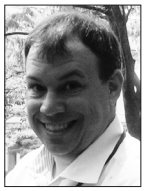

Edo Forsythe

In this column, we explore the issue of teachers and technology—not just as it relates to CALL solutions, but also to Internet, software, and hardware concerns that all teachers face. We invite readers to submit articles on their areas of interest. Please contact the editor before submitting.

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360° Videos in the Classroom: A How-to Guide

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Recently, a proliferation of mobile technologies has created new ways of interacting, interpreting, and consuming media. Simple text types have suddenly become less common than complex, rich, multimodal modes of communication (Bezemir & Kress, 2008, p. 172). The rapid pace of development has led us from traditional videos to rich, immersive, virtual reality (VR) experiences. Virtual reality is a means of enabling people to supplant their surroundings with another environment by replacing their visual, audio and other sensory inputs with those generated by a computer. VR has the potential to transform media into an immersive domain, wherein the user has presence— "a state of consciousness, the (psychological) sense of being in the virtual environment" (Slater & Wilbur, 1997, p. 4). One of the easiest ways to experience a virtual environment is through 360° videos, which allow users to not just passively view content, but rather to interact with it by directing their gaze wherever they choose.

A recent drop in price of 360° cameras has made the technology widely available to consumers and educational institutions. This has enabled users to play a part in creating 360° video experiences, such as transporting users to encounter events in novel and distant locations. Usage of 360° videos is not limited to users with costly specialized equipment. Perhaps surprisingly, it can be accomplished via the ubiquitous smartphone, which can transform into a window to virtual places. 360° video is a potentially powerful medium, but like all new advances it comes bundled with affordances as well as limitations that are not apparent at first. In addition, there are no clear rules or instructions for best use in academic settings. Based on our experiences with our classes, this article attempts to remedy this predicament by providing a quick overview of the best practices, classroom applications, and limitations of 360° video.

Affordances of 360° Video

360° videos offer a fundamentally richer experience than traditional video, since they are based on a concept that rarely applies to standard cinematography: presence. In the case of 360° video, presence is created by positioning the user in the same position as the lens of the camera, and offering them autonomy to direct their gaze in any direction. This creates the illusion of presence in a location, either through the small window of a smartphone display or a more advanced and immersive VR headset, such as Gear VR, Daydream, or Cardboard (see Figure 1).

The sensation of presence also allows the user to spatially orient themselves in a place, giving them a sense of scale and position not possible when viewing regular photos or videos. Users can become familiar with novel or foreign spaces, discovering scale and position through their own eyes. This immersive relationship to the virtual environment quickly allows content to become more real and powerful. These affordances of presence and spatial orientation create an experience unlike anything previously available. This innovative way of consuming media is both attractive and highly motivating for both teachers and students.

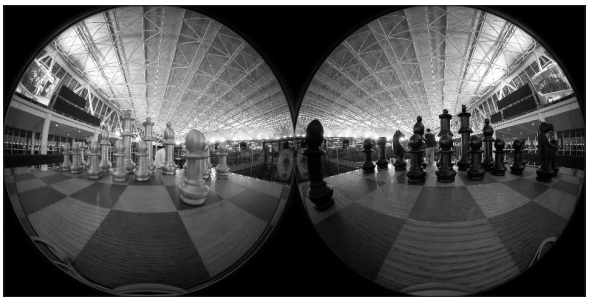

Figure 1. A 360° photograph taken through a VR headset.

Process for Creating 360° Video

Filming 360° videos requires a considerably different approach than creating traditional videos. We will briefly explain our process to help readers benefit from our past experiences.

We were approached by our university's public relations department to create 360° videos to publicize the campus. We decided that videos should be kept short, as different viewing methods, such as smartphones held at arm's length or VR headsets, can be physically taxing to use. As a result, we decided on creating a playlist of 30-second videos. Next, we began by evaluating cameras to see if the quality was high enough for showcasing the university environment. We eventually settled on the Samsung Gear 360° 2017 camera (see Figure 2), due to its quality and cost effectiveness.

Figure 2. The Samsung Gear 360° 2017 camera records high-quality 4k footage.

We then worked together with the university's PR department to determine which spaces would be best showcased in 360° video. We took sample footage to determine appropriate focal distance and lighting conditions. We reviewed all footage multiple times, in all directions, to make sure nothing was present in the background that might be distracting or inappropriate for viewers. This iterative process revealed that the most important factors to take into account are the level of activity in the environment, the position (especially the height) of the camera, and the edges of the camera lenses. Once the videos were filmed, we piloted the content on smartphones, tablets, and in VR, and collected feedback and advice from both teachers and students. Based on this feedback, we created the final videos and published them to a YouTube playlist.

Suggested Uses in the Classroom

The following are some example activities that have been successful in our classrooms. Each time we used 360° videos in our lessons, the students appeared enthusiastic and engaged with the material. We hope that the suggestions below will demonstrate the possibilities for VR use in the language classroom. Not all of these activities require the purchase of a 360° camera or even VR headsets, as many of them can be completed using student smartphones.

Familiarization with Spaces

With the wide availability of YouTube 360° videos and Google Street View locations, students can familiarize themselves with places before visiting them. This can be useful for helping students prepare for class trips or even for study abroad programs in foreign countries. This can give students a better sense of spatial orientation and understanding of a local area. Visiting new areas in 360° videos generated a lot of discussion amongst our students as they became familiar with the characteristics of the spaces they were immersed in. An excellent list of 360° video examples is the Time 360 video playlist available at <https://bit.ly/2m85VES>. If the equipment is available, students can also move beyond consumption and produce their own videos to introduce and familiarize others with their own local environment.

Visiting Historic Places

360° video has the ability to transport students to any contemporary or historical location or scene, such as National Geographic's Viking Battle <https://youtube.com/watch?v=oNEW4qPacGw>. There are many other video re-creations of historical environments available online that are suitable for taking virtual trips to places of interest such as ancient Rome. When our students visited historical sites, they were invariably amazed as history was brought to life. With resources such as the BBC's 360 Videos playlist < https://bit.ly/2q1GGEz>, students can use 360° videos to learn on location about topics such as historical and social change, the environment, or world cultures,

Embodiment Leading Towards Empathy

360° video is immersive in that the viewer assumes the position of the camera itself. Using these videos, the viewer can be placed in the environment or situation of another person, forging an empathetic link. 360° videos are already being used to garner donations for refugees or people in extreme poverty. Using 360° video, our students have therefore been

able to see more of the situation in impoverished countries, such as with the Refugees 360 VR documentary < https://youtube.com/watch?v=z9HEGHOk5hM>, enabling them to gain greater empathy and understanding than had they viewed pictures or traditional videos.

Immersive Acting

360° videos can be used by students to create short films with the goal of placing the viewers themselves in the scene with a role to play. Actors should treat the camera as another character in the scene, and should address it with questions and react dramatically to the expected viewer responses. The videos can then be uploaded online in preparation for the next part of the task. At this stage, students in other groups view the video and work together to create appropriate responses that fit well into the original 360° video. Students can then perform their favorite responses to the class.

Presentations and Public Speaking

360° videos can also be used to assist students in practicing public speaking skills. As a less stressful alternative to having students practice public speaking in front of each other, students can use 360° presentation and speech videos to expose themselves to virtual audiences.

Teachers should create or find a suitable 360° presentation video that features both a view of the presenter and the audience, such as the example at <https://youtube.com/watch?v=csh54WYiYKI>. Initially, students focus their attention on the presenter, with the goal of shadowing the speech. After students are comfortable and familiar with the part of the speech they wish to practice, they then turn to face the audience in the video and practice shadowing the speech again, but this time using eye contact to focus on as many different audience members as possible. This activity can be done as homework or in class and can be enhanced by using a VR headset to provide even further immersion while students practice.

Filming Considerations

During the creation of our 360° video campus tour, we came across a few issues and limitations. The first and most important was being aware of the technological limitations of current 360° videos. Cheaper 360° cameras often have lower resolutions, resulting in blurrier, lower quality video. To mitigate this issue, be careful when displaying text or other small details in your videos and make sure to keep your actors within 1-2 meters of the camera.

Another consideration is the movement of the camera itself. While lateral movement can be an effective technique if done smoothly and slowly, rotating the camera should be avoided entirely as viewers may feel nausea, dizziness, or disorientation. Another consideration is that voice overs should be avoided. Unlike regular videos where an unseen voice is automatically interpreted to be a narrator, in 360° video, a sense of presence leads the viewer to seek the source of the voice, taking their view away from the intended point of focus in the video.

We hope this information can help you make use of this emerging technology. If you'd like to learn more and see some good examples of 360° video used in educational contexts, please refer to the links and resources below. Another excellent resource is the JALT Mixed, Augmented, and Virtual Realities in Learning (MAVR) SIG, which specializes in the concepts discussed above.

Links

Virtual Reality for Education: <http://virtualrealityforeducation.com/>

YouTube VR Channel: <https://goo.gl/k4R8o5>

Facebook 360: <https://facebook360.fb.com/>

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Editor's Note: New developments in technology enable teachers to bring the world into the classroom in a more realistic setting, virtually taking the students on a worldwide field trip. You can find more tips for bringing the diverse world into your language classroom at the CALL SIG Forum at JALT 2018 this fall! We hope to see you there so that you can take home a wealth of tips for keeping your classroom Wired!