Study Information Block

INDIANA UNIVERSITY STUDY INFORMATION SHEET FOR

Virtual Reality vs. Desktop Registration User Interface (IRB # 1910331127)

You are invited to participate in a research study of virtual reality (VR) vs. a more traditional 2D ("Desktop") interface. You were selected as a possible subject because you are 18+ years old*.* Please read this form and ask any questions you may have before agreeing to be in the study.

The study is being conducted by Dr. Katy Borner (katy@indiana.edu) and Andreas Bueckle (abueckle@indiana.edu) from the Luddy School of Informatics, Computing, and Engineering at Indiana University, and Kilian Buehling (kilian.buehling@tu-dresden.de) from the Technical University of Dresden in Germany. It is funded by the National Institutes of Health under OT2OD026671.

STUDY PURPOSE

The purpose of this study is to explore how users interact with and align 3D objects with each other. We want to know if there are differences in task completion time, accuracy, and user satisfaction between three conditions: a traditional "Desktop" interface, a VR interface where the user is standing and walking around ("VR Standup"), and a VR interface where the user is sitting at a desk ("VR Tabletop"). To that end, we are collecting data on timing and task accuracy alongside behavioral metrics (such as hand and head positions in VR as well as mouse position in Desktop) and user inputs such as button presses. We will also ask questions about the usability of the tools used across the three conditions. Please note that you have to be 18+ years old. People with an epilepsy diagnosis are not eligible.

NUMBER OF PEOPLE TAKING PART IN THE STUDY

If you agree to participate, you will be one of ~60 subjects who will be participating in this research.

PROCEDURES FOR THE STUDY

If you agree to be in the study, you will come to our research site during a previously agreed-upon timeslot. Then you will complete a pre-questionnaire to gather basic demographic information as well as information about your current usage and comfort with data visualizations, VR, and 3D environments. Subsequently, you will be assigned to one of our three conditions as per the researcher's discretion: Desktop (computer screen), VR Standup, or VR Tabletop. You will then be given instructions on how to use your tool, and then presented with a set of tasks. Finally, you will be given a post-questionnaire where you can share ideas for improvement. The study will take approximately 30-45 minutes. You will be recorded with audio and video, and we will log your actions in the physical world and in the virtual space for later analysis.

RISKS AND BENEFITS OF TAKING PART IN THE STUDY

The risks of participating in this research are discomfort answering questions about unfamiliar visualizations. Further, some users can experience discomfort from using VR. Some users of VR headsets report motion sickness. Please be aware that you can terminate your participation in the study at any time. You may also tell the investigator if you need to take a break.

CONFIDENTIALITY

Efforts will be made to keep your personal information confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Your identity will be held in confidence in reports in which the study may be published and databases in which results may be stored.

Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the study investigator and his/her research associates, the Indiana University Institutional Review Board or its designees, the study sponsor, and (as allowed by law) state or federal agencies, specifically the Office for Human Research Protections (OHRP), the National Institutes of Health (NIH), etc., who may need to access your research records.

All research funded by the NIH is automatically granted a Certificate of Confidentiality. Information on these protections are described in the following paragraphs. Some of the details may sound odd in the context of this user study. However, we still want to fully inform you about these protections.

For the protection of your privacy, this research is covered by a Certificate of Confidentiality from the National Institutes of Health. The researchers may not disclose or use any information, documents, or specimens that could identify you in any civil, criminal, administrative, legislative, or other legal proceeding, unless you consent to it. Information, documents, or specimens protected by this Certificate may be disclosed to someone who is not connected with the research:

1. if there is a federal, state, or local law that requires disclosure (such as to report child abuse or communicable diseases);

2. if you consent to the disclosure, including for your medical treatment;

3. if it is used for other scientific research in a way that is allowed by the federal regulations that protect research subjects;

4. for the purpose of auditing or program evaluation by the government or funding agency;.

A Certificate of Confidentiality does not prevent you from voluntarily releasing information about yourself. If

you want your research information released to an insurer, medical care provider, or any other person not

connected with the research, you must provide consent to allow the researchers to release it.

FUTURE USE

Information collected from you for this study may be used for future research studies or shared with other researchers for future research. If this happens, information which could identify you will be removed before any information or specimens are shared. Since identifying information will be removed, we will not ask for your additional consent**.**

PAYMENT

Upon completion of your participation in the study, you will receive a $5 Amazon.com gift card.

CONTACTS FOR QUESTIONS OR PROBLEMS

For questions about the study, please contact researcher Andreas Bueckle at abueckle@indiana.edu. For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information, or offer input, contact the IU Human Subjects Office at 812-856-4242 or irb@iu.edu.

VOLUNTARY NATURE OF THIS STUDY

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. Leaving the study will not result in any penalty or loss of benefits to which you are entitled. Your decision whether or not to participate in this study will not affect your current or future relations with the Luddy School of Informatics, Computing, and Engineering.

Demographics

We would like to know a bit more about you. Please answer the following questions below to help us understand your background and experience.

What is your native language?

☐ English

☐ [   ] other(s), please list:

What is your major/job title?

[   ]

Please indicate your age:

○ 18-20

○ 21-30

○ 31-40

○ 41-50

○ 51-60

○ >60

Please indicate your gender:

○ Male

○ Female

○ Identity not listed above

○ I prefer not to answer

What is your height in inches?

[   ]

Pre-Questions

Have you ever used a virtual reality headset (e.g. Oculus Rift, Playstation VR, Google Cardboard etc.)?

○ Yes

○ No

How many times have you used a virtual reality headset in the past?
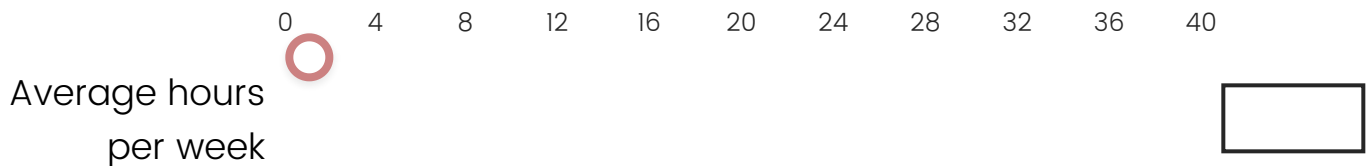
Rarely   Occasionally   Often
  ○   ○   ○

Which device(s) did you use?

☐ HTC Vive/Vive Pro/Cosmos

☐ Playstation VR

☐ Oculus Rift, Rift S/Go/Quest

☐ Google Cardboard or similar

☐ I do not remember

☐ [_____] Other:

Did you play video games in the last 12 months?

○ Yes

○ No

How many hours a week do you play on average?

```
         0    4    8   12   16   20   24   28   32   36   40
Average hours
  per week                                              [_____]
```

Which device did you play video games on?

☐ Smartphone or handheld device

☐ Video game console

☐ Computer

☐ [   ] Other

First-person shooter (FPS) is a video game genre centered on gun and other weapon-based combat in a first-person perspective; that is, the player experiences the action through the eyes of the protagonist.

Among the games you played: Were there any First Person Shooters?

○ Yes

○ No

Please describe your experience with 3D applications in general.

[   ]

Have you ever used any 3D modeling or animation software?

○ Yes

○ No

Please mark all programs you have used:

☐ 3DS Max

☐ AutoCAD

☐ Maya

☐ Unity

☐ Unreal Engine

☐ Cinema4D

☐ ZBrush

☐ [   ] Other:

Are you primarily left-handed or right-handed?

○ Left-handed

○ Right-handed

○ I prefer not to answer

Are you far or near-sighted, or do you have any other vision impairments?

☐ Far-sighted

☐ Near-sighted

☐ [_____]Other:

☐ I prefer not to answer

Are you color-blind? If so, please specify.

○ No

○ [_____]Yes, specifically:

○ I prefer not to answer

RUI Phase

Thank you. Please talk to a researcher now so you can use the registration interface for your test condition.
This is your unique ID: ${e://Field/ResponseID}

Post-Q

I feel...

	Not at all	Somewhat	Neither liked it nor disliked it	Somewhat	Very much
Accomplished	○	○	○	○	○
Satisfied with my work	○	○	○	○	○

How much did you like the registration interface you used?

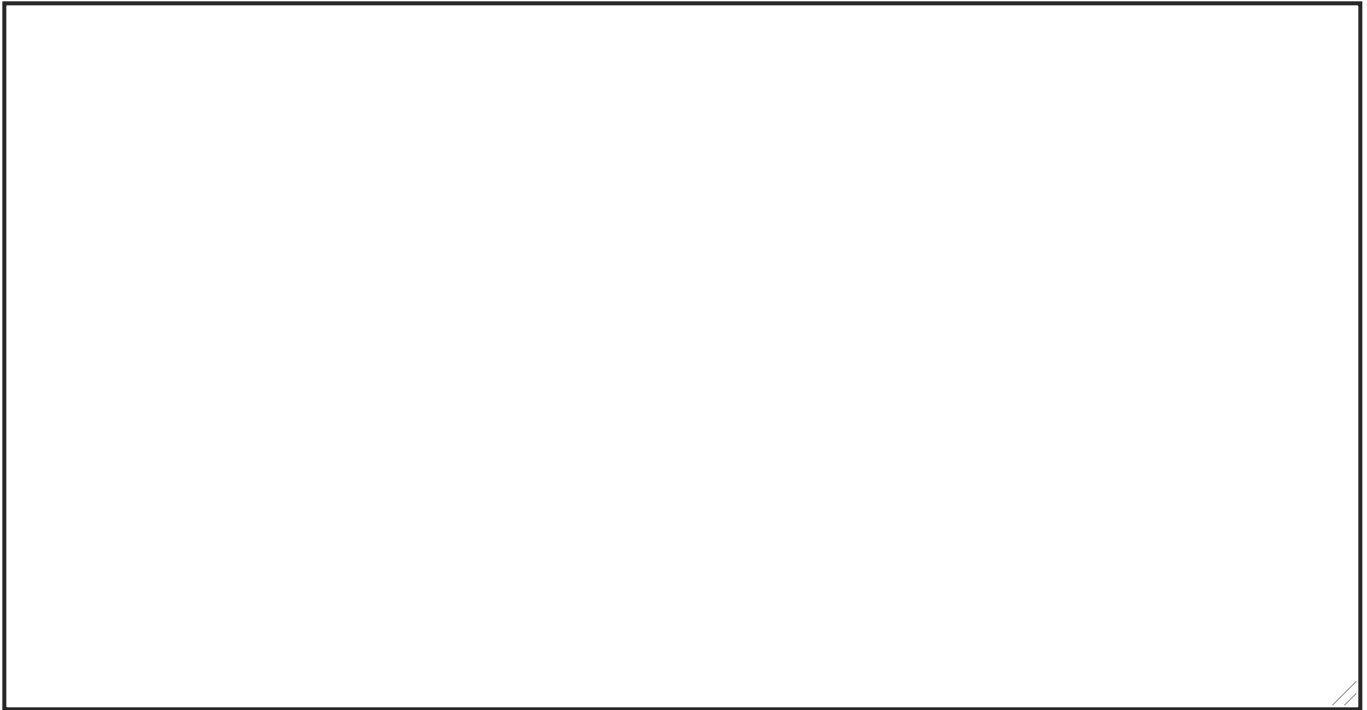|	Not at all	Somewhat disliked it	Neither liked it nor disliked it	Somewhat liked it	Very much
Overall	○	○	○	○	○
the controls	○	○	○	○	○
the visual design	○	○	○	○	○
the instructions	○	○	○	○	○
hardware	○	○	○	○	○
pacing	○	○	○	○	○

Was it easy to use the registration interface?

	Not easy at all	Not very easy	Neither easy nor hard	Somewhat easy	Very easy
It was	○	○	○	○	○

What did you like about the registration interface?

What did you dislike about the registration interface?

What can be done to improve the registration interface?

How did you hear about this study? Please select all that apply:

☐ Word-of-mouth

☐ Email

☐ Instagram

☐ Facebook

☐ Twitter

☐ [   ] Other:

☐ I do not remember

☐ I prefer not to answer

Are we allowed to contact you for future virtual reality user studies? If yes, please enter your email address. Thank you!

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