

**Immersive Storytelling of Rohingya Refugee Experience**  
**Cox's Bazar, Refugee Camp, Bangladesh**  
**International House NY**  
Ray Luo, *Parsons School of Design*

Documenting the truth often requires telling stories that faithfully represent the subjects in the way they are affected emotionally, not merely the cold reality. For example, showing only the physical destructions of 9-11 would not get at the truth of the way people were affected, both the perpetrators and the victims. Even showing the physical and verbal scenes without organization would not get at that most important element of what it means to us. Thus telling stories objectively can be closer to the truth than simply facts. But how do you tell stories objectively without agenda? How to represent your subjects in their subjective states? How do we distinguish genuine stories from the pretense of truth?

The new medium of Virtual Reality (VR) promises a new way for journalists to show the truth, by merely putting a 360 camera where events occur and assuming that it does not affect the natural state of its subjects. VR films like Chris Milk's "Clouds Over Sidra" put audiences in a static scene in the middle of the refugee camp to evoke empathy for the plight of its subjects (Milk et al, 2015). But VR fundamentally changes the responsibilities of the journalist filmmaker, as the producer and its sponsor quickly learn to produce material that evokes emotional responses for their own sake, making the viewer emotionally vulnerable due to the high level of fidelity (Kool, 2016). Because the director steps away from a completely immersive but static scene, we forget that the entire experience is orchestrated to evoke a certain type of reaction under the impression of duplicating reality. Unlike traditional filmmaking in 2D, the entire set is part of the VR experience, so that all arrangements with subjects have to be done well before hand, with mutual understanding.

How do we overcome the propensity to use VR to spew forth agendas? In order to tell the genuine story rather than the impression of truth, we aim to use VR in three specific ways that remind us of the limitations and ethics of the medium. 1. We aim *not* to hide the director filmmaker, but to make her a part of the truth-telling, for in making the documentary, we inserted ourselves into the sociology of the environment, so why should we disingenuously hide ourselves? 2. We invite the subjects to make the film, empower themselves to express what they would like, giving them direct access to the audience and allowing them to have agency about being the portrayer and not just the portrayed. 3. We use dynamic movements and spatial audio from surprising sources to rethink the VR medium, reminding audiences that VR is telling us a story by the way an actor with agency moves her journey forward in time, and not a static representation of reality.

Together, these techniques show the viewer genuine experiences that coalesce into stories framed and imaged collaboratively by the creator and her subjects, illustrating VR as a medium for expressive filmmaking rather than as an absolute description of reality. In turn, it opens up opportunity for the filmmaker and her subjects to play together, to involve both parties in the documentary process.

## **Methods**

We stayed in Cox's Bazar in the month of Ramadan in late May, and visited the Balukhali Rohingya camps by a 4-5 hour drive every morning, because we are not allowed to stay close to the camps (Figure 3-4). We had no power, and must leave before 3pm each day during Ramadan due to camp closure, so only refugees themselves can take videos in the evening. Upon arriving at the area, we climbed up the hills in block B56 to meet the Maji (leader) Salim. Working with the Program for Helpless and Lagged Societies (PHALS), Salim took us to Camp 8E, where we visited two families before deciding to work with the family of Ameena Khatun, who had 10 children (5 sons, 5 daughters) between them. Like most Burmese, the family doesn't have family names, so we refer to each of them by their unique first names. Sometimes even they can't remember everyone's names.

Ameena and Ehsan (her husband)'s family came from Patiya Para, Myanmar during the forced extradition (Figure 5). They walked through hills and forests for 16+ days in the heat of the burning sun

and in the rain. The children became sick and they had to beg for rice from others on the way. The Myanmar military already burnt their houses down so there was no choice but to go forward. People were seen jumping into rivers and falling from hills, fleeing from the military. They cooked only once every four days, and must rely on these provisions during that time.

One daughter of the family, Shamima, died on the way to Bangladesh. She was vomiting and having diarrhea, with very little to eat, but cause of death is unknown. Because there were so many family members, they had to leave her in the jungle and move on. No one has any mementos, souvenirs, photos, or clothing of hers, because they had no belongings from home. The only remnant of Shamima that Ameena Khatun has is in her memory. Ameena also can neither draw nor write, so Shamima's memory will be hard to pass on. The only thing she had wanted was her children's safety, so Ameena has difficulty dealing with this pain to this day. Currently they also lack provisions and clean water, but in Bangladesh at least they do not fear having the light on during Ramadan or fear practicing their religion.

To tell the story behind the truth of the Rohingya refugee experience of the family of Ameena Khatun, we needed to describe their lives from different perspectives, so that audiences can be immersed in the multi-dimensionality of the narratives. Thus we took a multi-disciplinary approach consisting of 1. A narrative film about how Ameena and the family deals with the death of Shamima, as a way to serve as the lasting memory that otherwise would be lost to posterity; 2. A documentary about empowering refugees to express themselves by teaching them video-making using a phone during evenings at Ramadan when we don't have access to them; 3. A VR experience that takes the audience inside camp life, narrated and guided by Mofizur Rahman, with camera work and playful initiative by Mofizur and his friends in the camp. For the rest of the paper we will concentrate on the VR experience. For the film and documentary, see our accompanying [website](#).

VR filming was done using a Ricoh Theta V 360 camera attached to a TA-1 3D spatial audio microphone, and stitched and converted daily offline. Refugee-handled camera work was hand-held, while tracking scenes following Mofizur during his journey were done by lifting a fully extended tripod above the head of the cinematographer. Mofizur and his companions were instructed only on how to hold the camera without obstruction, and allowed to roam freely around the house and to pass off the camera to others. Before recording the main interactions, subjects were given the camera to take a short footage. That footage is converted from two-fisheye view into 360 video format on the computer and shown to the subjects, who could interact with the 360 nature using the computer trackpad (Figure 6). We then loaded the 360 video into a Unity scene with a single sphere and inverted normal for display on the inside of the sphere. The result is exported to a Google Pixel XL phone for immediate viewing by the subjects as a quick prototype in VR. They were allowed to iterate as many times as desired before taking the main footage.

### 3 Results

Current VR experiences rely on filmmakers to provide the context, both in terms of where the film takes place and who we can meet in it. In "The Displaced," a VR film about three children from refugee camps, we get to meet the protagonists but never follow (Ismail & Solomon, 2015). We are ferried on a boat we cannot step away from and asked to read subtitles as the protagonists read their lines. Like other VR experiences, we are introduced to the protagonists but when we really want to see them face-to-face, we are confronted instead with desolate landscapes. What if instead of being a passive subject, we let protagonists take the camera where they wish to take us, and let them dictate the terms of the journey?

To empower the refugee subjects, we took four different approaches to making the VR experience, and incorporated them into the film: 1. We gave the family a Samsung phone capable only of taking video and photo, and asked them to document evening activities when we were not there, and used their content in our subsequent documentary and exhibition; 2. We showed them how VR filmmaking works from taking footage to importing to stitching to viewing the binocular result on a phone, then asked them to take the camera around the house and beyond to give us a tour as they pleased (Figure 8); 3. We also followed the subject around as they move about town, so that we with the camera mounted high above us

on a tripod, is the follower to the initiative of the subject; 4. We let the children learn about VR filmmaking via the demo and then let them pass the camera between themselves, allowing them to see what their presence and faces look like afterwards on the stitched video on the computer, then let them again play with passing the perspective amongst themselves and playing with the audiences' view and their own creative movements (Figure 9).

The result of this initiative-based filmmaking is an increase in the way the refugees promote their own stories. After learning initially about how their movements in space in the camera translated to a 360 view that evolves in time on the computer and in binocular form in the phone, they began taking the camera to places we did not envision. Mofizur Rahman took the camera and put it on the cabinet, when the family began making semai (a food item that was also Shamima's favorite), in order to give us a better view. The children took turns playing with each other with the camera, giving it back and forth to each other without choreography. At the football field, following the person pursuing the ball led everyone to follow the camera, and to play with it as if it was part of the game that they are orchestrating. When we showed the family and children some of the footage they were helping to make, they flocked to the computer (Figure 6) and marveled at the technology and the way they had played with it.

The static nature of video and audio in VR productions makes it seem as if it's part of the limitation of the genre. From "Clouds Over Sidra" to "I am Rohingya," each film is reluctant to tire the audience, or to push the boundaries of what is possible when the camera moves in space and time. What encapsulates this best is "Meet the Soldier," and "Refugees," two VR films from Scopic (Cherim, 2018). In each case, great amount of movement from soldiers running to refugees arriving on harbor is portrayed in the experience without a jolt of movement of the 360 camera. With catastrophic events involving shooting and pushing happening all around the view, the audience is fixed to the ground (fixed to the stones of the beach in the case of the refugees) without a trace of movement. Does this portray the viewer in a 360 film not as part of the scene at all? Are we not a witness to this story but rather a God-like overseer? This approach has been taken by every major VR refugee experience, along with (mostly) Western-created music and sound that fails to fit to the subjects but rather to the audience for whom the experience is intended. It is catering to the eye that is used to cinema, the subtitles, the fixed camera, and the melodramatic music. But to document the real refugee experience as opposed to the sad, drawn out view that is not part of their lives (which are generally happy and playful in their own ways), we have to play with perspectives and surprises, to fit the medium to the view of the subject as oppose to our own.

To show dynamic interactions reminiscent of play, we traveled with the 360 camera either on a tripod that we move, or by holding by hand. We also enabled static scenes where families are eating or making food, only to have Mofizur Rahman take the camera during the recording and go outside. View movements come from movements in vessels like the vehicle that took us to camp, from refugees taking the camera to places like football fields and kitchens, and from the cinematographer following the subjects while carrying the instrument (Figure 10). Interactions are unpredicted, such as when children interrupt us from behind, taking advantage of the VR medium to truly use all 360 degrees.

Audio of our VR experience is also dynamically enabled to surprise and play in 3D. Family members frequently interrupt our movement in following Mofizur Rahman with voices that occur behind us as we move forward, causing audiences to turn around, a feat that is unique to VR compared to 2D movies, and which is not taken advantage of by static-scene VR refugee films up until now. We also used only original voices of the refugees with subtitles placed at the location of their speaking to heighten the immersion with spatial audio (Figure 10). We used music improvised by Rohingya musician Takir, as recorded by the group Music in Exile, to give a genuine voice to Rohingya musical creative roots, as opposed to Western traditions. The resulting production is filled with Rohingya initiative, collaboration, and influence. Full project details here: <http://www.raylc.org/rohingya/rohingya.html>

