

# Heuristic Evaluation

## Part I: Project Description

“Medical Reality” is a virtual reality software to help medical students that are going to do the pre-training through some exercises.

## Part II: Joint List of Violations

The order in which we wrote the violation is by severity (from the highest to the lowest); when two violations have the same severity, we ordered them by heuristic type (H1 is before H3, for example).

1. H1: Visibility of system status / Found by: E1  
Where: Teacher Lessons and Your Progress interfaces  
What: The complex task is not written correctly  
Why: There is no explicit way in which the user receives the feedback, which is what the task should do  
Severity: 4
2. H1: Visibility of system status / Found by: E3  
Where: when ending a lesson  
What: there is no feedback at all when a lesson ends.  
Why: the user is not shown any feedback when the lesson ends, neither related to state or to their performance.  
Severity: 4
3. H4: Consistency and standards / Found by: E2  
Where: Teacher lessons and Your progress pages  
What: The lessons pagination  
Why: If more than 8 lessons are present there is no way to scroll them  
Severity: 4
4. H2: Match between system and the real world - H5: Error prevention / Found by: E2 and E4  
Where: In page “Custom Lessons” of the menu  
What: The “START” button should be disabled or show errors when some options aren’t selected  
Why: The user shouldn’t be allowed to start a lesson unless every option is set  
Severity: 4
5. H1: Visibility of system status / Found by: E1 and E4

Where: In the home page

What: Absence of application title

Why: The user should know they have accessed the application

Severity: 3

6. H1: Visibility of system status / Found by: E1 and E3

Where: Teacher Lessons interface

What: "Suggested" icon

Why: There's not much feedback about the suggestion of lessons: it is unclear when the lesson is suggested for the user (it is part of the complex task)

Severity: 3

7. H1: Visibility of system status / Found by: E1

Where: Your Progress interface

What: An interface resuming the statistics about the user is missing

Why: It is unclear in which way the lessons are suggested for the single user

Severity: 3

8. H4: Consistency and standard / Found by: E4

Where: In the menu

What: The star rating system is used to show both the difficulty of a lesson and the grade obtained by the user.

Why: It's unclear which metric the unlabeled 5-stars ratings in the pages are related to. If the user clicks on the lesson card to retrieve more information in page "Teacher Lessons", a 5-star rating labeled as "difficulty" is shown. This is even more confusing, because it makes the user think that the rating in the card is about the same metric, while it is about the grade.

Severity: 3

9. H4: Consistency and standard / Found by: E2 and E4

Where: In page "Custom Lessons" of the menu

What: The fourth option is labeled as "Hospital Room" but in the selection pop-up its name is "intervention room" and "Hospital Room" is one of the possible selections

Why: It is confusing to have different names for the same option. In addition, it looks like "Hospital Room" is the selected place even if it isn't.

Severity: 3

10. H4: Consistency and standards / Found by: E4

Where: In page "Custom Lessons" of the menu

What: You cannot choose difficulty when creating a custom lesson

Why: Since predefined lessons have an associated difficulty value, the user may expect the custom lessons to have several difficulties too. If difficulty is given by the combination of selected body type, type of intervention, criticality level and intervention room, the user must be

notified nonetheless

Severity: 3

11. H5: Error prevention / Found by: E1 and E4

Where: Pop-up in Custom Lessons interface

What: "Confirm" button should not be clickable if the user did not make a choice

Why: A default option is missing, so the user has to choose what to do; it is in contrast with this constraint. The user should be asked for confirmation about the options they set before starting a lesson to be sure that they entered the desired values

Severity: 3

12. H6: Recognition rather than recall / Found by: E4

Where: In the "Lesson X" screen

What: Missing information in the lesson

Why: The user should be able to see the data about the lesson they are in. Difficulty, body type, type of intervention, criticality level and intervention room are missing.

Severity: 3

13. H6: Recognition rather than recall / Found by: E4

Where: In page "Teacher Lessons" of the menu

What: Missing information in the lesson preview

Why: The user should be able to see the data about the lesson they are going to start. Only difficulty and a brief description are shown, while body type, type of intervention, criticality level and intervention room are missing.

Severity: 3

14. H6: Recognition rather than recall / Found by: E2, E3 and E4

Where: In page "Custom Lessons" of the menu

What: The function of the "Replay" isn't clear

Why: The name given to the option is too general and unrelated with its actual function, the only way to really know what the button does is to have selected it before and remembering what it does.

Severity: 3

15. H7: Flexibility and efficiency of use / Found by: E2

Where: Lesson from Teacher Lessons or Your Progress interfaces

What: Pause and Play button are always present

Why: Only one of them is pushable, it's useless to have two buttons

Severity: 3

16. H1: Visibility of system status - H4: Consistency and standards / Found by: E1

Where: Your Progress and Teacher Lessons interfaces

What: Updating on lesson evaluation/difficulty

Why: The user is not notified when a lesson he has done is updated with the new status, which is available when the user shares the results to the teacher

Severity: 3

17. H1: Visibility of system status - H8: Aesthetic and minimalist design / Found by: E1, E3 and E4

Where: In the home page

What: Too many unusable items, hard to understand what you can do

Why: The home page is filled with useless items which make the screen messy and create confusion about the actually usable one (the menu book), which is shown in a small portion of the screen.

Severity: 3

18. H1: Visibility of system status - H5: Error prevention - H6: Recognition rather than recall / Found by: E1 and E2

Where: Custom Lessons interface

What: A pop-up window of confirmation of the options inserted by the user is missing

Why: The user should not be forced to memorize the options that they have inserted. The user can accidentally start a lesson with wrong parameters

Severity: 3

19. H3: User control and freedom - H7: Flexibility and efficiency of use / Found by: E3

Where: menu

What: there's no way to reach different options if not by scrolling through the pages of the menu.

Why: the user has no flexibility to skip parts of the menu if they know what they are trying to reach, having to skip through all the pages to reach the last one; an index could be a good addition.

Severity: 3

20. H4: Consistency and standards - H6: Recognition rather than recall / Found by: E1 and E4

Where: Teacher Lessons and Your Progress interfaces

What: The meaning behind the empty stars icons is unclear

Why: It could mean that the lesson is not done or that the evaluation/difficulty equals to zero. Is it even possible to grade a lesson with zero stars?

Severity: 3

21. H1: Visibility of system status / Found by: E1

Where: Teacher Lessons and Your Progress interfaces

What: Lessons evaluation/difficulty

Why: It is unclear how the evaluation is done

Severity: 2

22. H3: User control and freedom / Found by: E1  
Where: Lesson X interface  
What: Save progress in the middle of the lesson  
Why: The user is forced to complete the lesson to save their progresses  
Severity: 2
23. H3: User control and freedom / Found by: E2  
Where: Lesson X interface  
What: You can't push the symbol at the center of the screen to continue the lesson  
Why: The pause symbol seems to be clickable  
Severity: 2
24. H4: Consistency and standards / Found by: E1 and E2  
Where: Teacher Lessons and Your Progress interfaces  
What: The meaning behind the stars under the lessons is unclear  
Why: It could mean many different things, such as difficulty or evaluation  
Severity: 2
25. H4: Consistency and standards / Found by: E1, E2 and E3  
Where: In every window with a "go back" action  
What: The option to go back is "Undo" rather than "Back"  
Why: It can be slightly misleading, since the "Undo" button usually has a different purpose  
Severity: 2
26. H4: Consistency and standard / Found by: E4  
Where: In the menu  
What: Inconsistency on grade/date position between pages  
Why: In the page "Teacher Lessons", the grade is expressed through five stars on the lesson card. In the "YOUR PROGRESS" page, that position is used to show the data, while the rating is moved inside the information pop-up.  
Severity: 2
27. H4: Consistency and standards / Found by: E4  
Where: In page "Your Progress" of the menu (after clicking on the "Share with the professor" button) and during the lecture (after clicking on the stop button)  
What: Position of confirmation/rejection buttons are inverted in relation to the other dialogs in the application  
Why: In every dialog of the application, the confirmation button (OK/yes/start/restart) is on the right and the reject button (no/undo) is on the left except for these ones  
Severity: 2

28. H8: Aesthetic and minimalistic design / Found by: E2, E3 and E4

Where: In the menu.

What: The title is split between the two "book pages" of the menu.

Why: It's unclear whether the two pages belong to the same voice of the menu or not. For example, it is not clear whether the first two pages are two voices called "Teacher" and "Lessons" or a single voice called "Teacher Lessons"

Severity: 2

29. H1: Visibility of system status - H6: Recognition rather than recall / Found by: E1 and E4

Where: Lesson X interface

What: There should be a label telling the user the type of time of the lesson (such as "time left" or "maximum reachable time")

Why: It is not clear whether the time that is passing is a countdown to zero or just a counting to a maximum time

Severity: 2

30. H3: User control and freedom - H7: Flexibility and efficiency of use / Found by: E3

Where: Teacher lessons and Your progress pages

What: lack of filtering/search bar

Why: if the user knows what lesson they want exactly, there's no way of getting to it besides scrolling through all the existing lessons, which seems inefficient.

Severity: 2

31. H1: Visibility of system status / Found by: E1

Where: Teacher Lessons interface

What: The tick mark in a completed lesson is in a confusing position

Why: It could be confused as an arrow of a drop-down menu (that, for example, explains the topic of the lesson); it would be better to put a "done" icon instead

Severity: 1

32. H4: Consistency and standards / Found by: E1 and E4

Where: Teacher Lessons and Your Progress interfaces

What: The titles are written in different ways: one is all with uppercase letters, while the other is written with both upper and lowercase letters

Why: There should not be inconsistency in the way they are written, since both of them are titles and have the same relevance

Severity: 1

33. H2: Match between system and the real world - H8: Aesthetic and minimalist design / Found by: E2

Where: The whole application

What: The menu style

Why: That style recall a restaurant format, not a medical environment  
Severity: 1

## Part III: Summary and Joint Recommendations

Report in the table below the number of identified violations according to their severity rating.

Heuristic	# viol. (rating: 0)	# viol. (rating: 1)	# viol. (rating: 2)	# viol. (rating: 3)	# viol. (rating: 4)
H1: Visibility of system status	0	1	2	6	2
H2: Match between system and the real world	0	1	0	0	1
H3: User control and freedom	0	0	3	0	0
H4: Consistency and standards	0	1	4	5	1
H5: Error prevention	0	0	0	2	1
H6: Recognition rather than recall	0	0	1	5	0
H7: Flexibility and efficiency of use	0	0	1	2	0
H8: Aesthetic and minimalist design	0	1	1	1	0
H9: Help users recognize, diagnose, and recover from errors	0	0	0	0	0
H10: Help and documentation	0	0	0	0	0
HN: Non-heuristic issue	0	0	0	0	0

### General impressions and recommendations

Overall, the prototype accomplishes what the tasks and the objective are. The complex task however does not really feel accomplished to its full potential, just having a “suggested” tag on some lessons, with no way of filtering, especially if there's more than 8 lessons, feels underwhelming. The absence of indication (window, pop-up, page) that shows the tips that the user can receive for the future lessons, causes the partial impossibility to complete the complex task.

Another good thing is that the interface resembles the one of a university website with the video lessons, which is one that the medicine students are used to seeing and are comfortable with. It is

missing many confirmation checks though, so the user cannot check again what they have written, and this is something that could be improved.

Moreover, there's a couple things that are a bit unclear, for example, if you can replay and watch a previously done lesson and if you can keep all previous attempts at a lesson to see your progress, or when you redo it, if the previous attempts are lost. Lastly, the share functionality is also a bit unclear. Is there a need to share everything every single time I want to share a lesson? There could be an option to share specific lessons.