Supplementary material:

Methodology to develop The Virtual Reality Experience

The Virtual Reality experience (VRE) was developed through a 3-step process:

1. 360-degree images and ambient sound: Following the Our Voice data analysis and first community meeting, we prioritized the caregiver's most frequently visited sites. Then, we pinpointed the three most mentioned themes (consisting of both facilitators and barriers), which were documented during the *Discover* and *Discuss* steps. To decide on the hotspot locations, we used the Discovery Tool portal to reference the geotagged photos that citizen scientists captured. During a site visit in October 2023, we took pictures of the selected themes using a 360-degree GoPro camera and recorded ambient sounds using an iPhone 10. We included 20 locations, captured 76 photos, and recorded corresponding ambient sounds from each respective location. After reviewing the photos, we filtered them down to 15 locations and grouped 3 photos (with different themes; Table 1) each into five different VRE "paths."

Table 1. 360 photos included in the Virtual Reality Experience (VRE) and their corresponding theme.

Path	Photo	Theme(s)
1		Care Block's services and infrastructure
		Transport Occupation

		Sidewalks invasion
2		Citizen services building - SuperCade
		Informal transport
		Lack of paving insecurity
3		Physical activity infrastructure

		Insecurity
		Lack of paving Lack of sidewalks for dependents
4		Streets/sidewalks in good condition
		Risks of road collisions Lack of adequate streets/sidewalks
		Consumption/sale of psychoactive substances

5		Risks of road collisions Lack of sidewalks for dependents
		Cable car service (TransMiCable)
		Garbage in the streets

2. Experience design: The VRE was developed using the Unity game engine (2021.3.11f1 version) and simulated using the Oculus Quest 2 Virtual Reality headset. Unity's platform allowed for the integration of 360-degree visualization, as well as game interactivity, which allowed users the ability to change between while experiencing the simulation. To accomplish this immersive experience, each image was projected on the internal surface of a sphere (Figure 1). The user point-of-view was set to the center of this sphere, allowing them to visualize the 360-degree image by pivoting around their standing position while wearing the Oculus headset. 3D virtual structures resembling buttons (Figure 2) were concurrently presented to the user. These virtual buttons worked as interactable objects whose function was to change the 360 images projected inside the sphere. The user was able to navigate each button using the Oculus controllers. 3D representations of each Oculus controller (left and right) were included in the VRE (Figure 2) to familiarize community members with the virtual scenario. In addition to button interactivity, corresponding ambient sounds were automatically projected to users via built-in headphones in the Oculus headset.

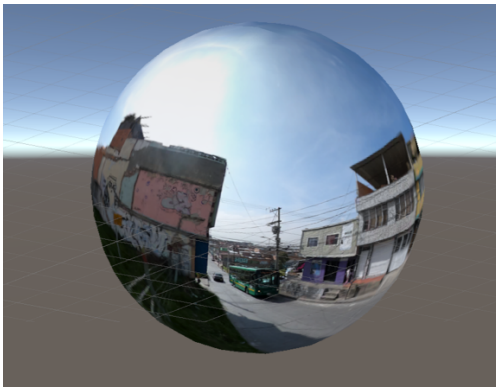

Figure 1. Projection of a 360-degree image of a location inside a sphere for the creation of the immersive experience in Unity.

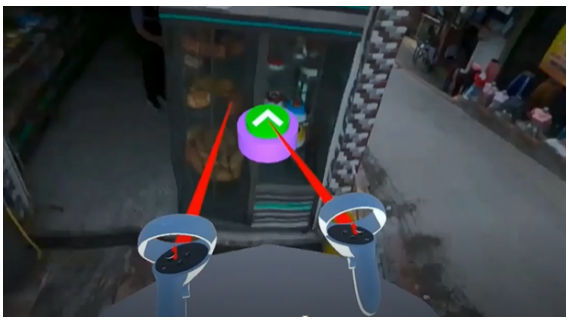

Figure 2. Virtual button and an example of the button interaction using 3D representations of Oculus controllers in VRE.

Community members´ voice recordings were included in the VRE using happy and sad characters as interactable objects (Figure 3). Using the characters promoted an effortless method to associate each commentary with a facilitator (happy face) or a barrier (sad face). The user was able to hear the recorded comment by interacting with the button using Oculus controllers. Additionally, each character was strategically placed near the object of interest (e.g., a street, a sidewalk, or a bus from public transport), reflecting the theme documented by the citizen scientist.

Figure 3. Interactable emojis (sad and happy faces) are used to reproduce commentary audios of the community members.

Ultimately, we designed an immersive experience that begins with five buttons marked for the user to select the desired path (Figure 4). Each pathway corresponds to three images that users could change using the interactive button.

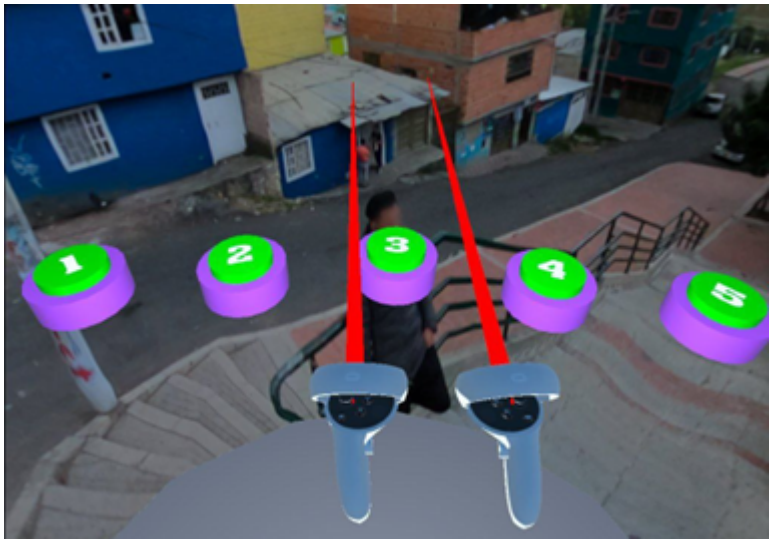

Figure 4. Example of the interactive selection of the five pathways in the VR experience.

3. Citizen scientists training: After designing the experience, in February 2023, we trained five citizen scientists who participated in the second community meeting on how to use the VRE. This process consisted of familiarization with the Oculus headset and controller functionality. Each pathway was randomly assigned to each participant so they could explore the locations and hear the comments on the themes. Ultimately the training allowed the citizen scientists to explain and guide the policymakers through the entire VRE during the following step of the OV process.