Does virtual reality have a place within healthcare education? A focus group exploration of 360-degree videos to teach non-technical skills

Miss Laura Park
Graduate Tutor, Nursing, Midwifery and Health, FHEA, BSc(Hons), RN.

Mrs Claire Ford
Lecturer, Nursing, Midwifery and Health, FHEA, PGD, BSc(Hons), RN.

Dr Andrew Melling
Director of Technology Enhanced and Online Learning, Reader (Adult Nursing), Nursing, Midwifery and Health, FHEA, PhD, BSc(Hons), RN.
Background

3 stream research project:

1. **Skills for Practice Website (S4P)** - A mixed methodological approach to exploring students’ views of the ‘skills for practice’ website, to assist with the learning of practical skills.

2. **Virtual Reality (VR)** - Using 360 VR filming, a focus group exploration of nursing undergraduates’ perceptions.

Why incorporate virtual reality and 360 videos?
The changing shape of healthcare delivery & workforce

- Increased use of technology within health and social care
- Generation X, Y & Z
- Increasing pace of change
The changing shape of healthcare education

- Education providers need to make the best use of technology - ensure students acquire skills needed for practice.
- Larger cohorts of students - alternative ways of teaching need to be utilised.
- Increasingly faced with students, who are predominately ‘technologically savvy’.
- Web based technologies to support and supplement teaching is currently being used across 61% of some Universities.
What is Virtual / Augmented Reality (VR/AR)?
The main difference between AR and VR is the level of immersion:

- **AR** – Allows special effects to be digitally superimposed onto the real world.

- **VR** – Enables an immersive experience that aims to shut out the real world.

VR are two or three-dimensional based environments, created via computer graphics or images from the real-world.
A New Virtual World

- Appeared in and out of the literature since the 1960’s.
- Considered as a contemporary innovative technology that fits within innovative contemporary pedagogy.
- After gaming, education and healthcare are the sectors expected to attract the most VR/AR related investments.
- Using VR as a teaching adjunct within higher education establishments is growing due to its potential to amplify educational worth.
- While research is rich in the gaming industry, there is limited evidence within the field of healthcare practice.
The Research Project
- VR video was created and piloted within a 2nd year undergraduate teaching seminar
- 160 adult nursing students viewed the video
- 17 students participated in one of three focus groups
- Audio recorded, transcribed verbatim and analysed using thematic analysis
- Transcripts coded and themes developed by independent researchers who then shared findings
Equipment

✓ Headset
✓ Smartphone
✓ Headphones
✓ Wi-Fi connection
Four central themes emerged from the findings.

Key Findings

- Technological issues
- Immersive emotions
- Students role
- Feedback
- Consolidation
- Noise
- Space/location
- Repetition
- Facilitator
- Scenario
- Session format
- Elements for Fidelity
- The learning environment
- VR as a teaching pedagogy
- The Debrief
- Technological issues
- Immersive emotions
- Students role
Elements needed to increase fidelity

Scenario Realism

- FG2 P2: “Cos half the things that were going on, you know wouldn’t happen in reality, so it was overdramatised.”

- FG1 P3: “It’s not what you would say unrealistic but it was quite exaggerated. So, I think for me, if I’m say experiencing virtual reality I would have liked to have seen something a bit more realistic.”

- FG2 P4: “There were little things that would quite often happen, like the curtain being left a little bit open; that’s quite believable. I think some things were a bit over exaggerated.”
Elements needed to increase fidelity

Scenario Format

- **FG2 P5**: “Yeah, it was like a good gap between like normal seminars and practicals.”

- **FG3 P4**: “I think the technology might be good for first year students who are very anxious about basic life support.”

- **FG1 P1**: “That’s what I mean about being in the situation….. For me, that would be a great thing before I went into practice”.
Effective use of learning environment

Noise

- FG1 P1: “I did feel like I was in it, but I could hear everyone else talking.”
- FG3 P4: “I think there was a difficulty with sound, even though I had earphones in, I struggled to hear a lot of what was going on. There was a lot of movement, shuffling and other kind of background noise that made it difficult.”

Location

- FG3 P5: “Yeah, maybe if it was like in a different setting. Obviously, not in something bizarre, but because it was like in a classroom layout, if we were maybe in a hall...”
- FG3 P4: “I think people would be reluctant to take the time to watch it in their own home environment....”
Effective use of learning environment

Allows for Repetition

- FG2 P6: “I liked how you could watch the video as many times as you wanted to. You could be like: “Oh, I missed a bit; I could have gone back…”

- FG1 P7: “Yeah, it was short, but you could re-watch it and you could think of things you’ve missed, whereas you’d miss a lot I think if you’d just watched a video or listened to someone.”

Facilitation

- FG1 P2: “She was really good actually. She knew what she was doing, she knew how to fix them, how to work it but she knew exactly what to do.”

- FG3 P4: “I think if you want to get people to take it more seriously and pay more attention, then a suggestion would be, to not put the prompts on the board prior to putting it on.”
The importance of debrief

**Feedback**

- **FG2 P6:** “I like how we spoke about it afterwards. I find that really beneficial, rather than writing notes.”
- **FG2 P4:** “You get other people’s views as well, like stuff you didn’t notice.”

**Consolidation**

- **FG2 P6:** “It allowed you to be a bit more critical, I thought. Well, when you discussed it afterwards.”
- **FG1 P1:** “I though the feedback at the end was quite good. Then we went on and spoke about de-escalation and all of that, which was good.”

**Inclusion**

- **FG1 P2:** “It kind of brought everyone back at the end, everyone kind of had time to say what they thought.”
- **FG2 P3:** “I felt less pressure …… I felt lot more relaxed to get involved.”
Virtual reality as a teaching pedagogy

Technology Issues

- **FG3 P3:** “Yeah, it was a lot more immersive but I think better production though, so you could see the picture really well and the sound was really loud.”

- **FG2 P7:** “Like the technology, like some of our mobile phones weren’t; working quite right or took ages to buffer and stuff.”

- **FG3 P3:** “They weren’t comfortable. My phone kept slipping out.”
Virtual reality as a teaching pedagogy

Creating Emotions

FG2 P4: “I think like, emotional things, like where you’re breaking bad news, like sitting in a side room with the family or something, … you feel like you’re there and like….‘Cos sometimes you don’t get to be in the room when you’re a student in those situations.”

FG3 P3: “For me, that would be a great thing before I went into practice. To actually be there and experience it for the emotional side and to see what’s going on. But I think that would just be a really, really good experience.”

Students Role

FG1 P2: “..could turn about and do your own thing so I guess it was more like an interactive thing.”

FG1 P1: “…I wasn’t bored I was engaged all the time. Like sometimes I do switch off but I didn’t switch off I think.”
For successful implementation of this teaching strategy, academics need to be cognisant of the four central themes.

Failure to consider all four aspects of the model may impact on the overall level of immersion.
Stage 1 improvements.....

✓ Invested in a new 360 Camera
✓ Created a video tutorial guide
✓ Changed room location
✓ Implemented universal starting times
STAGE 2 improvements......

✓ Invested in superior equipment and software – Oculus Rift/Go (improved quality)
✓ Session to now be used with year 1 students (scenario simplicity)
✓ TEL team to insert hotspots (student engagement)
✓ To be viewed in dedicated TEL room prior to seminar
Way forward

✓ To re-evaluate model
✓ To write up and publish the findings
✓ Extend the VR framework across programmes and increase content to include a wider variety of scenarios
VR Video Demonstration Available
Any Questions?
Bibliography


