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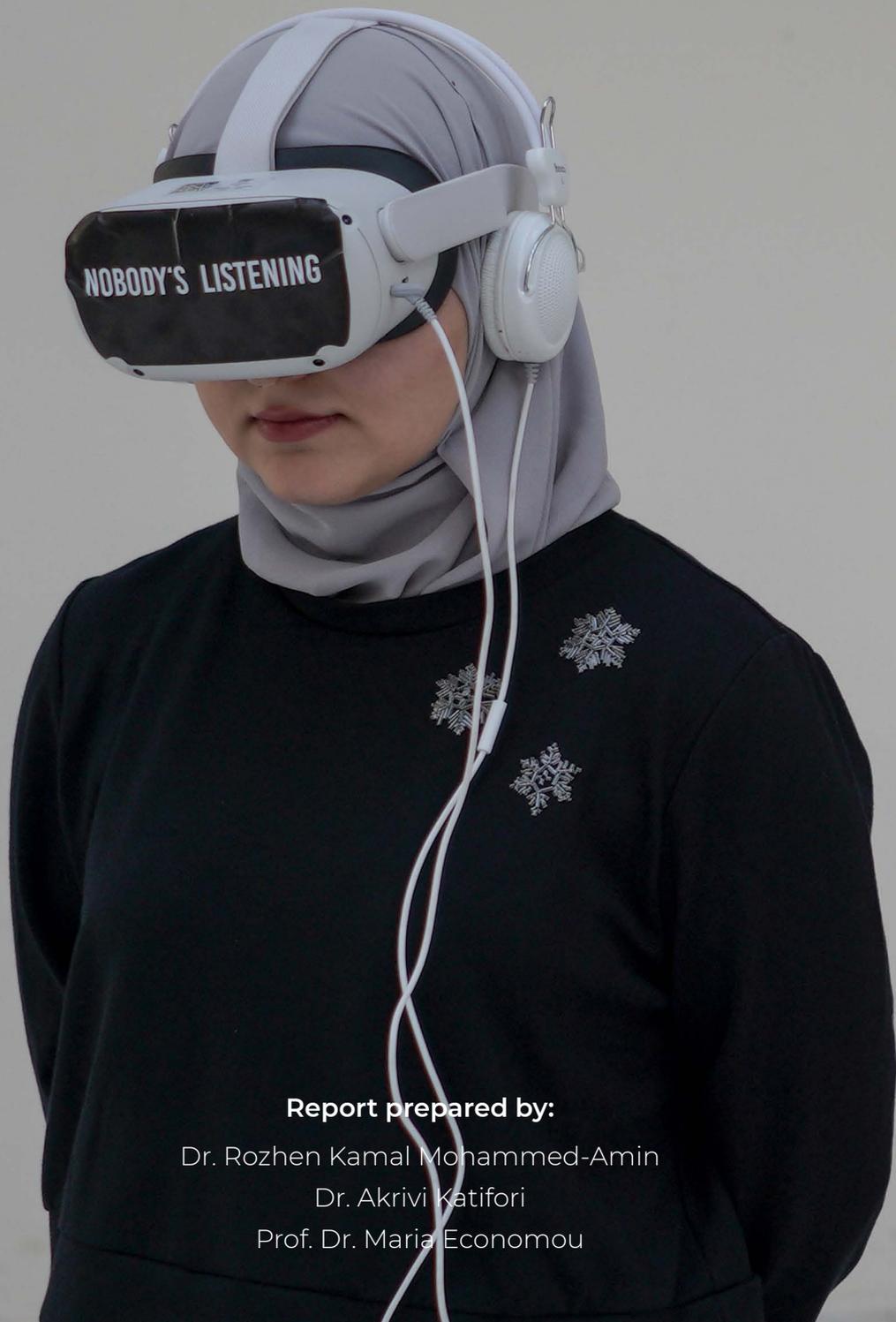


NOBODY'S LISTENING



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Virtual Reality Exhibition:
Impact and Analysis



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IOM Iraq deeply appreciates the key informant's time and perspectives.

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EXECUTIVE SUMMARY

In mid 2021, a group of human rights advocates and partner organizations presented a Virtual Reality (VR) exhibition titled “Nobody’s Listening” (NL) in a series of cities across Iraq as a means of supporting the Yazidi community to raise awareness about the genocide they experienced and advocate for greater support and solidarity from the national and international community. This report investigates the impact of the NL VR exhibition, and aims

to understand if, and how, the NL VR exhibition can support human rights advocacy for the Yazidi community and persecuted groups more widely. The findings of this report are based on an assessment carried out with a total of 127 Iraqi nationals in the cities of Baghdad, Sulaimani, Erbil, Duhok, and Kirkuk between December 7th 2020 and March 18th 2021.

KEY FINDINGS

Overall, the NL VR experience was well-received by the participants and had a high cognitive and emotional impact on the majority. The assessment revealed two major findings:

First, participation in the NL VR exhibition contributed to increased awareness about, emotional engagement with, and empathy towards the Yazidi community and their experience of genocide. 70.8% of 120 responders indicated that the experience changed their previous knowledge and impressions about the Yazidi culture. As three participants expressed:

- “It was a unique experience for me. From an anthropology point of view, I felt I became closer to the pain they [Yazidis] went through. You get very close to them.”
- “I did not realize the Yazidi brothers and sisters experienced such level of cruelty.”
- “I wish that every person would try this [the VR experience] so they would learn better what happened. We know things as we hear them, but this makes you live through the experience. It is different.”

Second, and perhaps more importantly, participation in the NL VR exhibition demonstrated the potential to inspire positive change and actions in response to the Yazidis genocide and support of the Yazidi community. Specifically, 92.2% of participants in the NL VR exhibition highlighted the need for justice for the Yazidi genocide cause after participating in the exhibition. Participants reflected on the need to take the following actions after participating in the NL VR exhibition:

- **Public recognition (national and international) of the genocide committed against the Yazidi people.** As one respondent noted: “It is very important to gain international recognition for their cause. We think their cause has been internationalized, but very little has been done for them in comparison to all what they [Yazidis] have endured.”

- **Promotion of justice and accountability, including reparations, for the genocide:** Respondents urged the need to: “Recognize this as a genocide and prosecute the perpetrators” as well as “Build a better life for them and rebuild their cities.”
- **Protection of cultural heritage by raising awareness through visits to religious sites:** “In the past, I did not have that desire to have more information about them [Yazidis]. But now, I like to read more about their culture, how they lived, and what happened to their life.”
- **Prevention of violent extremism:** “It is really a shame that their rights were undermined by people claiming they were Muslims. I will tell them that as Muslims we empathize with them, and we should help them.”
- **Reconstruction of Sinjar:** “The first thing to do is securing the areas and making them safe from the fears that make them unable to return to their homes.”
- **Provision of mental health and psychosocial services:** “They need to be supported psychologically and emotionally so that they are not in grief until the end of their time.”

This affirms existing academic scholarship, which asserts that “what is experienced emotionally is remembered the most.”¹ Neurobiology suggests that a hormonal change occurs when a person has a strong emotional reaction, which facilitates the formation of long-term memories.² Building empathy is important because it is an imperative component of successful social interactions,³ and motivates helping behaviors.⁴ Research suggests that VR-based storytelling can bring about a positive shift in users’ human rights attitudes more effectively than the 2D or traditional format.⁵ In the case of the NL VR experience, it means that the ability to generate increased levels of emotional connection and empathy makes it a potentially valuable peacebuilding tool that may inspire actions that strengthen social cohesion, prevent future atrocities, and build sustainable peace.

1. Falk, J., & Dierking, J. (2013). Rethinking Museums from a Visitor’s Perspective. <https://www.slideshare.net/RubenSmit/museum-experience-as-defined-by-john-falk-lynn-dierking-2013>

2. Morie, J. F. (2006, January). Virtual reality, immersion, and the unforgettable experience. In *Stereoscopic Displays and Virtual Reality Systems XIII* (Vol. 6055, p. 60551X). International Society for Optics and Photonics.

3. Hoffman, M. L. (2001). *Empathy and moral development: Implications for caring and justice*. Cambridge University Press.

4. Urbanska, K., McKeown, S., & Taylor, L. K. (2019). From injustice to action: The role of empathy and perceived fairness to address inequality via victim compensation. *Journal of Experimental Social Psychology*, 82, 129–140. See also: Ahn, S. J., Le, A. M. T., & Bailenson, J. (2013). The effect of embodied experiences on self-other merging, attitude, and helping behavior. *Media Psychology*, 16(1), 7-38.

5. Batson, C. D., & Ahmad, N. Y. (2009). Using empathy to improve intergroup attitudes and relations. *Social issues and policy review*, 3(1), 141-177. Buijć, M., Salminen, M., Macey, J., & Hamari, J. (2020). “Empathy machine”: how virtual reality affects human rights attitudes. *Internet Research*.

OTHER CONSIDERATIONS

VR technology's ability to evoke strong psychological (cognitive and emotional) and physiological reactions (VR sickness symptoms) necessitate a responsible and ethical approach in utilizing the technology. Such an approach needs to be adapted right from the design stage to the implementation, and entails content selection as well as the way the VR experience is developed. Designing and developing a VR experience that conveys and engages with the violence and complex context associated with genocide requires even more careful consideration. While VR technology has been recognized as relevant to the treatment of stress-related disorders⁶ (including PTSD⁷) and phobia⁸, it has also the potential to induce unwanted psychological and physiological reactions. To mitigate the risks associated with potential emotional stress, and in order to comply with the principle of "Do No Harm," the NL VR exhibition development team worked with mental health specialists to carefully plan, develop, select, and display the NL exhibition and its content. Prototypes of the oral and visual contents were reviewed and validated by a range of experts, including a clinical psychologist and a Yazidi community-informed legal analyst.

Reflecting this approach, the NL VR exhibition included an introductory disclaimer warning about the content of the exhibition and strongly discouraging people affected by ISIS's crimes (especially survivors of sexual violence) from using the VR exhibition. The disclaimer also specifies the recommended age for users (16 years or older). The same disclaimer was included in the written call for participants, as well as in the consent form and oral briefing provided to participants (all of whom were volunteers who gave their informed consent to participate.) To mitigate risks from potential VR sickness among the participants, the data collectors informed and reminded the participants about their ability to exit the exhibition anytime with a simple click of an easily accessible button, and they offered support to hold hands or guide the movements of participants who appeared to experience VR sickness symptoms. The user also retained control over their experience, in that navigation within the virtual environment of the NL VR exhibition required the participant to physically walk and make head movements, and excluded virtual navigation through VR headset controllers. Sufficient and unobstructed physical space was also provided in order to ensure safe and easy navigation within the NL VR exhibition.

RECOMMENDATIONS

Based on the findings set out in this report, the NL VR team make the following recommendations to advocates or organizations regarding the use of the NL VR exhibition and VR technology more broadly:

1. Consider publicizing the NL VR and similar exhibitions in museums and memorial buildings across Iraq and the Middle East in order to increase mass awareness of and sympathy for the Yazidi experience and support for peacebuilding efforts.
2. Consider utilizing the NL VR as part of a campaign targeting decision-makers, teachers, religious leaders, and other community influencers across Iraq and the Middle East, as a means of changing attitudes towards persecuted minorities such as the Yazidis, and encouraging people to take positive action in solidarity with the Yazidi community, namely those that support inclusivity and social cohesion.
3. Invest in more extensive research to understand the longer-term impact of participation in the VR exhibition, including whether participants go on to take actions or maintain attitudinal change as a result of participating in the VR exhibition. This research would provide valuable insight to the development and implementation of innovative, emotional, and VR-based interventions in future, and offer stronger evidence towards the power of VR-based experiences.
4. Consider how VR exhibitions or other VR experiences can be used more widely as a peacebuilding tool. This may include, for example, developing VR exhibitions that communicate the experience of other ethno-religious communities affected by ISIS, as well as past genocides, such as Anfal and Halabja.
5. Consider how the involvement of Iraqi youth in the co-creation and co-curation of innovative and creative exhibitions involving their difficult heritage can contribute to the documentation, protection, and promotion of Iraqi heritage (including difficult heritage) and enhanced digital competence to support digital economy-boosting efforts in Iraq and address high youth unemployment rate.
6. When developing VR exhibitions or experiences, it is important to emphasize responsible and ethical use of VR (and similar technologies) in a way that complies with the "Do No Harm" principle and draws on the expertise of qualified mental health professionals.

6. Martens, M. A., Antley, A., Freeman, D., Slater, M., Harrison, P. J., & Tunbridge, E. M. (2019). It feels real: physiological responses to a stressful virtual reality environment and its impact on working memory. *Journal of Psychopharmacology*, 33(10), 1264-1273.

7. Gerardi, M., Rothbaum, B. O., Ressler, K., Heekin, M., & Rizzo, A. (2008). Virtual reality exposure therapy using a virtual Iraq: case report. *Journal of Traumatic stress: official Publication of The International society for Traumatic stress studies*, 21(2), 209-213.

8. Garcia-Palacios, A., Hoffman, H., Carlin, A., Furness III, T. A., & Botella, C. (2002). Virtual reality in the treatment of spider phobia: a controlled study. *Behaviour research and therapy*, 40(9), 983-993.

BACKGROUND

In August 2014, the Islamic State, (known also as ISIS or Daesh) launched a destructive attack across parts of northern Iraq, specifically targeting ethno-religious minorities who reside in Sinjar and the Nineveh Plains, including Yazidis, Christians (including ethnic Assyrians), Shia Turkmen, and other religious minorities. Soon after capturing those areas, ISIS committed terrible atrocities against the Yazidi people, forcing tens of thousands of Yazidi residents (including children, women, and elderly) to flee their homes to the nearby Sinjar Mountain in the heat of summer. Those who could not escape were subjected to grave violations of human rights in a targeted pattern of actions. Since 2014, an estimated 12,000 Yazidis were killed by ISIS, and over 6,300 Yazidis, mostly women, and children, were abducted, detained, tortured, enslaved, sexually assaulted, and subject to forced conversion. (OHCHR 2016). Many young Yazidi women who could not endure their constant and ruthless rapes by ISIS fighters committed suicide (Dakhil 2015). Despite the international attention paid to the atrocities, two years after the 2014 attacks, a Human Rights Council report revealed that over 3,200 Yazidi women and children remained in captivity by ISIS (OHCHR 2016). ISIS's cruelty and calculated ethnic cleansing did not stop at violence against Yazidi people only but also aimed to destroy their ancient and rich cultural heritage, including tangible heritage such as sacred places and temples, as well as intangible heritage such as traditions, memories, and customs (RASHID INTERNATIONAL 2019).

Although roughly six years have passed since the 2014 atrocities, not enough has been done to support the Yazidi community to recover. A growing number of states and entities have recognized ISIS atrocities against Yazidis as genocide (YAZDA n.d.; UN-OHCHR 2016), the UN is yet to formally recognize it as such. Although the Iraqi Prime Minister declared the country's military victory over ISIS on December 9th, 2017, the colossal damage and trauma induced by ISIS are far from over. Today, most of the displaced Yazidis remain in camps for IDPs (Internally Displaced Persons) in the Kurdistan Region of Iraq and refugee camps in neighboring Syria (UN-HABITAT 2015), unable to return to their homes because of lack of stability, security, and reconstruction.

The remains of thousands of unidentified victims, including Yazidis, in over 200 mass graves in ISIS-controlled areas have been recovered as of 2018 (UNAMI-OHCHR 2018). Almost every displaced Yazidi family has 'male relatives who have been killed and women who have been kidnapped' (UN-HABITAT 2015: 14). As many Yazidis are desperately looking for closure for their missing loved ones, Post-Traumatic Stress Disorder (PTSD) and perceived social rejection and stigma are reported at an alarming rate, particularly among the women and girls who survived ISIS sexual enslavement and genocide (Ibrahim et al. 2018). With 70% of the buildings in the Sinjar region damaged, the families that decided to return to Sinjar are living in dire conditions and despair (Peyre-Costa and Jenssen 2018). The psychological tolls of ISIS horrors on the Yazidi survivors and their community are vastly unresolved and still unfolding.

It is well-established that genocide prevention and meaningful reconciliation require education, awareness-raising, and advocacy.⁹ Due to frequent exposure, traditional forms of advocacy are reportedly losing their influence and impact. To encourage greater urgency around support to the Yazidi community to recover from the atrocities of 2014, in 2019 a multi-disciplinary team comprised of human rights activists, legal professionals, Yazidi genocide advocates, and Virtual Reality (VR) producers came together to develop a method of conducting advocacy on behalf of the Yazidi community that differed from traditional forms of advocacy such as reports, statements, or visual medium. Together, they utilized VR technology as a means to present, educate, and remind people of the scale and magnitude of the Yazidi genocide, as well as to amplify the voices and continued struggles of the Yazidi people. The outcome of this collaboration was the 'Nobody's Listening' (NL) VR exhibition, which is the subject of this assessment.

9. Mafeza, F. (2013). The Role of Education in Combating Genocide Ideology in Post-Genocide Rwanda, Research and Documentation Center on Genocide/National Commission for the fight against Genocide (CNLG). International Journal of Education and Research Vol. 1 No. 10 October 2013. Bartoli, A., Ogata, T., & Stanton, G. H. (2009). Emerging paradigms in genocide prevention. *Genocide Prevention*, 21. Ackermann, A. (2003). The idea and practice of conflict prevention. *Journal of Peace Research*, 40(3), 339-347. Hasić, J., Karabegović, D., & Turković, B. (2020). Locally Embedded Civil Society Organizations and Public Diplomacy: the Advocacy Roles of the "Mothers of Srebrenica" in Promoting a Culture of Remembrance. *Studies of Transition States and Societies*.

WHAT IS NL VR?

The NL VR exhibition was initiated by Ryan Xavier D'Souza (a human rights advocate whose work focuses on genocide prevention) and developed as a collaboration between Yazda and Surroundvision, a VR film studio based in London. Other international and Iraqi partners have joined the project, among them the Digital Cultural Heritage (DCH) Research Center based at the Sulaimani Polytechnic University.

Nobody's Listening (NL) VR exhibition combines art, technology, and advocacy to memorialize and educate about the Yazidi genocide by ISIS, with the ultimate aim of raising awareness and encouraging recognition, justice, and action for the Yazidi community and other minorities in Iraq. Using VR headsets similar to Facebook's Oculus Quest, the exhibition immerses users in the sights, sounds, and stories of the attacks against the Yazidi community in 2014. It does this by combining 6DoF (Degree of Freedom) scenes from photogrammetry of the actual sites shot in Iraq, 360 footage of the destructions caused by ISIS, 3D animations, soundscape, sound effects, and first-person storytelling.

The experience starts with the voice of a Yazidi woman introducing the user to the history, culture, and religion of the Yazidi community as well as their geographic and historic ties to Sinjar Mountain. The female narrator then takes the user through the ruins of Kocho village, one of the hardest-hit Yazidi villages during the genocide. The user moves from one virtual scene or story to another by their own physical movement. After the introduction, the user can choose to listen to the story of one of three characters, which are based on a composite of real experiences:

1. the Yazidi woman, who was abducted and sexually enslaved
2. the brother of the Yazidi women, who survived an ISIS massacre, or
3. local ISIS fighter, who attacked the village.

Each character recounts the events and feelings they experienced and the crimes they witnessed (or in the case of the ISIS fighter, the crimes he committed). The 3D reconstructions of each scene enable users to explore each location as if it was a real-life experience. Finally, the exhibition concludes by immersing the user in the dire living conditions that many Yazidis face today. The exhibition closes with final words by the female narrator who calls for justice and action to help the Yazidi community.

The experience storyline blends facts about Yazidi culture and tradition with real stories from publicly accessible testimonies of Yazidi survivors and interviews with imprisoned ISIS fighters. With VR's potentials in inducing emotional reactions¹⁰ and the violent nature of genocide events, the project team had to carefully plan, develop, and select the NL exhibition and its content. In addition to consulting a clinical psychologist and a Yazidi community-informed legal analyst, the script of the storyline was also reviewed by several prominent Human Rights Organizations based in the Middle East, the USA, and the UK. To avoid emotional stress and comply with the "Do No Harm principle", the VR experience does not include scenes or narrations that are overly graphic (such as including blood or dead bodies). The narration also avoids direct mention of sexual violence and only implies it through the stories of the three characters. The exhibition was designed to last approximately 12 minutes, though users can choose to stay longer and further explore a virtual scene before moving to the next one.



Figure 1. Examples of immersive scenes from the NL VR experience.

10. Diemer, J., Alpers, G. W., Peperkorn, H. M., Shiban, Y., & Mühlberger, A. (2015). The impact of perception and presence on emotional reactions: a review of research in virtual reality. *Frontiers in psychology*, 6, 26. Morie, J. F. (2006, January). Virtual reality, immersion, and the unforgettable experience. In *Stereoscopic Displays and Virtual Reality Systems XIII* (Vol. 6055, p. 60551X). International Society for Optics and Photonics. Shin, D. (2018). Empathy and embodied experience in virtual environment: To what extent can virtual reality stimulate empathy and embodied experience?. *Computers in Human Behavior*, 78, 64-73
Shin, D. H. (2017). The role of affordance in the experience of virtual reality learning: Technological and affective affordances in virtual reality. *Telematics and Informatics*, 34(8), 1826-1836.

METHODOLOGY

To systematically assess and quantify the impact of the NL exhibition, we carried out an assessment with the NL users from different socio-economic and ethnosectarian backgrounds across Iraq. The assessment aimed to empirically investigate “if” and “how” NL VR exhibition can support the Yazidi community and their genocide. It followed a mixed-methods approach involving the collection of both quantitative and qualitative data. We collected the data through a pre-NL survey and a post-NL interview and questionnaire, utilizing the EMOTIVE project’s¹¹ methodology and tools. The self-completion survey collected data about the participants’ demography, and their attitude towards the Yazidi genocide and community before participating in the NL VR exhibition. Specifically, the survey sought to understand the participants’ prior knowledge, perspective(s), and feeling(s) about Yazidi culture and genocide by ISIS, relationship with Yazidi people, whether they had visited Yazidi towns and villages, and any personal or family experience with displacement (in general) and ISIS (more specifically). Finally, the survey assessed the participants’ familiarity, attitude for, and use of VR technology.

Through a total of 18 5-point Likert-scale and one multiple-choice question, the post-NL questionnaire measures the VR exhibition’s impact on changes in participants’ awareness and cognitive learning (knowledge and understanding), affective learning (overall engagement and emotional connection), and perception (attitudes and values) about the Yazidi community and their struggles. In addition to the quantitative post-NL questionnaire, a structured interview was conducted after each user completed the NL VR exhibition to collect qualitative and richer data about the impact of the exhibition on the users and the users’ reactions, including emotional and empathy. Most of the open-ended questions utilized what is known as the ‘historical empathy model,’¹² which facilitates “a cognitive process that leads to an affective engagement with historical facts and figures in order to better understand and contextualize past events, social issues, experiences, and actions¹³”. Historical empathy “does not only involve understanding the past but it also seeks to promote a richer and more personal engagement with heritage, starting from a critical reflection on historical facts (historical contextualization¹⁴), moving to a deeper understanding of different perspectives of the people of the past (perspective taking¹⁵) and, ultimately, establishing an affective connection¹⁶ with these

people, prompting users to understand them as individuals with their own emotions, values and worldview”. Recognizing the established VR sickness¹⁷ and its potential impact on users’ experience with the NL exhibition, two open-ended questions particularly assessed the participants’ navigation and user experiences in the virtual world. Another open-ended question, in particular, asked the participants about any problems they experienced during using the VR headset. Considering the novelty of VR and addressing the participants’ potential unfamiliarity about VR sickness, we included a multi-select question that listed all the VR sickness common symptoms from the literature to inform and enable the participants to choose one or more of the symptoms they experienced during the NL exhibition.

To control potential response bias¹⁸ in self-report research (especially social desirability in a sensitive topic like genocide) and other research recognized biases, we took various data quality assurance measures throughout the research design and data collection, entry, and analyzing stages. For example, the assessment design targeted quantitative and qualitative data to check and verify responders’ answers, detect inconsistency, and combining two data sources for better interpretation of results. In addition to verbal responses, upon consent, the researchers from DCH also observed, noted, and shared information about the participants’ body language reactions, behaviors, and speaking tone during the interviews. Among the other data quality assurance measure we took was minimal to no involvement of the data collectors in determining the results and interpretation of the findings in this report. All the data (collected in three languages) have undergone rigorous quality double (and sometimes triple) checking throughout the collection and entry (including audio transcribing and coding processes) stages. To unify the data collection and entry processes by different teams, DCH researchers and data collectors from Baghdad and Kirkuk were trained through online (Baghdad volunteers) and in-person (DCH researchers and IOM staff) training workshops and detailed written protocol. The training also included setting up the NL exhibition and providing technical support. Additionally, the DCH researchers undertook several mockup data collection sessions with team members and relatives. DCH researchers, who transcribing and coded all the audio recordings and written answers to the interviews from all the five cities, have undergone several online and in-person training.

11. EMOTIVE (<https://emotiveproject.eu/>) is a EU-funded project that has “researched, designed, developed and evaluated methods and tools that can support the cultural and creative industries in creating narratives and experiences which draw on the power of ‘emotive storytelling’”.

12. Endacott, J., & Brooks, S. (2013). An updated theoretical and practical model for promoting historical empathy. *Social Studies Research and Practice*, 8(1), 41–58.

13. Petousi, D., Katifori, A., Perry, S., McKinney, S., Roussou, M., & Ioannidis, Y. (2021, June 24). Social bots of conviction as dialogue facilitators for history education: Promoting historical empathy in teens through dialogue. 20th Interaction Design and Children Conference.

14. Historical Contextualization (HC) includes learning of individual historical facts, understanding facts in their wider historical context, and understanding that different views and values of past people may have been influenced by the historical context.

15. Perspective-Taking (PT) includes appreciation of alternative beliefs, practices, values, etc., considering a topic from different perspectives, and expressing a shift in personal opinions, values, or attitudes.

16. Affective Connection (AC) includes feeling connected to the people of the past, connecting the past to personal experiences, connecting the past with issues of the world today, and feeling or expressing emotions about the people of the past.

17. Norman, K. L. (2018). Evaluation of Virtual Reality Games: Simulator Sickness and Human Factors. In GHItaly@ AVI.

18. Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17–59). Academic Press. <https://doi.org/10.1016/B978-0-12-590241-0.50006-X>

DATA COLLECTION

The assessment was carried out with a total of 127 Iraqi nationals in the cities of Baghdad, Sulaimani, Erbil, Duhok, and Kirkuk between December 7th, 2020, to March 18th, 2021. An information sheet and a consent form accompanied with clarifications were given to the participants to confirm their participation verbally or in writing. The consent form provided the participants with an opportunity for agreeing or disagreeing with being audio recorded during the interview or taking their photos as they use the NL. A total of 19 hours of audio recordings from Sulaimani, Erbil, and Duhok participants were all transcribed and coded by the DCH researchers. No audio recordings were undertaken in Baghdad or Kirkuk. The open call for participation as well as the consent form (provided in three languages of English, Kurdish, and Arabic) excluded participation from Yazidis or others who are affected by the genocide. In doing so, we aimed at reducing any potential risks from emotional distress or psychological triggers caused by the NL exhibition in the absence of psychiatric

support. The NL exhibition introduction also includes a disclaimer that warns these people from using the exhibition.

In Sulaimani, the participants were more diverse as they were recruited through an open call. A data collection session was preceded by reading the study information sheet, reading and signing the consent form, and filling the pre-VR survey form by a participant. These were followed by giving instructions on navigation in the VR experience, and sanitizing and setting up the VR headset for the participant by an assigned data collector. In normal length, the VR experience lasted for about 12 minutes. However, some participants took longer to go through the experience due to staying and exploring more in the VR world, difficulty or unfamiliarity with navigating in the VR world (such as going through virtual paintings to move from one scene to another), or technical challenges.

DATA COLLECTION LIMITATIONS

The availability or access of trained data collectors to these cities, other logistical and financial factors, and time limit played a role in undertaking the data collection in those five cities only. Due to logistics and financial costs from mobilizing the trained researchers from the Digital Cultural Heritage (DCH) Research Center based at Sulaimani Polytechnic University who led the assessment, the largest number of participants was from Sulaimani, composing 48% (61 participants) of the total number of participants. In Baghdad, although data collection was carried out with a total of 27 participants, the data of six of them were excluded due to a high number of missing data from these individuals. Therefore, the data of the remaining 21 participants from Baghdad were included in the data analysis, composing 16.5% of the sample. The number of participants in Erbil, Duhok, and Kirkuk was the same, with 15 participants in each city.

The data collection was carried out by three different teams with different levels of training and data collection skills. In Baghdad, student volunteers from the University of Baghdad collected the data, while the Kirkuk data collection was carried out by IOM staff. The data collected in the remaining cities were carried

out by DCH researchers from Sulaimani. Detailed written instructions in English and Arabic about the data collection setup and protocol were provided to all three teams. Due to time limitations and load from a priori NL launch public event, the Baghdad participants did not fill the questionnaire and only filled the survey and interview forms. Also, some of the participants skipped answering some questions. Since a data collection session (including setting up and using the NL VR exhibition) can be time and resource-consuming (with an average of 45 minutes per participant), we had and continue to recommend not running side events during formal data collection sessions of NL or similar exhibitions. Also, the concentration of the data collection in more cities with larger Kurdish populations limits evidence-based generalization of all the findings to all ethnic groups across Iraq, including the excluded Yazidis or affected people.

ETHICAL CONSIDERATIONS

The assessment was undertaken in compliance with the established research ethics protocol. In addition to voluntary recruitment, all the participants were fully briefed in their preferred language about the project and assessment before obtaining their consent. No audio recording or photos were taken without the participants' written consent. The data collectors also obtained consent for observing and taking notes about the participants' body language and reactions during using the NL exhibition. Both before the start and during the NL exhibition, the data collectors reminded the participants about their ability to withdraw from using the exhibition or any other part of the data collection at any time. In addition to assigning a code to each participant on the data collection forms, we also anonymized all the answers during the data entry and analysis stages. We also translated the data collection forms into the main national languages of Arabic and Kurdish as well as English to ensure the participants fully understand the self-completion survey and post-NL questionnaire. To make sure that the participants fully understand the content of the NL exhibition, the call for participants as well as designated data collectors informed the participants about the available languages (Arabic, Kurdish-Badini dialect, and English) in the NL exhibition. Before the data collection date, the designated data

collectors checked and noted the participants' preferences and familiarity with the selected language.

The participants' registration sheets were kept separate from the coded data collection forms to assure the anonymity of the responses. In addition to excluding identifier questions in the survey, any identifying notes from the hardcopy of the data collection forms were removed. All the data collectors were required to sign a consent form for their participation in the data collection, keeping the confidentiality of the participants, surrendering and deleting all the collected data after their submission. We took additional measures in various research design and data collection, entry, and analyzing, and report writing stages to comply with best practices in research ethics that we cannot detail here due to the focus of the report and length limitations.

To comply with international and local health and safety measures related to Covid, we set up and implemented a strict data collection protocol involving sanitizing the VR headset before and after each use, using masks, social distancing, and others. In addition to using the spray for hand and pen sanitizing, we used UV sterilizing box, provided by Clean Box Tech¹⁹, to sanitize the VR headsets.



19. <https://cleanboxtech.com/>

THE PARTICIPANTS

Of the 127 participants, 54.3% were male and 45.7% female. The largest number of participants (42.5%) were 25 to 34 years old, followed by 18 to 24 years old (29.9%). So, a high majority of the participants were young adults. Since over 56% of Iraq's population are below 24 years old²⁰, the high youth rate in the sample, to some extent, represents Iraq's population age profile. A total of 4.8% of the participants were 55 years or older

The participants were mainly well educated, with 68.5% of the participants holding BSc. or higher (Figure 3). A small number of the participants (0.8%) had less than high school education. Of 124 responders, over 83% of them reported they were born in an Iraqi city (including Sulaimani, Baghdad, Kirkuk, Erbil, Duhok, Mosul, Tikrit, and Halabja). A small percentage of 1.6% indicated their birth location as a village, while the remaining were born in Iraqi towns. The percentage of current residency location increased slightly in cities (91.1%), while town and village residency dropped to 8.1% and 0.8% respectively, with a total response number of 123.

A high majority of the participants (70.8%) reported Kurdish as their native language, followed by Arabic as a negative language for about a quarter (26.2%) of the participants. Of those, two participants indicated both Kurdish and Arabic as their native languages. A small number of the participants indicated Turkmen (1.5%) and English (1.5%) as their native languages. Of the two participants who selected Turkmen as their native language, one selected Kurdish and Arabic as additional native languages. Results from a follow-up multiple select questions confirm that 85 of the 127 participants (67%) selected Kurd as their ethnicity, followed by Arab ethnicity by 22%. Among the many other Iraqi ethnic groups, only one participant self-identified as Kakai. Of the 127 participants, five participants indicated being Shia Muslim, and another 43 others self-identified as Sunni Muslim. A total of 38 participants only selected Muslim as their religion, without identifying themselves as Shia or Sunni. As it appears, over 30% of the participants did not select any religious associations. Four participants did not disclose any ethnic or religious associations.

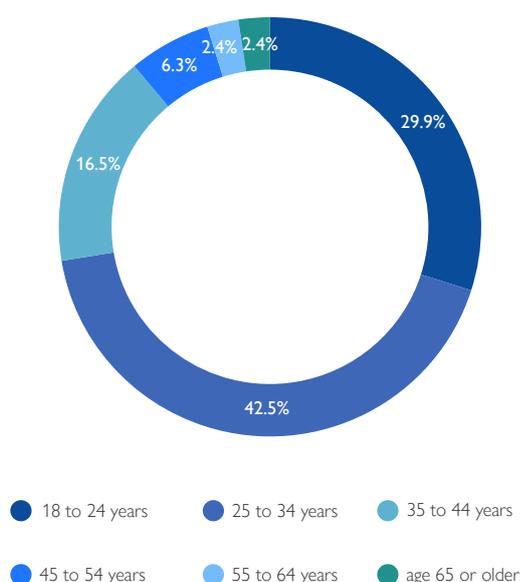


Figure 2. Participants' distribution by age group.

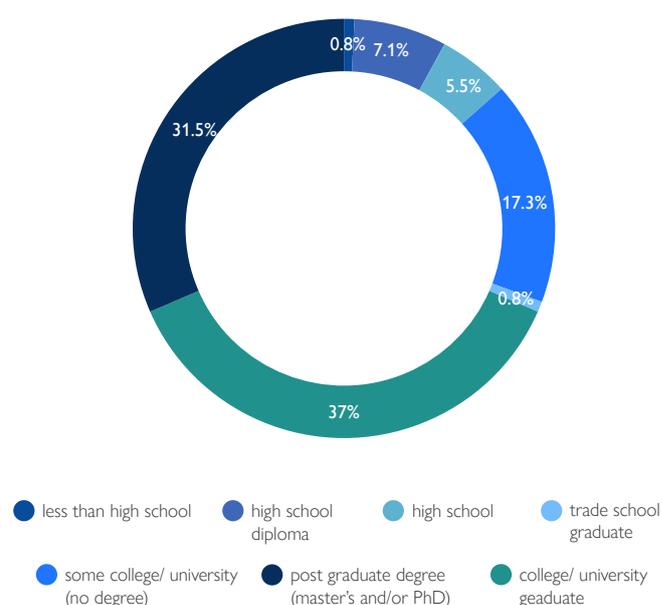


Figure 3. Participants' distribution by education level.

20. O'Neill, A. (2021, April 15). Age structure in Iraq 2020. Statista. <https://www.statista.com/statistics/327299/age-structure-in-iraq/>

Answers to an open-ended question revealed that over 92% had at least some level of knowledge about the ISIS genocide of the Yazidis. Although 54.3% of the participants confirmed meeting or knowing Yazidis, 39.4% implied knowing about the Yazidi culture before or after the genocide. Of those, only 11% of the participants explicitly identified the genocide by ISIS as a reason for learning about the Yazidis. Less than a quarter of the participants (22.8%) have been to any Yazidi town or village, including Lalish, Sharya, Shingal, Khanak, and Shekhan. Over 65% of the participants said they have empathy towards the Yazidis, but only about a quarter of the total 127 participants mentioned details. The rest were either not specific or recalled only some generic information about the Yazidis genocide by ISIS.

When we asked about the participants' own perceived knowledge and understanding about the events of 2014 against Yazidis, only 22% of 125 responders confirmed their knowledge and understanding. Almost half of the participants (48%) expressed doubt about their knowledge and understanding of those events, with the remaining participants selecting a weak and clear no as

an answer (Figure 4). Interestingly, the pattern of the answers changed when we asked the participants if they think most Iraqis have enough knowledge and understanding about the events of 2014 against Yazidis. As it appears from comparing the results in Figures 4 and 5, the participants consider themselves to have more knowledge and understanding about the 2014 events against the Yazidis than the general public of Iraq.

Most respondents were not directly affected by the war with ISIS. The vast majority (89%) had not experienced displacement in the last seven years, while nearly a quarter (22%) self-identified as a victim of ISIS.²¹

The last part of the pre-NL survey revealed that the majority of the participants (over 60%) have heard about VR technology before. Only 34 participants (26.8%) confirmed using the technology before. Of the 45 respondents who indicated their feelings towards VR technology, over 90% indicated liking or strongly liking the technology. Only 43 of the participants (33.9%) considered themselves tech-savvy to some degree.

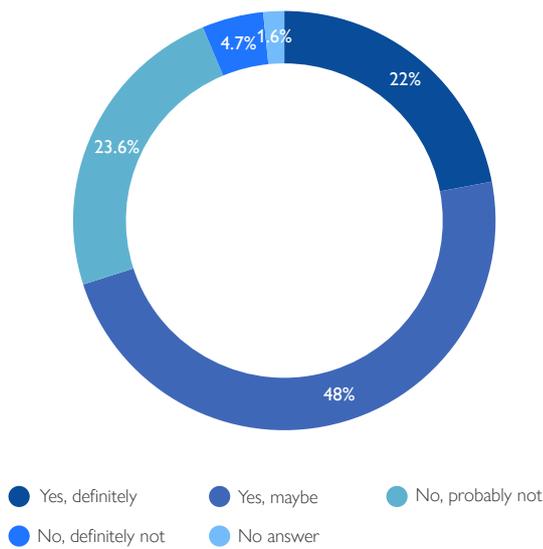


Figure 4. The Participants' perceived knowledge and understanding about the events of 2014 against the Yazidis.

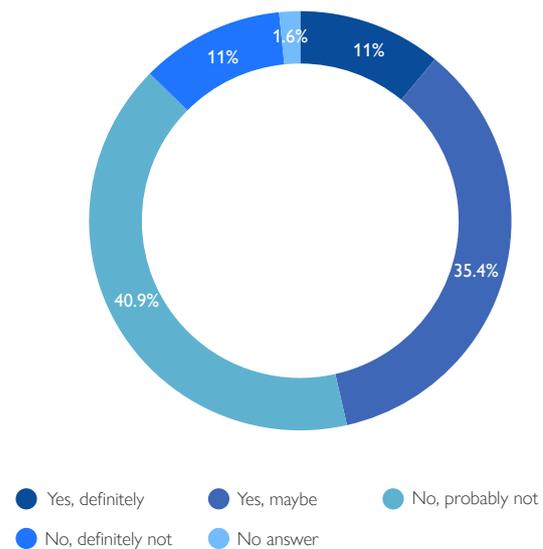


Figure 5. The Participants' opinions about most of Iraqis' knowledge and understanding about the events of 2014 against the Yazidis.

21. The death of immediate family member(s) by ISIS was the most common reason for respondents identifying as a victim of ISIS (13.4%), followed by the death of an immediate family member(s) by security forces retaking areas from ISIS. A smaller percentage of the participants reported being affected by the ISIS conflict through displacement due to the ISIS campaign or destruction of houses due to the campaign to re-take area from ISIS (each 3.9%). Some of the participants (3.1%) experienced serious harm from ISIS (such as kidnapping, disappearance, imprisonment, or physical injury) to themselves or their family members. Destruction of houses from ISIS campaign, or serious harm to oneself or family members due to the campaigns to retake areas from ISIS each affected 3.9% of the participants. Only one participant (0.8%) reported displacement due to re-taking areas from ISIS.

FINDINGS

In general, the participants demonstrated a high level of cognitive and emotional reactions to and engagement with the VR exhibition. Aside from the verbal answers, some participants, including male participants, demonstrated their high level of emotional and

affective connections with the VR experience through strong body language as well as body and facial expressions to a degree of crying. The following sections discuss the impact of the VR experience on the participants.

LEARNING AND UNDERSTANDING

The first section of the questionnaire measured the changes in the participants' learning and understanding about the Yazidis genocide after the VR experience through scorings. Each scoring can range from 1, being the lowest, to 5, being the highest change. In addition to rating scale questions, we further examined the cognitive impact of the VR experience through answers to some of the open-ended questions in the structured interviews with a total of 127 participants. As it appears in Table 1 and Figure 6, the average scorings of 4 out of 5 related statements are high (over 4), with over 70% of the 106 participants agreeing or completely agreeing that the VR experience helped them with more learning and better understanding about the Yazidis genocide. Among the four statements, the highest average scoring (4.37) is related to the VR experience's help with enhancing and increasing the participants' understanding and awareness about the Yazidis genocide by ISIS. In that statement, the vast majority of over 85% of the participants agreed or strongly agreed that the VR experience helped them with those cognitive gains. The same statement has a relatively lowest standard deviation (0.708) among the four statements, suggesting that the participants were more homogenous in their high scoring.

The lowest average scoring of the four statements (4.08) is about the VR experience's ability in giving a new understanding of people from a different culture. The relatively highest standard deviation of 1.039 among the four statements suggests that the participants were more divided in their scoring for this statement. In the interview, 70.8% of 120 responders indicated that the experience changed their previous knowledge and impressions about the Yazidi culture. Despite the diversity in

the wording and details, the majority of open-ended responses suggest that the change was caused by gaining new unheard information/details and becoming more aware of the Yazidi genocide events by ISIS, ongoing struggles, culture, and way of living. Elements of historical empathy (historical contextualization (58.3%), perspective-taking (11.8%), and affective connection (8.7%)) with the stories and characters composed the vast majority of the content of the answers. A smaller percentage (40.5%) of 116 interview responders said that the experience changed their previous knowledge and impressions about ISIS. Unheard details, media coverage limitations, and the intensity of the ISIS crimes and cruelty they learned through the VR experience were primarily identified as caused for the change in the participants' previous knowledge and impressions about ISIS. As one participant said:

"They [ISIS] further intensified their crimes. I am not saying that through media I did not know what ISIS did, but I had seen things in fragmentation. But now, I can say that ISIS destroyed a region and the life of a group of people."

Less than 15% of these responses related to two elements of historical empathy (perspective-taking and affective connection). With an average scoring of 3.64, the participants were less positive and more divided (std. deviation of 1.236) in their scorings for feeling challenged and provoked during the VR experience. We believe the meaning of the statement was not clear for many since answers to other questions in the questionnaire and structured interview suggest strong cognitive and emotional reactions to the VR experience that we will discuss later.

	N	Mean*	Std. Deviation
1.1 The VR experience helped me better understand/be more aware of the Yazidis genocide by ISIS.	106	4.37	0.708
1.2 The experience helped me learn something new about the Yazidis genocide by ISIS.	106	4.17	0.798
1.3 I have developed an interest to learn and find out more about the Yazidis genocide by ISIS.	106	4.05	0.989
1.4 During the experience, I felt challenged and provoked.	106	3.64	1.236
1.5 The experience gave me a new understanding of people who are different from me/ from a culture other than my own.	106	4.08	1.039

*1= Completely disagree and 5= Completely agree.

Table 1. Questionnaire results for the statements related to learning and understanding about the Yazidis genocide and minorities statements.

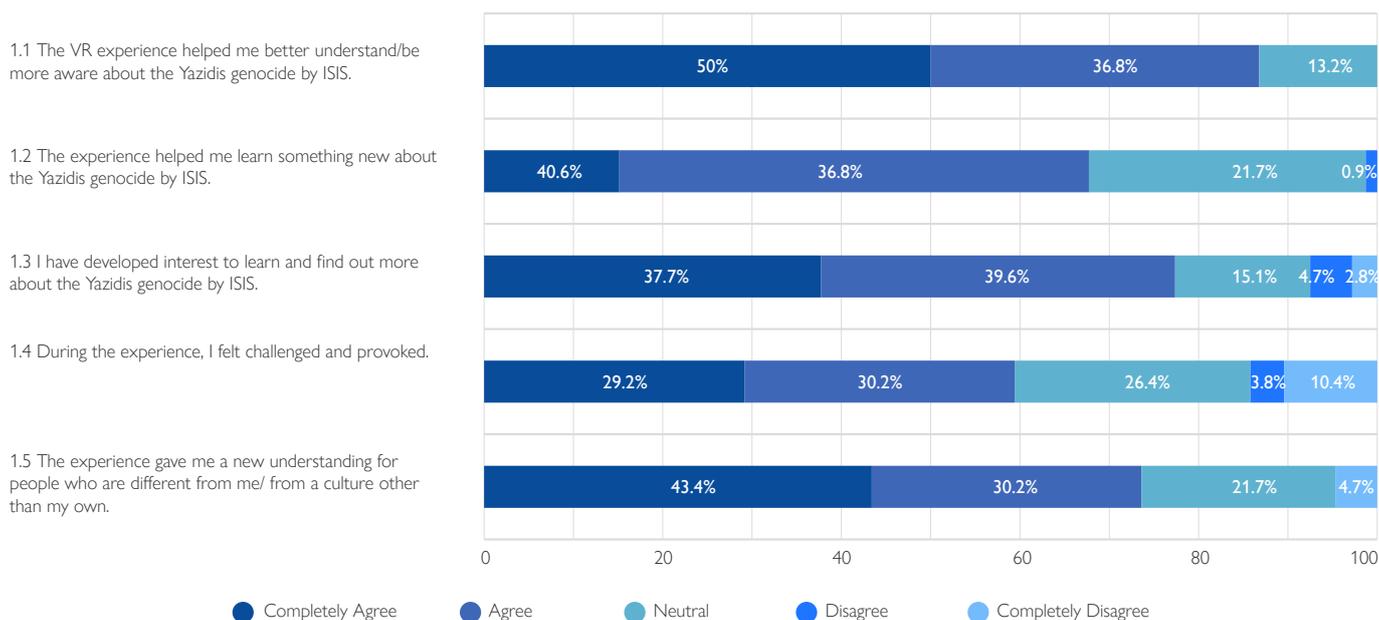


Figure 6. The distribution of the participants' scoring for the statements related to changes in their learning and understanding about the Yazidis genocide and minorities.

Over 85% of the 100 responding participants in the interview indicated being surprised by some aspects of the VR experience or its stories. Surprise has an important role in explicit and incidental learning as well as the process of knowledge updating²². When we asked the participants to specify the source of their surprise, four themes emerged from the open responses. Despite the VR technology excitement, we observed from the reactions and answers of the majority of the participants, the wordings of only 13.5% of the responders directly identified the technology itself as the source of the surprise. Of those, most referred to the immersive nature of the experience and its contribution in making the experience realistic such as in the following statement (more can be found in Annex 2):

- “I felt I was right there inside the events because of the VR.”

Half of the responders referred to various historic, cultural, and genocide-related new information and reflections from the stories, events, and details and how they were communicated (verbally and visually) as a source of their surprise. Another 20.2% of the responders specifically referred to what the characters said, did, or experienced. The following are some examples of these types of responses (more can be found in Annex 2):

- “It was that particular information, that nobody has been prosecuted, and those who have been prosecuted are for other crimes”.

- “How the women covered their face with dirt and wounded themselves to be less attractive.”
- “How they [Yazidis] were more ancient than the Persian, Ottoman, and other regional empires. According to the saying of this, they must be older than all the empires. That was new information for me.”

Another 16.3% of the responders were generic and did not specify the source of their surprise in detail. Instead, they referred to their overall impressions and reflections from the experience such as:

- “How despite all their bitter experience, they are still continuing and wanting to pass their message to others. Their resilience is a really nice thing.”

Many of those who did not indicate being surprised appeared to have misunderstood the question and interpreted surprise as a “positive” feeling for the experience such as in the following statement:

- “I would not call it a surprise because it is such a sad experience that does not make me surprised but very sad.”

22. Macedo Luisand Reizenzein, R. and C. A. (2012). Surprise and Anticipation in Learning. In N. M. Seel (Ed.), Encyclopedia of the Sciences of Learning (pp. 3250–3253). Springer US. https://doi.org/10.1007/978-1-4419-1428-6_1879.

As it appears in Figure 7, 60.5% of the 119 responding participants selected to follow the Yazidi women's character (Shereen) during the branching segment, followed by the Yazidi man (Shereen's brother). Only 13.4% of the participants chose to follow the story of the ISIS fighter. Responses to our follow-up "why" question show a wide range of reasons such as wanting to see the experience from the same or different gender perspective, learning new information that I did not know about from the news, being more emotionally engaged, or even accidentally selecting the character.

To understand how the participants cognitively reacted to their selected character and his/her rationale, we asked them to share their opinion(s) on the "what" the character might felt and "why". The responders who had selected the Yazidi woman or man pointed to a wide range of emotions that were explicitly or implicitly communicated in the VR experience including a lost dream by a Yazidi woman, betrayal, helplessness, fear that history may repeat itself, and defiance. Those who selected the ISIS fighter too identified different feelings and rational, predominately from an outsider's point of view, such as not feeling anything, indoctrination, misinformed righteousness, unresolved hatred, and love for money.

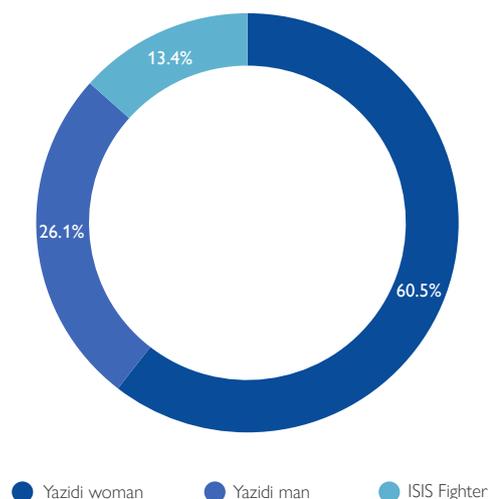
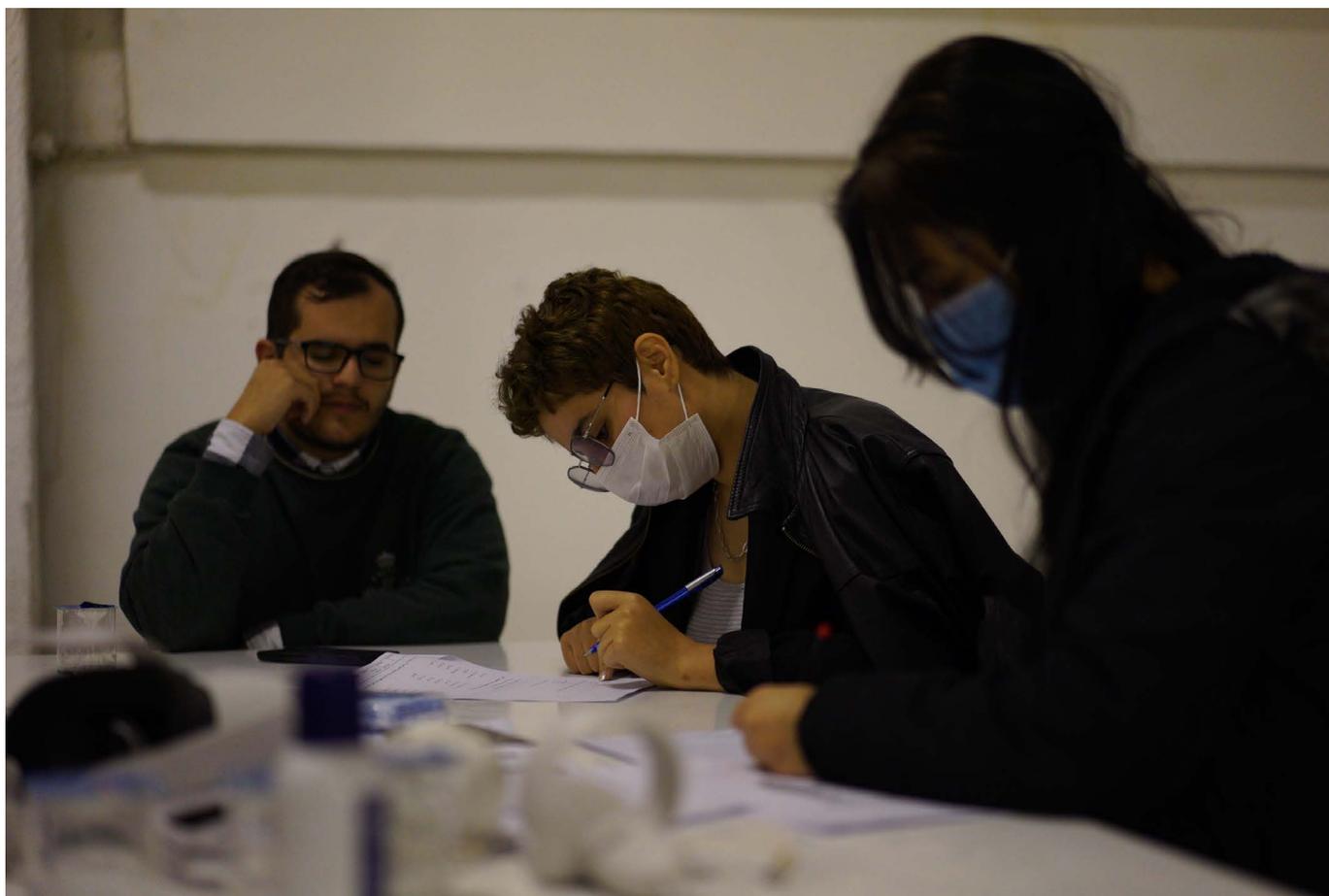


Figure 7. The distribution of the participants' selection of one of the characters in the VR experience.



ENGAGEMENT

Table 2 and Figure 8 suggest that the VR experience engaged the vast majority of the participants, with the average scoring over 4 for both of the statements. Over 80% of the participants agreed

or completely agreed that the VR experience highly engaged them intellectually (thinking), spatially (transported to another world), and temporally (losing track of time).

	N	Mean*	Std. Deviation
2.1 The VR experience has given me lots to think about.	106	4.13	0.937
2.2 I felt like I was transported to another world and lost track of time.	106	4.53	0.783

*1= Completely disagree and 5= Completely agree.

Table 2. Questionnaire results for the statements related to engagement in the VR experience.

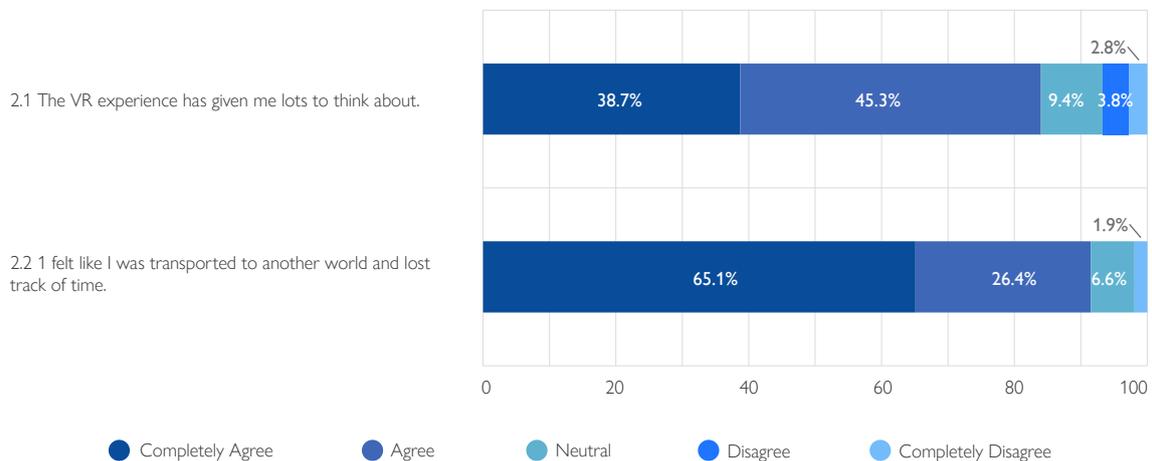


Figure 8. The distribution of the participants' scoring for the statements related to their engagement in the VR experience.

The first question of the interview asked the participants to identify their top body/kinesthetic response during the experience to encourage the participants to actively ponder.²³ The participants were generally divided in selecting the one part of their body where they felt the VR experience the most. The largest two groups of the 118 responders identified their mind/brain (29.7%) or heart (28.0%) as the part of the body where they felt the experience the most. Among those who identified mind/brain, the majority demonstrated a high level of reflection and empathy towards what the Yazidi community had endured.

The remaining referred to other parts of their body, including eyes (17.8%), feet (8.5%), legs (7.6%), chest (5.1%), stomach (1.7%), arms (0.8%), and toes (0.8%). One participant indicated not feeling his body at all as he felt out of his body and fully transported into the virtual world. We observed some inconsistencies between the body part selection and wordings of answers to a follow-up open-ended question. For example, while several participants identified their brain/mind as an indication for cognitive engagement, their verbal response and describing suggest a high level of emotional response and engagement. The

23. Adapted from Reason, M. (2015, July 15). Where in your body? <https://matthewreason.com/portfolio/where-in-your-body/>

emotional response in some participants was highly intense to the degree of generating body language responses such as crying (including by a male participant), shivering in legs, kneeling, fast heart beating, hand, and head gesturing, muttering, stomach pain, feeling of difficulty in breathing, and breathing deeply. Although the consent form (before the experience) and the data collectors (during the experience) reminded the participants they can discontinue the VR experience at any time they wish or feel discomfort, only one participant came out of the experience towards the end of it. This suggests that the experience, though it can elicit some strong emotional reactions, it is tolerated by most. Some of the participants identified the VR technology as the cause for their difficulty in moving their legs from loss of orientation. Difficulty in movement, whether because of emotional response or the technology, made our researchers hold the hands of several participants as they preferred to continue with the VR experience.

Only 40 (31.5%) of the total 127 participants reported relating to any of the characters' experiences. Of those, 26 participants indicated relating to the Yazidi woman, while another 11 participants said they related to the Yazidi man. Among the reasons for relating to the Yazidi woman or man's experiences, over a dozen of the Kurdish participants referred to direct or indirect involvement with the Anfal campaigns, Halabja genocide, massive displacement of spring 1991, Saddam regime's prosecution of young Kurdish men, and abduction of their wives, and other tragedies endured by the Kurdish community in Iraq. One participant said, "my car was stolen by ISIS", while another indicated living in a place that was run by ISIS for some time. The remaining participants appeared to have misunderstood the follow-up "why" question. Three male participants said they related to the ISIS fighter. Answers to a follow-up answer suggest that two of those misinterpreted the question and talked about the ISIS fighter character they selected. The remaining participant was said, "We share similar religious exposure that sometimes blinds us towards the truths."

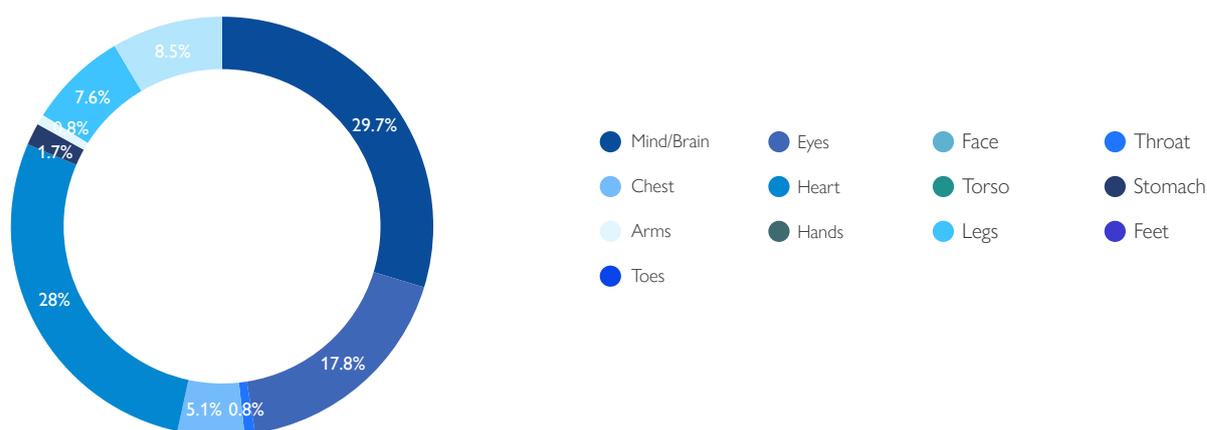


Figure 9. The distribution of the participants' selection for the one part of their body where they felt the VR experience the most.

In several of the open-ended interview answers, a high majority of the participants recalled vivid and accurate details, visual information, and spoken words and stories from the VR experience. This suggests a high level of attentiveness and engagement in the sight and sound of the VR experience. Such high engagement is potentially the reason for the deep thinking and reflections verbalized by many participants during the interviews and even

after with other DCH team members and participants. In fact, users' tendency to be talkative and reflective after trying the VR experience (which we observed during pilot data collection protocol testing) was the reason behind the decision to bring the interviews forward right after the VR experience, before asking the participants to self-complete the questionnaires.

EMOTIONAL CONNECTION

This section measured the participants' deeper engagement (emotional connection) with the content of the VR experience. In general, the vast majority of the participants (over 70%) indicated emotional connections with the stories and characters in the VR experience. The low average score (2.52) and more divided rating (std. deviation of 1.340) show that some or all the stories were less relevant to the participants' own life (Table 3). With over 50% of the participants disagreeing or strongly

disagreeing with the related statement (Figure 9), the emotional connections of these Iraqi participants appear to be less because of shared experiences and more because of the genocide stories themselves. This suggestion is confirmed with the high average scoring (4.43) with a lower standard deviation (0.743) for "feeling moved" by the story of the Yazidis and their genocide. The high emotional connection also appears in the high average scoring (4.41) of being emotionally "provoked" by the VR experience.

	N	Mean*	Std. Deviation
3.1 I can imagine and understand how the characters' (Yazidi woman, Yazidi man, or ISIS fighter) felt in the story.	106	4.01	1.037
3.2 I can imagine and understand how the Yazidis people felt during the genocide.	106	4.04	0.945
3.3 The experience provoked my emotions.	106	4.41	0.859
3.4 Some aspects of the experience seemed relevant to my own life.	106	2.52	1.340
3.5 The experience immersed me in the characters' stories.	106	4.09	0.879
3.6 I felt moved by the story of the Yazidis experience and their genocide.	106	4.43	0.743

*1= Completely disagree and 5= Completely agree.

Table 3. Questionnaire results for the statements related to the emotional connection with the stories and characters in the VR experience.

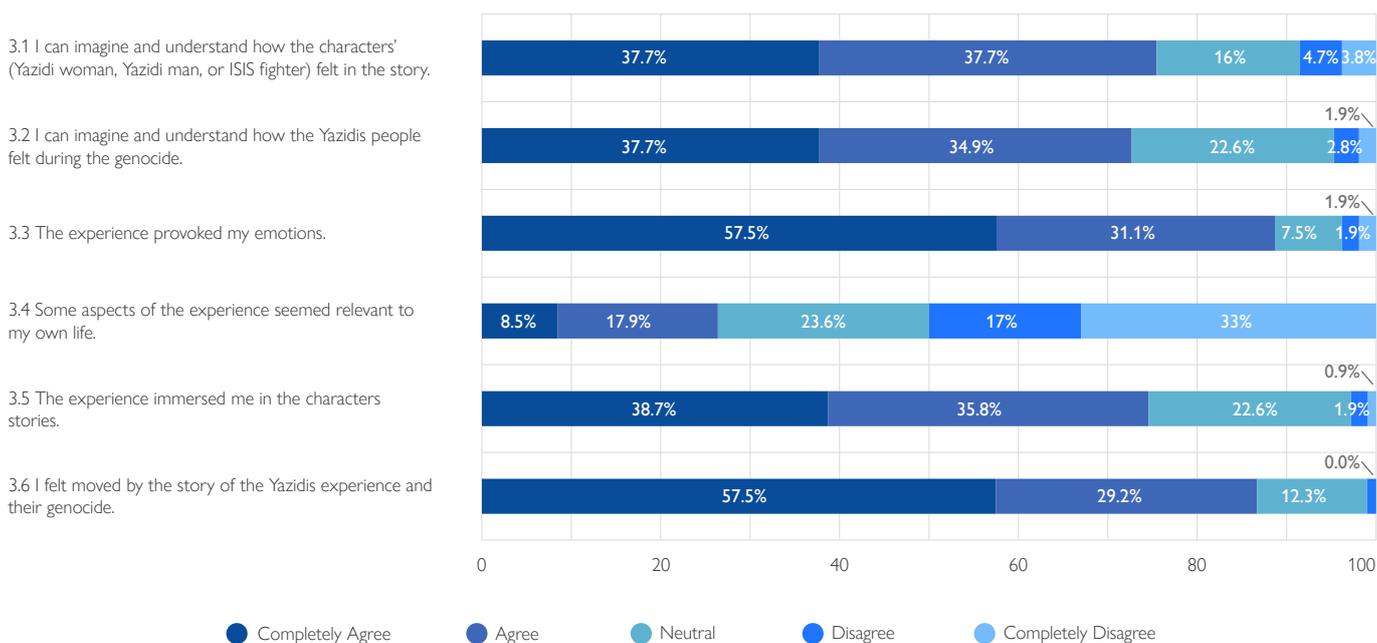


Figure 9. The distribution of the participants' scoring for the statements related to their emotional connection with the stories and characters in the VR experience.

This section of the questionnaire also included multiple select questions²⁴ that enabled the participants to identify the type of emotion(s) they felt during the VR experience. As Figure 10 shows, the participants were divided in selecting or writing the type of emotions they felt. Still, sadness (59%) and empathy (56.2%) emotions were shared feelings among the majority

of the participants. The other frequent emotions were grief (43.8%), helplessness (38.1%), and Anger (37.1%). A very small percentage of the participants indicated feeling bored (3.8%), indifferent (1%), neutral (3.8%). The positive feeling was identified by 5.7% of the participants.

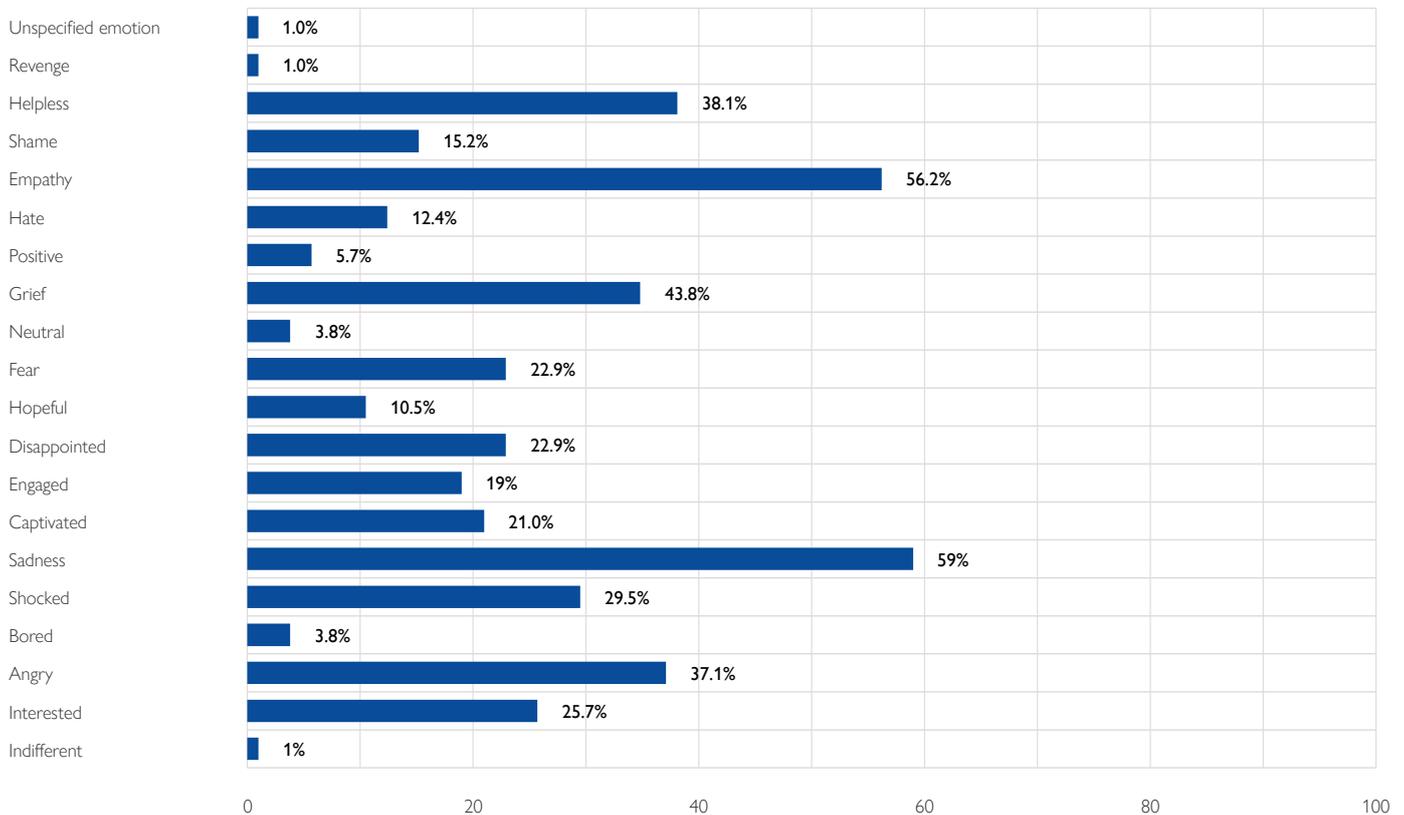


Figure 10. The type of emotions felt by the participants during the VR experience.

Answers to one of the interview questions also showed a high affective connection and intense emotions among the vast majority (over 80%) of the 127 participants. Empathy, sadness, grief, despair, fear, anger, helplessness, pain, interest, and shock were the main feelings pronounced individually or in combination by different participants. The following are examples of some of the participants' responses about their overall feeling(s) about the experience (more can be found in Annex 2):

- “Definitely, I feel emotionally horrible about what happened to them, it was total genocide.”
- “My hands were shivering, and my feet felt as if they are not standing on the ground. I felt I was a soul without a body.”
- “I felt sadness and pain and wished to help the characters [Yazidis] in the experience.”

During the interview, we asked the participants to identify the part of the experience where they felt emotionally engaged the most. In general, the participants were divided. Of the 120

responding participants, the largest percentage (20.8%) of the participants referred to a specific emotional scene in which the silhouettes of a Yazidi mother and daughter are forcefully separated from each other by an ISIS fighter (Figure 11). In second place (13.3% of the responders) was the destroyed house of the Yazidi woman where she recalls her peaceful pre-ISIS family life, feelings, and dream and the fears she had about ISIS approaching their village. The school (which has become a memorial for the dead and missing Yazidis) and the tent (which shows the post-ISIS dire living conditions of many displaced Yazidis) both were also identified each by 10.8% of the responding participants. Among the different scenes in the VR experience, the valley, the bus driving Yazidi women to their abduction location, and the ISIS house were also identified by various percentages of the responders. The largest percentage (30.85) of the participant did not specify one part and instead recalled the whole experience

24. This multi select question also included a “other feelings” option to enable participants to identify other feelings that were not included in the multiple choice.

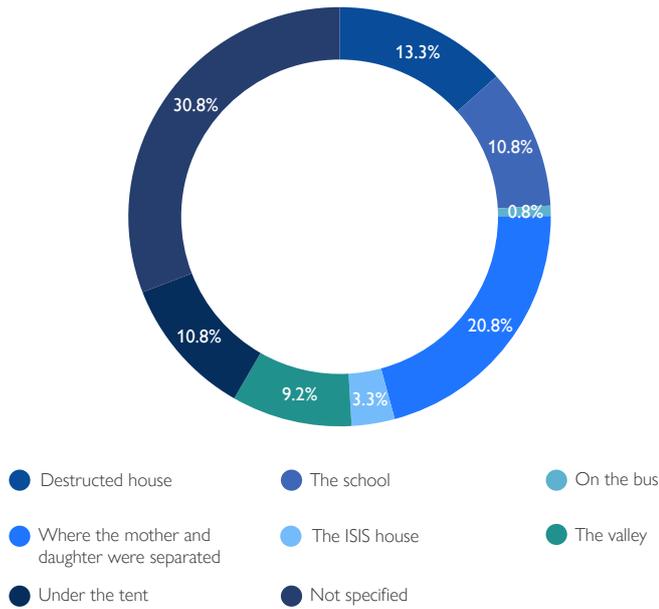


Figure 11. The type of emotions felt by the participants during the VR experience.

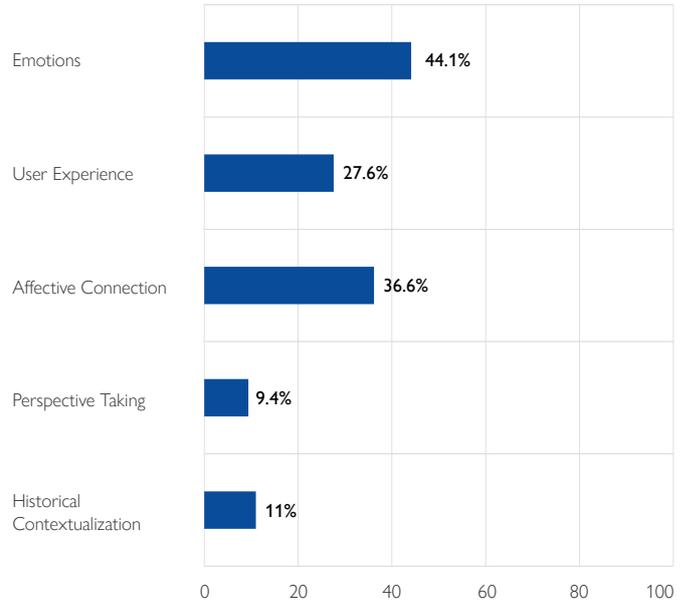


Figure 12. The type of emotions felt by the participants during the VR experience.

Over 85% of the total 127 participants reported that the VR experience or some part of it made a significant impression on them. When we asked them to describe the things that made a significant impression on them and why, 56.6% of the total answers associated their significant impression with one or more of the elements of historical empathy (Historical Contextualization, Perspective Taking, and Affective Connection) from the experience (Figure 13). Another 44.1% of the answers showed the effect of different emotions from the experience on the participants' significant impressions. Elements of user experience from the VR technology with or without historical empathy or emotions appeared in only 27.6% of the answers. This suggests that the participants were engaged with and affected by the stories and sceneries of the VR experience.

The followings are examples of the statement as verbalized by the participants (more can be found in Annex 2):

- “Certainly it [the VR experience] will stay with me for a long time. The fear, stress, and worries that I went through were very strange. I don't think I was as scared in my whole life.”
- “Yes, the voice of the woman [Yazidi woman] and how she was talking is still in my.”
- “Well, the only good thing is the documentation of the tragedies in their [Yazidis] own words. That is important because other people always wrote our history, but now the Yazidis are speaking witnesses for the disasters they went through. That is a good thing.”



Figure 13. Some examples of visible body language reactions from the participants.



NOBODY'S LISTENING

ATTITUDES AND VALUES

This section measured the participants' perceived changes in attitudes and values about the Yazidis, ISIS, and the genocide. As Table 4 and Figure 14 show, the average scorings of 3 out of 5 related statements are relatively lower (neutral and slightly above) when compared with the majority of the statements from the previous sections. The average scorings of 2 of the 3 statements related to changing perception of the Yazidis and ISIS. Aside from many participants' confusion around what we mean by "change" in perception, we believe that prior empathy towards the Yazidi community (as indicated by 65% of the participants in the survey) and unified negative impressions about ISIS has contributed to the participants' close to neutrality position. Over 70% of the 106 responding participants indicated agreeing or completely agreeing that they will be thinking about the

experience for some time to come. Though the average scoring is slightly lower in comparison with the previous statements, over 75% of the responders with an overall average rating of 4.05 reported that the experience has made me more aware of the ISIS genocide of the Yazidis culture. A clear proof of the participants' high satisfaction with the experience appears in the high average score (4.55) for the statement about recommending the experience to family and friends. This statement has the highest average score and the second-lowest standard deviation among all the statements in the self-completion questionnaire. Since referrals often indicate high satisfaction, the VR experience shows high potentials for wider impact and deeper engagement with the Yazidi genocide and similar tragedies.

	N	Mean*	Std. Deviation
4.1 I will be thinking about the experience for some time to come.	106	3.98	0.839
4.2 The experience has changed my perception of the Yazidis.	106	3.56	1.172
4.3 The experience has changed my perception of ISIS.	106	3.03	1.417
4.4 The experience has made me more aware of the ISIS genocide of the Yazidis culture.	106	4.05	1.018
4.5 I recommend the experience to my family/friends.	106	4.55	0.732

*1= Completely disagree and 5= Completely agree.

Table 4. Questionnaire results for the statements related to changing attitudes and values about the Yazidis, ISIS, and the genocide.

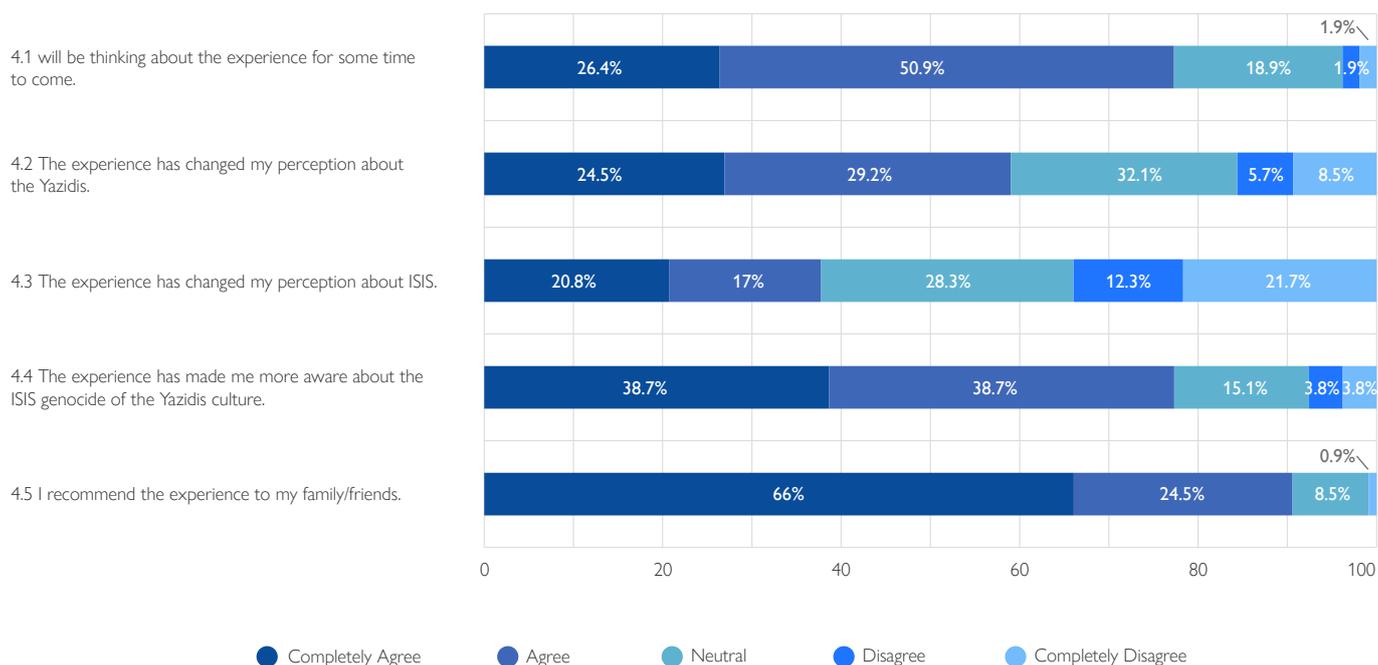


Figure 14. The distribution of the participants' scoring for the statements related to changing attitudes and values about the Yazidis, ISIS, and the genocide.

We further examined the participants' attitudes and values about the Yazidi genocide and ISIS in a series of open-ended questions in the interviews that also included the Baghdad participants' responses. Except for one participant, everyone else of those who followed the ISIS fighter agreed that he should be punished. When we asked about how to punish the ISIS fighter, the responders were divided between physical, mental, or both types of these punishments (Figure 15). The majority of the responders (55.6%) did not specify the type of punishment. As previously indicated, one changed his mind in this follow-up question suggested no punishment for the ISIS fighter.

Another follow-up question asked the participants to describe what they would say to the ISIS fighter if they had the chance. We noticed that the answers split between shaming the ISIS fighter for what he did, asking him why he did it, or giving him advice on respect for people from different backgrounds.

In another question, we asked the participants who followed the Yazidi woman or man to share what they think about the feelings of the family of the missing Yazidis. The wordings of the majority of the responders show a high level of sympathy, affective connection, and emotional engagement with the Yazidis. Many of them found it hard to imagine the feelings of the families for the difficult and agonizing experiences they went through and their need for closure. Some participant repeated their overall feelings for the genocide, while a few other participants related some of the stories in the VR to those from their own past. The followings are some of the responses (more can be found in Annex 2):

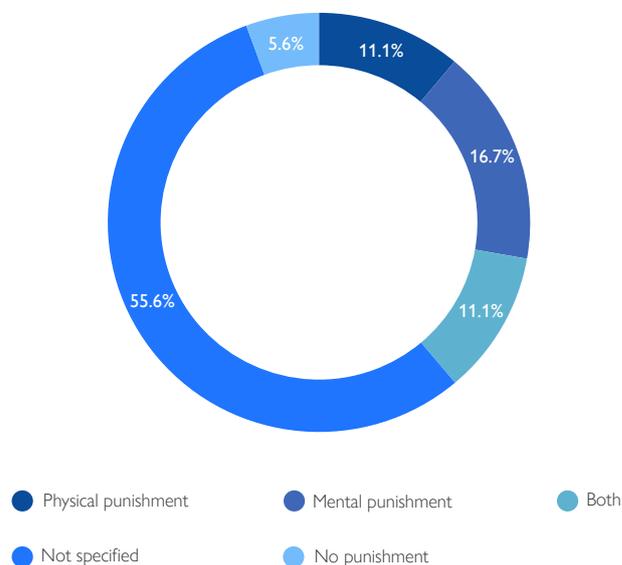


Figure 15. The distribution of the participants' scoring for the statements related to changing attitudes and values about the Yazidis, ISIS, and the genocide.

- “I really don’t know. I think they [Yazidi families] are dying every day.”
- “I think they must be in psychological torture, stress, and worries every day.”
- “As I told you, in 1991 [referring to the Kurdish mass displacement of 1991] I got disconnected from my mother, sister, and brothers. I met them again after a few days on the border. What Mr. Shamo went through, I had gone through it 30 years ago and our politicians are doing it to us.”

A high sympathy, affective connection, support appeared in the answers to our next question on what they would say to the families themselves. The followings are some of the verbatim responses (more can be found in Annex 2):

- “Can you believe me that I really cannot find words to tell them anything? It is a very difficult and hopeless feeling really.”
- “What you went through stands against every human value. Even animals do not act in that barbaric way. You deserve all the support.”

Similarly, the majority of the responding participants expressed strong emotions and empathy when we asked them what they would say to the Yazidi community after they went through the VR experience. They also expressed strong words against ISIS, the accusation of politicians, and encouraging revenge. The followings are some of the verbatim responses (more can be found in Annex 2):

- “I wish they live in peace and security. They deserve compensation for all of this.”
- “I would tell them you are part of this society with all your traditions, and you deserve a dignified life with all your rights.”
- “Don’t stop telling your stories to us and whatever you can just to punish ISIS.”

The vast majority (92.2%) of 103 responders to a related question did not think that justice was served in the Yazidi genocide cause. We also asked the participants to share their opinions on what needs to be done about the Yazidis cause. The answers were divided between requesting justice for them; compensating them financially, psychologically, and emotionally; improving their quality of life and the reconstruction of Sinjar; recognizing their genocide, cause, and culture internationally; raising local awareness about their culture; and reconciliation. The followings are some of the responses (More can be found in Annex 2):

- “Building a better life for them and rebuilding their cities. Also trying to provide them with good educations.”
- “It is very important to gain international recognition for their cause. We think their cause has been internationalized, but very very little has been done for them in comparison to all what they [Yazidis] have endured.”
- “Recognizing this as a genocide and prosecuting the perpetrators.”



When we asked if there is anything the participants feel more or less strongly about, over 80% of 114 responders answered yes. The things identified by the responders varied. Most of the participants referred to a change in their knowledge, awareness, feelings, and actions about the Yazidis genocide or even ISIS. Several participants appeared to have internalized the Yazidis struggles and became more appreciative of their lives and freedom. The remaining few participants referred to the user interface and some technical challenges they had during the experience. The followings are some of those statements (more can be found in Annex 2):

- “I became more grateful for the life I have.”
 - “Whatever knowledge I had before was from news and reading. But from now on if you talk about them [Yazidis], I will remember this experience.”
 - “The video gave strength to what I believe in. But there was a time when I thought: Imagine being a kid and they teach you to carry a rifle to kill people and they say this is the religion and you have to be this way. I have thought about that a lot. Maybe it’s not their (I mean ISIS kids’) fault”.
- “Of course, when I return home now I will read about the stories more. In the past, I did not have that desire to have more information about them [Yazidis]. But now, I like to read more about their culture, how they lived, and what happened to their life now. I want to read about those.”
 - “I just wish this experience does something real for these people and not just a one-day activity. I hope that one day I hear that what we did today had changed something.”
 - “I would like for all of this to be published so that people and decision-makers can make a difference. I suggest making things like seminars, dialogue, and discussions to decide what is the best thing for them.”



USER EXPERIENCE

In addition to related questions in the interview, throughout the data collection sessions, the researchers also recorded the participants' overall user experience and interaction with the VR glasses, including problems they experienced in navigating the virtual world. In addition to results from these, in this section, we are also reporting the user experience-related findings (both positive and negatives) we noticed from answers to different non-related questions. The data show that only 20% of the 127 participants self-reported issues with the VR headset. A similar percentage said they had issues with their navigation in the virtual world, which was mostly walking through the virtual painting to move to the next scene or fear of moving or falling.

In general, one or more of the known VR technology-caused symptoms (VR sickness) appeared in slightly over a quarter of the participants (Figure 16). Blurred vision, general discomfort, and dizziness with eyes open were the top three VR-caused symptoms, followed by the fullness of the head, nausea, difficulty focusing, and vertigo. While during and after the experience some participants talked about their symptoms, DCH data collectors (who carried out data collection with 91 participants from Sulaimani, Erbil, and Dohuk) did not report any dropout due to VR sickness, even though they were reminded about this option.

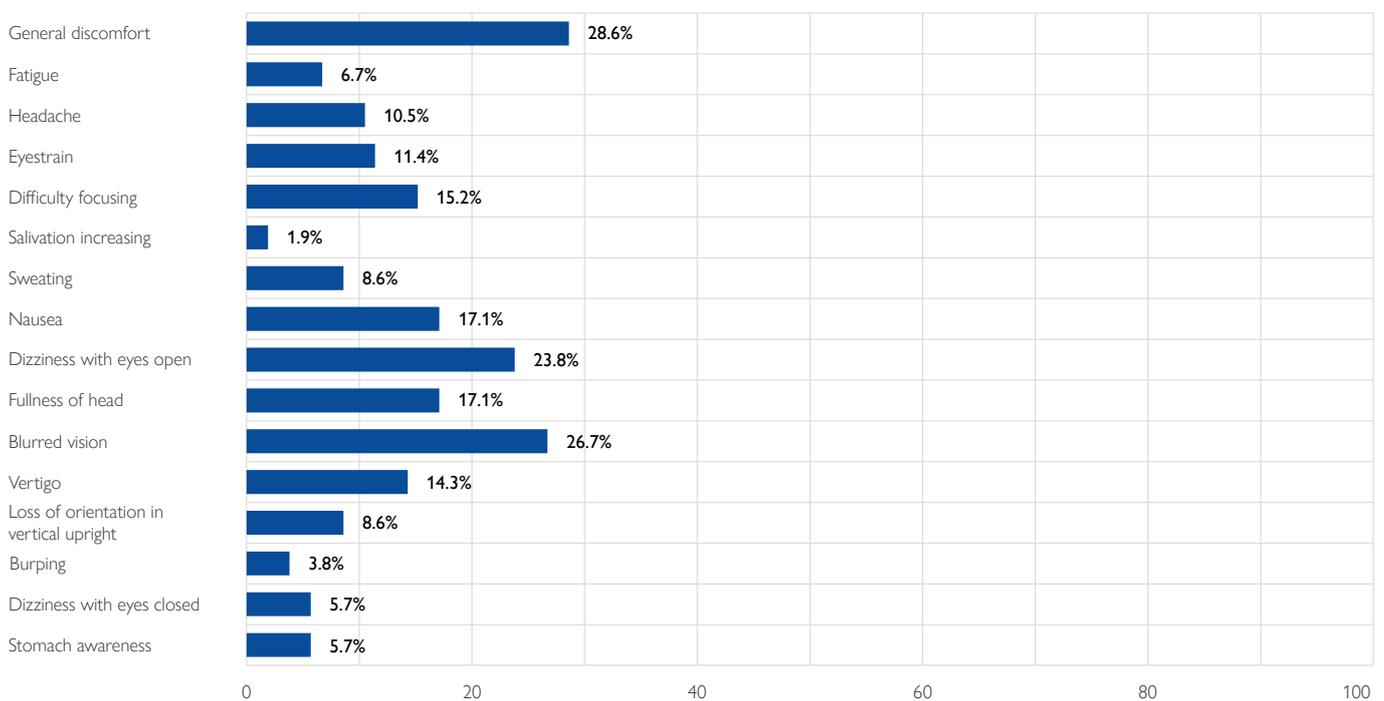


Figure 16. The type of VR technology caused symptoms the participants experienced during the experience

Despite the reported and observed VR sicknesses, overall, the participants were clearly enthusiastic and expressed high interest in the technology and satisfaction with the VR experience itself. We believe elements of the “novelty effect²⁵” may have contributed to the participants’ overly positive reactions and responses. Novelty effect is described as a temporary “increase in motivation to use something, or an increase in the perceived usability of something, on account of its newness” and that “when novelty

eventually fades usage patterns and/or perceived usability changes”²⁶. Overcoming novelty effects can be challenging in assessing novel technology’s “practical application potential”. Considering McLuhan’s (1994)²⁷ “the medium is the message” and Parry and Sawyer’s (2005)²⁸ “what is said is deeply conditioned by the medium through which it is said” arguments, it appears that the participants’ high engagement and satisfaction were conditioned by the VR technology itself.

25. Novelty effect is described as as temporary increase in motivation to use something,or an increase in the perceived usabilityof something,on account of its newness. When novelty eventually fade usage patterns and/or perceived usability changes.”

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Arguments about VR's potentials in eliciting emotion and stimulating empathy and embodied experience often appear in the literature²⁹. As a technology that immerses users in a simulated (virtual) environment, VR "strongly relies on the adequate selection of specific perceptual cues to activate emotions"³⁰. Emotional experiences, in turn, relate to presence³¹, which is another important concept in VR that describes the user's sense of being in a VR environment³². VR's ability to elicit presence enables users to "more deeply understand perspectives other than their own"³³. Some scholars suggest that people may be less likely to care about the human rights of people "whose hurdles are culturally, temporally and/or geospatially distant"³⁴ and that inducing empathy towards them "is best achieved by stepping into their shoes"³⁵. In that regard, the "presence" eliciting ability of VR (feeling of "being there") allows connecting to and understanding people from a different time, location, and culture. VR's increasingly calling an "ultimate empathy machine" is suggested to come from allowing users "to experience any situation from any point of view"³⁶. Empirical evidence from two interconnected Stanford University-led studies suggests that VR-based perspective-taking in a social issue (homelessness) was a more effective and longer-lasting method for eliciting empathy and prosocial action in comparison to traditional and other tech-based perspective-taking methods³⁷.

So, even with novelty effect, the data from our assessment and those of other research suggest that carefully designed and implemented experiences and exhibitions like NL VR can powerfully engage users with difficult heritage and events like those of the Yazidis genocide. In fact, over a dozen of the participants strongly recommended developing similar experiences to educate about, raise awareness about, and inspire actions for other local events like the Halabja genocide and the Anfal campaigns. These and the feedback of some participants suggest that VR technology (combined with effective and emotionally engaging stories) has good potentials for engaging Iraqis with the country's under-engaged heritage, including difficult heritage. Increased heritage awareness and engagement can contribute to better public awareness, tolerance, reconciliation, peacebuilding, and social cohesion in war-damaged countries like Iraq.

In the scope of our data from assessing the NL exhibition, the advantages of the VR experience clearly outweighed its disadvantages for the majority of the participants. However, since VR sickness is a recognized downside of the technology from the literature and our assessment, wide use of the NL VR exhibition requires the inclusion of disclaimers to users and other measures to mitigate VR sickness effects and risks.



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CONCLUSION AND RECOMMENDATIONS

In this assessment, we empirically investigated the usability and impact of the NL VR exhibition on Iraqi national users, focusing on cognitive and emotional impacts and how the exhibition can support the Yazidi community to raise awareness about the genocide they experienced and advocate for greater support and solidarity from the national and international community. Results across the different indicators suggest that the majority of the participants had a high level of cognitive and emotional engagement with the exhibition, which led to a significant increase in awareness of the genocide and experiences of the Yazidi community as well as a higher level of empathy towards the Yazidi community. The findings demonstrate the potential of the NL VR exhibition to inspire positive change and encourage participation to take action in response to the Yazidis genocide and in support of the Yazidi community. This is in line with existing academic literature on the use of VR technology, and contributes valuable evidence and insights regarding the usability and impact of VR technology generally, as well as the NL VR exhibition specifically. It also reveals the role and practical application of emotional experiences like the NL VR exhibition in community outreach and engagement with sensitive and difficult

new or distant events like genocide, and its ability to support social inclusion and peacebuilding.

In addition to influencing the behavior and attitudes of community members, the assessment also suggests that VR can have a positive influence on national and international decision-makers and offers a valuable tool for advocacy and fundraising. Participation in the NL VR exhibition may effectively inform, engage, and raise the empathy of the international decision-makers and donors to support justice and reparations for the Yazidi genocide. Increasingly, the UN is turning to the power of VR to communicate³⁸ the severity and impact of crises on communities, and has widely relied on VR to advance its advocacy for the Syrian crisis³⁹. In a high-level donor meeting before the Third International Humanitarian Appeal for Syria in Kuwait in March 2015, a total of \$3.8 billion was raised for the Syrian crisis, 70 percent more than projected, at least in part thanks to the powerful message conveyed by a VR exhibition⁴⁰. Preliminary evidence from the UN suggests that “VR is twice as effective in raising funds” and that various civil societies are using it to influence public opinion⁴¹.



38. For example, the development of the “Clouds Over Sidra” VR experience by the UN has supported both the UN Secretary-General’s MDG Advocacy Group’s call for partnerships to build resilience in vulnerable communities and the UN’s 16th Sustainable Development Goal (Peace, Justice, and Strong Institutions) See: <http://unvr.sdgactioncampaign.org/cloudsoversidra/#.YOrZ-0xRVPY>

39. <https://www.theverge.com/2016/9/19/12933874/unvr-clouds-over-sidra-film-app-launch>

40. Ibid

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OTHER CONSIDERATIONS

VR technology's ability to evoke strong psychological (cognitive and emotional) and physiological reactions (VR sickness symptoms) necessitate a responsible and ethical approach in utilizing the technology. Such an approach needs to be adapted right from the design stage to the implementation, and entails content selection as well as the way the VR experience is developed. Designing and developing a VR experience that conveys and engages with the violence and complex context associated with genocide requires even more careful consideration. While VR technology has been recognized as relevant to the treatment of stress-related disorders⁴² (including PTSD⁴³) and phobia⁴⁴, it has also the potential to induce unwanted psychological and physiological reactions. To mitigate the risks associated with potential emotional stress, and in order to comply with the principle of "Do No Harm," the NL VR exhibition development team worked with mental health specialists to carefully plan, develop, select, and display the NL exhibition and its content. Prototypes of the oral and visual contents were reviewed and validated by a range of experts, including a clinical psychologist and a Yazidi community-informed legal analyst.

Reflecting this approach, the NL VR exhibition included an introductory disclaimer warning about the content of the exhibition and strongly discouraging people affected by ISIS's crimes (especially survivors of sexual violence) from using the VR exhibition. The disclaimer also specifies the recommended age for users (16 years or older). The same disclaimer was included in the written call for participants, as well as in the consent form and oral briefing provided to participants (all of whom were volunteers who gave their informed consent to participate.) To mitigate risks from potential VR sickness among the participants, the data collectors informed and reminded the participants about their ability to exit the exhibition anytime with a simple click of an easily accessible button, and they offered support to hold hands or guide the movements of participants who appeared to experience VR sickness symptoms. The user also retained control over their experience, in that navigation within the virtual environment of the NL VR exhibition required the participant to physically walk and make head movements, and excluded virtual navigation through VR headset controllers. Sufficient and unobstructed physical space was also provided in order to ensure safe and easy navigation within the NL VR exhibition.



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RECOMMENDATIONS

Based on the findings set out in this report, the NL VR team make the following recommendations to advocates or organizations regarding the use of the NL VR exhibition and VR technology more broadly:

1. Consider publicizing the NL VR and similar exhibitions in museums and memorial buildings across Iraq and the Middle East in order to increase mass awareness of and sympathy for the Yazidi experience and support for peacebuilding efforts.
2. Consider utilizing the NL VR as part of a campaign targeting decision-makers, teachers, religious leaders, and other community influencers across Iraq and the Middle East, as a means of changing attitudes towards persecuted minorities such as the Yazidis, and encouraging people to take positive action in solidarity with the Yazidi community, namely those that support inclusivity and social cohesion.
3. Invest in more extensive research to understand the longer-term impact of participation in the VR exhibition, including whether participants go on to take actions or maintain attitudinal change as a result of participating in the VR exhibition. This research would provide valuable insight to the development and implementation of innovative, emotional, and VR-based interventions in future, and offer stronger evidence towards the power of VR-based experiences.
4. Consider how VR exhibitions or other VR experiences can be used more widely as a peacebuilding tool. This may include, for example, developing VR exhibitions that communicate the experience of other ethnoreligious communities affected by ISIS, as well as past genocides, such as Anfal and Halabja.
5. Consider how the involvement of Iraqi youth in the co-creation and co-curation of innovative and creative exhibitions involving their difficult heritage can contribute to the documentation, protection, and promotion of Iraqi heritage (including difficult heritage) and enhanced digital competence to support digital economy-boosting efforts in Iraq and address high youth unemployment rate.
6. When developing VR exhibitions or experiences, it is important to emphasize responsible and ethical use of VR (and similar technologies) in a way that complies with the “Do No Harm” principle and draws on the expertise of qualified mental health professionals.



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