



Using Google Expeditions to Introduce Virtual Reality

Elizabeth Davis and Andrea Schmutz

Virtual Reality (VR) equipment once thought of as a expensive novelty, is now readily available as a means to increase engagement and improve learning (Siegle, 2019). One of the many advantages of using VR to engage learners is that it is applicable for numerous topics.

Classroom kits (such as the one used by the author) can be purchased for approximately \$2,000 dollars. The advantages of these kits are that they come with all the necessary equipment including a tablet, router, 10 headsets and 10 smartphones all contained within an easily mobile case. Alternatively, with a little effort, assembling a VR kit can be done relatively inexpensively. Purchased separately, routers cost approximately \$50, headsets around \$10, and a plastic storage tote is about \$15. Asking students and parents, or even community members, to donate their old smart phones further minimizes the cost. Another option to keep expenses low is relying on participants to use their own smart phones for the expeditions.

How to Use Virtual Reality Equipment

Google has a free app, “Google Expeditions” that can be used to facilitate virtual reality experiences. This immersive app allows participants to experience over 900 virtual destinations ranging from under the sea to outer space with more being added. The app provides learning prompts and discussion points for the

educator to use in guiding the expedition. Below is a chart with a few topic examples and correlating Google Expeditions.

Topic Area	Google Expedition
College Preparation	A First Look at College
Anatomy	Anatomy- Nervous System
Bees	Bees and Honey Production
Planets	Celestial Objects
U.S. History	9/11 Memorial and Museum

Spend some time reviewing the available expeditions listed on this website: <http://bit.ly/2NKBXE5> in order to select the expeditions that are most suited to the teaching objectives. After choosing the Expeditions here are some tips to guide though the process.

Quick Start Tips

- Fully charge all devices in advance.
- Download the desired expeditions onto the device that will be guiding the expedition.
- Connect (via Bluetooth) each of the headsets to the router Wi-Fi connection.
- Test the expeditions before class to be sure that everything is linked.
- Clear a safe space to conduct the expedition. A big, open space is ideal, but expeditions can be conducted carefully in smaller spaces.

- Before handing out the headsets, demonstrate proper use of the headset such as how to hold it and correct placement on the face (as illustrated in photo 1).

Additional Considerations

- Have students work in pairs, taking turns using the headsets. This method builds in break times mitigating motion sickness. Also, working with a partner allows one participant to watch out for the safety of the other during the expedition.
- The router is necessary to sync the phones to the tablet guiding the expedition and requires a consistent power source.
- Wi-Fi is not necessary
- Virtual Reality equipment is light and easily transported, whether it is the classroom kit contained within a roller case or a homemade kit carried in a plastic tote.

If properly used, VR can increase participation and provide experiential learning opportunities that improve learning outcomes (Merchant et al. 2014). Both students and educators who have experienced VR have made positive comments regarding their experiences. In addition to using expeditions on the app, educators can use the free tour app and a 360° camera to make their own tours.

Recommendations for Further Reading

Will virtual reality drive deeper learning? (Holly Korbey) July 2017

<https://www.edutopia.org/article/virtual-reality-drive-deeper-learning-holly-korbey>



Photo 1: Image of student using virtual reality goggles safely.

List of Available Expeditions retrieve from:

<https://docs.google.com/spreadsheets/d/1uwWvAzAiQDUEKXkxvqF6rS84oae2AU7eD8bhxzJ9SdY/edit#gid=0>

References

- Merchant, Z., Goetz, E., Cifuentes, L., Keeney-Kennicutt, W. & Davis, T. (2014) Effectiveness of virtual reality-based instruction on students' learning outcomes in K-12 and higher education: A meta-analysis. *Computers and Education* 70, 29-40
- Siegle, D. (2019). Seeing is believing: Using virtual and augmented reality to enhance student learning. *Gifted Child Today* 42(1) 46-52

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