Department of Engineering

GNG 1103

Deliverable B - Needs identification and problem statement

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Submission Date: January 30th, 2022

Introduction:
The University of Ottawa has a very diverse community of people with great understanding for one another, but unfortunately this is not the case everywhere. Implicit bias can be challenging for minority groups, and usually it is from a lack of awareness from the perpetrator. Therefore, the goal of this project is to educate and train people on implicit bias and improve inclusivity by understanding other people's perspectives. The client expressed a strong enthusiasm toward the use of Virtual Reality (VR) for this project as this method is more likely to immerse the users in the experience. From there, sensibilisation on Equity, Diversity, and Inclusion (EDI) can occur by allowing the user to experience other people's lives and situations.

Problem Statement:
"The purpose of this project is to develop an immersive experience to educate a wide range of people on implicit bias towards minority groups and improve inclusivity by experiencing life through their eyes".

List of Needs:
1. The simulation allows a way to "walk in someone else's shoes" (raise awareness)
2. The simulation has scenarios that partake about a certain topic where implicit bias was present
3. The user feels empathy for the virtual character as the user experiences different situations
4. The simulation is addressed to a wide range of audiences (age groups, etc)
5. The simulation is relatively cheap and is $50 or less
6. The VR experience is 3D (three-dimensional) and as immersive as possible.
7. The simulation demonstrates negative and positive experiences that the virtual character goes through
8. The user will experience a character's thoughts and emotions while living through difficult situations
9. The user will learn about microaggressions that minority groups experience
10. By the end of the experience, the user will have learned about the challenges minority groups face, their own biases, and ways that they can spread awareness.
11. The user will be able to walk around and interact with the virtual world around them
12. The VR experience needs to be accessible (to deaf, blind, etc users)
13. The program offers options in other languages
14. The program is easy of use (how easy is the UI/game, clear instructions)
15. The quality of the simulation is good (clear audio, good video quality, etc)
16. The virtual character has time to reflect on the comments and inequalities they faced throughout the experience

Organise/Synthesis Into Categories:

Category	Needs
User experience	7,14,15
Cost	5
Accessibility	4,12,13
Educational	1,2,9,10,16
Feeling Empathy	3,8,9,10,16
Immersivity	1, 8, 11

Order/ Ranking of Importance:

Category	Ranking
User experience	2
Cost	2
Accessibility	2
Educational	4
Feeling Empathy	5
Immersivity	3

Benchmarking:

1000 Cut Journey is an immersive VR narrative where the user lives the life of Michael Sterling, a Black man, from childhood to adulthood [1]. The user experiences the daily struggles of a Black person in America. Although the simulation had many restraints in its movement and speech, users thought this was intentional and represented how many Black people restrained themselves to avoid racist conflict [4].

Becoming Homeless: A Human Experience is another VR narrative where the user experiences the process of becoming homeless and homelessness itself [2]. A study found that people who experienced this simulation in 3D were around 20% more likely to sign a petition for affordable housing and overall had more empathy for the homeless compared to those who only used it in 2D [3].

Carl Nassib Is Seeking His Path as an Out Athlete is an article about Carl Nassib who has recently become the first openly gay NFL player. He speaks about how he felt "gratitude and relief for being able to live an authentic life, free of secrets, after agonizing over the moment for 15 years [5]." By Carl coming out as gay, he has demonstrated the importance of representation and visibility for the LGBTQ community [5]. He received support from not only his teammates and coach, but also from Billie Jean King, Colorado Gov. Jared Polis, and the NFL Commissioner Roger Goodell who stated, "we share his hope that someday soon statements like his will no longer be newsworthy as we march toward full equality for the LGBTQ+ community [6]."

Unknown Information:

There was no specific topic that the client wanted covered, so it was assumed that as many topics should be covered because they can often intersect. The educational aspect is tied to how well the user will feel empathy for the character, so it is better if the scenarios are more realistic. Accessibility will be an issue for visually impaired users because voice command technology with the current constraints will be unlikely. However, auditory impaired users and users that have enough range of motions to click buttons can be accommodated. The game will be in English and French because the university has a large French-speaking population.

Conclusion:

After analyzing the clients needs from the client meeting to determine the level of importance of each category, and searching for other existing related resources, we've deduced what the client may be looking for. Essentially, the client needs a method to educate and sensibilise a wide-ranging audience about implicit bias towards minority groups, and wishes to do this specifically through fostering empathy by immersing the individual in a scenario related to these topics. The client has placed an emphasis on using VR technology for the immersive experience, but essentially any tools to aid in the best immersion possible is appreciated. With this being said, there are still some unknown variables and pieces of information which we've listed down in hopes to ask in a future client meeting.

References:

[1] Virtual Human Interaction Lab, "1000 Cut Journey," Stanford University, Available:
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[4] A. Tracey, "Virtual reality tool allows people to experience anti-Black racism firsthand," The Michigan Daily, February 2, 2022. [Online], Available:
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[5] J. Longman and A. Thames, "Carl Nassib Is Seeking His Path as an Out Athlete", The New York Times, June 25 2021. [Online], Available: Carl Nassib Wants to Make a Difference in the World - The New York Times (nytimes.com). [Accessed Jan. 27, 2022].

[6] E.Sears, "Carl Nassib draws support on social media after coming out as gay", Los Angeles Times, June 25, 2021. [Online], Available: Carl Nassib draws support from players after coming out as gay - Los Angeles Times (latimes.com). [Accessed Jan. 27, 2022].