Use of Multi-sensory Immersive Technologies in Fluid Dynamics Education[1] LORENZO PICINALI, LYES KAHOUADJI, LACHLAN MASON, MARK SUTTON, NITESH BHATIA, ANDRIUS PATAPAS, OMAR MATAR, Imperial College London — We present the recent virtual reality (VR) environment used in the Department of Chemical Engineering, Imperial College London, where both undergraduate and Masters-level students are able to 'dive inside many classical examples of fluid mechanics (including Poiseuille flow, flow past a sphere [and associated vortex formation in the wake region], rising spherical-cap bubble, turbulent channel flow, and two-phase mixing in a stirred vessel) and explore the underlying physics. Three-dimensional CFD simulations are carried out to generate the flow field data for each flow, which are then imported into the VR. All physical fields from the CFD simulations, such us the magnitude of the velocity and stress components, as well as the pressure, are implemented in the VR environment via a sonification process where students are able to visualise *and* listen to chosen fields simultaneously. Our hypothesis is that this multi-sensory experience promotes a deeper understanding of the four-dimensional concepts underlying fluid dynamics.

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Date submitted: 29 Jul 2019   Electronic form version 1.4