

Human Computer Interaction CS449 – CS549

Group Assignment- User Based Usability Testing of Virtual Reality Environments

This is a group assignment. It will be done with your term project group!

Due date – One of the group members must upload group report to SUCourse by May 20th Monday, **(Late submission will not be accepted)**

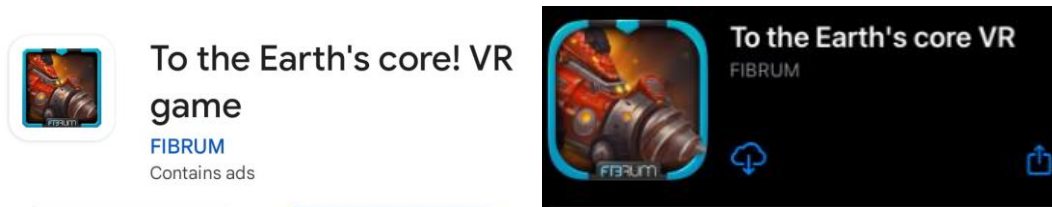
Grading: 20 points

Aim: The main objective of this assignment is to make students familiar with conducting end user-based usability testing in virtual reality (VR) gaming environments.

Task: In this assignment, you will conduct usability testing of a virtual reality gaming application with real users. The users will play with a gaming VR application and give feedback regarding their experiences. You must evaluate the usability of Virtual Reality (VR) game application and also evaluate factors contributing to higher or lower immersion and identify the usability issues of this application in creating a captivating VR experience.

VR Glasses: Every group will use one set of VR Glasses. One of your group members have to take it in lecture hour or from my office by signing a form. Those glasses are made with cardboard, so you must use them carefully.

The VR Gaming Application: One gaming VR application will be used in this assignment. You will use it with your mobile phones. You must download and install the game “To the Earth’s core VR” from Play Store (Android) or AppStore (IOS). At the store you may identify it with the following icons:



Important Points:

- 1-Try the application within your group first. Be familiar with the application and the test procedure. Conduct a pilot test.**
- 2- Users:** Prepare persona(s) for your target user group. Find **minimum 4 users** to test application (more is better). Keep gender and background balance. Make sure they have **no** previous VR experience. Before the test, collect demographics data from each user.
- 3- Activity:** Ask the users play the VR game application. Playing up to two levels is enough (Level-1 and Level-2).
- 4- Context:** Conduct the test in a quiet place

5- Tool: Conduct the test with the same mobile phone for all users. **You may need to arrange the screen size. Check whether you can see the scene clearly or not. If not, arrange the screen size from settings (See settings explanation at the end of this document.).**

6- Before the test process: Inform users about the process and think aloud protocol (We did a demo in class, See course notes)

7- During the test (Quantitative and Qualitative data): Record reactions of users during the test (I mentioned Quan and Qual data collection in the class. Check lecture notes)

8- Post test interview (Qualitative data): Prepare interview questions to compare and assess the level of users' experiences in the Virtual Reality (VR) game application. Evaluate factors contributing to usability, immersion and identify usability issues in creating a captivating VR experience.

9- Post-test (Quantitative data): Ask subjects to complete SUS (System Usability Scale). Use English version of it. (It is on SuCourse)

The user-based usability test analysis must be reported under the following headers (Use those headings in your report):

1- Methodology (20 pts)

Report the test methodology in detail (you may use tables if you want). If someone wants to replicate your study, there should not be any missing info. **Add photos from user testing sessions of all end-users**

Users: Present persona(s). Report demographics of all end-users who tested the applications. (Demographics (age, gender, etc), experience with games, experience with VR, their department, etc.)

Test procedure: What you did before, during and after the test.

Task procedure: Explain the task procedure, how they completed tasks.

Context: Explain the context of the study

Tool: Explain specs of phone you used

2- Results (30 pts)

Report data collected During the tests (Quantitative and Qualitative data)

Report Post test interview (Qualitative data) results.

Report Post-test questionnaire (Quantitative data) results.

Don't forget to add narrative explanation!

3- Discussion and Conclusion (47 pts)

What data tell us about the applications. What are the usability issues? Why? How can we improve them? Does it create an immersive experience? Did the users feel uncomfortable?

What are the limitations of the study?

How can this test be improved (future study suggestions)?

4 References (3 pts)

Note: You may check this web site to have an idea about how to run user tests for VR: <https://www.stevebromley.com/blog/2016/06/03/running-user-tests-for-virtual-reality/>

Changing Screen Settings


There are two screen sizes, large and narrow. Test it with your cardboard VR glasses for clear view.

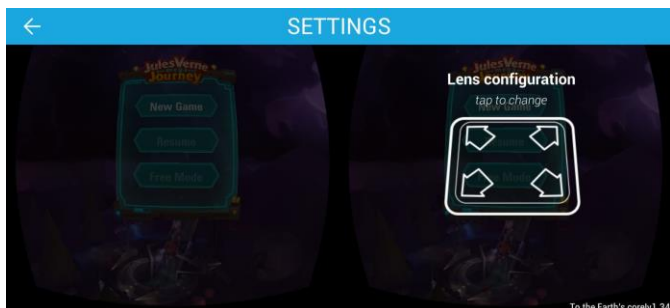
Large Screen



Narrow Screen



You may switch between Large and Narrow screen by clicking on  Click on Lens configuration and change it.



Setting up Cardboard VR Glasses

Make sure that your phone fits to the designated area well. You may need to move it to left or right for a clear view.

For safety reasons, it is better to hold the VR cardboard by hand.

