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Key informants' perspectives on simulation-based learning experiences: a qualitative study

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Abstract

Background Simulation is a proven student-centred pedagogy, used in undergraduate nursing and midwifery education programmes as an effective strategy to support knowledge and skills development and ensure practice readiness. In this study, simulation-based learning experiences (SBLEs) were used to redress missed learning opportunities in real-life settings during restrictive conditions. Simulations were conducted in a safe controlled environment, affording students opportunities to practice, and develop the required skills for practice.

Methods The study aimed to explore key informants' perspectives on the introduction of SBLEs during a global pandemic. A qualitative descriptive research design was chosen. Purposeful sampling was used to invite pre-internship students ($n=95$) and facilitators ($n=9$) to participate in focus group interviews (FGIs) to share experiences of SBLEs conducted in one university in the South of Ireland. A semi-structured interview guide facilitated the FGIs. Two student FGIs were conducted ($n=10$) and one FGI was conducted with facilitators ($n=6$) who were either faculty members ($n=5$) or clinical staff ($n=1$). An inductive thematic analysis framework was used to analyse the data.

Results Findings suggest that when adequately resourced with personnel and other practical resources, simulation is an effective and authentic student-centred pedagogical approach, that can support safe and effective pre-internship learning. It was perceived to enhance practice readiness of nursing students for professional practice in the real world. In the context of the restrictive conditions of a global pandemic it provided a safe learning environment, when public health restrictions impacted educational delivery. Student participants reported that peer feedback was a positive aspect of the simulation experience, enhancing interactivity and promoting active engagement in the learning process. Facilitators emphasised the importance of formal training, particularly in debriefing, as essential to the effective delivery of simulation pedagogy, ensuring both academic and psychological safety for students and staff. They also appreciated the opportunity for informal debriefing of the debriefer, recognising it as a valuable form of reflective practice.

Conclusion When formalising the integration of simulation into nursing curricula, it is essential that educators prioritise structured training for simulated participants and ensure comprehensive preparation in debriefing

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methodologies. Future research should examine the long-term effects of simulation-based pedagogy on knowledge translation and the development of practice readiness among nursing students.

Keywords Simulation-based education, Clinical skills, Skill development, Knowledge acquisition nursing students

Background

The impact of the COVID-19 pandemic on tertiary education is enduring as it has led to lasting changes in instructional methods, digital integration, and reduced face-to-face interactions [1]. It has presented opportunities and challenges and ultimately altered teaching and learning experiences irrevocably [1, 2]. Early in the crisis, public health restrictions impacted the operating models in tertiary education [3]. Health and safety contingency plans dictated a pivot to predominantly online remote delivery. This posed challenges such as digital fatigue and inequitable access to technology but also presented successes like greater flexibility and the integration of innovative teaching tools involving new online platforms and digital technologies, in tandem with social distancing measures and reduced face-to-face interactions. As the tertiary education sector adapted, there were additional dimensions and consequences for students and educators of healthcare professional programmes [3], such as nursing and midwifery, professions which require hands-on practical skills development across the cognitive, affective and psychomotor domains. This necessitated essential face-to-face education provision and interaction in some limited circumstances, despite restrictive public health measures.

While acknowledging that there are considerable variations in the provision of undergraduate nursing and midwifery education internationally, which may influence the generalisability of the findings across different educational contexts [4], it is common that most programmes incorporate some variation of a clinical internship component, where final year students gain practical experience and avail of opportunities to bridge theory and practice in real life clinical practice [5]. As the pandemic unfolded, safety concerns and complexities in the health care environment, especially in the early stages of the crisis, resulted in reduced opportunities for safe student engagement [6].

This paper reports students' faculty members' and clinical facilitators' perspectives on a simulation-based approach to learning, adopted during a global pandemic, coinciding with restrictive public health measures. Simulation-based learning experiences (SBLEs) were introduced during the pandemic as a student-centred, dynamic, and creative teaching and learning strategy to prepare nursing and midwifery students for internship and the professional transition to fast-paced real-life healthcare environments. Simulation is endorsed by the World Health Organisation and others as a reliable and

credible pedagogy that promotes high-quality educational standards, providing students with opportunities to practice in a safe controlled environment, facilitating knowledge translation from classroom to practice and supporting the acquisition of knowledge, experience and skills needed to become practice-ready professionals [7–11].

The alignment between simulation pedagogy and experiential learning theory (ELT) [12, 13] underscores the value of simulation as a pedagogical tool. Kolb's theory formed the theoretical foundation for this study as a robust framework for understanding how nursing and midwifery students experience learning clinical knowledge and skills through simulation [12, 13]. Each of the four stages of the ELT (1) Concrete Experience, (2) Reflective Observation, (3) Abstract Conceptualization, and (4) Active Experimentation, were systematically applied throughout the learning process. The SBLEs offered a concrete experience by immersing students in realistic clinical scenarios that replicate the complexities of actual patient care. Following the simulation, reflective observation was facilitated through structured debriefing sessions, where learners critically examined their actions, decisions, and emotional responses. This reflection also supported abstract conceptualisation, enabling students to integrate theoretical knowledge with practical insights and identify areas for improvement. Finally, active experimentation was an intended outcome of the SBLEs where students could apply their newly acquired understanding in subsequent simulations or internship, reinforcing learning and promoting the development of clinical judgment. This approach emphasises learning through simulation as a dynamic and holistic process that involves the integration of thinking, feeling, perceiving, and acting which are fundamental to Kolb's experiential learning theory [12–14].

While much of the existing nursing literature on perceptions of a simulation-based approach to learning relies predominantly on single-informant perspectives, there remains a notable gap in studies that incorporate insights from multiple informants. To address this, the present study employs data triangulation, drawing on data from a range of sources, including students, faculty members, and clinical facilitators to achieve a more comprehensive and nuanced understanding of simulation practices. This approach strengthens the credibility of the findings and mitigates the potential biases associated with reliance on a single data source. Accordingly, the purpose of this study was to address the existing gap by exploring

key informants' experiences of SBLEs for undergraduate nursing and midwifery students, introduced during a pandemic.

Methods

Study design

The study aimed to explore key informants' experiences of SBLEs for undergraduate nursing and midwifery students, introduced during a pandemic. A qualitative descriptive research design was chosen due to its suitability for capturing comprehensive accounts of participant experiences and perspectives in a naturalistic setting. The study setting was a Higher Education Institution (HEI) in the South of Ireland. Ethical approval was granted from the Faculty of Education and Health Sciences Research University Ethics Committee (Reference Number: 2020_06_17_EHS).

Simulation-based learning experiences

The simulation initiative used a standardised approach to integrating simulation pedagogy across the undergraduate programmes, underpinned by the international *Healthcare Simulation Standards of Best Practice* (HSSOPB) [15]. This involved an established structured approach comprising a pre-briefing stage, the clinical scenario, and a de-briefing stage, all of which were conducted face-to-face with students. While some fundamental pre-briefing occurred online in advance (e.g., what to expect on the day), a structured formal pre-briefing occurred at the start of all face-to-face scenarios. A unique aspect of the adopted approach was the co-design and development of the clinical scenarios by the key informants, comprising faculty members, an educational technologist, clinical facilitator partners across four healthcare sites, and student representatives across the four relevant undergraduate programmes. Clinical scenarios were tailored to year-four students' needs and included (1) *A Birth Complicated by Shoulder Dystocia* for the BSc Midwifery programme, (2) *Medication Refusal* for the BSc Nursing (Intellectual Disability) programme, (3) *Glasgow Coma Scale Assessment* for the BSc Nursing (General) programme and (4) *Risk Assessment and De-escalation techniques* for the BSc Nursing (Mental Health) programme. The de-briefing was supported using the PEARLS [Promoting Excellence and Reflective Learning in Simulation] debriefing tool [16]. Fourteen SBLEs were implemented, each session lasting one-hour with approximately 6–8 students. During this time, 95 out of 112 students across year-four of the undergraduate programmes attended and completed SBLEs.

Participants

Participants were recruited using purposeful sampling from four undergraduate nursing and midwifery

programmes at one HEI in Ireland, chosen to ensure the inclusion of diverse perspectives from various specialisations and experiences aligned with the study's aim of exploring a range of informants. The target population consisted of students ($n=95$) and faculty members and clinical facilitators ($n=9$) that met the following inclusion criteria: year four students registered on the Bachelor of Science (BSc) Nursing (Mental Health, General, or Intellectual Disability) and BSc Midwifery programmes who had participated in the SBLEs outlined above in discipline-specific consolidation modules in Autumn Semester 2020; or faculty members and clinical facilitators that were involved in the development, facilitation and delivery of the SBLEs in any of the related modules. Potential participants were recruited by a researcher who was not directly involved in the module teaching team or SBLEs. Participants were invited to participate via the university email system and by an advertisement on Moodle (virtual learning platform) with study information and contact details included. Recruitment was challenging as it took place after module completion, and students were on their clinical internship placement, at a time when restrictive public health measures relating to the COVID-19 pandemic were in place. This may have limited participant availability and the diversity of responses, potentially impacting the comprehensiveness of the data collected. Twelve students from the target population volunteered to participate and ten were available and contributed, while six of the nine faculty members and clinical facilitators volunteered and contributed.

Data collection

Data collection involved focus group interviews with students and facilitators held online due to public health restrictions using the University's preferred platform Microsoft Teams. To comply with data protection regulations, audio recordings were stored on a password-protected encrypted laptop, either in OneDrive or on the hard-drive. Consent to participate was captured in one of three ways: (1) using electronic signature, (2) by return email with a photo of the printed and signed consent form attached, or (3) by capturing individual verbal consent on the audio-recordings. Two semi-structured interview guides were developed, one for student interviews (see supplementary file 1) and the other for facilitator focus groups (see supplementary file 2). The guides were developed by the researchers, informed by the literature and the research aim. They were reviewed by a subject-matter expert to establish trustworthiness. The guides were revised and refined based on the feedback. Interviews were facilitated by experienced researchers (LK, KM, PM, LM) who were not involved in the module teaching teams and simulations. Researchers introduced key information such as voluntary participation

and confidentiality, before proceeding with the online interviews. Participants were reminded that they could withdraw from the study at any time and a distress protocol was in place should any participant become upset during the interview. Consistent with recommendations by Muthanna and Alduais [17], reflexivity was embedded throughout the research process to ensure researchers remained critically attuned to how their positionality and conduct can influence group dynamics and shape the processes of data collection, analysis, and the interpretation of findings. Reflexivity was maintained throughout data collection using field notes and reflective journaling during and after each focus group. Two student FGIs were conducted, one with seven students and one with three students. Distribution of participant numbers across FGIs was dependant on availability and willingness to partake. Both groups were asked the same set of questions by the same interviewer and the same note taker was present in both interviews. One FGI with facilitators was conducted by another interviewer and another note taker, with six of the nine staff who facilitated the simulations, either faculty members ($n=5$) or clinical facilitators ($n=1$). Faculty members and clinical facilitators are collectively referred to as “facilitators” for the remainder of the paper. The average interview duration was 42 min.

Data analysis

Inductive thematic analysis was undertaken to analyse the data using Braun and Clarke's [18] six stage framework which involved: reading the data (LK, KM, LM); identification of initial codes (LK, KM); a review of themes in accordance with the codes generated from the data (LK, KM); labelling of themes and explanation of same (LK, KM, LM) and completing write up of findings (LK, KM). No software was utilised when analysing the data, as the researchers aimed to maintain a hands-on approach to data interpretation, and participant checking of themes was not undertaken due to logistical constraints during the pandemic, which may have limited the opportunity for verifying interpretations directly with participants. Due to the small number of participants and to protect confidentiality and anonymity data was analysed by student or facilitator group and was not analysed by student discipline or by the academic or clinical field of facilitators.

Maintaining reflexivity during data analysis informed the generation of codes and themes that were grounded in the data rather than shaped by researchers' preconceptions or biases. Reflective field notes, data analysis team meetings and peer debriefing were key reflexivity approaches adopted to critically examine how researchers' backgrounds, assumptions, and relationships with participants could influence data collection and interpretation. The analysis team (LK; KM; LM) remained open

to the data and consciously avoided premature thematic conclusions. Through collaborative and reflexive discussions, themes were critically reviewed and refined until consensus was reached that they aligned with participants' narratives. The FGIs were facilitated by researchers on the team experienced in qualitative methods and with no direct supervisory relationship with participants, to help minimise power imbalances. When no new codes or themes emerged during analysis of the FGI transcripts, data saturation was considered reached. This took place after conducting one FGI with facilitators ($n=6$) and two FGIs with students ($n=7$ and $n=3$). The research team reviewed transcripts regularly throughout the data collection process to assess saturation.

Rigour/trustworthiness

All transcripts were recorded and transcribed verbatim ensuring accuracy of participant responses. Two members of the team identified initial themes (LK, KM). Transparency was ensured by writing annotations on each transcript and formulating a coding tree (LK, KM). While participant checking was not possible due to logistical constraints, to enhance dependability and confirmability peer examination of the process was used among the research team (LK, KM, LM) with discussion and agreement of themes amongst the researchers (LK, KM, LM). Further enhancing credibility and dependability, the presence of the note taker helped ensure that the data collection process was consistent and reliable contributing to the trustworthiness of the study.

Rigour was maintained by ensuring the researchers collecting and analysing the focus group data were not involved in the SBLE's, which minimised potential biases and ensured a more objective interpretation of participant experiences, thereby, avoiding any conflict that may have potentially affected the interpretation of the data [19].

Findings

The findings are presented in two sections: student focus group data followed by facilitator focus group data. An integrated analysis is provided at the conclusion of the findings section, with areas of overlap and divergence further explored in the discussion.

Student focus group findings

Thematic analysis of student focus group data resulted in the identification of two overarching themes: “*Supporting Preparation for Practice*” and “*Cultivating Authentic Learning*”, each comprising two subthemes (see Table 1).

Theme: supporting preparation for practice

The theme “*Supporting Preparation for Practice*” captures participants' perceptions of simulation as a valuable

Table 1 Student focus group themes

Themes	Supporting Preparation for Practice	Cultivating Authentic Learning
Sub-themes and Illustrative Quotes	Learning in a Safe Environment	Supporting Relevant Learning
	<i>"It was a good opportunity to apply what you have learned again through theory, but you were able to apply it in a safe environment. You know, there was no pressure really on you, if you made a mistake, you could get feedback."</i>	<i>"It was definitely as I said, something that you would encounter on a day-to-day basis and very relevant."</i>
	Strengthening Decision-making Skills	Encouraging Meaningful Learning
	<i>"But I felt like with the simulation it just like kind of made me look at that patient of what is his previous, is that his normal or what is his usual baseline. Do you understand me?"</i>	<i>"I kind of think it was helpful to my learning rather than theory and learning off a book and watching videos, it's just kind of being there and experiencing it yourself like."</i>

tool for enhancing practice readiness, particularly during the disruptions caused by the COVID-19 pandemic. Key aspects included the creation of a psychologically safe learning environment, the development of decision-making skills, and the provision of structured, hands-on practice opportunities.

Learning in a safe environment

Opportunities to apply theory to practice in the safety of a simulated learning environment, was highly valued by participants. Specifically, it helped reduce the anxieties associated with learning and making mistakes.

"It was a good opportunity to apply what you have learned again through theory, but you were able to apply it in a safe environment. You know, there was no pressure really on you, if you made a mistake, you could get feedback". (Student Focus Group (SFG)1)

This helped with creating awareness of knowledge and skill deficits, which motivated students to reflect, ask questions and consolidate learning in a safe environment.

"I suppose you could reflect on what went well, what didn't go well. You could identify gaps in your own knowledge and again it was in a safe enough environment that you were free to ask questions and get feedback. So, you could consolidate your learning there". (SFG1)

Participants valued the opportunity afforded for face-to-face learning in the clinical skills laboratory at a time when modes of teaching delivery were predominantly online, due to COVID-19 public health restrictions. The SBLEs provided opportunities for students to be on campus and to experience face-to-face interaction.

"I think it was just something different. It was during COVID, so we were online every day and it was a chance to actually get on to campus and meet others, which was really great". (SFG2)

Students recognised the value of SBLEs in enabled students to connect with other students and build friendships at a time of extended social isolation due to the pandemic.

"...it helps to make friends". (SFG1)

Simulation was described as a fun and meaningful way of learning.

"It was kind of a more fun way of learning it, do you know"? (SFG1)

Many participants reported nervousness and reluctance to participate in front of their peers and lecturers. However, they also valued the experience once they had engaged in the SBLE.

"I would always say no to simulation because I would be too nervous to do it. But like, I would be happy once it was over". SFG1)

Although, there was a sense that the unique learning opportunities in clinical practice are irreplaceable, simulation was considered "the closet thing" to replicating this in a safe environment.

"Like, I don't know, you learn everything when you are out on placement like. That's where you really learn and that's the closest thing you will get to placement in a safe environment". (SFG1)

Strengthening decision making skills

There was a consensus that simulation strengthens decision making skills in practice, and encourages students to 'think on your feet'

"Do you know you kind of have to think on the spot... it's kind of like you are on placement I suppose but you have to kind of put what you have learned into practice". (SFG1)

"And you have to make the student think on their feet". (SFG2)

Participants perceived that SBLEs take students out of their comfort zone, nurturing more responsive reactions and encouraging critical thinking.

"I suppose it kind of takes you out of your comfort zone as well". (SFG1)

"But I felt like with the simulation it just like kind of made me look at that patient of what is his previous, is that his normal or what is his usual baseline. Do you understand me"? (SFG2)

Simulation was perceived to boost confidence and support students to accept responsibility for decision making.

"Definitely, I think there should be more simulation in the class room...I think student nurses have the attitude of I am just a student nurse and I am going to step back and let my staff nurse, you know, deal with this - but with the simulation practise, it actually puts you into the right frame, that no it's not up to them, like they could be with another patient, it's up to you and you put yourself forward and say "right this is my patient, my patient is deteriorating. I'm worried" (SFG2)

"It kind of boosted my confidence as well like being able to practice before going into a placement". (SFG1)

Theme: cultivating authentic learning

The theme "Cultivating Authentic Learning" reflects student participants' recognition of the realistic nature of SBLEs. These simulations closely mirrored actual clinical practice, thereby fostering relevant, meaningful, and contextually grounded learning. Peer-feedback opportunities supported learning that was meaningful to students.

Supporting relevant learning

SBLEs that reflected the realities of daily practice were particularly valued as a means of supporting preparation for practice and making sense of clinical practice opportunities, during a global pandemic.

"It was definitely as I said, something that you would encounter on a day-to-day basis and very relevant". (SFG1)

SBLEs were perceived as realistic and reflecting the realities of clinical practice and therefore relevant in preparing students for practice.

"....it was a realistic enough scenario that would prepare you for any placement you were out or even for internship it was very...it was an episode that will happen anytime you know, so it was good preparation". (SFG1)

One student highlighted relevance in the context of the complexities of medication administration.

"I think actually it probably comes up like almost every day with medication or even like de-escalation and it's literally if you are in approved centre, it probably happens at least once a day. So it was a very practical one, like it always happens". (SFG1)

Opportunities to engage with clinically relevant learning was highly valued as a mechanism to prepare students for dynamic healthcare practice.

"... would prepare you for any placement you were on, or even for internship it was very...it was an episode that will happen anytime you know, so it was good preparation". (SFG1)

Encouraging meaningful learning

Simulation was perceived to be effective in terms of meaningful and deep learning.

"You were in the situation and kind of do you know, you weren't just staring at a piece of paper, what do I do here? What do I do next"? (SFG1)

"....you would remember it better". (SFG1)

Participants valued opportunities to 'learn by doing' which supported more meaningful and engaged experiential learning when compared to more traditional teaching and learning methods.

"I kind of think it was helpful to my learning rather than theory and learning off a book and watching videos, it's just kind of being there and experiencing it yourself like". (SFG1)

"Instead of just reading off a paper, do you know"? (SFG1)

Being observed and having opportunities to observe others was seen as a way of adding to the depth of learning.

Table 2 Facilitator focus group findings

Themes	Student-centred Pedagogy	Embracing Teamwork
Sub-themes and Illustrative Quotes	Attending to Psychological Safety	Collaborating in Teams
	<i>"that was really beneficial to individually talk them through their scenarios and ask, and if they had any questions or worries, to deal with that".</i>	<i>"I loved working in the team and being involved with.... (Clinical Facilitator) and..... (Educational Technologist) in developing the script".</i>
	Supporting Learning	Developing Skills
	<i>"to have it as a learning experience, and that's a much safer way". "they used that as a huge learning tool anyway".</i>	<i>"you're using the simulation in such a formalised way, was new and I definitely had to, I definitely built my confidence".</i>

"We were all kind of in our own little bubbles, doing our own thing like. Whereas they were on.... they were up the top of the class. Like everyone was watching". (SFG1)

Receiving peer feedback was a positive experience and reported to be "better" than facilitators led feedback.

"... they'd comment on like what, on what was right and what was wrong, which was good because you know the way if it's always from a teacher it's kind of too much dependence, but then when you see it from like your other classmates it's better". (SFG2)

Some participants identified with the concept of repeating the SBLE after having received feedback.

"So I think after the simulation and we went through it, it would have been good to do it again like the right way. Do you know after talking about everything you like think about what you could have done differently". (SFG1)

For some participants opportunities to role play the simulated patient (SP) role was particularly meaningful. Seeing approaches to care delivery through the lens of a patient or service user was a particular strength of simulation reported.

"It's nice to experience it, because you actually sort of step inside the patient, because within a simulation it was like, it's like being sick in a country that you don't have the language and you actually don't know what is going on. And people are talking to you, and they could be talking Chinese, they could be talking English, they could be talking German. You haven't a clue". (SFG2)

However, other students felt that incorporating trained actors in SBLE would make the scenario more real.

"Actors make simulation more real - It would be more beneficial than having your friends..... But with somebody you are not familiar with that's

it, that's your patient and that's him or her on the table". (SFG2)

Participants valued the opportunity both during and following the SBLE to focus on evidenced-based learning.

"I think definitely like a lot more than if you had just experienced it initially on placement because after the simulation say then like we were recapped on where to find information, like evidence-based information on how to go about with the issue. Whereas if you were on placement, you wouldn't really have the time to do that so, you kind of know if you were experiencing it again that you would know that what you are doing is what you are supposed to do. So, you are confident that way". (SFG1)

Facilitator focus group findings

Thematic analysis of facilitator focus group data resulted in the identification of two overarching themes: "Student-centred Pedagogy" and "Embracing Teamwork", each comprising two subthemes (see Table 2).

Theme: student-centred pedagogy

The theme "Student-Centred Pedagogy" captures facilitators' recognition of simulation as a supportive, learner-focused approach, particularly valuable during the challenges of the COVID-19 pandemic. Facilitators emphasised the critical role of psychological safety and the creation of nurturing, inclusive learning environments to support student engagement and development.

Attending to psychological safety

Facilitators were concerned about student safety throughout all stages of the simulation. Participants particularly valued the pre-briefing stage, seeing it as a crucial opportunity to clarify role expectations and address any "student worries."

"that was really beneficial to individually talk them through their scenarios and ask, and if they had any questions or worries, to deal with that". (P1)

There was a sense that COVID-19 negatively impacted on student preparation for simulation due to implementation of public health restrictions.

“they probably didn’t have a fair chance with COVID and everything, that they didn’t have, maybe, a proper pre-brief or a chance to meet and talk through it”. (P5)

COVID-19 affected the SP role, leading to students stepping in for trained SP actors. Opinions varied on this approach: some felt it was “not an ideal approach” and stressed the “need for a safe environment” for students in this role. Others believed students could enhance the scenarios and benefit from the role-playing experience. There was a consensus that students should volunteer for this role and that “clear role expectations” are essential.

Participants believed the debriefing stage should provide constructive feedback with an emphasis on positive reinforcement. This method would help alleviate students’ negative perceptions of their performance in the SP role while also identifying areas for improvement.

“think how you approach that discussion at the very beginning is hugely important. Because people are very worried about how they acted, and they might have made a mistake, or whatever, so it’s very important that the first question is, “How did you feel doing that?” and not to ask like, what went wrong”. (P1)

“the debrief, it gave you something to follow through, so it was very structured and I think even, when they were looking back on it, they could identify, I won’t say where they went wrong, but you know, where they could improve on”. (P4)

Supporting learning

Participants were keenly aware that as this was a new learning modality for students, additional student support was needed, and they valued the pre-simulation resources that had been provided to students in advance which supported “student preparation” for simulation and “clarity of expectations and around scenarios and their role.” There was a strong sense of the value of simulation in preparing students for clinical practice placement and in “building student confidence.” The pre-briefing stage was once again highlighted as valuable in supporting learning.

“Pre-briefing was really beneficial to students to address queries”. (P2)

Participants considered that the COVID-19 pandemic impacted the time and opportunity for preparatory academic and peer support, as teaching delivery during this time was predominantly online. The simulation afforded students an opportunity to re-connect and facilitators considered this positively impacted the environment.

“I think too, the fact that we were working virtually impacted on how it worked, because the students weren’t in, if they were here in the college face-to-face and they had more contact with us and with their peers, it would have worked better, I think. (P3)

“the people that did turn up, were so delighted to be in, they really were starved of that connection, and they, they were quite celebratory, they were delighted”. (P4).

Participants strongly supported the concept of simulation as a learning opportunity rather than an assessment tool and considered this provided a “safe way for students to learn” in a realistic, safe setting.

“to have it as a learning experience, and that’s a much safer way”. (P5)

“they used that as a huge learning tool anyway”. (P1)

Theme: embracing teamwork

The theme “Embracing Teamwork” reflects facilitators’ collaborative efforts in designing and implementing SBLEs. This process involved pooling diverse expertise, working cohesively in teams, and developing new skills to enhance the quality and effectiveness of the simulation pedagogy.

Collaborating in teams

A team approach to facilitators support was adopted, with collaboration encompassing the support of an education technologist, peer support and collaboration with clinicians. There was consensus that the supportive role of the educational technologist in simulation preparation, delivery and debriefing was pivotal to the success of the SBLEs. Preparatory support included scenario planning and development and preparation of simulation materials, while support during the SBLEs involved practical hands-on support for facilitators.

“it wasn’t just on the day,...it started out from the design and the development and the formulation of the case or scenario”. (P2)

“realistic expectations of what was achievable”. (P3)

Participants also considered that the education technologist provided facilitators with feedback, and this facilitated “facilitators debriefing”

“at the end of every session, kind of gave us, in a way, our own debriefing, which was helpful”. (P1)

“you were getting some feedback and, you know, live feedback from...., I think it was really good. So, I thought it was, it was nice, it was nice to see how your techniques and stuff were, and how they were working...and how she, she saw them”. (P2)

Facilitators worked in small teams to deliver SBLEs and there was consensus that this worked well as facilitators availed of peer-support or educational technologist support when running the simulations.

“I loved working in the team and being involved with... (Clinical Facilitator) and... (Educational Technologist) in developing the script”. (P3)

“you know, it is hard to, to carry it all through on your own, so definitely having the two, it does make a difference”. (P4)

While a partnership approach with clinical service partners was not always possible due to the impact of the COVID-19 pandemic, there was a keen sense of opportunity to build on this approach in the future.

“the partnership approach was very evident, unfortunately it didn’t roll out on the day, due to COVID”. (P2)

“the collaboration and the ideas and the motivation is there, and it is something we can build upon”. (P2)

The “knowledge and expertise” of clinical partners was recognised as adding to the robustness of the SBLEs.

“brings authenticity and scenario accuracy and insight into local policy/procedure etc.”. (P4)

Developing skills

Some participants had little simulation experience, while others spoke of extensive past experience of adopting role play techniques and bringing this skill set and expertise to the simulations.

“you’re using the simulation in such a formalised way, was new and I definitely had to, I definitely built my confidence”. (P5)

There was a sense of skill development and learning “in action” though peer support and formative feedback and participants expressed their growing confidence as they became more experienced in running the SBLE.

“it was lovely, because sometimes you’re, you’re teaching in a silo, you’re teaching in your own classroom and it kind of opened it up a little bit, that, you know, that you were kind of getting some feedback and, you know, kind of live feedback”. (P1)

“I had to develop my own confidence as I went along”. (P3)

Participants acknowledged the need for professional development or training in building a particular skill set in simulation pedagogy for example pre-briefing and debriefing training.

“we should have had some input in relation to debriefing or maybe how to structure it”. (P1)

“so I think maybe some work, maybe, on debriefing would, on how you manage the discussion afterwards”. (P3)

Integration of findings

The findings from both student and facilitators focus groups collectively emphasise the value of SBLEs in nursing and midwifery education during the pandemic. Both groups highlighted the importance of safe, controlled environments for practice and decision-making skill development. Facilitators feedback further stressed the psychological safety and structured support necessary for effective learning. Common themes across groups included the importance of preparation, engagement, and authentic learning experiences. This integration reveals the mutual reinforcement of positive outcomes from both student and facilitators perspectives, underscoring the importance of simulation in enhancing clinical competence and preparedness for real-world practice.

Discussion

This study explored the experiences of students, faculty members, and clinical facilitators during the implementation of SBLEs aimed at preparing students for internship. The implementation occurred in the context of significant educational disruptions caused by the global COVID-19 pandemic. Undoubtedly, the pandemic added a new layer of complexity to supporting the ‘practice readiness’ of nursing and midwifery students for internship and future roles, with the literature reporting some students witnessing extreme challenges with providing

safe care, with unprecedented high volumes of acutely ill patients, lack of resources and growing demands on staff and students leading to increased stress and anxiety [20–23]. Within a rapidly evolving complex health-care system, there is a growing need for graduate nurses and midwives to be ‘practice ready’ and fit for purpose, practice, and award [24] and to be adept at knowledge transfer [11]. In this study participants highly valued simulation as an opportunity to practice and rehearse ways of responding to the growing complexities and challenges in healthcare settings. Students and facilitators described how simulation helped build confidence and improve decision-making skills and problem-solving abilities, key skills required for safe and responsive clinical practice, particularly during a global pandemic. Previously reported in the context of the COVID-19 pandemic is the need to intensify undergraduate nurse teaching to boost competency and readiness to practice [25]. This practice readiness was important for student participants in this study who were coming to the end of their theoretical programme content and were nearing commencement of their internship. Like the reporting in our study, Nevin and colleagues [26] reported that students regarded simulation-based learning as an effective pedagogical approach for internship preparation, particularly in fostering critical thinking and facilitating the application of theoretical knowledge to clinical practice. Additionally, Ragsdale [27] highlighted the perceived enhancement of clinical reasoning skills through simulation, emphasising its significance in promoting practice readiness. Our findings support the contention that simulation supports the development of practice-ready professionals [26, 27].

The authenticity of SBLEs is regarded as a fundamental component of effective simulation-based pedagogy in health professions education [28–30] and particularly in the context of the pandemic [31]. In the current study students perceived that simulation supported authentic learning through engagement in scenarios that closely mirrored real clinical situations. They reported that the skills developed during SBLEs were directly transferable to real-world clinical contexts, arguably enhancing practice-readiness. The authenticity of the SBLEs was identified as a critical factor in facilitating meaningful knowledge translation, thereby enhancing students’ readiness to navigate the complexities of actual clinical practice during the unprecedented global pandemic.

Due to public health restrictions during the COVID-19 pandemic, students in this study were required to assume the role of simulated patients (SPs) in place of trained actors. This adaptation, while aligned with the applied SP approach outlined in the Healthcare Simulation Standards of Best Practice (HSSOBP®) [15], and consistent with ELT [12, 13] introduced a complex pedagogical and ethical dilemma. The practice of learners portraying roles

other than themselves is not without precedent; however, its rapid implementation during a global pandemic raised concerns among participants about authenticity, emotional safety, and educational integrity.

There was a lack of consensus among students regarding the appropriateness of this adaptation. While some students found value in the opportunity to “step inside” the patient role, gaining insight into care delivery from the perspective of a service user, returning to the concept of authenticity others struggled to suspend disbelief and felt that trained actors would have enhanced the authenticity and educational value of the simulation. This finding aligns with earlier research findings from Lockertsen and colleagues [28] who report a perception among nursing students that the standardised patient who had clinical qualifications, made the simulation feel authentic and realistic and that not having a former relationship with the person acting as the standardised patient enhanced authenticity. Muckler [32] on the other hand cautions that for simulation to be effective learners need to suspend disbelief and resist judgment of the simulation’s authenticity.

Facilitator perspectives were similarly divided on learners assuming the SP role. Some viewed the adaptation as a creative and necessary response to unprecedented constraints. Others expressed concerns about the academic and psychological safety of students placed in emotionally charged roles without adequate preparation or support and were acutely aware that an educational environment in which the student does not feel academically safe is not conducive to learning and growth [33]. This situation underscores a broader ethical challenge in simulation pedagogy: balancing innovation and necessity with the duty of care to learners. Ganley and Linnard-Palmer [33] explored students and faculty members perceptions of academic safety during simulation highlighting the importance of recognising that stress and anxiety may impede learning. The absence of formal SP training in this study, particularly in areas such as role preparation, emotional debriefing, and feedback, further complicated the learning environment. Moreover, this experience reflects a wider tension in nursing education during the pandemic, where simulation was rapidly scaled to compensate for lost clinical placements [34, 35]. While simulation proved to be a resilient and adaptable pedagogical tool, its implementation often outpaced the development of ethical frameworks and support systems necessary to ensure its safe and effective use with researchers advocating post-pandemic for formal implementation policies and regulation in some situations [36, 37]. Given the emotional and cognitive demands of the SP role, especially when enacted by undergraduate novice learners, future initiatives should prioritise structured SP

training to uphold international best practices and safeguard learner wellbeing.

A novel contribution of this study is the finding that students expressed a preference for peer feedback over facilitator feedback during SBLEs. This preference has important implications for pedagogical design, particularly when viewed through the lens of ELT. Kolb's ELT conceptualises learning as a cyclical process involving concrete experience, reflective observation, abstract conceptualisation, and active experimentation, with learners actively constructing knowledge through the transformation of experience [38]. ELT emphasises that learning is most effective when students are engaged as active participants, drawing on their own experiences and interacting with others to co-create understanding [13]. This aligns with the expressed preference for peer feedback among participants in this study, which supports the social and reflective dimensions of learning. In contexts where traditional face-to-face interaction is limited, such as during a pandemic, peer feedback mechanisms can sustain engagement, foster reflective practice, and preserve the collaborative nature of learning. Embedding structured peer feedback into SBLEs not only enhances feedback literacy and critical thinking but also reinforces the learner-centred, constructivist foundations of experiential learning [12, 13].

Facilitators in this study identified a clear need for debriefing training. Formal debriefing training is widely recognised as a critical component in the development of effective debriefing skills and is well documented in the literature [39, 40]. However, a less extensively explored concept is that of “debriefing the debriefer”, a process involving structured reflection, feedback and performance appraisal directed at those conducting the debriefings. A novel contribution of this study is the identification of the value SBLE facilitators place on receiving immediate feedback and support following SBLEs. Specifically, participants reported that engaging with each other and an educational technologist to review the simulation process and reflect critically on their own debriefing performance was particularly beneficial. This aligns with Fanning and Gaba's [40] assertion that regular performance appraisal is a critical component of effective debriefing and Mulvogue and colleagues' [41] contention that self-reflection is essential for all facilitators engaged in debriefing.

To support faculty development in medical education, O'Shea et al. [42] introduced a formal “debriefing the debriefer” programme, which utilises recorded debriefing sessions to guide reflective practice. This structured approach is grounded in Kolb's ELT, emphasising continuous cycles of reflection, conceptualisation, experimentation, and experience. Similarly, Reunis et al. [43], in a small-scale UK-based study ($n=6$), found that

peer-reviewed feedback during debriefing sessions positively influenced future performance and enhanced facilitator confidence.

Incorporating a structured “debriefing the debriefer” step into simulation-based education, particularly in nursing, may serve as a valuable quality assurance mechanism. While existing models such as those described by Fanning and Gaba [40] and O'Shea et al. [42], focus on post-event formal appraisal, our findings suggest that immediate post-SBLE reflection, whether through self-appraisal, peer review, or facilitated discussion, could significantly enhance critical performance evaluation.

We recommend the formal integration of “debriefing the debriefer” into debriefing training programmes within simulation-based nurse education. This step not only supports continuous professional development, which is essential for best practice standards in simulation education [44], but also contributes to the ongoing enhancement of debriefing quality and facilitator effectiveness which have been reported as cornerstones of effective debriefing [40, 42, 43, 45, 46].

The wider literature reports that dedicated resources are essential when introducing simulation, such as, time, funding, a repository of simulations, training, physical structures, and key personnel [8, 47–50]. In this study, facilitators highly valued the role of the educational technologist in providing SBLE design and development support as well as practical hands-on assistance during SBLEs and there was a consensus that this type of support was key to success. The benefits of capital investment in the resourcing of simulation for success are reported. For example, in preregistration nursing education in Australia and New Zealand resources, training, best practice alignment, and robust evaluation of simulation experiences in nursing curricula are considered as pre-requisites to embedding sustainable, high-quality simulation [47]. While in this instance the role was supported by funding awarded through a grant, we argue that, to build capacity and to embed simulation into curricula, core faculty support roles are essential to leading and driving simulation forward. Dedicated infrastructure supports are also needed for sustainable simulation, for example, a simulation centre or a designated clinical skill laboratory to enable the running of low to high-fidelity simulations.

This study was conducted in one University in Ireland, therefore a cautious approach to generalisability and transferability of findings is advised. Recruiting to focus groups was challenging as potential participants were working in clinical practice at a time of high patient acuity and other clinical challenges arising due to the pandemic. Although the target population included 95 students, only 12 volunteered, and just 10 ultimately participated in the study. This low response rate is a

significant limitation, raising concerns about self-selection bias. Those who chose to participate may have had particularly strong opinions, positive or negative, or simply more time and motivation than their peers. As a result, the data may not accurately reflect the broader student population, even within a single Higher Education Institution. While the insights gathered are still valuable, they may disproportionately represent the views of more engaged or affected students, potentially skewing the overall findings.

In the findings section the impact of reduced of face-to-face interactions on SBLEs as a broader challenge brought on by the pandemic is reported. Returning to this concept we consider that the online format of the FGIs may have affected the depth or spontaneity of the data. Extended social isolation and the virtual setting might have made it harder for participants to build rapport or feel comfortable sharing sensitive experiences in a group context. These dynamics could have subtly influenced the richness and openness of the discussions.

A key limitation of the study is the omission of the participant validation step outlined in Braun and Clarke's framework [17], which is essential for enhancing the credibility of qualitative findings. Without this step, there is a risk of misalignment between the researchers' interpretations and the participants' intended meanings. Although the research team engaged in consensus discussions to strengthen the analysis, this process cannot fully substitute for direct participant validation. As a result, confidence in the accuracy of the thematic interpretations from the participants' perspective is reduced. This limitation also affects the transferability of the findings, which should be understood as the researchers' interpretations rather than fully validated representations of participant views. Further longitudinal research is warranted to investigate the impact of sustained simulation, systematically embedded within the nursing curriculum, on learning outcomes and the effective translation of knowledge into clinical practice.

Conclusions

This paper reports on a SBLE initiative, introduced early in the COVID-19 pandemic to support students' transition to clinical internship. Findings suggest that when adequately resourced with personnel and other practical resources, simulation is perceived as an effective and authentic student-centred pedagogical approach, that can support safe and effective pre-internship learning. It is perceived as an approach that can enhance practice readiness of nursing students for professional practice in the real world. In the context of restrictive conditions e.g., a global pandemic it provides a safe learning environment, when public health restrictions impact education delivery and practice. The opportunity for peer feedback has

important implications for pedagogical design, particularly when viewed through the lens of experiential learning theory as it facilitates interactivity, engages students as active participants and facilitates co-created understanding. Formal training is an essential component of effective simulation pedagogy and should include structured SP training as well as debriefing training to counterfasten integrity and academic safety. To enhance quality and performance appraisal debriefing training should include a formal "debriefing the debriefer" component.

Abbreviations

BSc	Bachelor of Science
FGIs	Focus group interviews
HEI	Higher Education Institution
SBLEs	Simulation-based learning experiences
WHO	World Health Organisation

Supplementary Information

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Supplementary Material 1

Supplementary Material 2

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Author contributions

LK, KM, LM, MM, OD, PM, TH conceived and designed the study. LK, KM, LM, PM collected data. LK, KM, LM analysed data. LK, KM, LM, MM, OD, PM, TH wrote the paper.

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Data availability

The datasets generated and/or analysed during the current study are not publicly available to preserve anonymity but are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Ethical approval was granted from the Faculty of Education and Health Sciences Research University Ethics Committee (Reference Number: 2020_06_17_EHS). The research was conducted in accordance with the Declaration of Helsinki (2024). Consent to participate was captured in one of three ways: using electronic signature, by return email with a photo of the printed and signed consent form attached, and by capturing individual verbal consent on the audio-recordings.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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