IITG Project Outcomes Form - Report Outcomes : Entry # 737

Name of person reporting outcomes

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IITG Project Title

2018-SUNY Poly-Yucel-SUNY Immersive AR Classroom... Deployment

Have you applied for, or received additional funds? (choose all that apply):

- Consider the project complete, and do not intend to seek additional support

Access Keywords: Enrollment, Diversity, Capacity, Affordability

The Immersive AR classroom has to potential to provide students with visualizations inside the classroom of items what would be prohibitively expensive to buy at a particular scale, increasing its affordability. Examples include high detailed anatomical models. While the headset has a large initial price tag, it can be relatively inexpensive, depending on the experience it is replacing. There's also the possibility to reduce the danger of certain types of training by doing it in immersive virtual environments.

Our AR experience creation software also allows educators to drag and drop components (such as text resources and 3D models) into an AR lesson, enabling the production of AR pedagogical experiences. Lessons created can then be freely shared with other educators, which even cuts out the need to purchase specialized AR software for specific disciplines/courses. This also increases the value and expanded the potential impact of Open Education Resources by extending it into a new medium.

Completion Keywords: Completion, Persistence, Transfer, Retention

Augmented reality has an initial novelty that may help students who are disengaged with a subject matter to view that material in a new light. However, our case study suggests that a minimal difference in test scores compared to traditional models of teaching. Nonetheless, we did see an increase in the perceived “fun” factor of using the equipment, which might generate positive associations with the student’s courses and institution as a whole. That said, we suggest more investigation on the long term effectiveness of AR technology before making any claims to the effectiveness in increasing student retention or persistence.

Success Keywords: Applied Learning, Student Supports, Financial Literacy, Career Success

We believe AR is best used in the context of problem based learning. As such, we feel that it has a large potential for applied and critical learning (as defined by James Paul Gee) as compared to traditional models and digital media. However, to unlock this potential, a massive investment needs to be made in content creation to make AR engaging and interactive.

This need generates the potential for many entrepreneur projects and development opportunities during their academic career.

Inquiry Keywords: Scholarship, Discovery, Innovation, Mentoring

Our early findings were shared at PCA/ACA annual conference. We also participated in the FACT2 Mixed Realities Symposium held in Albany, during which we demonstrated our software and connected with other developers in this problem space.
While our goals were not specifically to increase student scholarship, there is potential for many forms of student scholarship in this new medium, both in understanding the medium and developing new experiences for it.

Engagement Keywords: START-UP New York, Commercialization, Workforce Development, Alumni/Philanthropic Support, Community Service.

The project could certainly be extended and further developed, and while the software and results shall be made readily available to everyone, exposure to our findings may spur on other developments in this area. One could easily see an extremely robust version of this system being commercialized, and we also encourage those who are interested to reach out to us for collaborations in new directions and domains related to mixed reality technologies.

We did receive approximately $24,000 in seed funds from SUNY for a related project combining mixed reality and facial expression recognition with pedagogical pursuits particularly in mind.

1st Choice:

Instructional Technologies

Instructional Technologies

- Immersive Environment (Virtual Reality)
- Open Source Programs and Apps

2nd Choice:

Learning Environments (Physical)

Learning Environments (Physical)

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- Augmented Reality

3rd Choice:

Instructional Design

Instructional Design

- Gamification (Design)

What recommendations would you make to scale-up or share your project more broadly (within an educational sector, or perhaps SUNY-wide)?

Our prototype still needs significant development, both in terms of functionality and usability. As such, to bring it to the SUNY community, a larger, dedicated development team would be necessary; in particular, since our software makes use of the Mixed Reality Toolkit, some of the development efforts should be targeted towards ensuring the toolkit functions with both newer and older equipment. In the short term, readily-available commercial solutions would be the best tactic until greater stability in this industry exists.

If you would like to create a community of practice within the SUNY Learning Commons, please describe "members of your community" who would be most interested in your outcomes. Please be specific (e.g., math faculty, instructional designers, student services, registrars, administrators, accreditation or assessment specialists).

We are currently part of the Community of Practice setup by FACT2 in Mixed Realities. We plan on trying to increase the size of this community by inviting more instructional designers and instructors of different disciplines to the community to build more content.

Do you intend to create an ongoing "Community of Practice" within the SUNY Learning Commons to continue work and dialog regarding this project?

Yes

Overall, how successful was IITG in meeting your project goals? (You may elaborate on your response in the final question if not addressed elsewhere.)

Successful

We encountered significant development challenges due to the ever-upgrading nature of both the software and hardware sides of AR. Nonetheless, we believe we have achieved a reasonable modicum of success in terms of assessing the nature of mixed reality's impact in the classroom as well as the development of a functioning prototype for the easy creation of AR pedagogical experiences. If mixed reality becomes a dominant and permanent part of the technological landscape, the need for user-friendly, non-technical, open source creation of mixed reality pedagogical experiences will be vital, and hopefully the lessons learned in our project will be of use to future developers and educators in this space.

Do you wish your current abstract to be used?

Yes

File One Upload and Brief Description

IITG presentation

File One

- SUNY-Immersive-Augmented-Reality-Classroom-Google.pdf

Project Website Address (Hyperlink 1)

https://github.com/PrimarchOfTheSpaceWolves/IITG_HoloLessonMaster

Any additional comments or resources you wish to share?

None.

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