to them; 3) and understand the value that students place on experiencing cardiac arrest and life-support education through mental simulation.

Methods: Phase-1 was the design of a mental simulation script. The protocol was engineered to assist the students in creating functionally equivalent, high-fidelity images. Phase-2 was a qualitative interview study undertaken from a constructionist perspective. Eleven pre-registration nurses were asked to use the mental simulation protocol for 4-weeks. At the end of this period, semi-structured interviews and thematic analysis were employed to co-construct an understanding of student perceptions.

Findings: Several themes were identified (Table 1). The participants were motivated to undertake the mental simulations mainly due to feelings of low self-efficacy. These motivations created the volition required to problem-solve and make decisions that overcame environmental and time management challenges. The scripts assisted participants in coding images evoked from the language within the script narration. Unique to the participants, these images created individualised, emotionally laden, authentic scenarios high in psychological fidelity. This generated a realistic scenario akin to a real-world practice experience. Mental simulation acted as a reflective tool, and reflective practice allowed the participants to demystify the complexities of cardiac arrest life-support processes, leading to increased self-efficacy. Whilst CPR practice has been objectively shown to increase skill, these findings show the processes that occurred during learning (Figure 1).

Table 1: Theme and subtheme definitions

Theme/ subthemes	Definition
'Motivation'	Participants were underconfident about undertaking real-world BLS and life-support, creating strong motivational drivers. These motivational drivers (along with others) were strong enough for participants to enact mental simulation.
'Picture perfect.' (subtheme)	The participants had to fit mental simulation into their busy life schedules, creating the time and space necessary to undertake it. The participants all created a sanctuary that allowed them the space to create high-fidelity images.
'High-fidelity' (theme)	The script narration and cues of the audio-guided mental simulation script created the basis for creating a high-fidelity simulated experience.
'Imagination' (subtheme)	The participants tended to produce visual images evoked by the language within a script, but they significantly individualised them. The participant created these images from past memories unique to them.
'Hang on to your emotions' (subtheme)	The narration and the sound effects within the script evoked high-arousal states that are akin to those felt in a real-world cardiac arrest.
'I can't imagine.' (subtheme)	Most participants found the kinaesthetic (haptic) imagery challenging. The script did not tend to evoke high-fidelity kinaesthetic images, perhaps due to a lack of real-world experience.
'Harmony' (theme)	Mental simulation created periods of reflective practice, which illuminated gaps in skill and knowledge, demystifying the cardiac arrest structure and processes. This reflective period helped to fill in skill and knowledge gaps.
'Coping' (sub-theme)	Mental simulation gave participants greater self-efficacy towards their ability to perform clinically, meaning they felt ready to cope with real-world life-support practice.

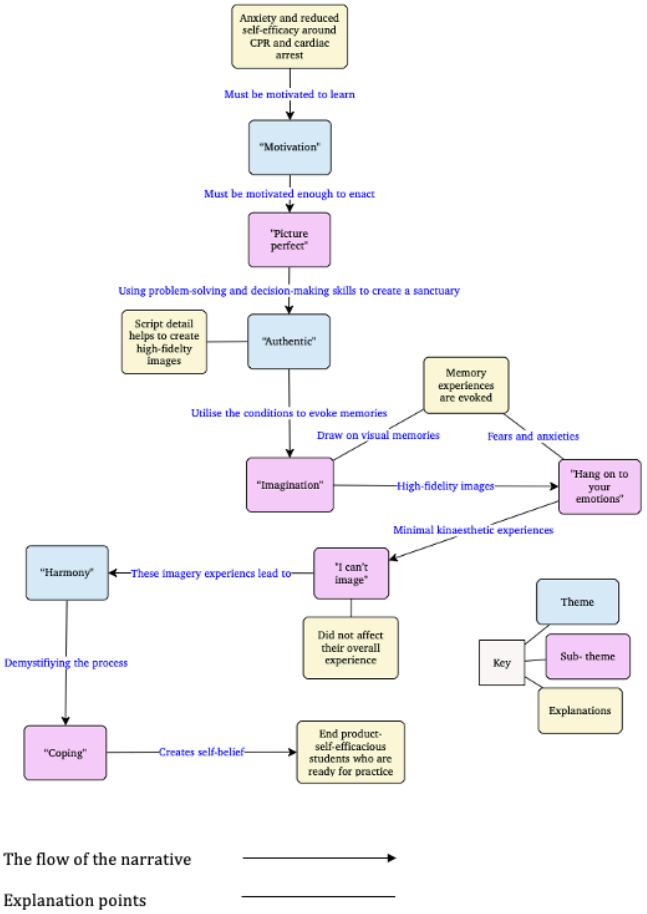

Figure 1: Representation of the learning process during mental simulation

Conclusion: Using mental simulation creates an authentic cardiac arrest learning experience. It creates self-efficacious, knowledgeable students who are ready for clinical practice. The author recommends mental simulation adjuncts mandatory BLS training within their organisation. Mental simulation could be rolled out to other staff groups, however, more mental simulation research into its efficacy is required.

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THE USE OF MULTIMODAL EDUCATIONAL TOOLS FOR LARGE SCALE SIMULATED PRACTICE

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Background: Due to the current placement capacity issues for nursing students [1] within the West Midlands and the continuation of the Nursing and Midwifery recovery standards [2], this enabled academic institutions to utilise up to 300hours of practice learning utilising a range of innovative practice-based simulations. At Birmingham City

University (BCU) we were faced with providing simulation to large cohorts of students in excess of 500, reduced staffing and resources. The aim was to provide simulation based on the Nursing and Midwifery Council annexes A and B proficiencies [3] in large groups and still maintain an element of clinical realism and immersion.

Methods: The skills and simulation team developed several simulations which incorporated films, live actors, low-fidelity simulation, and problem-solving activities for students within the Future Nurse Course. Each simulation had pre- and post-work to be completed which was monitored and recorded via our online learning platform. The simulations developed and tested were:

- Breaking bad news- A traumatic below knee amputation of a young farm worker which looks at issues with partner/ autistic child/overprotective mother.
- Hypoglycaemia- Adult hypoglycaemic patient within a General Practice setting with Paramedic input/Child hypoglycaemia/digital healthcare through use of Libre sensor.
- Conflict Resolution- Case study around the care of a patient with dementia who keeps falling and a Matron who does not have time.
- Pre-operative simulation- A 13-year-old high functioning Autistic child with torte teste requiring surgery and preoperative checking and Practice Assessor input.
- Allergies and Sensitivities- Management of allergies and sensitivities, Use of EpiPen for anaphylaxis.
- Hygiene- Shaving oral care/eyecare/female and male genitalia cleansing.
- The deteriorating patient- A to E assessment.
- Mobility and access- Use of equipment simulating frailty and disability.
- Assistance dogs for medical and neurodevelopmental conditions.
- Safeguarding- Looking at Trans/same sex couples/ heterosexual domestic violence.
- Female genital mutilation.

Results: The simulations were evaluated by the students (N=550) and conclusions drawn from the feedback received. The large size of the groups being around 60 students is an issue both with staff and students, but it was recognised that this was beyond our control and that the large-scale sessions were 'immersive in nature' and reproduced substantial aspects of the real world interactively. Several students highlighted in their evaluation that they found the simulation content relevant to their clinical practice due to it demonstrating difficult situations that allowed them to practise their skills in a safe environment, promoting patient safety, and enhancing their situational awareness through guided experience.

Conclusion: Learners appreciate the relevance of the simulations to their developing clinical skills and recognised that the learning could be more targeted than within the practice setting although did not recognise it as clinical practice time.

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MEDICAL PROCEDURES INITIATIVE FROM SIMULATION LABORATORY TO MEDICAL WARDS

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Background: Historically, attaining medical procedural competency during training has been challenging [1–3]. At a small district general hospital, initiatives were implemented to address these mandatory curriculum components.

Methods: 1) Ten skill-sessions were organized, to encompass all mandatory procedures such as skills in central venous catheter, chest drain, ascitic drain, lumbar puncture, DC cardioversion, pacing, and interosseous access. Doctors, advanced clinical and nurse practitioners were invited to attend a face-to-face procedure session. Manikins alongside medical procedure toolkits were provided to assist in simulation training. Pre- and post-Likert Scale questionnaire was used to assess skill-specific confidence levels.

2) A specific WhatsApp group was used to alert doctors of procedural training opportunities within the hospital. Terms of reference and clear clinical governance guidance were provided prior to sign-up. To assess the effectiveness of this method, a questionnaire was distributed amongst the users.

Results: Thirty-eight professionals in training attended the sessions. The cumulative rating of all skills revealed an improvement in skill confidence from 15% to 80%. This was most marked in the interosseous access (17% to 100%) and abdominal paracentesis (27% to 100%). However, aptitude in central venous catheter was identified as having the lowest confidence skill level both pre-and post-sessions (0% to 60%). 86% of trainees found the WhatsApp group to be effective or very effective to communicate procedural training opportunities within the hospital. Within six-months, bedside training in DC cardioversion, ascitic drains, interosseous access, pleural aspiration, and drains were achieved.

Conclusion: The training sessions improved skill-specific confidence. Equally, the more challenging procedural skills were identified for more training. Further plans for this Quality Improvement Programme will include utilizing the hospital's online communication platform, organizing procedure-specific human factors teaching, and extending training sessions to consultants to evidence the upkeep of procedural competency.

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