INTRODUCTION
HILS is in process of creating a VR ABC assessment experience aimed at 4 and 5th year Medical Students after first completing a successful Labour Ward VR experience.1 We would create two versions—one non interactive and one interactive. Differing levels of interactivity and perspectives offered by VR introduce various technical and design challenges, which will be shared in this abstract.

METHODS
VR can create different levels of embodiment - self location, body ownership and sense of agency being key factors impacting this.2 We decided that the user should feel like they were a character in the scene rather than an observer. Our technical decisions in trying to achieve this were as follows

- Self location – place the camera at the foot of the bed (central to the scene)
- Body ownership – we did not have the ability to create ‘a visual body’ for the user, so could not influence this.
- Agency – converse with characters in the scene using pre-recorded audio. Interactive version created using Cenario VR web based software adding choices on screen would increase sense of agency.

RESULTS
The choice to insert pre-recorded audio representing the voice of the user created a technical challenge. We decided that expecting our actors to memorise a full script, the voice of the user created a technical challenge. We overcame this by fitting a discreet walkie-talkie to the lead doctor in the scene, whilst having a person in our nearby simulation control room replying into the walkie-talkie, whilst simultaneously recording their verbal responses on camera, to keep the conversation seamless during filming. The blank audio gaps in the video footage were then filled with our recorded responses, resulting in the user hearing a verbal reply coming from them. (Figure 1)

DISCUSSION
Standard video production offers a multitude of design decisions, and 360 VR video builds on this with additional considerations such as the much wider perspective and the range of viewing hardware, however the principles of building an education resource to fit a specific learning objective are just as important as ever. 360 video introduces technical challenges such as limiting the places which are ‘out of shot’ and as our project demonstrates, each design decision can introduce additional technical hurdles, which are best considered in advance of filming.

REFERENCE

THE SIMULATION TEST: CAN MEDICAL DEVICES PASS?

Background
Simulation-based education can enhance healthcare professional’s knowledge, skills and attitudes in safe environments. Traditionally, simulators are utilised to train or measure procedural-based skills and teamwork behaviours.1 The ASSERT Centre, UCC use a Human Patient Simulator (HPS CAE) and intensive care ventilator (Hamilton G5) in pre-clinical testing of a continuous respiratory sensing monitor (RespiraSense PMD Solutions).2

Project description
The RespiraSense sensor measures chest and abdomen deflection during breathing to directly measure respiratory rate (RR). The device was attached to the HPS in the appropriate position. In order to accurately control RR, a G5 Hamilton Medical intensive care ventilator was used to ventilate the mannequin. The HPS was intubated with a size 8.5 ETT and ventilated on pressured controlled mandatory ventilation (P-CMV). Ventilation settings were; Pressure Control of 15 cmsH2O and Positive End Expiratory Pressure of 5 cmsH2O with an Inspiratory: Expiratory Ratio of 1:2. These parameters were chosen as they are physiologically representative of a normal ventilated healthy patient, and achieved normal ventilation and pressure values throughout the study.

Summary of results
The devices dynamic response measurements were observed following changes in ventilation RR, ranging from 6–60 breaths/min. The breaths were increased in increments of 1, every 2 minutes. The device measurements and the ventilators CMV rate were plotted and analysed using the Bland Altman’s method, revealing both measures within 95% limits of agreement for the difference of the means (±2 SD).