



VIRTUAL REALITY SIMULATION

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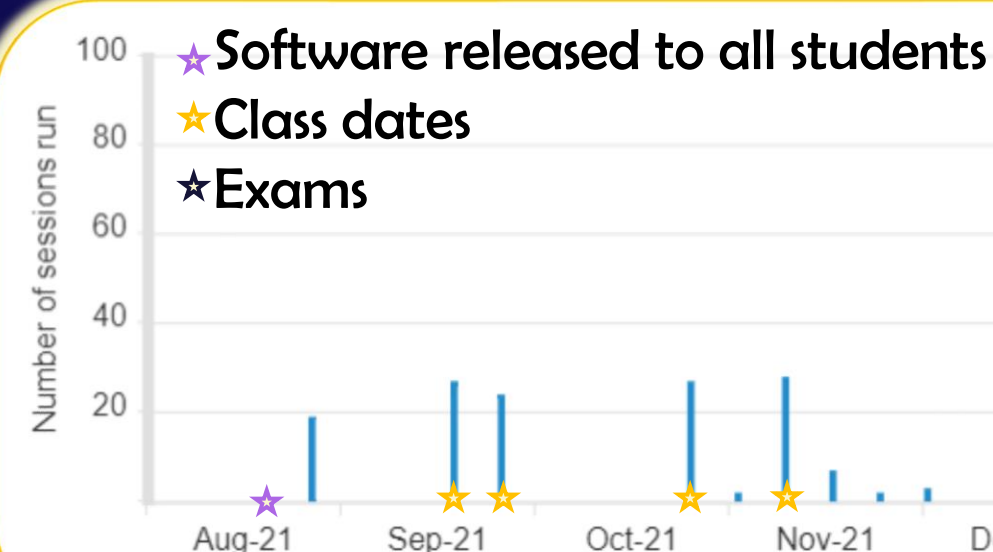
"Really enjoyed using the software and found it helpful to have such a realistic simulation."

Introduction

Assessing an unwell patient and managing their clinical presentation is part of the GMC outcomes for graduates¹. Covid 19 has provided many challenges for students, including limited face to face teaching time and unpredictable exposure to acutely unwell patients on clinical attachment. Immersive simulation is a way of replicating an acute clinical experience, but is costly and resource heavy². This made us look for alternatives to immersive simulation that provided students with self-directed learning opportunities and complimented the limited face to face teaching time.

Virtual Reality (VR) is increasingly being used in medical education and could provide an option for an alternative technology enhanced learning experience in assessing an unwell patient³.

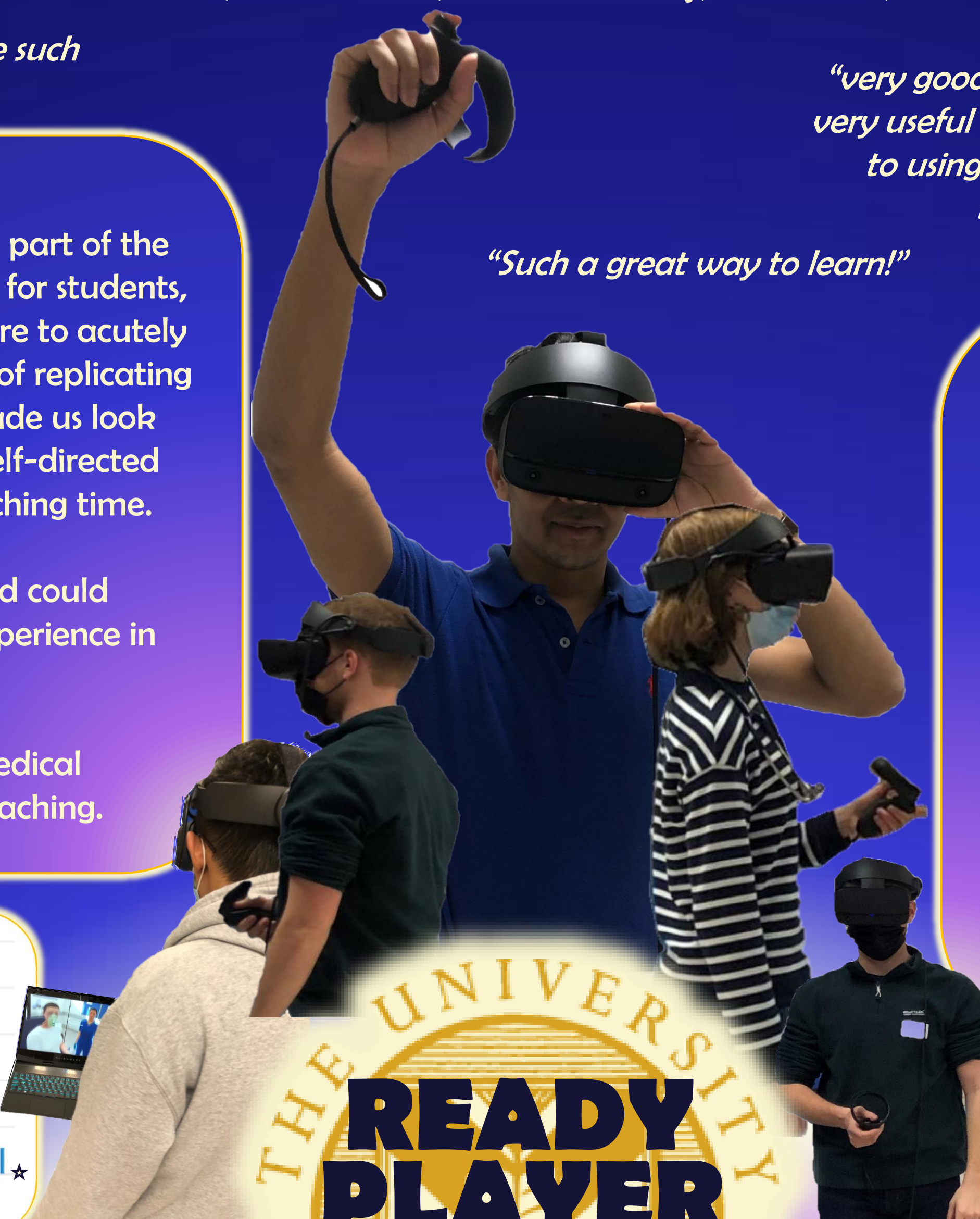
Our Aim - To explore the feasibility and acceptability of providing medical students with an immersive VR experience as part of the acute care teaching.



Method

With VR being a new technology for most, we introduced it in a compulsory face to face year 4 acute care teaching session. We used Oxford Medical Simulation (OMS) computer software with an optional VR headset for the students to complete one scenario in class. The software was available for download onto student's personal devices for use 24/7 and VR headsets were available for independent use during office hours.

In the scenario, the students had to assess and manage an acutely unwell patient within 15 minutes. This was followed by some reflective questions and feedback on their performance from the software. The different scenarios included anaphylaxis, sepsis, severe asthma, PE and NSTEMI.



READY PLAYER MEDICAL STUDENT?

"Really engaging and adds an added element of realism to learning, the closest to a real scenario."

"Was really good. Makes you feel more confident in a patient scenario without the pressure of a real person"

"very good idea! think it will be a very useful resource once I am used to using the equipment and technology!"

"Such a great way to learn!"



Results

254 students took part and 104 completed a voluntary evaluation form. We were also able to gather usage data from OMS.

Student feedback

Students rated it **5.8 out of 6** for enjoying the software and **5.4 out of 6** for usefulness

89% of student responses reported feeling more confident in assessing an unwell patient after using the VR

OMS data

41 hours 13 minutes in class simulation, **54 hours 6 minutes** of independent simulation (95 hrs 19 minutes total)

20% of students completed more than one scenario

540 scenarios were completed

Conclusion

Engaging technology - The use of VR was well received. Students were excited to use the technology and gave positive feedback. They found it to be enjoyable, realistic and useful in building their confidence.

Needs to be integrated into teaching – Some students indicated difficulties with using an unfamiliar technology. This was not an unanticipated problem which is why we incorporated it into a face to face session and provided experienced support. We also gave students access to the software from the beginning of term but there was limited use prior to the compulsory session. This highlights the need to incorporate the use of VR into the compulsory face to face teaching session both to troubleshoot technology problems and encourage use.

Independent simulation as a revision tool - The use of VR was not intended to replace immersive simulation but was used as an additional opportunity to independently practice assessing an unwell patient. It has provided an immersive experience and given the students independent simulation time. It had limited use throughout the year but a large spike in usage prior to exams has highlighted its acceptability as a revision tool.

References

Outcomes for Graduates. GMC. [Outcomes for graduates - GMC \(gmc-uk.org\)](https://www.gmc-uk.org/outcomes-for-graduates). Published February 25, 2020. Accessed January 6, 2022.

Pal S, Benson R, Duvall P, Taylor-Jones V. Do innovative immersive virtual reality simulation videos have a role to play in teaching non-technical skills and increasing preparedness for clinical placements for medical students? [version 2]. *MedEdPublish*. 2021;9(1): 164. doi.org/10.15694/mep.2020.000164.2

Haowen J, Vimalasvaran S, Myinjt Kyaw B, Tudor Car L. Virtual reality in medical students' education: a scoping review protocol. *BMJ Open*. 2021; 11(5): e046986-e046986. doi:10.1136/bmjopen-2020-046986