



CARL PERKINS CTE GRANT SAMPLE

Integration of Virtual Reality

Understanding Carl Perkins Grant

The Carl D. Perkins Career and Technical Education Act is the Federal law that funds Career and Technical Education (CTE). The purpose of this Act is to more fully develop the academic, career, and technical skills of secondary education students and postsecondary education students who elect to enroll in career and technical programs by;

- *Developing challenging academic and technical standards and assisting students in meeting these standards, including preparation for high skill, high wage or high demand occupations;*
- *Promoting the development of services and activities that integrate rigorous and challenging instruction, and link secondary education with postsecondary education;*
- *Increasing state and local flexibility to provide services and activities designed to develop, implement and improve career and technical education;*
- *Conducting national research and sharing best practices that improve career and technical education programs, services and activities;*
- *Providing technical assistance that—(A) promotes leadership, initial preparation and professional development at the state and local levels; and (B) improves the quality of career and technical education teachers, faculty, administrators and counselors;*
- *Supporting partnerships among secondary schools, post-secondary institutions, baccalaureate degree granting institutions, area career and technical education schools, local workforce investment boards, business and industry and intermediaries; and*
- *Providing individuals with opportunities throughout their lifetimes to develop the knowledge and skills needed to keep the United States competitive.*

ALLOWABLE COSTS WITH CARL D. PERKINS GRANTS

- Computer Equipment must have a per unit cost of \$500 or more and a life span of use of more than one year
- Instructional Materials such as apps
- Curriculum Development
- Training/Meetings/Conferences
- Professional Service Costs
- Program Evaluation

PROJECT CONCEPT FORM FOR CARL PERKINS GRANT

1. Contact Information The point person responsible for managing the project described below.

Last name: _____

First name: _____

Email Address: _____

Phone: _____

Title: _____

County/School/Department: _____

2. Project Information

Project Name: **Integration of Virtual Reality to Impact CTE Academic Performance**

Project Campus Address: _____

Potential Project Partners: _____

Project Timeline: _____

Project Start Date: _____ Project End Date: _____

Brief Project Description: VR-based education is deemed as a field with huge potentials and has evolved from “concept phase” to “implementation phase”. Compared with traditional education, VR-based education is of

obvious advantage in theoretical knowledge teaching as well as practical skills training. In theoretical knowledge teaching, it boasts the ability to make abstract problems concrete, and theoretical thinking well-supported. In practical skills training, it helps sharpen students' operational skills, provides an immersive learning experience, and enhances students' sense of involvement in class, making learning more fun, more secure, and more active. Education becomes truly interactive in a virtual setting. Technical learning generally requires total immersion. For example, virtual worlds enable the ability to place students from a nursing class, directly into tours of human anatomy that are an immersive self-discovery experience into the human body. Students can explore 15 body systems with more than 4000 realistic anatomical structures and organs. You can select, hide, and fade bones, muscles, vessels, organs and other structures.

Problem/Need Statement

Our student's environment from their textbooks to their smartboards are all two-dimensional. Education has not changed for years in terms of teaching approaches and techniques applied. Although we are seeing some innovative variability in this area. Today millennials feel pretty comfortable with online education, doing research on the Internet, resorting to instructional videos on YouTube and distance learning powered by video technology. Obviously, virtual reality is next.

The pedagogies of constructivism and game-based learning show that children learn best by doing or by being. Virtual Reality (VR), sometimes referred to as immersive multimedia, is a computer-simulated environment that can simulate physical presence in places in the real world or imagined worlds. Virtual reality can recreate sensory experiences, which include virtual taste, sight, smell, sound, and touch.

Virtual reality is often used to describe a wide variety of applications commonly associated with immersive, highly visual, 3D environments. The development of CAD software, graphics hardware acceleration, head-mounted displays, data gloves, and miniaturization have helped popularize the notion. In the book *The Metaphysics of Virtual Reality* by Michael R. Heim, seven different concepts of virtual reality are identified: simulation, interaction, artificiality, immersion, telepresence, full-body immersion, and network communication.

Brief Description of the Proposed Project

A library based lab will be outfitted with an HTC VIVE system, which provides users with an immersive virtual reality experience. The Vive is at the forefront of Virtual Reality (VR) technology and is the top product for room-scale VR. Room-scale VR means that you are both visually and physically immersed within the VR experience. Each base station creates a 15' x 15' experience area and picks up all of your movements while you wear the headset, allowing you to physically walk around and explore your surroundings. The two wireless hand controllers give you a very intuitive way to interact with people, places, and things within the VR experience. The fluid hand-held motion controllers transform into tools that allow you to physically interact with the virtual environment you're seeing through the headset. Instead of passively reading about the subjects they are studying in textbook, students can take an active role in their learning with virtual field trips that allow for interactive experiences with the hand controllers. Students can draw and sculpt in three dimensions, without the constraints of space and materials. The possibilities are truly endless. HTC's partnership with Valve and Steam has created a large library of

educational apps, experiences, and simulations that we are constantly updating. Each HTC Vive is mounted on a mobile cart and includes the following:

- two screens, one per eye, each having a display resolution of 1080x1200
- more than 70 sensors including a MEMS gyroscope, accelerometer and laser position sensors
- 2 wireless controllers designed specifically for natural and intuitive interactions
- 2 base stations to track precise movement

Local professional development to support collaboration, integration and cross-curricular projects will be provided by ByteSpeed. The one day on-site Professional Development Workshop will be designed around our school's specific needs. Resources will be custom aligned with state and federal standards of your choice, including: science, math, reading, or social studies.

Research Study: VR in the Classroom

“Every child is a genius in his or her own way. VR can be the key to awakening the genius inside.”

This is the closing line of a new research study currently making its way out of China. Conducted by Beijing Bluefocus E-Commerce Co., Ltd and Beijing iBokan Wisdom Mobile Internet Technology Training Institution, the study takes a detailed look at the different ways virtual reality can make public education more effective.

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learning experience, and enhances students' sense of involvement in class, making learning more fun, more secure, and more active," the study states.

Even though this study centers around Chinese education systems, the problems it hopes to address are global. According to the report, "Most students lack interest in boring teaching and learning. They are easily distracted if the knowledge taught in class is dry and plain." This could describe any school in The United States as well as countless others around the world. It's no secret that education systems have struggled to find the funding, personnel and technology to keep up with the modern era's breakneck pace for innovation. This research suggests that VR could be the cure for this institutional ailment.

See the full study https://cdn.uploadvr.com/wp-content/uploads/2016/11/A-Case-Study-The-Impact-of-VR-on-Academic-Performance_20161125.pdf