IITG Project Outcomes Form - Report Outcomes : Entry # 757

Name of person reporting outcomes

Jeff Hung

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IITG Project Title

2018-Farmingdale-Hung-Enhanced Learning... 3D Modeling through AR/VR

Access Keywords: Enrollment, Diversity, Capacity, Affordability

The project utilized augmented reality as a new method to provide students with the accessibility of teaching materials on their mobile devices. The technology used and developed in this project is scalable for teachers and students in many ways. The cost to use the technology is relatively low. It requires a smart phone and a $15 AR cube, the students can access the teaching models through their phones at their convenience.

Completion Keywords: Completion, Persistence, Transfer, Retention

Technical drawing and CAD is first year course in many Mechanical Engineering Technology (MET) programs. It is also a requirement in the SUNY transfer path for the MET program. Although the assessment of the project is inconclusive due to the relatively small sample size, student survey suggested that the AR technology enhanced student learning experience in this course.
In addition, micro credential in CAD were investigated. Our advisory committee members indicated that they would prefer students who are not only proficient in CAD software but also knowledgeable in manufacturing. This result helped us to continue to develop the micro credential in CAD.

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

Students gained hands-on experience of the AR technology and learned how the technology can be applied in engineering technology areas. They also experienced the limitations of the technology. Since AR is a fast growing technology, an early exposure to the technology will help the students to recognize and evaluate its applications and eventually be able to apply it in the fields.
Also, although the assessment of the project is inconclusive due to the relatively small sample size, student survey suggested that the AR technology enhanced student learning experience in this course.

Inquiry Keywords: Scholarship, Discovery, Innovation, Mentoring

Students gained hands-on experience of the AR technology and learned how the technology can be applied in engineering technology areas. They also experienced the limitations of the technology. Since AR is a fast growing technology, an early exposure to the technology will help the students to recognize and evaluate its applications and eventually be able to apply it in the fields.
The project was presented at American Society for Engineering Education (ASEE) 2019 conference. It was also presented as a workshop at the International Energy & Sustainability Conference (IESC) 2019 where local high school teachers were the main attendees.

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

There is no direct support in the areas mentioned above.

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There is no other in-kinds received for this project.

1st Choice:

Learning Environments (Physical)

Learning Environments (Physical)

- Augmented Reality

2nd Choice:

Assessment, Understanding, Monitoring Student Progress

Assessment, Understanding, Monitoring Student Progress

- Micro Credentialing (Badging)

3rd Choice:

No further selection

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

The results of augmented reality and micro credentialing in this project are positive. The cost of implementing augmented reality in classrooms is minimum. Smartphone or tablet is the key of using this technology. This teaching method is scalable in many ways for teachers and students.
Also, micro credentialing in CAD can be implemented in the MET program but it requires the local industry understanding the concept of micro credentialing. Many of them did not know what micro credentials were.

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.)

Very successful

Do you wish your current abstract to be used?

Yes

File One Upload and Brief Description

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This project is presented and a paper is published at the ASEE 2019 conference.

https://www.asee.org/public/conferences/140/registration/view_session?session_id=11133

File One

- ASEE-Enhanced_Student_Learning_Experience_in_Technical_Drawing_and_3D_-R_B.pdf

File Two Upload and Brief Description

This project is presented as a workshop at the IESC 2019 conference.

https://www.farmingdale.edu/academics/centers-institutes/resc/conferences/iesc2019/iesc_agenda.pdf

Hyperlinks to journal articles or campus/local/national press releases describing your project

https://www.asee.org/public/conferences/140/registration/view_session?session_id=11133

Any additional comments or resources you wish to share?

Virtual reality was also proposed in this project. However, there were many challenges in implementing virtual reality in a classroom. The challenges include hardware, software, IT, classroom spacing, and hygiene issues. These issues prevented us from using this technology in the classroom.

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