IN PRACTICE

A17 **SIMULATION-BASED EDUCATION STRATEGIES DEVELOPMENT: E-DELPHI STUDY**

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Introduction: E-Delphi is a popular online health and educational research technique to improve decision-making processes and obtain agreement on formulating healthcare standards [1]. This is a cost-effective and efficient technique that offers participants flexibility in contributing from anywhere, anytime, compared to traditional Delphi [2].

Simulation-based Education (SBE) deliver a realistic teaching approach and standardised experience within a harmless learning environment [3]. Formulating SBE strategies in academic settings is needed to enhance the learning experience and promote equal educational exposure. This study aims to develop novel SBE Strategies at the University of Manchester (UoM).

Methods: Different quality standards were reviewed based on selective strategies from various associations, including the International Nursing Association for Clinical Simulation and Learning (INACSL) standards, the Society for Simulation in Healthcare (SSH) Accreditation Standards, the Association for Simulated Practice in Healthcare (ASPiH) SBE in Healthcare Standards Framework and Guidance, and the National Framework for SBE.

A panel (n=43) was established using purposive sampling according to their credentials in the SBE field during the first round and then increased to (n=45) in second and third rounds, including UoM faculty, global experts, postgraduates or early career, and UoM undergraduates.

The Delphi process consisted of three rounds/ surveys; each survey encompassed three areas: Connectivity, Collaboration, and Partnerships; Promoting Quality; and Stability, Sustainability, and Growth of SBE. The study acceptance consensus rate was 80%. Data were collected between September and December 2023.

Results: By the end of three Delphi rounds, there was an overall 90% agreement, and many were accepted at 100% consensus. The Delphi surveys started with 29 SBE strategies in the first survey, then increased to 35 SBE strategies in the second survey, and finalised with 39 SBE strategies in the third survey. The study response rate was 35, 29, and 27, respectively. Final SBE strategies are illustrated in Table 1-A17.

Discussion: Employing these SBE strategies within faculty is essential as it is considered an innovative teaching modality in healthcare. However, logistics could be a challenge associated with implementation, and resources required for this investment need to be identified. In this study, there was a great number of participants engaged in the Delphi rounds with a good response rate. In addition, the variability of panel role, profession, and level indicated a variety of opinions, which is the core of Delphi study. Also, it strengthened study findings by identifying the different expectations of the SBE strategies acquisition at UoM.

Ethics statement: Authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable.

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Table 1-A17. Simulation-based Education Strategies

1. Connectivity, Collaboration, and Partnerships

1.1 Leadership and Governance

1.1.1 Appoint a lead/s for Simulation to lead the development and implementation of the Simulation Strategy and report progress to the Faculty Leadership Team. Leadership will be clearly defined, and appropriate governance models and processes will be explicitly described.

1.1.2 Review and clarify academic programme and technical support structures and leadership roles in relation to simulation, and articulate roles and responsibilities to ensure parity across faculty (including workload tariff) and goals of simulation regularly (e.g., every two years).

1.1.3 Develop and facilitate collaborative working relationships with Technical Services Operational Managers to better understand the roles and responsibilities of simulation technicians/technologists and ensure colleagues have clear career pathways with access to ongoing training and development.

1.1.4 Develop and facilitate collaborative working relationships with Information technology (IT) Services and E-Learning Support Teams to promote the sharing of ideas, taking responsibility for innovation and best practices in using simulation and immersive technologies to enhance the learning experience.

1.1.5 Develop and facilitate ongoing relationships with executive stakeholders, faculty/organisational development teams, quality improvement and assurance, teaching and learning teams.

1.1.6 Appoint student representatives with clearly defined roles and responsibilities to inform the development of simulation.

1.1.7 Work with the Social Responsibility and Public Engagement Team to ensure strategies, plans, and goals align with Patient and Public Involvement and Engagement (PPIE) principles, e.g., PPIE representation in steering groups.

1.2 Communications and Networking

1.2.1 Establish a Community of Practice and/or Steering Committee with clear mechanisms to share best practices, learning, and expertise across all university healthcare programmes, including cooperation with, for example, but not limited to, the Association for Simulated Practice in Healthcare (ASPiH), International Nursing Association for Clinical Simulation and Simulation Learning (INACSL), Society for Simulation in Europe (SESAM), and Association of Standardized Patient Educators (ASPE).

1.2.2 Develop a digital platform/virtual learning environment to promote effective communication pathways, share resources (e.g. iRIS and e-learning for health) and expertise, showcase best practices, and facilitate collaborations across simulation within the university.

1.2.3 Continue to develop and establish liaisons with external stakeholders relevant to individual healthcare simulation training requirements, including professional regulatory and statutory bodies, Royal Colleges, and NHS (National Health Service) Trusts, ensuring protected time for **Discussion** via regular meetings.

2. Promoting Quality

2.1 Training and Development

2.1.1 Provide new and existing academic staff/faculty member, delivering simulation, with flexible and accessible training opportunities in simulation pedagogy as part of continuing professional development by completion of simulation development programmes such as, but not limited to, the Certified Healthcare Simulation Educator (CHSE), and Simulation Faculty Development Programme (e.g., e-lfh.org.uk).

2.1.2 Provide new and existing academic staff/faculty member delivering simulation with flexible and accessible training opportunities in immersive technology, e.g., Virtual Reality, Artificial Intelligence, and Serious Gaming based on the curriculum and intended learning outcomes for programmes.

2.1.3 Support new and existing academic staff/faculty member delivering simulation to continue developing knowledge and skills in the debriefing process, including meta-debriefing as appropriate.

2.1.4 Support academic staff/faculty member delivering simulation to participate in advisory committees, professional or practice-based simulation forums, or networks as part of continuing professional development.

2.1.5 Develop and implement a roadmap for professional development designed specifically for academic staff/faculty member delivering simulation. The professional development plan and/or pathway should include, but not be limited to, membership and engagement with professional Simulation Networks, attendance at local/regional/national/international conferences, completion of Simulated-Based Education study days/courses, and achievement of individual accreditation with a relevant simulation association.

2.1.6 Support simulation technicians/technologists in the development of knowledge, skills, and behaviours that will enable them to continue to provide consistent, high-quality simulation in safe learning environments by completion of professional registration with the Science Council, e.g., Simulation Technician Level 3, and Certified Healthcare Simulation Operations Specialist certification (CHSOS) scope.

2.1.7 Develop and implement an internal mentorship programme and/or peer-shadowing opportunities to provide continuous support and professional development of academic staff/faculty member/simulation technicians, delivering simulation.

2.2 Standards and Quality Assurance

2.2.1 Raise awareness and promote the application of Healthcare Simulation Standards of Best Practice, including, but not limited to: Association for Simulated Practice in Healthcare (ASPiH), International Nursing Association for Clinical Simulation and Learning (INACSL), Society for Simulation in Europe (SESAM), Association of Standardized Patient Educators (ASPE) and Simulated Patient Common Framework Checklist (Health Education Northwest).

2.2.2 Embed Healthcare Simulation Standards of Best Practice into the design and development of all simulation activities, and consider programme/organisational accreditation, as appropriate, with a relevant simulation association.

2.2.3 Ensure that staff designing and delivering simulation are knowledgeable of the ethical standards of simulation-based experiences and adhere to the Healthcare Simulationist Code of Ethics.

2.2.4 Use a periodic review and feedback process to ensure all simulation activities delivered across faculty, are feasible, appropriately designed based on programmatic resources, and in alignment with the simulation strategy. This will be measured by quality assurance processes, e.g., annual evaluation of programme simulation activities, incorporating outcomes data, learner, academic staff/faculty member, and external stakeholders' feedback.

2.2.5 Undertake a training needs analysis to identify training and development needs for academic staff/faculty member delivering simulation and simulation technologists/technicians, using, for example, the Simulation Educational Needs Assessment (SENAT) tool.

2.2.6 Engage in annual peer-review processes to ensure ongoing development of academic staff/faculty member delivering simulation.

2.2.7 Establish a clear process and/or system of reviewing simulation resources, e.g., standards of best practice, e-learning materials, evidence-based practice, and training and development courses, to ensure academic staff/faculty member/ simulation technologist/technicians remain up to date.

2.3 Research and Evaluation

2.3.1 Commit to undertaking evaluations of all aspects of simulation activity (i.e., briefing or pre-brief, simulation activity, debriefing, simulated patient's skills in portraying their role) to determine the quality and/or effectiveness of the simulation-based experience on an individual, divisional, school or faculty level. Evaluation should map to learning evaluation models, e.g., Kirkpatrick, and include feedback from learners, academic staff/faculty member, simulated/standardised patients, Equality, Diversity and Inclusion (EDI) leads, and external stakeholders.

2.3.2 Facilitate appropriate training and supervision for academic staff/faculty member designing and delivering simulation to develop research projects and evaluation processes that consider educational effectiveness and efficiency, patient safety, quality of care, and the preparedness of learners for the workforce.

2.3.3 Establish systems to actively support and promote the dissemination of outcomes/findings from research and/or evaluation processes in professional/scientific journals, and internal and external conferences.

2.3.4 Disseminate evaluation data internally (with proper anonymisation), promoting recognition and improvement at an individual, division, school, and faculty level.

3. Stability, Sustainability, and Growth of SIM

3.1 Accessibility

3.1.1 Review current specialist teaching spaces with a view to developing a system/process for sharing spaces, e.g., Aseptic Suite, to increase capacity for simulation delivery and enhance learner's experience of simulation.

3.1.2 Map existing simulation equipment and auditing processes, e.g., part-task trainers, full-body manikins, advanced procedural trainers, and VR (Virtual Reality) headsets, with a view to developing a system/process for sharing equipment to increase capacity for simulation delivery.

3.1.3 Ensure full-body manikins, part-task trainers, and avatar-based simulation, represent all patient populations, e.g., race, ethnicity, age, various body sizes, and disability, to promote equity, diversity, and inclusion.

3.1.4 Review the use and training of simulated patients across the faculty, with a view to establishing a pool of simulated patients, ensuring that they are trained for the roles that they are required to undertake, including providing feedback and debriefing in line with evidence-based practice, and reflect all patient populations to promote equity, diversity, and inclusion.

3.1.5 Identify a learning space to build and develop an innovative simulation centre/hub to increase capacity for simulation delivery, including Interprofessional-Enhanced Simulation.

3.1.6 Ensure digital innovations are accessible for all learners, ensuring an inclusive approach to teaching and learning.

3.2 Preparation and planning

3.2.1 Assess academic staff/faculty member readiness for simulation growth, e.g., workload, role and responsibility, training, and development needs.

3.2.2 Forecast programme/faculty growth for simulation, including personnel (academic staff/faculty member, simulation technicians/technologists), Information technology (IT), E-learning, and Librarian support, workload, roles and responsibilities, training and development needs, simulation equipment and facilitates, ensuring equity of access for learners across all healthcare programmes.

3.2.3 Explore and identify priorities, benefits, challenges, and solutions for incorporating simulation and immersive technologies into all healthcare programmes within the faculty, using, for example, the Simulation Culture Organizational Readiness Survey (SCORS).

3.2.4 Develop and implement a quality assurance framework to enable continuous progress in simulation preparation, planning, delivery, and integration into new healthcare programmes.

3.3 Finance

3.3.1 Prepare an operational budget considering current and future goals and priorities, including identifying fixed (e.g., maintenance and service contracts), variable (e.g., personnel, reimbursements for simulated patients, consumable items, training and development for staff and simulated patients, peer review, audit, dissemination of research and scholarly activity) costs, future capital expenditure, and human resources.