u>?**

Are you feeling any weariness or exhaustion from the VR environment?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P3. **3. Are you feeling any <u>headache</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P4. **4. Are you feeling any <u>eyestrain</u>?**

Are you feeling any eye fatigue?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P5. **5. Are you feeling any <u>difficulty focusing</u>?**

When you look at text, do your eyes having problems focusing on it?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P6. **6. Are you feeling any <u>increased salivation</u> (mouth watering)?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P7. **7. Are you feeling any <u>sweating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P8. **8. Are you feeling any <u>nausea</u>?**

Do you feel any stomach distress with a distaste for food or an urge to vomit?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P9. **9. Are you feeling any <u>difficulty concentrating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P10. **10. Are you feeling any <u>feeling of fullness of head</u> (overloaded head feeling)?**

Do you feel any sensation that your head is "full" or "overloaded"?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P11. **11. Are you feeling any <u>blurred vision</u>?**

Do things appear fuzzy to you?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P12. **12. Are you feeling any <u>dizziness</u> - with <u>eyes open</u>?**

Do you feel dizzy or faint when your eyes are open?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P13. **13. Are you feeling any <u>dizziness</u> - with <u>eyes closed</u>?**

Do you feel dizzy or faint when your eyes are closed?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P14. **14. Are you feeling any <u>vertigo</u> (loss of orientation)?**

Do you feel any loss of orientation with respect to being vertically upright?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P15. **15. Are you feeling any <u>stomach awareness</u> (that's short of nausea)?**

Do you feel a feeling of discomfort just short of nausea?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P16. **16. Are you feeling any <u>burping</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

P17. Do you feel capable to continue the experiment?

- [ ] Yes
- [ ] No

Section Q: MISCpre RFT

Instruction RFT:

In front of you you see a frame and two points that you can connect to form an imaginary rod.

Currently, neither the frame nor the rod are tilted along the Z axis. Regardless of the frame's orientation, you should align the rod vertically.

If you press the left side of the trackpad, the bar rotates counterclockwise; if you press the right side, it rotates clockwise.

Pressing the trigger confirms your input and starts a new round. If you accidentally pressed the trigger, please let me know so I can undo it.

Please keep your head straight and move as little as possible.

Q1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

pre-measurement/first query of the MISC

- [ ] 0 - no problems
- [ ] 1 - some discomfort, but no specific symptoms
- [ ] 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ...
- [ ] 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ...
- [ ] 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ...
- [ ] 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ...
- [ ] 6 - little nausea
- [ ] 7 - rather nausea
- [ ] 8 - severe nausea
- [ ] 9 - retching nausea
- [ ] 10 - vomiting

Section R: MISC1 RFT

R1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

the second query of the MISC

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section S: MISC2 RFT

S1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

the third query of the MISC

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section T: MISCpost RFT

T1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

the fourth/final query of the MISC

- ☐ 0 - no problems
- ☐ 1 - some discomfort, but no specific symptoms
- ☐ 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 6 - little nausea
- ☐ 7 - rather nausea
- ☐ 8 - severe nausea
- ☐ 9 - retching nausea
- ☐ 10 - vomiting

Section U: SSQ post RFT

We're interested in how you feel in relation to the interaction with virtual reality right now. I'll start with a general question and then get more specific.

You can answer these questions as follows: none, slight, moderate, or severe.

U1. 1. Are you feeling any <u>general discomfort</u> from your interaction with the VR environment?

Do you feel any physiological discomfort related to the head (disorientation), the eyes (oculomotor), and/or the stomach (nausea)?

- ☐ none
- ☐ slight
- ☐ moderate
- ☐ severe

U2. **2. Are you feeling any <u>fatigue</u>?**

Are you feeling any weariness or exhaustion from the VR environment?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U3. **3. Are you feeling any <u>headache</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U4. **4. Are you feeling any <u>eyestrain</u>?**

Are you feeling any eye fatigue?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U5. **5. Are you feeling any <u>difficulty focusing</u>?**

When you look at text, do your eyes having problems focusing on it?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U6. **6. Are you feeling any <u>increased salivation</u> (mouth watering)?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U7. **7. Are you feeling any <u>sweating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U8. **8. Are you feeling any <u>nausea</u>?**

Do you feel any stomach distress with a distaste for food or an urge to vomit?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U9. **9. Are you feeling any <u>difficulty concentrating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U10. **10. Are you feeling any <u>feeling of fullness of head</u> (overloaded head feeling)?**

Do you feel any sensation that your head is "full" or "overloaded"?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U11. **11. Are you feeling any <u>blurred vision</u>?**

Do things appear fuzzy to you?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U12. **12. Are you feeling any <u>dizziness</u> - with <u>eyes open</u>?**

Do you feel dizzy or faint when your eyes are open?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U13. **13. Are you feeling any <u>dizziness</u> - with <u>eyes closed</u>?**

Do you feel dizzy or faint when your eyes are closed?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U14. **14. Are you feeling any <u>vertigo</u> (loss of orientation)?**

Do you feel any loss of orientation with respect to being vertically upright?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U15. **15. Are you feeling any <u>stomach awareness</u> (that's short of nausea)?**

Do you feel a feeling of discomfort just short of nausea?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

U16. **16. Are you feeling any <u>burping</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

Section V: Break2

Break before the second application

- Take off HMD

- Offer drinks/sweets

- Only continue if the participant seems to be fine

Section W: SSQ pre City2

We're interested in how you feel in relation to the interaction with virtual reality right now. I'll start with a general question and then get more specific.

You can answer these questions as follows: none, slight, moderate, or severe.

W1. **1. Are you feeling any <u>general discomfort</u> from your interaction with the VR environment?**

Do you feel any physiological discomfort related to the head (disorientation), the eyes (oculomotor), and/or the stomach (nausea)?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W2. **2. Are you feeling any <u>fatigue</u>?**

Are you feeling any weariness or exhaustion from exertion or stress from the VR environment?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W3. **3. Are you feeling any <u>headache</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W4. **4. Are you feeling any <u>eyestrain</u>?**

Are you feeling any eye fatigue?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W5. **5. Are you feeling any <u>difficulty focusing</u>?**

When you look at text, do your eyes having problems focusing on it?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W6. **6. Are you feeling any <u>increased salivation</u> (mouth watering)?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W7. **7. Are you feeling any <u>sweating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W8. **8. Are you feeling any <u>nausea</u>?**

Do you feel any stomach distress with a distaste for food or an urge to vomit?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W9. **9. Are you feeling any <u>difficulty concentrating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W10. **10. Are you feeling any <u>feeling of fullness of head</u> (overloaded head feeling)?**

Do you feel any sensation that your head is "full" or "overloaded"?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W11. **11. Are you feeling any <u>blurred vision</u>?**

Do things appear fuzzy to you?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W12. **12. Are you feeling any <u>dizziness</u> - with <u>eyes open</u>?**

Do you feel dizzy or faint when your eyes are open?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W13. **13. Are you feeling any <u>dizziness</u> - with <u>eyes closed</u>?**

Do you feel dizzy or faint when your eyes are closed?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W14. **14. Are you feeling any <u>vertigo</u> (loss of orientation)?**

Do you feel any loss of orientation with respect to being vertically upright?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W15. **15. Are you feeling any <u>stomach awareness</u> (that's short of nausea)?**

Do you feel a feeling of discomfort just short of nausea?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W16. **16. Are you feeling any <u>burping</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

W17. Do you feel capable to continue the experiment?

- [ ] Yes
- [ ] No

Section X: MISCpre City2

Inquire the MISC every 2 minutes using a stopwatch!

Instruction City:

You'll soon find yourself in a virtual city. Your task for the next minutes is to locate as many checkpoints as possible.

These are clearly marked and located everywhere inside and outside the city. You can navigate using the trackpad.

Hold your thumb on the upper side and you walk forward. You can determine a direction using your head orientation, meaning you can rotate around your own axis.

After the time is up, you will return to the dark "waiting room".

If you feel nauseous or unwell and unable to continue the experiment, please let us know. Then we will stop the experiment in time.

X1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

pre-measurement

- [ ] 0 - no problems
- [ ] 1 - some discomfort, but no specific symptoms
- [ ] 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ...
- [ ] 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ...
- [ ] 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ...
- [ ] 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ...
- [ ] 6 - little nausea
- [ ] 7 - rather nausea
- [ ] 8 - severe nausea
- [ ] 9 - retching nausea
- [ ] 10 - vomiting

Section Y: MISC2 City2

Y1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

after a total of 2 minutes

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section Z: MISC4 City2

Z1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

after a total of 4 minutes

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section AA: MISC6 City2

AA1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

after a total of 6 minutes

- ☐ 0 - no problems
- ☐ 1 - some discomfort, but no specific symptoms
- ☐ 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 6 - little nausea
- ☐ 7 - rather nausea
- ☐ 8 - severe nausea
- ☐ 9 - retching nausea
- ☐ 10 - vomiting

Section AB: MISC8 City2

AB1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

after a total of 8 minutes

- ☐ 0 - no problems
- ☐ 1 - some discomfort, but no specific symptoms
- ☐ 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ...
- ☐ 6 - little nausea
- ☐ 7 - rather nausea
- ☐ 8 - severe nausea
- ☐ 9 - retching nausea
- ☐ 10 - vomiting

Section AC: MISCpost City2

AC1. How do you feel right now on a scale of 0 (no problems) to 10 (vomiting)?

post-measurement

after a total of 10 minutes

- 0 - no problems ☐
- 1 - some discomfort, but no specific symptoms ☐
- 2 - vague dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 3 - some dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 4 - medium dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 5 - severe dizziness, cold/warm, headache, stomach awareness, sweating, ... ☐
- 6 - little nausea ☐
- 7 - rather nausea ☐
- 8 - severe nausea ☐
- 9 - retching nausea ☐
- 10 - vomiting ☐

Section AD: SSQ post City2

We're interested in how you feel in relation to the interaction with virtual reality right now. I'll start with a general question and then get more specific.

You can answer these questions as follows: none, slight, moderate, or severe.

AD1. 1. Are you feeling any <u>general discomfort</u> from your interaction with the VR environment?

Do you feel any physiological discomfort related to the head (disorientation), the eyes (oculomotor), and/or the stomach (nausea)?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD2. **2. Are you feeling any <u>fatigue</u>?**

Are you feeling any weariness or exhaustion from the VR environment?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD3. **3. Are you feeling any <u>headache</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD4. **4. Are you feeling any <u>eyestrain</u>?**

Are you feeling any eye fatigue?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD5. **5. Are you feeling any <u>difficulty focusing</u>?**

When you look at text, do your eyes having problems focusing on it?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD6. **6. Are you feeling any <u>increased salivation</u> (mouth watering)?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD7. **7. Are you feeling any <u>sweating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD8. **8. Are you feeling any <u>nausea</u>?**

Do you feel any stomach distress with a distaste for food or an urge to vomit?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD9. **9. Are you feeling any <u>difficulty concentrating</u>?**

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD10. **10. Are you feeling any <u>feeling of fullness of head</u> (overloaded head feeling)?**

Do you feel any sensation that your head is "full" or "overloaded"?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD11. **11. Are you feeling any <u>blurred vision</u>?**

Do things appear fuzzy to you?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD12. **12. Are you feeling any <u>dizziness</u> - with <u>eyes open</u>?**

Do you feel dizzy or faint when your eyes are open?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD13. 13. Are you feeling any dizziness - with eyes closed?

Do you feel dizzy or faint when your eyes are closed?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD14. 14. Are you feeling any vertigo (loss of orientation)?

Do you feel any loss of orientation with respect to being vertically upright?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD15. 15. Are you feeling any stomach awareness (that's short of nausea)?

Do you feel a feeling of discomfort just short of nausea?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

AD16. 16. Are you feeling any burping?

- none ☐
- slight ☐
- moderate ☐
- severe ☐

Section AE: Post Exposition

- Take off HMD

- Offer drinks/sweets

- Only let the participant go if they seem to be fine

- Hand out a post-experimental debriefing

- Compensate the participant course credit or cash -> write down the amount of payment

- Say goodbye