

Three Dimensional Immersive Classrooms

Professor Stephen Prueitt, December 15, 2010

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The teaching of college mathematics has been seen as if two things are not the same. Two different stories are told. The first story is about the purpose of liberal arts curriculum. A second story is about observed outcomes from college teaching of mathematics.

A state of the art immersive three dimensional simulation environment will create several unique counter balances to these narratives. This technology is ready to be deployed. We provide a complete design in several technical papers. A related pedagogy consistent with Socratic, constructionist and participatory learning is advanced. The pedagogy and the technology is the foundational innovation proposed to President Obama¹ as an infrastructure program designed to create a new economic level playing field.

There is a specific argument regarding the use of immersive 3D environments with avatars. Sensory and intellectual emersion is useful in assisting the average individual particularly when that individual has been poorly served. With use, he or she may break free from a lifetime of improper training in “math”. How is this to be done? We have a blueprint. A grounding of learning theory in cognitive neuroscience describes an acquired learning disability. This is the conjectured cause of the crisis in American education. A Four Step Modified (R. L. Moore) Method™ has shown itself to be helpful in shifting the responsibility for learning from the professor to the student. To reveal this method in an immersive world has several advantages.

We are in a position to stand up a 3D immersive classroom designed to motivate, excite and communicate with transitioning high school to college students. The student is able to participate via an avatar of his or her choosing, use voice from home or classroom computer and to see password-protected recording of lectures. Missing a lecture does not mean that the lecture cannot be listened to within the virtual classroom. Student peer-to-peer interaction can be provided on a 7–24 schedule. From home, the student might scan and up-load hand written tests and homework, in real time.

¹ Prueitt, Paul S (on line) The American Education Bridge, www.secondschool.net/bridge.pdf

Each student participates via an avatar of his or her choosing. He or she uses voice and participates in lectures. Recorded lectures are about avatars writing on a white board. The immersive world has avatars, avatar selection and editing. Students and faculty, in some classes, will produce clothes, textures, and other essentials to a virtual world. Staff will be responsible for all buildings and landscapes. These are details.

In addition, new capabilities are required. Foremost, FERPA compliance policy ensures that student information is protected. The Education World's servers are being developed as dedicated fully monitored 3D simulation environments. Seem-less access to the virtual classroom might be made using iPads and cell phones. The boundaries defining the class might be securely extended, and FERPA compliance demonstrated.

An essential element is an in-world white board that the professor might write on. Complete text and voice technology, now in second life, is also available from the Education World servers. Voice and text is well managed, but in this case may be recorded for student playback. Recording is to be selective and then edited to protect individual identities. Edited and stylized digital files help in the complete monitoring of student work and advancement.

The development of a repository of learning experience may be archived and used on open source materials. This repository will include hand written student work, developed as weekly homework and department wide exams every four weeks.

The Bridge is designed to work outside of the current educational system; to put pressure on the system by demonstrating increased success using the Four Step Method, and more generally demand side pedagogy.