Simulated Learning in Midwifery: Exploring the use of virtual reality technology in neonatal resuscitation

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Virtual Reality in the 21st Century

- No longer just attributed to futuristic, space-age technology
- VR and AR are receiving considerable attention – predicted to be worth $162 billion by 2020
- Imbedded in 21st century culture – 3D movies, interactive video games, AR smart phone apps (Pokémon Go)
- Many conventions separate the user from the experience via a screen VR and AR headsets such as Oculus, Gear VR, Google Cardboard, Hololens are removing that ‘fourth wall’
- Developers now focused on ‘true immersion’
- Applications for this technology could be endless – health, education, gaming, training
Multi-modal learning: Where does virtual reality fit in?

• Blended learning is widely used as a teaching method internationally
• Combinations of face to face learning with online/digital mediums
• Enhance the learning experiences of students and provide greater flexibility in learning
• Recognises and caters to different adult learning styles
• VR simulation may be a useful tool to help bridge a gap between theory and practice
• Research currently exists on VR simulation for surgical training, anatomical education/training, disaster training, emergency settings, medication administration and transformative learning
• Very little VR research has been done in the field of midwifery
Neonatal Resuscitation: A Critical Skill for Midwives

• How do we choose an appropriate learning area for virtual reality teaching?
• Emergency skills training is valuable, due to difficulty gaining real-world experiences
• Between 15-20% of newborn babies require some form of resuscitation at birth (ANZCOR, 2016; AIHW, 2016)
• Mandated in many Australian states as a skill requiring annual competency
• Neonatal resuscitation app created by the Innovations Team at UoN in conjunction with midwifery academics to recreate a scenario appropriate for the scope of practice of 2nd year midwifery students
• Trial run of app in Semester 1, 2017 complete
LEARN HOW TO RECUSCITATE A NEWBORN BABY

In some cases newborn babies need resuscitation. It is important for midwives to have the relevant knowledge and skill to deal with these situations.

However, accessing a lab where you can practice isn’t easy, the equipment involved is expensive and practicing in a lab requires other people to assist.

This simulation allows students to practice the procedure on their own, from operating the equipment, to assessing the health of the baby, to talking to other people in the delivery room.

Using virtual reality, the students can go through the procedure as many times as they want, to ensure they are confident with all the steps.
Our Neonatal Resuscitation App

- Resuscitation begins with preparation
- Students must first prepare the resuscitation trolley with all required equipment before the baby is born
- Critical thinking is required and assessment of the baby takes place (using APGAR scoring) on multiple occasions
- Students progress through the scenario as per ANZCOR resuscitation guidelines
- Calling for help – using ISBAR to communicate with other professionals
- Progresses through a full scenario right down to neonatal CPR
- Recap at the end – communicating with partner and recalling events
- Guided and unguided modes to enhance learning
The Research

- **Study population:** 2nd year midwifery students
- **Expected number of participants:** Maximum of 39 in the 2018 cohort and up to another 39 in the 2019 cohort
- **Sampling method:** Convenience sampling
- **Study design:** Mixed methods incorporating an RCT (control vs intervention group) with qualitative focus group interviews
- **Data collection methods:** Pre- and post-surveys, psychological pre-screening survey, biometric sensor measurement of stress markers, focus groups. Also an ability to gather analytics on the VR simulation app use.
References


International Data Corporation. (2017). Worldwide spending on augmented and virtual reality expected to double or more every year through 2021, according to IDC. Retrieved from http://www.idc.com/getdoc.jsp?containerId=prUS42959717


ANY QUESTIONS?

A presentation to the Australian Nurses and Midwives Conference 2017
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