
PROJECT DELIVERABLE C: DESIGN CRITERIA

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Introduction:

The formulation of a design criteria is a critical step to product development. The design criteria and target specification serve as a guideline for the product developers when designing a product. This can be done through researching existing products which ensures that the future product will outperform its competitors. In this document, the design criteria will be identified based on the problem statement from the previous deliverable and the target specifications will be specified through benchmarking.

Design Criteria:

Number	Need	Design Criteria
1	The experience is only compatible with virtual reality consoles.	The software must be designed as a virtual experience
2	It is critical that the virtual experience makes a social impact on the user.	The plot of the experience must be moving and impactful
3	The simulation needs to deliver an experience to the users that is convincing and an environment that they can interact with.	The experience must have multiple objects to interact with to further the plot
4	To be fully immersive, it is important that the experience stimulates the users' sense of touch, hearing, vision, and even smell, if possible.	We must incorporate elements that stimulate the users' senses
5	The interface needs to be user-friendly to allow the users to use it as a learning tool.	There should be a tutorial at the beginning (level 0) and add tips or hint button for players to use when it is too difficult
6	It is important that trigger warnings, closed captions, seizure warnings, or any accessibility aid are available if necessary.	Add warnings before scenes that may cause discomfort , or seizures

Other Design Criteria:

- Also add settings to adjust the elements (e.g., Volume, brightness, vibrations, etc.)
- Try to add closed captions
- If experience has dialogue have an audio description dubbed in the video for users who need it
- Add an escape button that takes the users to pop-up menu (which pauses the game) and have the option to save their progress and leave

- Add assistance button for help or if user doesn't seem to empathize the situation

Technical Benchmarking and Prioritization:

The table below highlights the characteristics of VR experiences which are similar to what our product aims to be. A legend has been provided to show which specification our product has to outperform.

Better	Midrange	Worse
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Figure I. Technical Benchmarking and Prioritization of the Functional Features of Competing VR Experiences

Video Game's Specifications:	1000 Cut Journey	That Dragon Cancer	Papers, please.	No man's sky
Developer	Courtney Cogburn Jeremy Bailenson	Numinous Games	Lucas Pope	Hello Games
Cost	Free	\$10.99	\$10.99	\$66.49
OS	Windows 10 version or higher	Windows 7 or higher OSX v10.7 Lion or Higher (64bit)	Windows XP or Later OSX Mountain (10.8)	Windows 7/8,1/10 (64-bit versions)
Processor	1.80GHz dual core processor	1.80GHz dual core processor	1.5 GHz Core2Duo	Intel Core i3
Memory	16 GB RAM	2 GB RAM	2 GB RAM	8 GB RAM
Graphics	Video card with Nvidia 650TI OR Nvidia GT 740	Video card with 512MB of VRAM	OpenGL 1.4 or better	NVidia GTX 480, AMD Radeon 7870

	OR AMD R7 250x			
Storage	100 GB free	5 GB available space	100 MB available space	10 GB available space
Full Audio	N/A	✓	N/A	✓
Subtitles	N/A	✓	N/A	N/A
Languages	English	English	English, French, German, Spanish, Portuguese, Russian, Italian, Japanese, Polish	English, French, German, Spanish, Portuguese, Russian, Italian, Japanese, Polish, Russian, Simplified Chinese, Traditional Chinese

Figure II. Technical Benchmarking and Prioritization of the Non-Functional Features of Competing VR Experiences

Video Game's Specifications:	1000 Cut Journey	That Dragon Cancer	Papers, please.	No man's sky
Experience a strong story	Based on true story	Based on true story	Puzzle Game	Fictional story
Type	Educational/Impactable	Impactable	N/A	Explore
Atmospheric	Street/ School/ workplace/College	Hospital/House	Security Office	Space
Difficulty Levels	Easy	Medium	The level of difficulties increases gradually	Medium

Accessibility	N/A	27 accessibility features	19 accessibility features	23 accessibility features
Perspective	First person	First person and Third person	Static camera	Third person

Specifications:

Design Specifications	Relation	Value	Units	Verification method
Functional Requirements				
Cost	<	\$10.99	Dollars	Calculate
OS	=	Windows 10 and Mac	N/A	Test
Processor	<	Intel i5-4590 / AMD Ryzen 5 1500X or greater	N/A	Test
Memory	<	8 GB RAM	RAM	Test
Graphics	<	NVIDIA GTX 1060 / AMD Radeon RX 480 or greater	N/A	Test
Storage	<	100 GB Free	GB	Test
Full Audio	=	Yes	N/A	Test
Subtitles	=	Yes	N/A	Test
Languages	=	English and French	N/A	Test
NON-Functional Requirements				
Experience a strong story	=	Realistic Story	N/A	Analysis
Type	=	Educational/Impactful	N/A	Test
Atmospheric	<	Society	N/A	Analysis

Difficulty Level	=	Easy	N/A	Test
Accessibility	+	Downloadable	N/A	Test
Perspective	=	First person	N/A	Analysis

Reflection:

During the first meeting, our client, Professor, Hanan Anis, and the panelists discussed in great length what the virtual reality experience will be based on (i.e., plot, or content). However, throughout the meeting, the client highlighted or hinted at what features and criterion she might have deemed important. For example, one of the panelists, Isabela, discussed in length the lack of accessibility aids in the SITE building at uOttawa. From this, the team made an educated guess that adding accessibility aids to the experience will be an important design criterion. Another influence would be is that Professor Hanan mentioned that this tool will be most likely used as a teaching tool in which made inspired the idea of a user-friendly interface as a criterion.

We also took into consideration the implicit needs that the client has. Keep in mind that the needs listed below is written in first-person perspective

- I want the experience's characteristics (volume, graphics quality, etc.) to be easily manipulated
- The experience must be accommodating to people who have visual impairment/ audio impairment
- Users must feel challenged when using this tool but not hopeless
- I hope that the experience is not too long and if it is there must be a way for us to pick up where we left off if we leave the game

Lastly, it is important to mention that as a team, we realized that explicit needs are not the only needs. During product development, we must listen and read between the lines to decide on what a proper design criterion consists of to develop our client's product to their liking.

Conclusion

In conclusion, though there are similar products in the market, we should not be content. These products were great resources for us to use for the basis of our specifications. Learning empathy is not an easy thing therefore as a design team, our goal is to try and outperform our competitors and make empathy more accessible and easier to learn.

Reference

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5. VHIL. (2018, August 12). *1,000 cut journey*. VHIL. Retrieved February 3, 2022, from <https://stanfordvr.com/1000cut/>