Deliverable C: Design Criteria and Target Specifications

GNG 1103 Group 2.2

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Introduction

To ensure our design project responds to the needs outlined by the problem statement and the needs identification in Deliverable B, design criteria must be determined. This design criteria consists of functional and non-functional requirements as well as constraints for the design. These criteria will ensure that the designed VR experience is immersive and allows the user to see the world from a different perspective while being comprehensive, accessible, and applicable in EDI training. The target specifications outlined in this document detail how the design criteria can be measured and the wanted values and acceptable range for our project. Furthermore, the technical benchmarking expands on the benchmarking that was completed in Deliverable B and will provide guidance regarding what technical aspects of existing products can be incorporated and/or modified in this project.

Design Criteria

Table 1: Design Criteria

Criteria	Value	Validation	Rank*	Category
3D interactive model	Yes	Test with 3D goggle setup	2	Functional
Accessibility	Closed captions, subtitles	Verify function with a multitude of users	3	
Language	French, English	Analysis of language	3	
Uses Unity software	Yes	Run simulation through Unity	2	Constraints
Cost	< $50.00 (CAD)	Measurement	3	
Age	> 5 years	Measurement	1	
Virtual Reality Headset	Yes	Test VR Headset	3	
Resolution	TBD	Measurement	2	
Empathy communication	Yes	User analysis	3	Non-functional
Aesthetically pleasing model	Yes	User analysis	1	
Inclusive Language	Yes	User analysis	2	

*Ranking where 1 is lowest and 3 is highest

       Design criteria includes functional and non-functional requirements as well as specified constraints interpreted from client needs. Ranking indicates least important (1) to most important (3) design criteria. Criteria ranked as most important include essential and ethical functions that cannot be left from design. Criteria ranked as moderately important (2) include design-based functions that encompass a broad variety of design needs that will be tested and ranked as the design progresses. Criteria ranked as least important (1) will be added to the design and verified once other design features have been adequately perfected. Validation of each constraint will vary based on the nature of each constraint. Validation quantities can be found within the Target Specification section. The value section indicates the wanted value as indicated by the client to meet their needs.

       Within the functional criteria section Accessibility and Language are ranked as most important due to the ethical nature of both criteria. Accessibility, including closed captions and subtitles, must be

available so that a person of any demographic can participate in the virtual simulation. Bilingual language, including English and French, must be provided. The 3D interactive model is ranked as moderately important as language above all else will be used to communicate the design. Once an adequate story is presented, then the 3D model may follow.

The constraint category includes the main constraints indicated by the client. The use of a virtual reality headset and a cost of less than $50.00 (CAD) were both ranked as most important as the design is dependent on these two factors. The use of Unity software and the resolution required for a virtual reality headset were ranked as moderately important as both requirements are dependent on the previously mentioned constraints. An age greater than five years was determined to be an adequate age demographic for the design as children less than this age have more trouble understanding complex language, however this criterion is least important as it is subject to change.

The non-functional category includes empathy communication as the most important criterion as this is the overall goal of the project. Inclusive language was ranked as moderately important as this criterion is difficult to measure quantitatively. Finally, an aesthetically pleasing model was determined to be least important as this requirement can only be met once the overall design is complete.

Target Specifications

Table 2: Target Specifications

Criteria	Measurement	Wanted Value	Acceptable Range
3D interactive model	Yes/No	Yes	Yes
Accessibility	User feedback	Excellent*	Good*
Language	Language type	English/French	English
Uses Unity software	Yes/No	Yes	Yes
Cost	CAD	< 50	< 50
Age	Years	> 5	> 10
Virtual Reality Headset	Yes/No	Yes	Yes
Resolution	Pixels	TBD	TBD
Empathy communication	Yes/No	Yes	Yes
Aesthetically pleasing model	Yes/No	Yes	Yes
Inclusive Language	Yes/No	Yes	Yes

*Where excellent indicated ranking of 3/3 stars, and good indicates ranking of 2/3 stars

Target specifications have been included for each of the design criteria based on tests available to test that feature and specific client needs. Measurement is included to identify the way the criteria will be quantified. Wanted value indicates the ideal measured value for the product, while acceptable range indicates the range that will be acceptable for design to proceed. The ultimate goal of the design is to meet the wanted value of the design criteria, however in certain cases it is understandable for the design to meet only the acceptable range to continue with the design.

Technical Benchmarking

Table 3: Technical Benchmarking

Important (weight)	Specification	1000 cut journey	The Empathy Simulator	SPEND
3	Virtual reality experience	Yes	No	No
3	Being most Age inclusive	Yes	No	No
2	Display a combination of graphics and text (subtitles)	No(provides only graphic)	Yes	No(provides only text)
3	Empathy education	Yes	No	Yes
1	cost	Free	Free	Free
2	Simple and user friendly	Yes	Yes	No
3	Suitable for EDI training	Yes	No	Yes
Total score		32	16	19

■ 2 points (Better)   ■ 1 point (good)   ■ 0 points (Worse)

       Project teams are always striving for high performance, from creating more efficient processes to the creation of a product or service that completely fulfills the client's needs, and this is done through technical benchmarking. Technical benchmarking would be used to measure the quality and performance of other companies' products, services, and processes. As a result, improved processes, increased quality, decreased costs, and a clearer view of the capabilities and criteria that users seek.

Reflection

During the design process we need to make sure that our ideas can easily be understood and make it in the final product. The functional and non-functional products need to be established and well understood. We need to look at a lot of empathic VR experiences and learn as much from them and implement the ideas we like and would like to see in our VR experience. The learning experience will be done by research just making sure that we get as much from articles and/or videos on the internet that explain the best way to execute our idea. The plan will be to get our ideas straight and plan out how we can all work together to get the final product.

Conclusion

The design criteria have been determined and separated into 3 categories functional, constraints and non-functional. The functional design criteria include the use of a 3D interactive model, as well as making the VR experience accessible through a bilingual model with closed captioning. The constraints of this project include the use of Unity software as well as the budget restraint of 50 CAD. The non-functional aspects of the design criteria include empathy communication, an aesthetically pleasing model and inclusive language. The target specifications outline the ways in which the design criteria can be measured, in addition to target values to ensure that the client's needs are fulfilled by the final product. From the technical benchmarking, it can be concluded that the "1000 cut journey" is the existing product that is the most similar to the desired final product as defined by the needs identification, design criteria and target specifications.

References

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