ZIKA360

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Project name: ZIKA360
Project owner: IFRC
Release date: Pilot during 2018-2019
Locale: Honduras, El Salvador, Colombia
Languages: Spanish

URL: http://cruzroja-zika.org/

XR medium: 360 VR, AR
Hazards: Health (Zika)
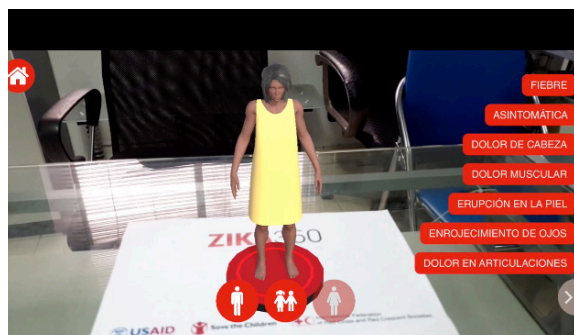Activity: Training, Awareness Raising, Advocacy
Age group: +8 years, adults

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Table of Contents

#1
Project Background

ZIKA360 is an innovative learning tool aiming to bring a new approach to the fight against the Zika virus. By combining two experiences, a virtual reality film and an augmented reality app, the project tackles the topic of disease transmission prevention as well as community engagement from the angle of innovation.

The project was created by the International Federation of Red Cross and Red Crescent Societies (IFRC) Americas Regional Office and designed along with Global Vision, an external production agency, with funding from USAID. The IFRC wanted to embrace innovation to achieve greater impact on advocacy campaigns and awareness raising activities regarding neglected tropical diseases, including Zika, Dengue and Chikungunya. "We wanted to break new ground building an experience that fosters innovation, heightens awareness and creates empathy among users and their communities."[1]

ZIKA360 is part of the CAZ project (Community Action on Zika), a three year initiative by Save the Children and IFRC, with support from the United States Agency for International Development (USAID). CAZ's goal is to reduce Zika virus transmission and minimise the risks of microencephalitis and neurological diseases associated with vulnerable communities in Colombia, El Salvador, Honduras, Nicaragua and Dominican Republic. ZIKA360 was conceived as a collaboration between the National Societies (NS) of Colombia, Honduras and El Salvador, and their knowledge and expertise in the topic, combined with an external production agency, have been decisive in making the experience come to life.

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1 *Americas Community Engagement and Accountability Newsletter, May 2019.*

#2
Aims & Rationale

ZIKA360 was created to serve the following main goals:

▶ Advocacy: to engage with local authorities and councils to raise awareness

▶ Awareness raising in the community to influence behaviour change and train people on basic procedures to understand, prevent and stop the spread of the Zika virus

The overall CAZ project objectives are:

1. Empowerment of the community through mobilisation related to vector control
2. Improve the capacities of vulnerable populations through social and behavioral change
3. Promote the participation and capacity of communities in community surveillance measures

#3
Audience

ZIKA360 aims to reach two audience groups:

▶ School students 8-16 years old (extending to parents)

▶ Adults in the context of advocacy and fundraising

During the initial pilot about 60 children were involved. Eight was chosen as a minimum age, as it was estimated that children under eight would not understand the app and how to use it. However some younger kids also tested it and provided good feedback. The VR experience was recommended in the user guide for +12, although 8-11 year olds also tested it and the feedback was positive. However no motion sickness was recorded in children under the recommended age of 12.

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#4
Experience

The ZIKA360 experience combines the technologies of Virtual Reality (VR) and Augmented Reality (AR) to address in an innovative way the themes of prevention of vector-borne diseases and community mobilisation.

1) 360 VR video

A 360 film can be viewed using a VR headset or a screen-based device. The experience was filmed with real camera footage and is not only made for school students but also focuses on adult advocacy. With a duration of 8 minutes, the film is grouped into four sections including:

▶ impact
▶ perception
▶ action
▶ sustainability

The tone of the film is emotional, as it presents real stories from people who have been affected by the virus, including a mother whose baby is sick. Testimonials are presented from different angles: parents, staff working in schools, a gynecologist, social workers and school students. Some graphic messages are inserted in the film to highlight key messages. To start the film the user guide recommends sitting down, to avoid any motion sickness.

2) AR app (game with tablet)

An augmented reality application for tablet devices aims to directly benefit the learning experience of children and young people, as well as adults, by providing a dynamic and interactive experience. Users explore a 3D community where they learn to identify mosquito breeding areas, how to eliminate them and how to prevent mosquito breeding by understanding the mosquito cycle of life, habits and learning the symptoms of the Zika virus disease. The whole app experience takes approximately 30 minutes to complete.

Below is a description of the main areas of interaction:

Intro

When opening the app with the dedicated tablet device, an intro video explains how to use the app and what you will learn:

1. scan a printed marker QR code to reveal a 3D map inside the tablet device
2. explore the community and its surroundings
3. test your knowledge with the quiz

If you are ready, you can continue to the next screen or watch the video again.

Main Menu (Map)

Once activated with the marker, the 3D world presented is a map with four interactive areas. A soundtrack played across the duration of the experience featuring an upbeat song that keeps the user active. The Main Menu is always present in the top right side with a home icon and provides access to the areas.
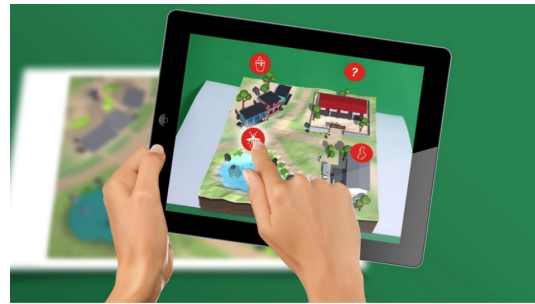

4 Areas

Four interactive areas can be explored from the main map including: the lake, the home, the school and the hospital.

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The lake

Learn about the lifecycle of the mosquito though a series of slides including images and text which can be easily scrolled through with navigation arrows.

The home

A section to learn where the mosquitoes are able to reproduce. To discover content you can navigate a house, outdoors and indoors, and tap into objects or characters to get information about the virus and how it can be transmitted. The messages also offer solutions to stop reproduction and transmission, for example clean the water tanks every week to eliminate mosquito eggs, or put a lid on your rubbish bins.

The hospital

In this content area you can learn about the symptoms of having Zika virus, by examining characters: man, woman and children. Each character has an interactive list of symptoms which can be selected to show how they affect different parts of the body.

The school

The school hosts an interactive quiz where you can test your knowledge. Questions have multiple answers with a timer (30 seconds per question); once the answers are selected, you can view if the results were correct or not, to get a quick understanding about the progress. At the end of the quiz you get a score from 1-5 stars and a message invites you to share your knowledge with other people in your community and family.

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#5
Technology

ZIKA360 is an immersive experience combining augmented reality and virtual reality technologies which requires the use of hardware and software.

To experience the ZIKA360 AR the following technology is required:

▶ Tablet device with camera with the ZIKA360 app installed
▶ Headphones
▶ QR code marker printed in paper to trigger the app contents

The AR experience is recommended on a tablet device, to allow more screen space. The app uses marker-based AR technology to display its content, so the printed marker has to always be used along with the tablet's camera pointing at it. The marker allows to overlay the 3D object of the app and also provides the possibility to move around the 3D object to look at it from different views.

To experience the ZIKA360 VR video the following technology is required:

▶ Smartphone with camera. To open the ZIKA360 film there are 3 options:
  a. Download the film into your device and open it using the Global Vision app GV 360 Video player which is available on the Google Play store.
  b. From the ZIKA360 AR app, go to the main menu and click the ZIKA360 VR link.
  c. From the IFRC Youtube Video Channel (*not published yet).
▶ Headphones.
▶ 360 Virtual Reality Headset for Smartphone (MiniSo or similar).

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The 360 virtual reality experience offers a monoscopic rotatable 360 film with sound and titles, which is best experienced on a smartphone virtual reality headset. For the project pilot, the selected headset was from the brand MinoSo, which is similar to a Google Cardboard, and costs about 15USD per unit. The film can also be accessed from the IFRC YouTube channel.

The ZIKA360 hardware was distributed with a "kit" purchased by the CAZ team and was then distributed to each National Society, who then became the project owners. The kit contains:

- 6 x Samsung Galaxy S3 tablets
- 6 x MiniSo VR headsets
- 6 x Samsung S7 mobile phones
- 6 x User guides
- 6 x AR markers printed
- All packed inside a pelican case for easy and safe travel

#6
Production

The CAZ project team worked with a Geneva based company Global Vision (https://globalvision.ch/), specialising in multimedia applications, in the development of the ZIKA360 experiences.

The production was launched as a consultation and planning phase, where members of the NS and Global Vision travelled to the communities to gather feedback, film people and conduct interviews in collaboration with El Salvador, Honduras and Colombian NS. Later, a second phase happened remotely, which consisted of the app design, development and compilation of the content. There was also a process of editing the filmed interviews into the 360 film. The production process was very intense, with multiple meetings between the NS and the agency to design, test and deliver the first version. It took about five months to make the experiences and a total of seven months to coordinate the pilots in selected schools.

Challenges identified

▶ The learning process was challenging for the NS as they had never worked in an immersive experience before, so they had to learn "step by step".

▶ The IFRC have reported challenges in buying and sending the technology through the logistics unit. Challenges were encountered around the transportation of the kits between countries as the goods were not classified as emergency response. In fact, in Honduras they had to pay tax, up to 30-35% of the cost. And in Colombia and El Salvador they had to wait weeks to receive authorisation for the transportation.

The Pilot

Three countries from the CAZ programme were selected to test the experience:

▶ Honduras
▶ Colombia
▶ El Salvador

Pilot Objectives
▶ Train volunteers and coordinators in the three National Societies on the use of ZIKA360, including both the app and the 360 video.

▶ Explain the contents of the ZIKA360 kit to ensure correct use during activities.
▶ Visit schools and communities to test and implement ZIKA360.
▶ Receive feedback by communities and volunteers on the tools.
▶ Gather audiovisual material for feedback on the implementation process and the perception by community members.

Outreach

The outreach plan focuses on three aspects: Local - targeting the CAZ project communities; Regional and Global - to generate interest in potential and actual donors. A detailed communication and distribution plan has been created, however at the time of writing this has not been possible to access or review.

#7
Outcomes and Future Planning

The feedback received from the RC team highlighted:

- AR would be best suited for students
- VR is so immersive that some users does not assimilate the messages as much as in AR, especially those that have never experienced VR before as they might be taken away by the immersion and pay less attention to the educational content. In the contrary, AR gives more time to interact, click, read etc. - it is a longer term experience.
- After the feedback session at the end of both experiences AR was more clear for the kids, although they enjoyed VR more.

The following are **key learnings** from the pilot projects across El Salvador, Colombia and Honduras during 2019. The pilots included participants from RC, CAZ programme coordinators, and Save the Children. As part of the piloting in the schools, extensive documentation material was gathered, including photos, videos and audio interviews with locals.

The importance of working with Red Cross volunteers

▶ The first activity was aimed at training volunteers and RC technicians and it was key to deliver the experiences. Working with volunteers was fundamental for smooth delivery and implementation.

▶ Volunteer organisation and management was very successful in making the use of the experiences easy and seamless for target users.

▶ The volunteers organised children in small groups use the tablets. At the end of the session, they organised a review of the contents by each group. They were able to see that the tablet is an easy, intuitive and playful way to show the content to a young audience.

▶ The activity at times was disrupted due to the lack of leadership from volunteers.

▶ For volunteers the main challenge was not using the technology but rather: organising the activity in the school; coordination; and how to deal with last minute issues.

Immersive experiences offer high engagement

▶ Both the students and community groups were highly interested.

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- The experience was considered highly successful. The use of new technologies raised interest amongst the children who were queuing during their breaks to test the experiences.
- The use of tablets is more intuitive and provokes more interest amongst children than adults.
- Project volunteers and coordinators were highly satisfied with ZIKA360 as it is an innovative experience, attractive and applicable in the CAZ target communities.
- For those who participated in the filming of the 360 video, seeing the final piece was exciting and gratifying.
- The kids were highly engaged during the duration of the activity and they participated. The teachers expressed positive opinions and also participated in the activities.
- The volunteers were able to manage the technology well. The volunteer training was key to implement practices and obtain feedback.

Experience design and content

- The activity closed with a summary of the key learnings as well as a validation test in which both teachers and students showed they had acquired new knowledge and retained the basic knowledge for zika prevention through the content on both experiences.
- The community said that they were able to review the key messages for the zika fight outside the traditional channels, so this was positive.
- Students recommended adding more content around the mosquito life-cycle, which showed their high level of knowledge of zika.
- Students playing the AR app were interested in the app and in taking the quiz. Most of them obtained very high scores. This shows that the tool is

made to validate and reinforce the key messages that the group have proposed in this project.
- After the experience was completed, key messages were validated during evaluation sessions, so it was confirmed that users retained information, reinforcing their existing knowledge of Zika.
- Volunteers highlighted that even if the VR video did not show their own country, it still was very representative of their communities and common situations they face.
- The VR film had more impact among adults who understand better the messages transmitted. This feedback follows the design of the experiences in which the tablet app is focused on a playful tool for schools.
- Some kids expressed that virtual reality was like travelling and they were grateful to be able to see other communities.
- VR content: students were able to retain some of the main key messages of the video including eliminating stagnant waters, consequences of zika during pregnancy such as microcephaly and the importance of visiting doctors during pregnancy.

Technology and space

- There were some technical issues with the headsets that were solved by the team at CRS.
- The technology is easy to use and transport, there were no issues in the socialisation.
- In the context of safety and security, coordinators decided to implement the activities only within the closed school doors. However they did not perceive security as a limiting factor for the use of ZIKA360.
- The VR film activity took place in the

school patio/courtyard. The space was more suitable to moving around freely. Children were very attentive of the video and the space facilitated a right environment for concentration and learning.

Future Planning

The CAZ team are aiming to take the pilot to more Spanish speaking countries in Latin America, to continue gathering feedback. However the project is expected to end in August 2019 and there will no longer be a dedicated team from IFRC. The NS's who own the technology kits are expected to continue using the technology to raise awareness at local events, in schools and during disease outbreaks. They will be given a dedicated plan with regional distribution and recommendations for use in collaboration with partners. Once the app and the film are published, engagement and a wider reach is expected throughout Spanish speaking countries.

#8
Internal Evaluation and Learnings

Process

The process of developing ZIKA360 was efficient and engaging as it included participation from different parties:

▶ National Societies
▶ Members of the communities affected by Zika including students, teachers and local orgs
▶ The multimedia agency

The interviews and testimonials provided unique insight for the project and they were well integrated in the VR film to generate empathy and cover advocacy goals. The process of the design of the AR app was difficult at times, given the lack of experience from the NSs to create a digital product. However the results were positive and the app met the goals of awareness and knowledge retention. The delivery of

the pilot tests was efficient thanks to the internal organisation with the National Societies and the schools. In the delivery notes, the key role of volunteers in delivering the experiences is made clear.

The relationship with the external agency Global Vision was key in helping the CAZ team design the experiences as they were new to these types of technologies.

Product and features

In having two separate experiences, ZIKA360 may seem like a complicated project to replicate, however both experiences are complementary: the 360 film was made during the research phase and served as a tool to collect feedback from the affected communities, and the AR app served as a central hub to deliver the messages collected from those communities.

One of the major strengths of the app is the gamification feature, the quiz, which proved to be engaging as mentioned in the feedback reports, and added an extra degree of participation and excitement for users to repeat the experience to get better scores.

The design of the app including common areas was effective and provided a base point to illustrate the key messages of the zika prevention from the home, the school and the relationship with the medical system.

Filming the 360 video in local communities was also very effective as it provided a reference point for neighbouring countries, who saw similarities with their own communities. However the film is limited to a context of the countries where it was filmed and it could not be exported in the same way to other countries. The fact that the experiences are also in Spanish is a limiting point for scaling this experiences to other non Spanish speaking countries either in the region or globally.

Effectiveness

Having examined evaluations from three pilot projects, it is clear that the experiences have met their goals of:

1. Raising awareness of the virus and potential risks amongst schools and local communities
2. Providing basic knowledge to prevent and stop the spread of Zika virus.

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Scalability

Both the AR app and the 360 film are only available in Spanish language and have not yet been made public. The ZIKA360 AR app is planned to be published and made accessible on app stores (Google Play and Apple Store), however no dates have been confirmed. With the release of the app, new avenues for scalability will be unlocked, providing the possibility to scale the project to other Spanish-speaking countries in a scalable way through apps stores - however the language restriction will limit possibilities to scale.

Key Learnings of Relevance for SBDRR

ZIKA360 is an excellent example of a localised solution to enhance learning and awareness in schools and local communities using immersive technologies. Top key learnings of relevance include:

▶ The combination of awareness and learning activities with two different experiences was key to engage different age groups and community members.

▶ The AR app interactive features and the gamified quiz provided a strong result in acquiring new knowledge and increasing user engagement.

▶ The use of tablet devices was intuitive and playful for children and made the experience very easy to use.

▶ The choice of AR allows for younger children to experience the content, whilst full VR is recommended to +12.

▶ The 360 VR video provided an engaging experience to raise awareness and empathy, however it was limiting due to the localised context of the film footage.

▶ Localisation (for example through 360 video) improves user experience at the place of roll out, but limits scalability to other contexts.

▶ Working in collaboration with NS, communities and schools was key for the development of this tool, to integrate feedback and to deliver the experiences.