EMERGING TECHNOLOGIES (GAME-BASED LEARNING AND VIRTUAL REALITY) FOR ENHANCING LEARNER ENGAGEMENT IN HUMANITARIAN Contexts

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EMERGING TECHNOLOGIES (GAME-BASED LEARNING AND VIRTUAL REALITY) FOR ENHANCING LEARNER ENGAGEMENT IN HUMANITARIAN CONTEXTS

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1. Introduction

Despite the welcome interest and investment in operational innovation seen in the humanitarian sector over recent years, more needs to be done to promote innovations in learning. To address this need, the Humanitarian Leadership Academy’s initial approaches to innovation leverage not just technology, but new tools and methodologies to solve problems in locally relevant and creative ways. With the longstanding focus on learning and knowledge, the Academy attempts to answer the question:

“How do we co-create and share learning that is engaging, scalable and impactful to build strong, resilient communities and save lives?”

At the centre of our learning process is the endeavour to enable others to create and share their own experiences, thus becoming active creators of learning rather than being passive consumers of knowledge.

To this end, the Humanitarian Leadership Academy partnered with Quicksand (India) to augment its learning offering by iteratively co-creating, testing and evaluating a number of innovative learning formats and technologies to address the increasingly complex needs of the humanitarian sector.
Research Objectives

The research was framed around the hypothesis that emerging, innovative, technology-enabled learning formats — while bringing additional delivery and access challenges compared to traditional eLearning formats — could lead to higher user engagement and better learning outcomes. Formats were selected that have been successfully tested in other fields. The objective of using innovative, technology-enabled learning formats was to incorporate more human-to-human engagement and empathy building through immersive virtual reality and game-based learning.
The project introduced two emerging formats of learning content — game-based learning experiences and immersive films (using VR). Content was then developed to use the strengths of each medium, each geared towards a unique set of learning outcomes.

A. GAME-BASED LEARNING

The key goal of game-based learning experiences was to scale human engagement in learning via role-playing, scenarios, peer-to-peer learning and simulation exercises. The content for the games were co-created with local partners using human centred design (HCD) approaches, were developed iteratively on the Gamoteca platform and rolled out via Kaya. The themes for these games included coaching and mentoring, empathy building through disaster scenarios for volunteers, implicit gender bias, design thinking and onboarding for new teams.

Case Study: An Exercise in Coaching and Mentoring is a game that aims to inculcate skills taught in the Coaching and Mentoring course on Kaya, such as active listening and the structuring of open and closed questions. The format leveraged a video-based interaction between two players, a ‘coach’ and ‘coachee’, in order to provide a structured, prompt-based interaction that facilitated the use of skills taught in the original course. The goal of the game was to create a more practical understanding of the course material.

B. IMMERSIVE FILMS

Low-tech, low-cost 360 virtual reality (VR) videos, were identified as a content format for immersing the user in new environments and building empathy with people affected by disasters. Its key characteristics were the ease of fully immersing the user into a new environment, scalability via social media platforms like...
YouTube 360 and Facebook VR and ease of integration into existing learning pathways. In addition to VR players like Oculus, smart phones combined with Google Cardboard also offer a low-cost way of accessing VR content. Interactive VR experiences developed on Unity, e.g. Camp 2029, also allowed the user to interact with their virtual world, in this case a dystopian humanitarian refugee camp.

**Case study:** *You Cannot Argue with a Flood* is a film that was shot using 360° video technology, allowing viewers to fully explore the environment in each scene. Framed around the experiences of a girl displaced by war and then a natural disaster, the film follows her experiences and efforts in rebuilding her life. The goal of the film was to build a deeper empathy in the viewer with an affected person’s experience, in turn aiming to prompt a more nuanced approach to humanitarian aid.
Design Approach

The themes of the outputs were determined in the following ways:

**LOCALLY INSPIRED CONTENT CREATION**

- Certain concepts were developed through co-creation workshops using design thinking with local partners (in Kenya, the Philippines, Bangladesh, Jordan and India), drawing on local knowledge, expertise and stories.

- Some of these outputs were further developed by Quicksand in close collaboration with the initial creators of the concept to ensure their authenticity was retained, such as:

  - **Challenge your Gender Assumptions**: A game inspired by a concept created during a workshop in Amman, Jordan, that looked to inculcate gender sensitivity through role-playing. The game and its exercises were adapted to engage a broader, global audience.

  - **Designing a Campaign**: A game to introduce learners to the basics of campaign design and planning was co-created with Haiyya, a New Delhi-based NGO, based on their work in this space. Key stakeholders were interviewed and brainstorming sessions were conducted to arrive at a concept.

**COMPLEMENTARY LEARNING CONTENT**

- Existing learning experiences that could be easily complemented by additional resources were identified, eg. Coaching & Mentoring and Volunteer Essentials courses on kayaconnect.org.

- New ideas and themes were identified based on specific learning gaps or opportunities that could be addressed.
5. Development Process

Quicksand reviewed the Academy’s existing services, primarily its Kaya platform, to deepen its understanding of the ecosystem in which the new content would exist. This built the foundation that would inform the development and positioning of the project’s outputs. This was especially important for the outputs that would complement existing learning resources.

New learning outputs were created following a larger process that was modified according to the constraints of each case:

1. Identifying the theme and key learning objectives based on user-centred design principles.
2. Establishing a ‘broad flow’ of what the experience would look like.
3. Building a storyboard of the same flow.
4. Creating a prototype of the product on Gamoteca.
5. Testing with a sample user set.
6. Iterative development of the product based on user feedback.
6. Testing Process

The project’s creative and experimental approach to creating technology-enabled learning content required an iterative approach to evaluating the challenges and efficacy of the new mediums. This assessment was approached through qualitative methodologies.

Testing of first versions of selected learning resources was conducted with roughly 30 participants. Each session followed a fixed process:

1. **Introduction**
   Each participant was first introduced to the project and its scope in order to establish a clear understanding of the purpose of the testing session. Basic characteristics of the participant were also documented (age, occupation etc).

2. **Experiencing the output**
   Participants were left to experience the output for themselves. In the case of the immersive films, they were given a VR headset to watch the experience, if they felt comfortable doing so. In the case of group-based games, they were either paired with another participant or with a member of the testing team.

3. **Feedback**
   Before any words were exchanged, they were asked to list out their main impressions of the experience on post-its. This was done to ensure that each participant’s initial feedback was authentic and not biased by any prompts or direct questions.

4. **Discussion**
   An open discussion that built on the participant’s post-its and a pre-identified set of conversation topics was held with all the participants and moderated by the testing team.

5. **Survey**
   The closing activity of the session was the filling of an online survey that helped capture key parameters in a quantitative manner.
7. Testing Findings

GAME-BASED LEARNING

The games tested spanned different formats and themes — from practising coaching skills, to a role-playing journey in volunteering that served as an introduction to the world of humanitarian work.

ENGAGEMENT

Overall, users found themselves to be more actively engaged while using the outputs when compared to more traditional learning formats. This included a higher level of attentiveness, and an overall higher sense of enthusiasm with regard to the subject material.

Based on participant responses, drivers of higher engagement were seen to be role and narrative-based game journeys. The deeper the level of immersiveness, augmented by elements like decision-making and role-playing, the deeper the experience of learning.

Group-based learning is a key driver of engagement

Games that involved more than one player were seen to facilitate increased engagement with the learning material. Interacting with another person within the experience led to higher attentiveness in most learners, while also giving them a sense of being part of a larger exercise.

“I feel this is a cool way to teach a skill that people often find boring. When learning doesn’t have a two way engagement, the receiver often feels she/he is not contributing anything to the learning process. Also, in this game you get to engage with mentors across the globe.”

A participant after having played An Exercise in Coaching and Mentoring

Interactivity provides agency

Exercises and activities within the games — both individual as well as with other learners — was found to give learners a sense of agency and ownership over the journey, allowing them to define their own learnings and key takeaways from the experience. In most cases, these still aligned with the broader learning objectives established for each game.
“This is definitely a fun and interactive way to learn. I feel the visual and audio element in the game helped in relating to the situation at hand. This could be a great tool to use in our work, too, when we train the youth on relationship building, so definitely see myself using this in my training.”

A participant after having played An Exercise in Coaching and Mentoring

“It was a lot more interactive than simply reading or watching something and gives a good perspective into both sides.”

A participant after having played The Flood: Multiplayer

**IMMERSIVENESS**

Given that most of the outputs tested were narrative-driven experiences, the extent of their immersiveness was a key factor to gauge through the testing process. The games’ immersiveness was seen to depend on how convincing the narrative was, as well as the integration of activities and decision-making points.

**Role-playing helps heighten immersion**

Role-playing allowed learners to empathise and understand another person’s context. With sufficient context, learners were seen to relate better and invest in their characters and corresponding activities.

“The game made me think about being in someone else’s shoes and what their background story is.”

A participant after having played The Flood: Multiplayer

**The more compelling the narrative, the deeper the learning**

A believable, nuanced narrative that recreates relatable characters, events, and environments, helps draw the learner in further into the experience, allowing for more impactful learning.

“Having a game like this adds a little more excitement to a learning experience. The point where I had to make a decision about whether (as a person affected by a flood) I should be with two of my children or go searching for my third was very powerful, it gave me a very concrete idea of what it could be like to be in such a situation.”

A participant after having played The Flood: Multiplayer

**ALIGNMENT WITH LEARNING OBJECTIVES**

The identified learning objectives were qualitative in nature, and included practical coaching skills, building empathy in relief contexts, and decision making. Data to measure these was collected through conversations and group discussions at the end of the participants’ learning journey.

“Yes, it showed me what goes into volunteering in a time of calamity or distress.”

A participant after having played The Flood: Multiplayer, whose main learning objective was to serve as an introductory exercise to a larger course.

“That it gave an insight into something that can be so complex in such a simple way.”

A participant after having played An Exercise in Coaching and Mentoring
IMMERSIVE FILMS

Each film created was deployed using a different format and genre in order to cover a variety of approaches. This spanned 360° video and interactive Virtual Reality. You Cannot Argue with a Flood was made with 360° video and it focussed on the Marawi (Philippines) conflict and a natural disaster told from the eyes of a survivor who is now a volunteer.

Reports from the Rohingya presented interview accounts of different perspectives, refugees and local aid workers, in the Cox’s Bazar refugee camps in Bangladesh, allowing the viewers to choose the interview they wanted to watch. Each of these experiences were distinct use cases to explore the potential offered by creating immersive environments through new technologies.

ENGAGEMENT

Initial user testing of each film pointed towards a clear capability to evoke emotion and empathy in viewers, indicative of the broader medium’s scope to be leveraged as a tool for more nuanced learning experiences.

"Before watching, I didn’t think much of VR, but [it] helps you focus on the subject and free yourself from distractions. The experience stays with you for a bit."

“Gave the feeling of ‘If she can do it, I can too.’

“The gravity of the situation is established by the surroundings”

Participants after watching You Cannot Argue with a Flood

IMMERSIVENESS

While the games’ immersiveness was seen to depend on how convincing the narrative was, as well as the integration of activities and decision-making points, the nature of the immersive film medium easily established a certain level of an ‘alternate reality’, further augmented by the narrative and visual elements.

Emotion and empathy as complementary qualities

Most cases reflected a direct relationship between the emotional factor of an experience and the level of empathy the learner experienced.

“It’s a useful choice of medium as it immerses you in the story...helps you empathise with the narrator more. It brings alive the adage of ‘being in someone else’s shoes’. I could experience her pain more than in a normal video. Gives you the feeling of being in that place”
"It definitely had a high empathy factor - I felt like I was really there."

Participants after watching the film You Cannot Argue with a Flood

“These films make the viewer very emotional.”

It was good to get many perspectives and stories. The stories are personal and extremely emotional.”

Participants after watching Reports from the Rohingya

**ALIGNMENT WITH LEARNING OBJECTIVES**

The primary learning objectives from the videos were empathy building and learner sensitisation to new contexts. These were met in most cases, however, the new nature of the medium brought up some considerations in how such experiences can be designed and implemented for first-time users, including a more gradual orientation to its dynamics, and a slower pace of narrative overall.

The experiences seemed particularly useful while showing a new environment to the users. Some pointed out that being capable of seeing what someone in a disaster goes through was eye-opening, and allowed them to understand the context more effectively and holistically. Users complimented the quality of the film scenes and highlighted that the clarity of the video increased the empathic capacities of the film.

**LEARNINGS**

**Pace of the Experience**

In the case of the immersive films tested, some users were seen to feel slightly overwhelmed by the nature of the medium. There was a need for the pace of the film to be slower, giving the viewer more time to absorb the environment the film created.

“It took me some time to get acquainted with the visuals as I was following the dialogue, everything was presented too quickly and I couldn’t keep up.”

Participant after watching You Cannot Argue with a Flood

**Setting Expectations**

Participants typically were not fully aware of what they were about to experience. In spite of contextualising and explaining the scope of each piece, some reactions of the users pointed towards a need to effectively explain the intent and nature of the experience – either within the concerned piece or outside of it.

“I felt some parts of the film were staged.”

Some participants understood the film better when certain aspects of the context were clarified after they watched the film. One such participant only understood the film and its authenticity when the conditions of the shoot were explained.
8. Conclusion

The project and research provided insights into emerging and innovative learning technologies, including VR and game-based learning. The development process was driven by human centred design (HCD) approaches, identifying the learning format most suitable to learning outcomes identified through the HCD process.

The agile and iterative nature of the design, testing and feedback allowed for a collaborative approach that ensured each output was tailored to the needs of the learners. The qualitative testing methodology helped feed into the iterative design approach, and measured the degree to which the learning objectives were met.

These experiences by real users and their feedback will help us improve and reimagine learning for the humanitarian sector and approaches to digital education at large, while informing the design of future innovative learning solutions.