IEA –-France - Johnson-Glenberg

 Dr. Mina C. Johnson-Glenberg is an expert in using emerging technologies for education. The extended reality spectrum including augmented, virtual and mixed realities is now called XR. She will bring several XR experiences and VR headsets with her to France. Dr. Johnson-Glenberg received her PhD in Cognitive Psychology from the University of Colorado at Boulder in the US. She chairs the FEVAR (Future of Education in Virtual and Augmented Reality) Special Interest Group at Arizona State University (ASU). She is currently a Research Professor at Arizona State University in the US, where she runs the Embodied Games for Learning Lab out of the Psychology Department. From 2015 to 2016, she served as an Associate Professor (Universitair Hoofddocent) at Radboud University Nijmegen, The Netherlands.

Dr. Johnson-Glenberg is also an entrepreneur. She has started three educational technology companies. Currently, she is the President of *Embodied Games*, LLC www.embodied-games.com. The company creates and distributes innovative and interactive science games. The user interfaces are unique in that they are embodied and integrate gesture and kinesthetics. Her team has been on the forefront of using the body to help youth learn science, technology, engineering and math (STEM). The games incorporate either immersive VR, the Microsoft *Kinect* sensor, Intel's *RealSense* sensor, or *OptiTrack* motion capture IR cameras. She sits on two Boards; 1) The Center for Gender Equity in Science and Technology at ASU https://cgest.asu.edu/ and Baltu in Mesa, AZ https://www.baltustudios.com/

She is the co-Principal Investigator on several National Science Foundation (NSF) grants. One exemplar is a grant is designed to use the magnetometer in smartphones to read the magnetic fields in real time. Augmented Reality (AR) overlays of vectors help physics students comprehend three dimensional phenomena like magnetic fields. The *Beta* version of that app can be found at https://www.vieyrasoftware.net/physics-toolbox-ar.

Readings:

Johnson-Glenberg, M. C. (2019). The Necessary Nine: Design Principles for Embodied VR and Active STEM Education (pp. 83-12). In P. Diaz, A. Ioannou, K.K. Bhagat, & J.M. Spector (Eds.), *Learning in a Digital World: Perspective on Interactive Technologies for Formal and Informal Education.* Singapore, Springer. **https://link.springer.com/chapter/10.1007/978-981-13-8265-9_5**

Johnson-Glenberg, M. C. (2018). Immersive VR and education: Embodied design principles that include gesture and hand controls. *Frontiers in Robotics and AI*, 5, 81. Open source https://doi.org/10.3389/frobt.2018.00081

Johnson-Glenberg, M. C., & Megowan-Romanowicz, C. (2017). Embodied science and mixed reality: How gesture and motion capture affect physics education. *Cognitive Research: Practices and*

Implications. 2, 24. 10.1186/s41235-017-0060-9.
https://cognitiveresearchjournal.springeropen.com/articles/10.1186/s41235-017-0060-9

Badilla, M.G., Johnson-Glenberg, M. C., Galindo, J., Revuelta, F., & Pedrera, I. (2017, June). *Promoting nutrition with videogames as a support of science education curriculum*. International Workshop on Gamification and Games for Learning. Gamilearn 2017, Tenerife, Spain.

Johnson-Glenberg, M. C. Birchfield, D., Megowan-Romanowicz, C. & Savio-Ramos, C. (2016). Effects of embodied learning and digital platform on the retention of physics content: Centripetal force. *Frontiers in Psychology*. http://dx.doi.org/10.3389/fpsyg.2016.01819 .

Research Project- Dr. Johnson-Glenberg will work closely with Emmanuel Rollinde's team to integrate virtual reality (VR) and immersion into the Human Orrery experience. She will bring several VR headsets with her and gather feedback from various users, from colleagues to middle school children, on the learning experiences. There will be focus on what makes learning in VR in 360° unique, and how it affects long term retention. She is currently working on a rubric to help teachers score the quality of educational experiences inside emerging XR technologies.

Events-

To come later….