

**Human Computer Interaction CS449 – CS549**  
**Assignment-4 Heuristics/Inspection Based Usability Testing of a Game**  
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## **1. AR App Information**

**Overview of the Application:** EON-XR is an augmented reality application that uses interactive 3D models to improve learning. The "Animal Cell" course, which offers comprehensive imagery and interactive content on cell anatomy, is the subject of this evaluation.

**Technical Structure and Controls:** Touch controls allow users to rotate, magnify, and dissect 3D models of cell organelles. For thorough learning, the app has quizzes and videos embedded.

Usage: Depending on how the user interacts with the material, the lesson usually takes 30 minutes to complete.

## **2. Heuristics Evaluation**

**Methodology:** Using a thorough two-pass technique, this report evaluates the program using Nielsen's 10 Usability Heuristics and the Xerox Heuristic Evaluation checklist.

<b>Heuristics</b>	<b>Explanation of the Problems</b> <b>Add related visuals of problems from screenshots</b>	<b>Propose Solution(s)</b>	<b>Seriousness of each problem (Low, Middle, High)</b>
Visibility of system status	1. When AR mode is toggled on, there is unclear feedback. 2. There is no status indicator for quiz completion	Verify with a visual whether AR mode is engaged. Give quizzes progress indications.	1. High 2. Medium
Match between system and the real world. ...	1. The use of scientific terminology without translation. 2. The icons that are used lack clarity and labeling.	Include simple descriptions or synonyms for terms. Redesign icons to be intuitive; add labels.	1. High 2. High
User control and freedom.	1. Users need to take several actions in order to effortlessly exit AR mode because of button. 2. After submitting a quiz, there are no undo choices available.	Introduce an easily accessible exit option in AR mode. Add an option to review or change answers before final submission.	1. High 2. Medium
Consistency and standards.	1. The use of design features and interactions varies throughout lessons. 2. Use of different terminology in tests and lectures.	Make all of the lessons' UI elements and interactions the same. Ensure that the app's terminology is consistent throughout.	1. High 2. Medium
Error prevention.	1. Easy to accidentally skip important instructions. 2. Misleading error messages when content fails to load.	Ensure all critical instructions require user confirmation before proceeding. Improve error messages to specify the cause and possible actions.	1. High 2. High

Recognition rather than recall.	1. Over-reliance on icons without text labels.	Add text labels to icons to reduce memory load.	1. High
Flexibility and efficiency of use.	1. Fewer interface and control customization choices. 2. Ineffective navigational steps to get to frequently used features.	Offer options to personalize the controls and interface. Use gestures and short cuts for frequent tasks.	1. Medium 2. High
Aesthetic and minimalist design.	1. A disorganized interface with unnecessary components. 2. Different lessons use different graphic styles.	Simplify the UI by adding only the most necessary components. Ensure that the platform's visual design is consistent.	1. High 2. Medium
Help users recognize, diagnose, and recover from errors	1. When errors are not communicated correctly, people may become confused. 2. There is no quick response for mistakes made during conversations.	Send concise, useful error messages. Incorporate instantaneous feedback to notify consumers of mistakes.	1. High 2. High
Help and documentation	1. Help resources are hard to find and use. 2. Not every feature is covered in detail in the documentation.	Streamline the help documentation's navigation and accessibility. Extend assistance sections to encompass all features and scenarios.	1. Medium 2. Medium

### 3. References

- Nielsen, J. (n.d.). 10 Usability Heuristics for User Interface Design. Nielsen Norman Group. Retrieved from [Nielsen Norman Group Website](#).
- Xerox Corporation. (1995). Heuristic Evaluation - A System Checklist. [PDF Document].
- World Leaders in Research-Based User Experience. (n.d.). 10 usability heuristics applied to video games. Nielsen Norman Group. Retrieved December 12, 2023, from <https://www.nngroup.com/articles/usability-heuristics-applied-video-games/>
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