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Mixed Reality use in Higher Education: Results from an International Survey

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Abstract.
Respondents identified some challenges in implementing MR in their work with a majority reporting student reluctance, faculty reluctance, and lack of infrastructure and hardware as significant challenges. There was a significant reduction in perceived value added by the research respondents. Poor user experience, difficult to use hardware and software, and lack of educational content were among the lowest ranked challenges.

Keywords: Mixed Reality, Survey, Community of Practice.

1 Mixed Reality Task Group Mission

Mixed Reality (MR) is comprised of Augmented Reality (AR), Virtual Reality (VR) and arguably, 360-degree video. AR and VR are in use in numerous commercial applications from Pokémon Go to the NY Times. These tools have serious implications for higher education in areas that include virtual labs, student engagement, and student success and retention. The State University of New York, FACT2 tasked the Mixed Reality Task Group with exploring the use of Mixed Realities in the higher education setting and analyze the opportunities they offer to enhance the teaching, learning, and professional development experiences of students and faculty using the following paths of inquiry [1], such as: What are the opportunities for these emergent tools to be integrated into higher education outcomes? What training, tools and hardware are needed to initiate and support integration into teaching and learning? Describe the learning curve to optimize course and degree outcomes. Is there enough research and experience to frame the potential benefits of these tools in fully online, hybrid and conventional modalities?

Additionally, the Task Group sought to recruit collaborators from SUNY and beyond (faculty, instructional designers, content and product manufacturers) who have subject matter expertise and experience with a goal to augment and expand teaching and learning opportunities that can be sustained as a Community of Practice (CoP). Research

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effective strategies for creating and sustaining a CoP. Create a special interest group to explore the tools and methods being developed to support course and degree outcomes and lay the groundwork for a CoP.

The Task Group met a total of 20 times throughout the 2017-2018 academic year and consisted of 18 initial members. The Task Group developed a survey to investigate the current uses of MR in higher education and research. The survey was circulated internationally with an emphasis within SUNY. A total of 123 respondents completed the survey. Of these, 35% (43) are currently using some form of MR tools in the classroom. Of the remaining 80, only six stated they planned to use MR in the future, 20 said they had no intentions of using these technologies, and 46 felt that they may consider it in the future. Most of the respondents were in the role of faculty (61%), followed by researcher (22%), and instructional design/support (17%). Fifty-eight percent of respondents were from a SUNY campus. The survey found a rather long list of challenges for both teachers and students and for researchers using MR. These challenges along with the hardware, software, classroom designs and course design are listed in more detail on the poster.

Fifty-eight percent of respondents are employed by a SUNY school covering the following campuses: University at Albany, Binghamton University, University at Buffalo, SUNY Delhi, SUNY Downstate Medical Center, Empire State College, Fashion Institute of Technology, Finger Lakes Community College, SUNY Geneseo, Maritime College, SUNY Old Westbury, SUNY Oneonta, SUNY Plattsburgh, SUNY Potsdam, Purchase College, Stony Brook University, SUNY Polytechnic, and SUNY Ulster. Non-SUNY representation (42%) includes Canada, UK, Germany, Ireland, Massachusetts, Colorado, Italy, New Zealand, Scotland, California, and Australia.

2 Conclusions of Mixed Reality Task Group Activities

Aside from the survey results, the outcomes of the FACT2 Mixed Reality Task Group activities can be summarized as follows. 1) An open Community of Practice (CoP VR) was formed to continuously explore, collaborate and share their findings as resource to the SUNY system. 2) A Communication Strategy was developed to actively provide information (using a FACT2 website), with quarterly summative reporting to the FACT2 Council. 3) A repository of content that includes: past reports, case studies, resources and an active list of AR/VR resources that would be regularly updated, evaluated, reviewed, and changed as the technology evolved. 4) Partnerships with colleges and groups like COTE, CPD and others to share information and to be a persistent resource for all stakeholders. 5) Present and discuss issues at events to disseminate the results.

References

1. Riman, J., Winters, N., Zelenak, J, Yucel, I., Tromp, J.: Mixed Reality Task Group Final Report 2018, State University of New York, USA (2018).