FEASIBILITY OF VIRTUAL REALITY AS A CLASSROOM TOOL

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ABSTRACT
This study tested the use of an Augmented/Virtual Reality system (AVRS) as an enhancement tool to increase student engagement, retention and learning in a classroom setting. The study identified trends relating to the interest level of students when curriculum was delivered through a virtual environment. The study used a simulated solar system application of five to ten minutes in duration, which was shown to students from Upward Bound and Developmental English classes. The students were asked to evaluate the VR experience and the researchers noted their verbal responses. In the case of the developmental English class the students were asked to write an essay pertaining to their experience. The results were compiled and analyzed to identify trends that would either confirm or refute the idea of using an AVRS as an enhancement tool in educational settings.

The study utilized the Oculus Rift DK2, as well as, the Samsung Gear VR as the delivery method for the “Titans of Space® [which] is a short guided tour of a few planets and stars” (DrashVR LLC, n.d.). A total of fifty students were provided the opportunity to experience the Titans of Space® application, including 29 high school from Upward Bound and 21 college students in the developmental English class. The high school students were presented the experience on a Saturday while taking part in other Upward Bound activities. The developmental English class utilized the application during normal class period. In addition, it should be noted, the use of the AVRS was in conjunction with introductions to engineering concepts such as electrical and computer science, as well as renewable energy, these introductions were intended to facilitate the classroom writing environment.

The students in the developmental English class that participated in this study were asked to reflect upon their experience with augmented/virtual reality. Comments in these reflections spoke to their added sense of engagement, their better retention of material, and their increased ability to apply what they had learned to their writing assignments. The reasons they gave for this perception were 1) the ability to be a part of modern and future technological advancements; 2) the sense that they were physically interacting with learning materials in a 3D world rather than through traditional lecture or textbook, 3) the opportunity to rise to higher expectations that involved real-world application in a more advanced field of study, and, finally, 4) the interest they had in how developing technologies, such as augmented/virtual reality, would be impacting their chosen careers.

The concept of using augmented/virtual reality in the classroom has been around for quite some time. As early as 2004, it was recognized as having great potential as a teaching style given the way young adults flock to modern technology (Dede, 2004). Given the fact that there are already hundreds of millions of mobile devices using Augmented/Virtual reality
already the study assumed that many students would find the experience exciting. Furthermore, it should be noted, the researchers approached the study with some bias towards the use of this media in the classroom given the level of current technology, as one paper stated, “In short: a critical mass is forming to support augmented reality products and services as a major tech/media industry. (Kipper & Rampolla, 2012)” which seems to support this idea. The data shown in Figure 1, as well supports the idea that virtual reality system is highly acceptable to young adults of the modern era.

![Observation of AVRS Experience](image)

**Figure 1.** Responses observed by study participants

As shown in Figure 1, the response was overwhelmingly positive from the study participants. However, it was observed that the Upward Bound students did not show a propensity to consider the AVRS as an educational device but rather as just a cool experience. In conclusion, future research on the AVRS should include some sort of measurable evaluation methods to determine actual responses.

**Keywords:** Virtual, Augmented, Simulated

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**References**