

INITIAL INVESTIGATIONS IN USING VIRTUAL REALITY TO TEACH CHEMISTRY

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ABSTRACT

Virtual Reality (VR) has become a much more common household commodity thanks to the proliferation of more affordable VR devices. Whilst its use in the gaming industry is becoming widespread, its application in pedagogical environments has only just started, particularly in chemistry. As such, whether VR will aid or hinder the teaching and learning of chemistry is currently a topic of research and debate (Won, Mocerino, Tang, Treagust & Tasker, 2019).

This project generated a range of VR materials designed to support students learning undergraduate chemistry. The topics included stereoisomers, VSEPR theory and introductory organic chemistry (namely addition and substitution reaction mechanisms). The VR materials were tested with both students and teaching staff, with all data audio recorded using a think-aloud protocol.

Preliminary and follow-up interviews were also conducted with all participants. The students' conceptual understanding was tested with common theoretical questions and concept inventories both before and after either a VR lesson or a paper-based version of the same theories covered in the VR lessons. The results of these trials will be discussed and their implications on the use of VR in the teaching and learning of chemistry considered.

REFERENCE

Won M., Mocerino M., Tang KS., Treagust D.F., Tasker R. (2019). Interactive Immersive Virtual Reality to Enhance Students' Visualisation of Complex Molecules. In: Schultz M., Schmid S., Lawrie G. (eds) *Research and Practice in Chemistry Education*. Springer, Singapore

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