CALICO

INFOBYTES

December 2021

CALICO Infobytes are short, practitioner-friendly overviews of current topics in computer-assisted language learning. CALICO publishes Infobytes several times a year, and back issues are available to members at http://calico.org/infobytes.

Teaching Languages with Virtual Reality: Things you may need to know

by Randall Sadler and Tricia Thrasher, University of Illinois at Urbana-Champaign

Virtual Reality (VR) has exploded in popularity, particularly during the COVID-19 pandemic, with many headsets like the Oculus Quest 2 selling out. Are you considering using VR with your own students? If so, here are some aspects to consider.

1. The choice of headset is crucial

While many educators may be familiar with Google Cardboard, which is primarily advantageous due to its low price (starting at $10 US) and ultimate recyclability (it *is* cardboard, after all!), it is probably not the best choice for any teacher who wishes to use VR as an important element of their course. VR devices can be broken down into two basic categories, those which require a user to insert their own phone into a viewing device and those that already integrate the necessary viewing technology into a headset. While VR technology is constantly evolving, here are some popular headsets that can be used in the classroom. The headsets discussed below range in price from $10 US to $1,399. A higher price point generally means a better user experience, but there are factors to consider, as discussed below.

VR using a smartphone
There are many options for VR viewing devices that make use of a user's smartphone. While Google Cardboard is the best known, there are others that are also economical, require no assembly, and may include elements like a basic controller, as shown in Figure 1. The primary advantage of the viewers in this category is clearly their cost, but it is important to note that this also requires that each student have their own smartphone and that the size of the phone they use fits into the headset chosen by their teacher. Some large cell phones will not match up well with the lenses in these viewers.

Integrated VR Headsets: Standalone
There are many different options for teachers who want to use standalone headsets (i.e., those which do not require a smartphone) with their students. Perhaps the most popular option at the moment is the Oculus Quest 2 headset (starting at $299). Although *much* more expensive, another option is the HTC Vive Focus 3 ($1,300). The primary advantage of these headsets is that they provide a high quality all-in-one immersive and interactive VR experience for students without needing to be tethered to a computer. This makes setup a much easier process than the other two options discussed in this section.
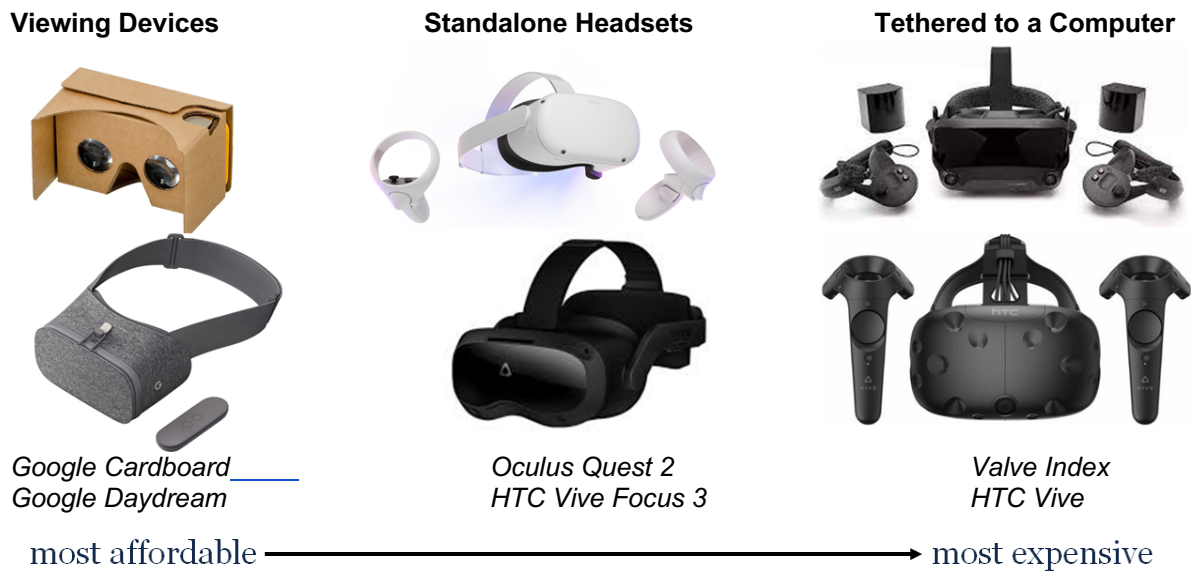
1

Viewing Devices	Standalone Headsets	Tethered to a Computer

*Google Cardboard*_____
Google Daydream   ·   *Oculus Quest 2*
HTC Vive Focus 3   ·   *Valve Index*
HTC Vive

most affordable ⟶ most expensive

Figure 1. VR devices

Integrated VR headsets: Tethered
The headsets in this category, as with their untethered cousins discussed above, have the viewing technology built-in, so no smartphone is required. The advantage of these tethered headsets -- their very powerful graphics and speed -- also 'connects' to their disadvantage. The headsets in this category require a cord that runs from the headset to the user's computer, and the graphics card requirements on that computer tend to be 'high end' (i.e., expensive). While headsets like the HTC Vive 2 Pro ($1,399 for Headset, Controllers, and 2 base stations) also have the possibility of a wireless adapter ($349), that adapter still connects to the user's computer. In the case of tethered-use while standing and moving, we have also found that getting tangled up in the cable is a very common occurrence.

2. Teacher exploration is key

In addition to the 6 headsets shown above, there are quite literally hundreds of other options to choose from, especially at the lower-end of the scale. Even if an educator selects a lower-cost viewing device requiring a smartphone, testing the device before purchasing enough for an entire class of students (which is still quite an investment for cheaper devices!) is critical. This is even more so the case for the higher end models. Educators also need to understand how the VR headset works: how does it fit on your face, how/can it be adjusted, can students wear it with glasses, can the lens be adjusted, is it comfortable, can it be sanitized (thanks COVID-19), etc.? Next, educators need to get into the VR spaces. Most headsets will include a tutorial and some basic games that will teach you how to move, how to interact in the VR environment, how to communicate with other users, how to build a network of friends, etc. Finally, educators need to decide how they will use the headsets (see further discussion below) and explore VR applications that will allow them to do so. Teachers should never expect to simply hand students headsets and have them go for it.

3. There are a variety of different types of VR applications available.

Once you have your headsets, it is time to choose the VR app that you will use with your students. This can be a challenge since new apps come out continuously! The type of app you choose will depend on the pedagogical goals of your class. There are five main categories of apps to choose from that may have applications for language learners:

- Apps designed for language learning
- Apps designed for focused interaction
- Apps designed for social interaction
- Multiplayer Games
- All the other apps out there!

Apps designed for language learning
While this is the first category that we'll discuss, this is also currently the smallest in terms of choices. However, we expect that new language learning apps will continue to appear since headsets are becoming more commonplace. The apps in this category can also be broken down into two subcategories: apps that promote student-to-computer interactions and those that allow for student-to-student/teacher interactions.

<u>Apps for student-to-computer interactions</u>
The two most common VR applications that have been specifically designed for student-to-computer language learning and practice are *Mondly VR* ($9.99) and *ImmerseMe* ($300 per year). The primary benefit of these programs is that students can practice the language of their choice (Mondly VR offers 30 different languages and ImmerseMe 9) individually on their own time. In this category, the students converse solely with a computer and/or choose from a selection of predetermined responses based on what they see and hear. The VR interface for Mondly (see Figure 2, left side) in particular is essentially the same as the interface a student would have on their phone or computer. ImmerseMe (Figure 2, right side) follows a somewhat similar model, but uses 360˚ videos taken from real-life interactions filmed in locations around the world. This makes the experience feel more authentic and culturally immersive.
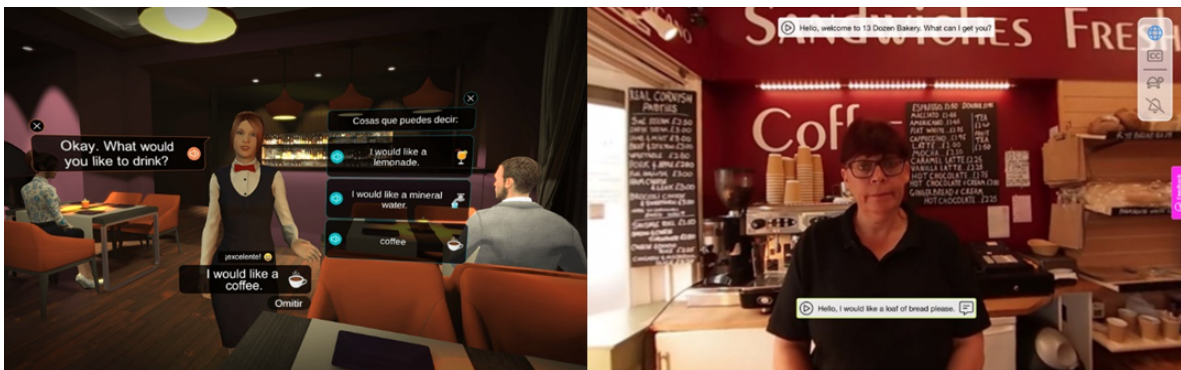

Figure 2. Mondly VR and ImmerseMe

<u>Apps for student-to-student/teacher interactions</u>
The best-designed app that we have so far found for this category is *Immerse*. This app is specifically designed to provide VR locations (36 so far), with each one containing a variety of viewable and interactive elements. As seen in Figure 3 (which shows the teacher interface), teachers are provided with pre-set lessons keyed to each experience, but these lessons can also be customized by the educator, or entirely new ones devised. In addition, there are 'placeables' such as white boards, notes, times, scoreboards, etc. that can be introduced into any experience.

Figure 3. Immerse teacher interface

As noted by the category in which it is discussed, this app is designed for a 'real-life' teacher to have a language lesson in any of the experiences with their students (limited to 8 pupils at any one time). Furthermore, the teacher accesses Immerse via a desktop computer (while students access via headsets), which makes it easier to manage the VR language lesson. One primary limitation at this time is that the app is specifically designed for teaching English as a second language. However, the customizability of the experiences does open the possibility for using this with other languages. Another downside to this app is its pricing model—teachers pay to use the program by the minute (currently 35 cents per minute), with the idea being that they will have students who are paying them directly for language lessons.

Apps designed for focused interaction

The apps in this category are not designed specifically for language instruction, but their 'focused' design makes them easily utilizable for language practice and instruction. These VR spaces are not normally open to the public, but instead are restricted to those invited by the owner of the space. Many of the apps that fall in this group seem to have been designed with businesses in mind. Both *Spatial* (free, Figure 4) and *Horizons Workrooms* (free) provide meeting spaces where users can connect with each other to collaboratively work together. These spaces are equipped with additional features (whiteboards, the ability to bring in outside documents, photos, videos, etc.) that could be useful for language teaching. The benefit of these apps is that they can bring students together when they are physically apart and provide a more immersive experience than video conferencing platforms like *Zoom*. The drawback is that they do not necessarily take advantage of VR's ability to immerse students in experiences that are not possible in a traditional classroom.

Apps designed for social interaction

4

This category of apps was also not explicitly designed for language learning, but the nature of these apps lends itself to language practice. These apps are social, open spaces where users can interact with each other (either their classmates or sometimes random users in the app!). That being said, it is important to consider the age of your students as well as various privacy features within each app when deciding to use these for pedagogical purposes. There are a plethora of social VR apps available, but we particularly like *Alcove* (free, Figure 5 top), *AltspaceVR* (free), and *vTime XR* (free, Figure 5 bottom). Alcove was

created by the American Association of Retired Persons as an app where retirees can connect with friends and family in VR. However, its design is also suitable for language practice. All Alcove users are provided with a home space where they can add their own personal videos and photos (that they can watch and discuss with others), play games, have travel experiences (e.g., a Paris tour, a hot air balloon ride), etc. Altspace offers both public and private spaces for users to explore and even has a weekly public language exchange where users can meet up to practice the language of their choice. Finally, vTime XR allows users to immerse themselves and converse with other users in over 30 different locations. These three spaces each have different amounts of control allowed for user spaces. In Alcove, the owner of the Alcove house must invite other users into the space. This results in more security but eliminates the possibility of meeting new people. Once a user navigates to a space in vTime XR, they control the space and can invite up to 3 others to that location. However, other users can also request to join someone in a space. Finally, Altspace users are given an apartment they control, but in the 'outer' world of Altspace they will encounter a wider variety of users. Educators should carefully explore and select their own apps to use depending on the security *and* the ability to meet others that they desire.

Multiplayer games
VR users also have the opportunity to play multiplayer games with others where they could practice the language of their choice. There is a plethora of multiplayer games available in VR (some popular apps are *RecRoom*, *PokerStars VR*, *TableTop Simulator*). For more information on how to use games for language learning, see the infobyte by Reinhardt & Kirby (August 2020).

All the other apps out there.
While we have covered a number of useful apps in this infobyte, there are many others and teachers are only limited by their creativity—another reason why exploring the app

stores and carefully considering your students is essential. One other app that is particularly useful for language learning & teaching is *Wander* ($10, Figure 6). Wander is essentially *Google Earth* meets VR, in that it allows users to immerse themselves and explore any destination around the world. This provides an authentic, cultural experience. Wander also allows users to connect and explore locations with others, which opens up the opportunity for students to give tours of certain destinations in the target language to their classmates. As seen in the figure, there are two individuals who were 'wandering' in the same location as Tricia, with one represented by the wizard's hat near the bottom of the screen, and each also displaying a colored circle with their name.
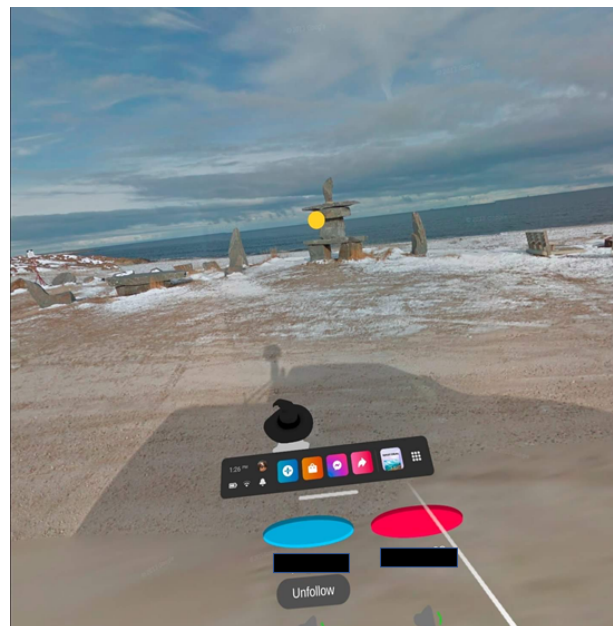
4. Other considerations:

When first using VR with students, it is essential to factor in time for training students to use the headsets and applications that you have chosen (at least one hour!). For example, give students time to do a headset tutorial, explore the app, and be sure to explain to them that most apps include more than one way to move. Some people experience much more motion sickness when moving 'naturally' in an app than when they use a teleport function. The choice of headset can also make an enormous different for this ailment. If you've only used Google Cardboard, try a headset like the Oculus Quest 2 instead—you'll be amazed at the difference in the experience. We also recommend getting rechargeable batteries for controllers and giving students abundant reminders about charging their VR headsets before class. Lastly, for teachers who want to assess students' participation in VR, some VR headsets also allow students to screen record their VR experiences from within the headset and/or to live stream these experiences to share with classmates.

cite as: Sadler, R. & Thrasher, T. (2021, December). Teaching Languages with Virtual Reality: Things you may need to know. *CALICO Infobytes*. Retrieved from http://calico.org/infobytes

Recent CALICO Journal articles on virtual reality and language learning:

Berti, M. (2020). ImmerseMe. *CALICO Journal, 37*(3), pp. 321-330. https://doi.org10.1558/cj.39714

Caspar, S. (2021). Insider Spaces: Hands-on with XR in the Global Languages & Cultures Room. *CALICO Journal,* 38*(1)*, pp. 128-150. https:doi.org/10.1558/cj.40926

Enkin, E., Tytarenko, O., & Kirschling, E. (2021). Integrating and assessing the use of a "makerspace" in a Russian cultural studies course: Utilizing immersive virtual reality and 3D printing for project-based learning. *CALICO Journal, 38*(1)*, pp. 103-127. https://doi.org/10.1558/cj.40926

Taguchi, N. (2021). Application of immersive virtual reality to pragmatics data collection methods: Insights from Interviews. *CALICO Journal, 38*(2), pp. 181-201. https://doi.org/10.1558/cj.41136

Thrasher, T. (*In press.*) The impact of virtual reality on L2 French learners' language anxiety and oral comprehensibility: An exploratory study. *CALICO Journal.*