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Using Virtual Reality Equipment to Enhance Learning in Extension Youth Programming

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Abstract

This article provides information on how to use virtual reality equipment to increase participant engagement as well as suggestions for incorporating virtual reality activities into Extension youth programming. These are lessons learned through the use of virtual reality by Extension faculty. Virtual reality equipment can increase participant engagement and improve learning.

Keywords: [virtual reality](#), [Extension programming](#), [advantages of virtual reality](#), [how to use virtual reality](#), [increase engagement](#)

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Introduction

As technology progresses, so should Extension's use of it (Wallace, 2018). In 1995, Professor S. Joseph Levine stated, "As educators, we must . . . take advantage of new technology. Not just to play with gadgets, but to create new approaches to fulfilling a person's desire to learn" (para. 8). Now 25 years later, with an ongoing explosion of new technology, that statement remains true. Virtual reality is one example of a new technology that is just beginning to be used by Extension personnel. Virtual reality can influence all realms of Extension, including 4-H, family and consumer sciences, and agriculture.

Virtual reality is the use of computer technology to create a simulated environment. Unlike traditional interfaces, virtual reality places the user inside an experience (Bardi, 2019). Virtual reality equipment, previously an expensive novelty, is now readily available as a means for increasing engagement and improving learning (Siegle, 2019). One of the many advantages of using virtual reality to engage learners is that it is applicable for numerous topics. For those interested in incorporating this type of technology into existing programming, the information, lessons learned, and helpful hints described herein will help.

Use of Virtual Reality in Youth Programming

There are unlimited possibilities for the use of virtual reality in Cooperative Extension. We have used virtual reality specifically for youth programming. For example, we have successfully enhanced programming by having youths

- participate in a virtual field trip to the 9/11 Memorial on September 11, 2018, as part of a memorial program,
- conduct a virtual examination of a healthy lung while learning fitness techniques, and
- engage in a virtual tour of Mars and the International Space Station while studying engineering and design in space.

After the virtual tour of the 9/11 Memorial, one adolescent participant stated, "I wasn't born when 9/11 happened. I've seen video footage of it several times but taking a virtual tour of the Memorial was an incredible experience" (teenaged participant, personal communication, September 11, 2018).

Purchasing or Assembling a Virtual Reality Kit

Classroom virtual reality kits are available for purchase for approximately \$2,000 through electronic box stores or online. The advantages of purchasing a kit are that a kit includes necessary equipment (e.g., a tablet, a router, 10 headsets, 10 smartphones) and is self-contained in a hard case that facilitates transportation and protects the equipment.

Alternatively, with a little effort, assembling a virtual reality kit can be done less expensively. Routers cost approximately \$50, headsets around \$10, and a plastic storage tote is about \$15. Asking students, parents, and community members to donate their old smartphones further minimizes the cost. Another option for keeping expenses low is relying on participants to use their smartphones for the expeditions.

How to Use Virtual Reality Equipment

There are multiple apps available for virtual reality. We prefer to use the free "Google Expeditions" app to facilitate the experiences we provide. This immersive app allows participants to experience over 1,000 virtual expeditions. Expeditions range from voyages under the sea to trips to outer space, and topics covered include everything from geology to human gestation stages. Additionally, the app includes learning prompts and discussion points the facilitator can use while guiding an expedition.

Some helpful hints for getting started are as follows:

- 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 expedition before class to be sure that everything is linked.
- Clear a safe space to conduct the expedition. A big, open space is ideal, but virtual tours can be done carefully in smaller areas.
- Before handing out the headsets, demonstrate proper use of a headset, such as how to hold it and correct placement on the face.

Additional Considerations

Safety

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.

Power

The router is necessary for syncing the phones to the tablet that is guiding the expedition and requires a consistent power source.

Internet

Wi-Fi is not needed for the expeditions to be successful. However, it is necessary to have Internet access to download the expeditions to the tablet before the activity.

Content Creation

In addition to using existing tours available for free online, educators can use the free tour and a 360° camera to create personalized content.

Conclusion

The use of virtual reality equipment with Google Expeditions has engaged participants and supported learning. Some ideas for expeditions include virtually visiting museums and archeology sites as part of an archeology program, effectively combining physical and virtual realities to enhance the learning process, or completing a tour of the U.S. Capitol while studying U.S. history. There are hundreds of expeditions and countless possible applications to engage participants and support learning. When well used, virtual reality can increase participation and provide experiential learning opportunities that support the retention of information.

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Recommendations for Further Reading

"Will virtual reality drive deeper learning?" by Holly Korbey, July 2017. Available on the edutopia website: <https://www.edutopia.org/article/virtual-reality-drive-deeper-learning-holly-korbey>

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