EDURACT EVALUATION PLAN

Team 10: WeDes4X

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1 USABILITY EVALUATION

1.1 INTRODUCTION

So, we approached our potential users and for usability testing, we got 5 users and the testing demographics are as follows:

- 2 male (class 12th students)
- 1 male (class 11th student)
- 2 female (class 12th students)

We had a one-on-one video call with them instead of direct one-to-one interaction due to some constraints:

Constraints: In the COVID-19 times, we tried searching for user's with Oculus headset or someone who could come to college with us for our usability testing, but we were unable to find users with the expensive headgear. We tried incentivizing people to come to college to give their time for the same. Still, we were unable to find people in such difficult times, so we tried other possible ways. The solution for usability testing that we found was showing them our video and trying to tell them to do the task by fast-forwarding the videos to understand that they will be able to use our product easily and flow through the system smoothly.

Objectives: Our main objective for this testing was to get some user review for our system Eduract. The user reviews were later used to derive insights for the system.

Aim: The aim of getting these insights was to take the suggestions from the user and improve our product in further iterations for better usability, desirability and usefulness.

1.2 TYPE OF EVALUATION CHOSEN

The type of evaluation used is **Demonstrative type** along with **Qualitative analysis**.
Focus group settings can be used for this type of evaluation which includes:

- Presenting features and functionality
- Walkthrough of user interface
- Users provide comments and feedback

Characteristics of this type:

- Access to the initial impression of the system
- Quick and easy way to get feedback from a group of target users
- Not evaluating in the real-world setting (showing video instead of actual experience due to pandemic)

1.3 METHOD USED

The method we have chosen for our evaluation is **System Usability Scale Questionnaire**.
We decided to use System Usability Scale as our method as it is one of the most efficient ways of gathering statistical valid data along with clear and precise insights which we might have ignored otherwise. Along with that this method is more reliable and detects differences at smaller sample sizes. Compared to other types of tests, this method is **cheaper** and **quicker**.
Furthermore, measurements of usability have several different aspects:

- **Effectiveness** (can users successfully achieve their objectives)
- **Efficiency** (how much effort is expended in achieving those objectives)
- **Satisfaction** (was the experience satisfactory)

1.4 DOCUMENTS USED DURING THE EVALUATION

1.4.1 CONSENT FORM

We have taken consent from our users before the evaluation. An image of consent form is pasted in the appendix section A1 too. This is the link of consent forms signed by the users.

1.4.2 INFORMATION SHEET

This document used during the evaluation to make them understand about out project and problem statement. All the steps of evaluation we used are also listed there as well.
An image of this document is pasted in the appendix section A2 as well. This is the link.

1.5 EVALUATION PLAN

1.5.1 Task to be performed by the participant

The user will be asked to watch our product prototype video with some follow up questions after which they have to fast forward the video to do these tasks so as to understand if they really understood the flow and how the actual evaluation will be, and then we will provide the user with a Google form to submit responses. Users need to answer questions based on their experiences.
Some of the tasks were:

- Ask a doubt
- Interact with the virtual equipment
- Interact with the Menu Screen
- Interact with peers around in the class.

1.5.2 Data Policy

We assured the user that their information and data is safe with us. Data is collected using Google form, which contains questions related to our prototype. Video Recordings and screenshots were also taken during the zoom calls.

1.5.3 Setup (Apparatus to be used and location of the study)

We used Zoom to conduct the meeting, and every user participated from their respective home in a silent environment and it was a one-on-one conversation.

1.6 PROCEDURE

Our target audience is school students and due to the current pandemic, we were unable to find the target audience in our homes, hence we resorted to virtual user testing wherein we used to google meet to conduct user usability.

Step 1: We first introduced ourselves and what we do, our objective and then described our problem statement and the solution of the product to the user.

Step 2: We provided the user with the video link to our prototype and asked the user to share their screen while watching the video. We asked the user to carry different tasks by moving forward and behind the video so as to know if the user was able to understand the flow and the experience he would be getting. (i.e., Adding a doubt and then interacting with the equipment and then interacting with peers) and speak their thoughts aloud.

Step 3: We prompted questions like "what are you currently thinking?", "what do you think will happen next?" "Are you able to comprehend the ideas?" "How is your Eduract experience till now?"

Step 4: After the task sequence was complete, we asked the user specific questions to the testing and we told them to fill up the questionnaire for the same to gather insights

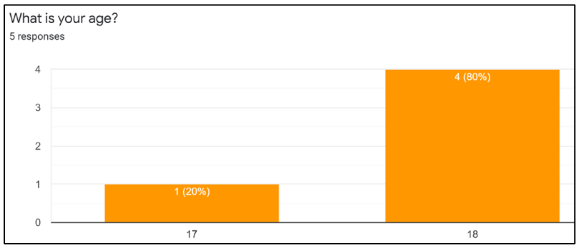
Step 5: After ending the interview, we thanked the user, gave them small incentives and filled their user testing forms.

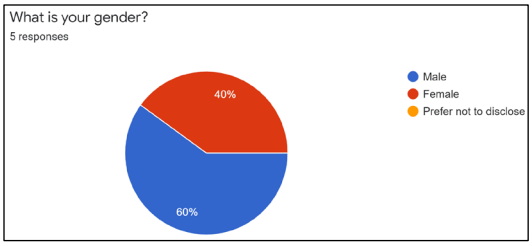
1.7 GOOGLE FORM QUESTIONNAIRE

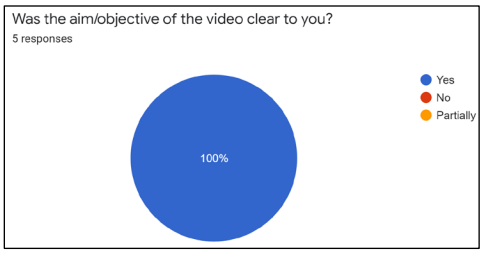
The questionnaire used are below and responses for most of the questions are taken in the linear scale from 1 to 5.

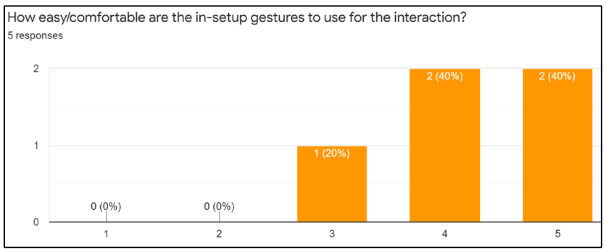
1. What is your name?
2. What is your age?
3. What is your gender?
4. Was the aim/objective of the video clear to you?
5. How easy/comfortable are the in-setup gestures to use for the interaction?
6. How well do you think you will be able to ask your doubts using our setup (hand-raising gesture)?
7. How useful is the medium of drawing on air for you?
8. How well do you think you will be able to interact with your peers/friends using Eduract?
9. How easily were you able to interact with the objects present in the VR world while using Eduract?
10. Were the effects of the user's action on virtual world objects immediately visible?
11. The avatars are designed perfectly to convey the user's viewpoint and activity, strongly agree or strongly disagree?
12. 3D models help me to learn/understand the concepts effectively?
13. Rate your overall Eduract VR experience from 1 to 5 scale.
14. Would you want to use Eduract for your online classes?
15. Do you think your regular online classes issues/problems can be solved if you use Eduract?
16. How well were you able to operate and use Eduract?
17. The instructions/steps for using Eduract are easy to follow, strongly agree or strongly disagree?
18. Any suggestions for Eduract?

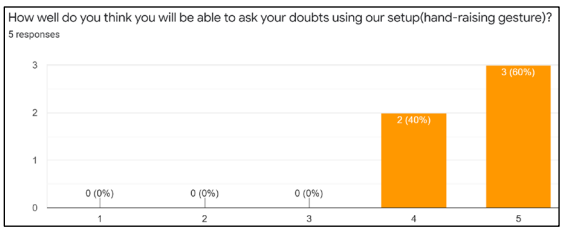
1.8 Following are the responses we got from the users: (Demographics)

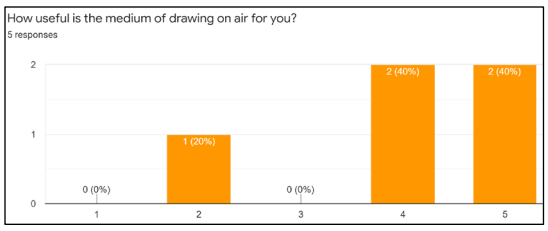


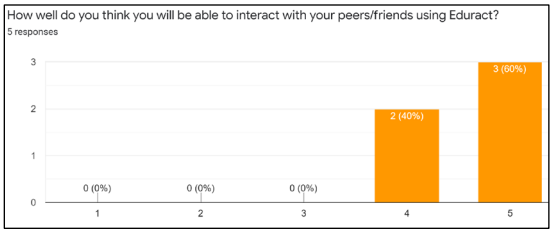


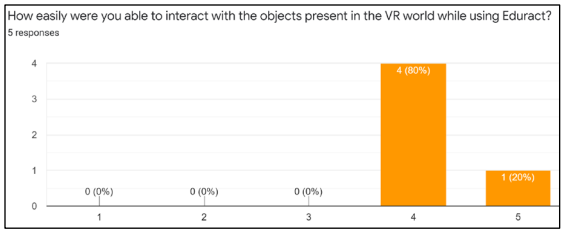

Was the aim/objective of the video clear to you?
5 responses
Yes
No
Partially
100%

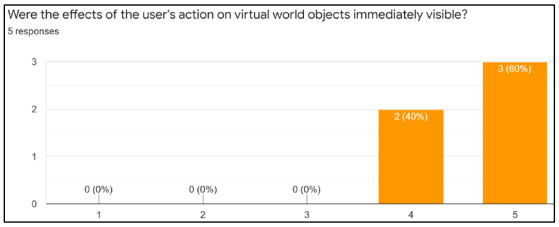

How easy/comfortable are the in-setup gestures to use for the interaction?
5 responses
0 (0%)
0 (0%)
1 (20%)
2 (40%)
2 (40%)

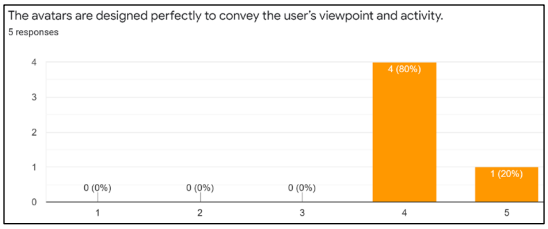

How well do you think you will be able to ask your doubts using our setup(hand-raising gesture)?
5 responses
0 (0%)
0 (0%)
0 (0%)
2 (40%)
3 (60%)

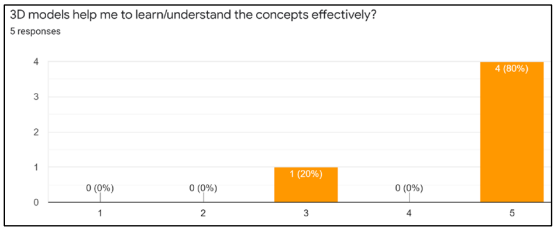

How useful is the medium of drawing on air for you?
5 responses
0 (0%)
1 (20%)
0 (0%)
2 (40%)
2 (40%)

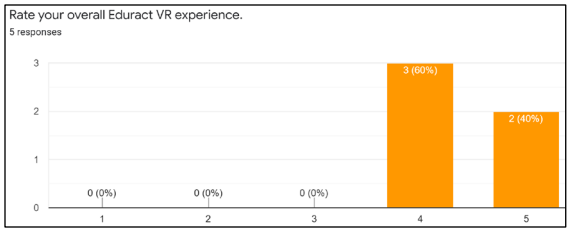

How well do you think you will be able to interact with your peers/friends using Eduract?
5 responses
0 (0%)
0 (0%)
0 (0%)
2 (40%)
3 (60%)

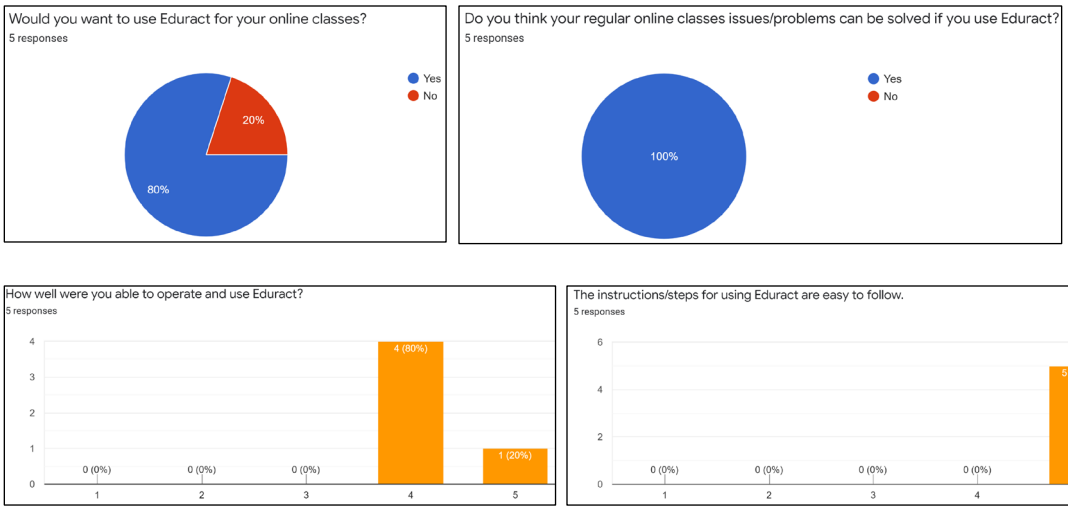

How easily were you able to interact with the objects present in the VR world while using Eduract?
5 responses
0 (0%)
0 (0%)
0 (0%)
4 (80%)
1 (20%)


Were the effects of the user's action on virtual world objects immediately visible?
5 responses
0 (0%)
0 (0%)
0 (0%)
2 (40%)
3 (60%)


The avatars are designed perfectly to convey the user's viewpoint and activity.
5 responses
0 (0%)
0 (0%)
0 (0%)
4 (80%)
1 (20%)


3D models help me to learn/understand the concepts effectively?
5 responses
0 (0%)
0 (0%)
1 (20%)
0 (0%)
4 (80%)

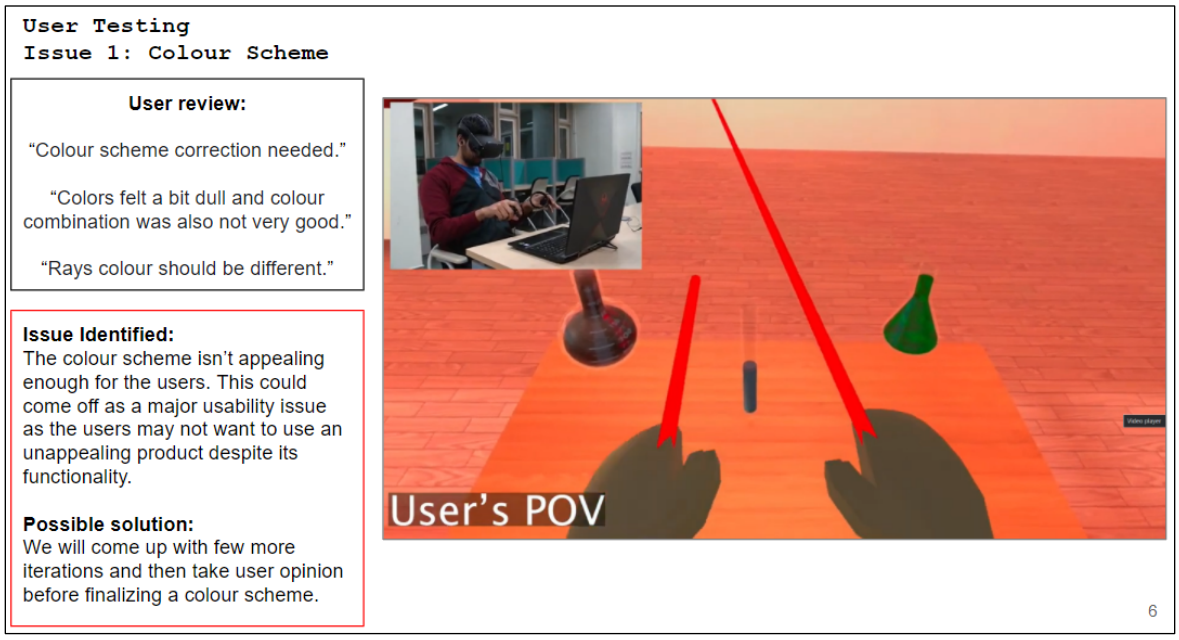

Rate your overall Eduract VR experience.
5 responses
0 (0%)
0 (0%)
0 (0%)
3 (60%)
2 (40%)



1.9 ANALYSIS OF USABILITY ISSUES

Some key usability issues are the following:

Issue 1:



Issue 2:

User Testing
Issue 2: UI Menu

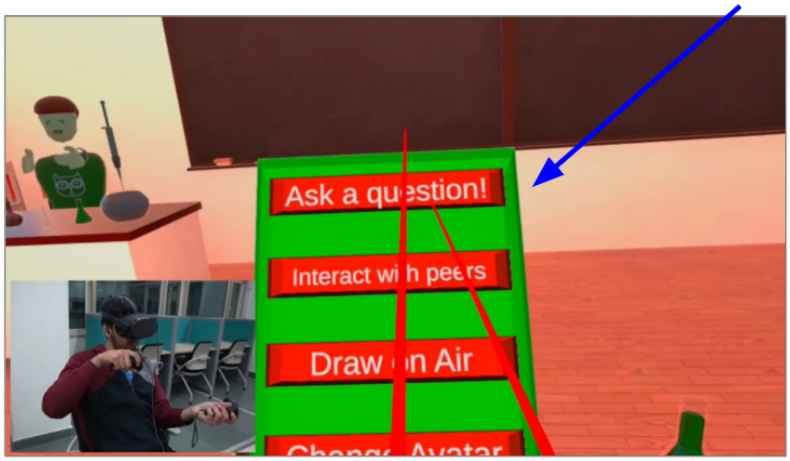
User review:

"UI can be made better.."

"Interface of UI should be attractive to look"

Issue Identified:
The UI of menu isn't attractive enough for the users. This could be a major usability issue as the users may find it an unappealing product despite its functionality.

Possible solution:
We will workup with few more iterations for a minimalistic design and then take user opinion before finalizing an UI Menu.



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Issue 3:

User Testing
Issue 3: Character Animation

User review:

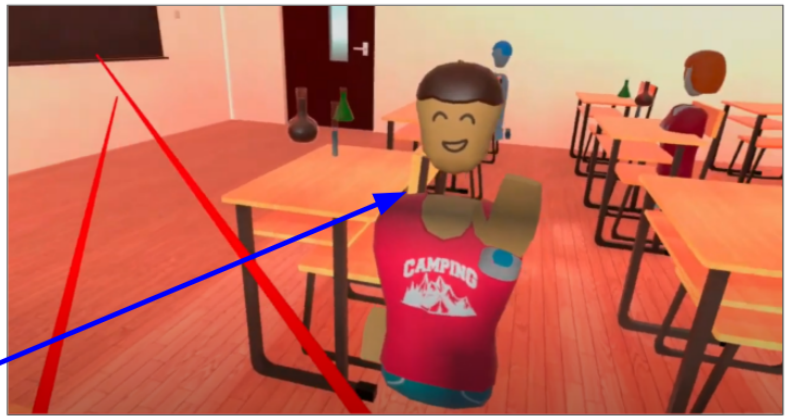
"A little bit of improvement in the graphics part, rest everything is just perfect!"

"I think some graphics changes should be made in it."

"Animations can be improved a bit."

Issue Identified:
The character animations aren't coming as attractive as it should be for the user as their identity. This could be a major usability issue as the users will not like to use the product with unappealing character despite its functionality.

Possible solution:
We will come up with a menu where the user will have the freedom to choose the most lookalike character for themselves then take user opinion before finalizing.



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Issue 4:

User Testing
Issue 4: Navigation

User review:

"Buttons should hover when pointed at."

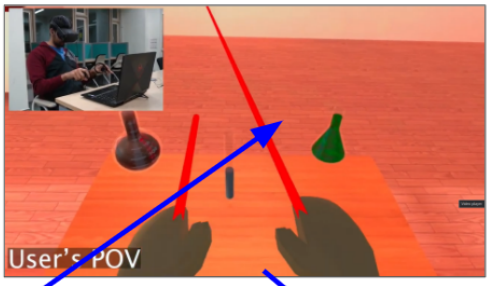
"The button of the Menu should be a hover or its colour should be changer when hover."

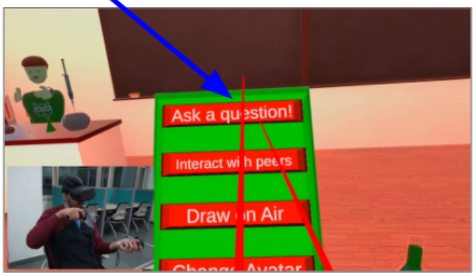
"Hand rays should be thinner and shorter."

Issue Identified:
The rays are disturbing because of its large length and thicker width.
The button click should be acknowledged.

Possible solution:
We can provide an option to user to enable hand rays whenever required.

We will change the color of buttons when hovering over it to distinguish between the changes.





Issue 5:

User Testing
Issue 5: Other Issues

User review:

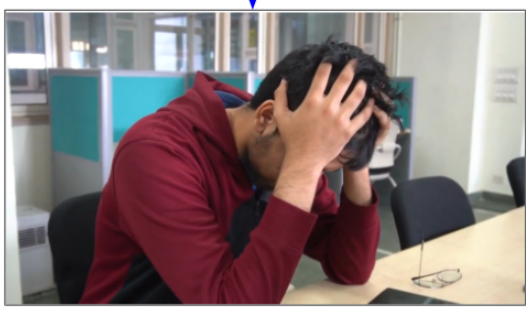
"I think it is a very tiring job to use this classroom experience."

"Also, it could lead to eye problems in students due to excessive usage."

Issue Identified:
Students feels tired after wearing this headset for a while.
Eye pain arises due to its continuous usage.

Possible solution:
Introducing breaks where the systems give suggestions of exercise or plays tunes to calm and refresh the user's.

This causes this.



1.10 DATA COLLECTED

1.10.1 Google feedback Form

After showing them the video of our product prototype, we have asked them to answer some questions based on their experience. The link of that Google form is pasted here.

1.10.2 Usability Meeting Video Recording

We have also recorded the meeting after taking the verbal consent from them and the written consent as well. The recorded video link is pasted here.

1.11 FUTURE ITERATIONS/PLANS

We learned that there were some gaps in our products which the users were not convinced about so we analysed the issues we gathered from the insights and mapped our solutions for these suggestions in our future iteration to create a meaningful experience for the user.

Issues 1: Colour Scheme
Solution1: We will come up with a few more iterations and then take user opinion before finalizing a colour scheme.

Issues 2: UI Menu
Solution 2: We will work up with a few more iterations for a minimalistic design and then take user opinion before finalizing an UI Menu.

Issues 3: Character Animation
Solution 3: We will come up with a menu where the user will have the freedom to choose the most lookalike character for themselves then take user opinion before finalizing.

Issues 4: Navigation
Solution 4: We can provide an option to user to enable hand rays whenever required.
We will change the colour of buttons when hovering over it to distinguish between the changes.

Issues 5: Other Issues
Solution 5: Introducing breaks where the systems give suggestions of exercise or plays tunes to calm and refresh the users.

1.12 ROOT FOLDER OF OUR EVALUATION WORK

The link of our root folder containing all the files/folders is attached here.

A APPENDICES

A.1 CONSENT FORM

USABILITY CONSENT FORM

We, members of WeDes4X from Design of Interactive Systems course are working on our course project - Eduract, a VR based application to give users an interactive class like environment.

You'll be asked to watch our product prototype video with some follow up questions and then we will provide you with a Google form to submit your responses. You need to answer the questions based on your experiences.

We do not record any identifying information of yours and take full responsibility for maintaining your privacy and confidentiality for the purposes of the study.

Agreement

I agree to participate in the evaluation conducted by team WeDes4X.

I understand that participation in this usability testing is voluntary and I agree to immediately raise any concerns or areas of discomfort during the session with the group.

Please sign below to indicate that you have read and you understand the information on this form and that any questions you might have about the session have been answered.

Date:

Name:

Signature:

Thank you!
We appreciate your participation.

A.2 Information Sheet

WeDes4X

Hi,
I have been working on a project for my DIS course and I want 10 mins of your time to make you my co-designer.
Basically, we have identified a problem:

> High school students lack the motivation to attend online classes because they find it monotonous and difficult to comprehend in practical courses due to the unavailability of proper equipment and minimal interaction with instructors.

Our solution to this is:

> Eduract explores virtual reality as a medium to give our user an experience by by bringing them in a virtual environment where they can work with equipments virtually, through various gestures while interacting with peers and students. The exposure the user is getting through this environment is not only confined to the user's classmates but also involves foreign students without any language barriers in a common learning zone as a class.

Now all I want from you is to talk aloud whatever you're thinking while experiencing **Eduract** and interacting with your Instructor and peers. After you can explore the video prototype. Just remember that I'm testing our product and not you so it's okay to make mistakes :D

Here we go: (Video Link)
https://drive.google.com/file/d/1PaYC_bqWVErthY1YMIBX5z6oJtHVEx7g/view?usp=sharing

Testing Parameters:

- DESIRABILITY - Would the user want to use Eduract for thier online classes
- USABILITY - How well the user be able to operate and use Eduract?
- USEFULNESS - Do the user think about their regular online classes issues/problems can be solved if they use Eduract?

Prompts if the user is silent:
"What are you currently thinking?" "What do you think will happen next?" or "Is that what you expected to happen?"

FORM: https://forms.gle/yrNWPqDcYQdsoZGj9