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

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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.
3. **Technology Enhanced Learning (TEL) -** in an undergraduate nursing curriculum, benefits, solutions and challenges.

Why incorporate virtual reality and 360 videos?

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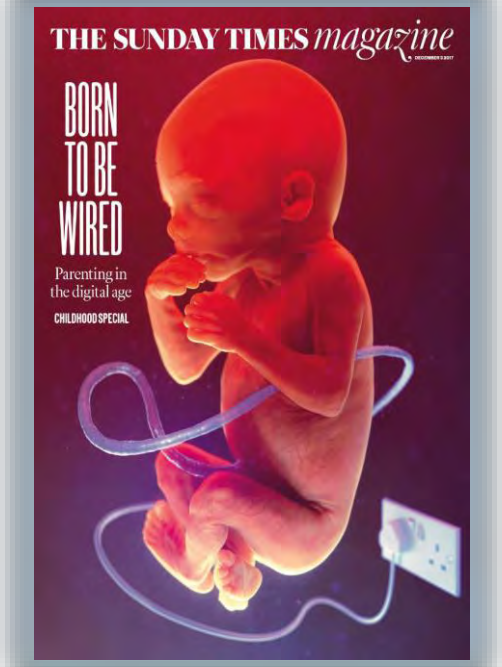
#TakeOnTomorrow



The changing shape of healthcare delivery & workforce

- Increased use of technology within health and social care
- Generation X, Y & Z
- Increasing pace of change

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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.

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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

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- 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

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Equipment

- ✓ Headset
- ✓ Smartphone
- ✓ Headphones
- ✓ Wi-Fi connection

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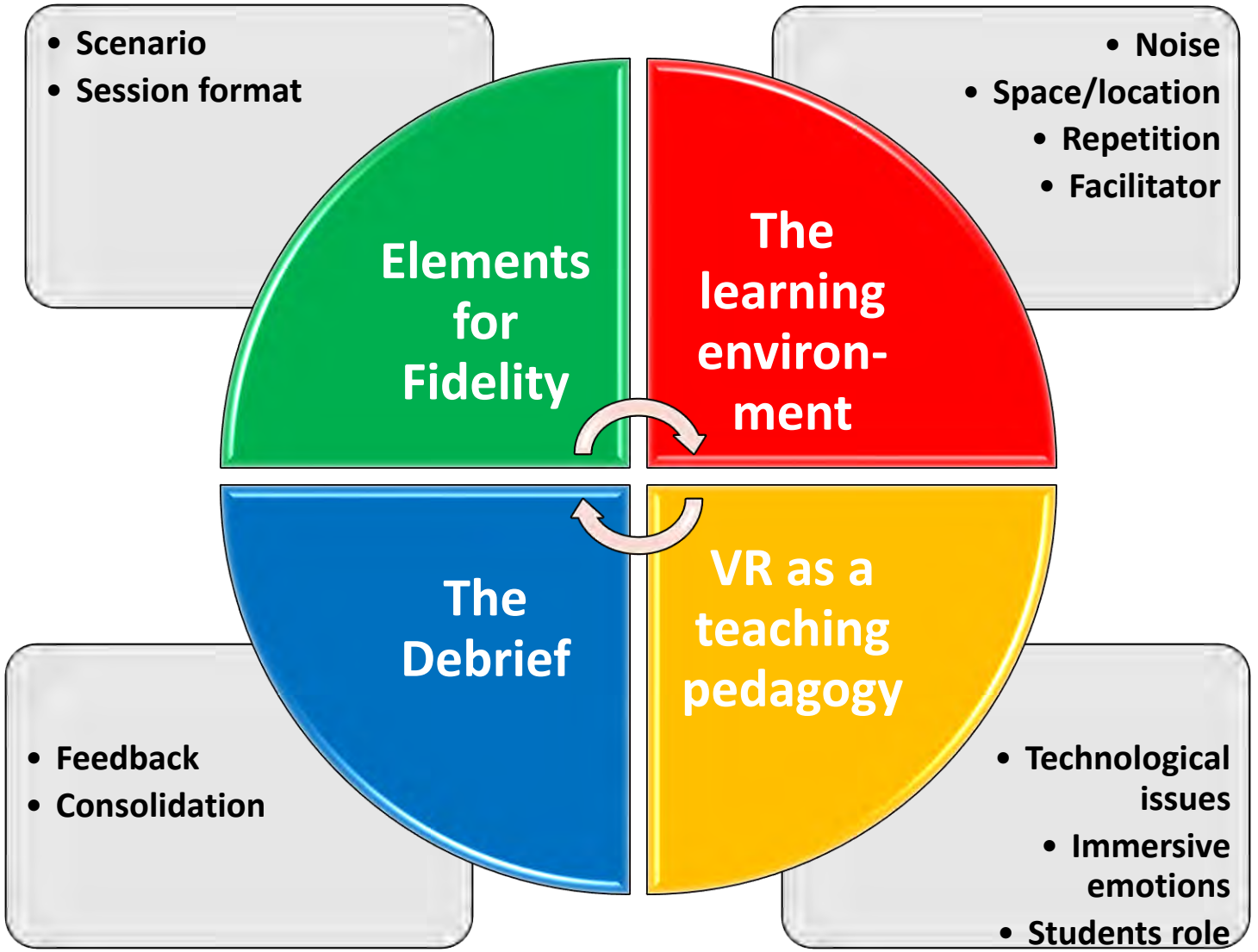
Key Findings

Four central themes emerged from the findings.



Elements needed to increase fidelity

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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

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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…."**

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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."**

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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."**

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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."**

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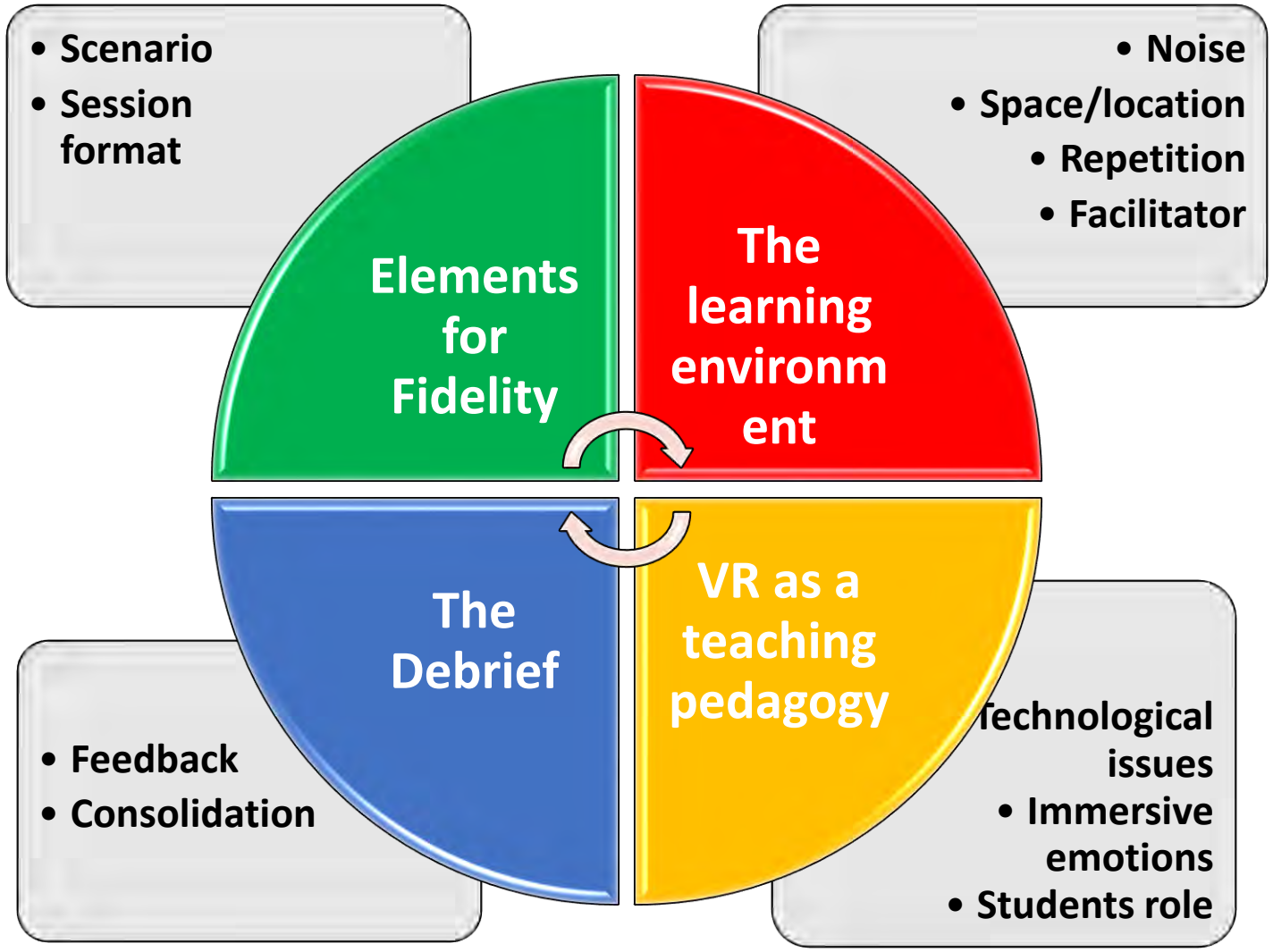
- ✓ For successful implementation of this teaching strategy, academics need to be cognisant of the four central themes.
- ✓ Failure to consider all four aspects of the model may impact on the overall level of immersion.



Stage 1 improvements…..

- ✓Invested in a new 360 Camera
- ✓Created a video tutorial guide
- ✓Changed room location
- ✓Implemented universal starting times

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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

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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

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Any Questions?

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