**MARTHA HOLDEN JENNINGS FOUNDATION**

**Grant-To-Educators Application**

**Date:** 12/6/2019 **Amount:** $1129.99

**Project Title:** Virtual Reality for the Classroom

**Grant Category:** Improving learning in math, science & technology

**Grant** **Use:** Department of Social Studies at Nordonia High School

**School:** Nordonia High School - 8006 S. Bedford Rd. Macedonia, OH 44056

**Grades:** 9-12 **Subjects:** Social Studies

**Name:** Mr. Drew Hoisington - 8006 S. Bedford Rd. Macedonia, OH 44056

**Education:** University of Toledo – Bachelors - Education and History; University of Akron - Currently enrolled in Integrated Technology Masters Program

**Description**

The grant proposal I’m seeking will be focused on the field of virtual reality. As a history teacher, finding ways to explore all of the wonders throughout the world are extremely difficult. Students can read about them, however, being able to experience them can make all the difference in making those connections to history. Last school year, I was enlightened to the online platform of Nearpod. This is an online presentation platform that allows teachers to make presentations that require student participation. One of the tools that can be used in Nearpod was a virtual field trip to several places throughout the world. This tool allows students to look at 360 degree views of the location through images that were taken. The students were extremely engaged when looking at the Palace of Versailles. This experience led me to seek other ways to bring these places to life for my students. All my research led me to the Google Expeditions platform and the Google VR kits. Using these VR kits, students can take virtual field trips and bring these historical locations to the forefront of their learning. This technology can take field trips with large groups to the next level and are cost effective for the district. To take a multitude of students to just one place around the district on a field trip is costly, time sensitive, and extremely difficult to coordinate for large groups of students. Students have to sometimes pay to make the trip, miss time in other classes, and some are not able to come due to sickness or inability to pay. By bringing VR field trips to the classroom, all students can benefit and the possibilities are endless on where you can explore. This technology can revolutionize the classroom and its cost effective for the district and a no-brainer for history teachers.

**Timeline**

* Dates: August 2020 - June 2021
  + This would be purchased for the 2020-2021 school year and implemented in my history classes. This would allow for significant data collection and the time to use it throughout multiple topics and lessons to see what it truly could be capable of
  + After the 2020-2021 school year, we would then address some of the limitations, in regards to quantity and use for the next school year.
  + The goal is by the August 2021, to have purchased 2 class sets that can be shared with the entire Social Studies department. The hope would then be to share out with other departments and see if they would be able to implement them in their lessons.
* Number of students involved in the project: 120 students
* Educators involved in the project: Drew Hoisington

**Qualifications**

I teach 9th grade World History and have been a Technology Coordinator at Buchtel High School (Akron Public Schools) for 3 years before moving to the Nordonia Hills City School District. I have seen presentations at technology conferences and sampled virtual reality equipment over the years and see how beneficial it could be for a history classroom. This technology by Google is user-friendly and can incorporate student devices as long as they have the application downloaded on their device.

**Effectiveness**

The goal of these resources is to increase comprehension of new technology for students and what capabilities new technologies have on the field of history. The ability to travel across the world from the confines of your classroom stretch the possibilities available to students as historians and researchers. Students could gain first hand experiences of environments they are researching and have a better understanding of the geographical environment they are in. This can enhance the comprehension of historical locations and how they fit the story they are being told in the classroom about historical situations. The benefits of VR for students in the classroom can lead to future understanding of our world and how different historical events and locations have shaped the world they live in today.

Some of the limitations to this project would be the quantity of VR headsets that could be purchased. To bring in more than a class set of 30 would be difficult, due to the amount available from the grant. This would lead to a couple things to address moving forward. First, where would we find the funds to purchase enough for more than one class and how long would that take to accomplish? Secondly, in the classroom, how would you need to construct the lesson to accommodate multiple classrooms using the same equipment? These are things that would need to be looked at and see what ways these issues could be addressed.

**Objectives and Plan of Action**

The objective behind the purchasing of this technology is to find a cost effective way of seeing the world and how it can connect to the history of our world for students. Pictures in a textbook is an ineffective way of engaging the students with all the history of that location. If students can experience that location and see it from all different angles, the engagement in the content is endless and can provide much more content for the student. Having students go on virtual field trips can bring the material to life in ways textbooks or images on the web cannot do. For example, a lesson where I used Google Expeditions this school year, took us to Jerusalem, as we studied different monotheistic religions. Students were able to look at different areas of where the temple used to stand and see a 360 view of the location. Students were able to connect the information we were reading with the actual location of the Western Wall and how Jews place prayers in its cracks believing it still is a direct connect to God and his presence. Students were able to see how this area is similar to the times of the Romans through images of before and exploring the grounds today. The benefit of this engagement is something history teachers are looking for in relation to the content and the technology provides this opportunity for students.

**Assessment**

Students will complete surveys asking questions about the benefits of this technology and how effective it brought a deeper understanding of the content to the lesson.Other teachers who use the VR technology will complete surveys inquiring on its effectiveness at engagement of their lesson. Feedback is critical for better ways of implementation and useful modifications that could be made. Students will also take assessments over the content at the completion of units and this data will give feedback to the grasping of content from those lessons where the technology was used to enhance learning.

**Sustainability**

If purchased, this technology will continue to be used by our department for years to come. The next step would be to show its effectiveness to other departments and see if these technologies could be purchased for school-wide use. This would hopefully lead to our technology coordinators purchasing more and possibly finding ways to integrate it district-wide. As districts go 1:1 in terms of student devices, this could also be a way for our district to come to an agreement with a company to fund this endeavor for years to come. We have this established with our district and Chromebooks, so this could be a next step for our district in regards to another technology used for lesson enhancement.

**Dissemination**

Each year, our district hosts a professional development conference for teachers throughout Northeast Ohio. I would create a presentation and share this technology and how I use it in the classroom with other members of districts throughout the area. If it’s an effective tool in the classroom, I think others would want to see its possibilities and see if they could find ways to implement it in their classrooms.

**Alignment**

One of our standards in Social Studies is…

*Historical Thinking and Skills - Students apply skills by using a variety of resources to construct theses and support or refute contentions made by others. Alternative explanations of historical events are analyzed and questions of historical inevitability are explored.*

This skill is a priority for students to comprehend and implement in their thinking about history. Being able to experience history allows people to gain a different perspective on historical situations and events. Being able to visit these locations, without having to figure out the logistical way of doing it, allows students to build these thinking skills. This technology can correlate to all different standards throughout our district for multiple disciplines. For example, I watched a demonstration at a conference where an anatomy teacher was using it to look at the 360 degree image of the human heart. Users were able to manipulate the heart and look at it from all different angles. This technology would provide a student with a more engaging perspective than just an image in the textbook. The possibilities of alignment of curriculum and this technology can bring new opportunities for teachers in the classroom.

**Budget**

**Itemized List of Costs**

VR Headset Compatible with iPhone and Android devices - $32.99 (30) = $989.70

D-Link Exo Wifi Router - 4K Streaming and Gaming $139.99

This budget allows for the purchase of one class set with router to connect them to the district’s wireless network. These are prices on Amazon and an alternative to purchasing on Amazon would be through Best Buy. After contacting them, they stated a school account would need to be created before they would give a quote. This could be an option if the school district would rather deal with an educational supplier.

**Resources**

Allcoat, D., & von Mühlenen, A. (2018). Learning in virtual reality: Effects on performance, emotion and engagement. *Research in Learning Technology*, *26*. https://doi.org/10.25304/rlt.v26.2140

Southgate, E. (2018). Immersive virtual reality, children and school education: A literature review for teachers. DICE Report Series Number 6. Newcastle: DICE Research. Retrieved from http://dice.newcastle.edu.au/DRS\_6\_2018.pdf

Yildirim, G., Elban, M., & Yildirim, S. (2018). Analysis of Use of Virtual Reality Technologies in History Education: A Case Study. *Asian Journal of Education and Training*, *4*(2), 62-69. https://doi.org/10.20448/journal.522.2018.42.62.69