Research Article ISSN 2639-9474

Nursing & Primary Care

A Scoping Review and Analysis of Simulation Facilitator Essential Elements

Lori Hardie, MSN, RNC-MNN, NPD-BC, CHSE[1*] and Lori Lioce, DNP, FNP-BC, CHSE-A, CHSOS, FAANP[2]

[1]*Manager of Simulation, Franciscan Health, Greenwood, Indiana, U.S.A.*

[2]*Clinical Professor and Executive Director, Learning & Technology Resource Center, The University of Alabama in Huntsville, College of Nursing, Huntsville, Alabama, U.S.A.*

[*]Correspondence:
Lori Hardie, Manager of Simulation, Franciscan Health, 421 N. Emerson Avenue, Greenwood, Indiana, 46143, U.S.A.

Received: 20 July 2020; **Accepted:** 12 October 2020

Citation: Hardie L. and Lioce L. A Scoping Review and Analysis of Simulation Facilitator Essential Elements. Nur Primary Care. 2020; 4(5): 1-13.

ABSTRACT

Background: *Quality healthcare simulation depends largely on skilled facilitation. Identification and development of essential facilitator competencies challenges healthcare simulation operations across the world. Many organizations and authors have articulated and developed standards or recommendations for simulation facilitator development, but none have provided a synthesized and operationalized list of simulation facilitator competencies.*

Method*: Analysis of organizational standards and recommendations for simulation, combined with a scoping review of recent literature, provide a synthesis of essential elements required for simulation facilitators. Eight documents from six professional organizations, and 23 literature articles identified from the scoping review, were analyzed for statements related to facilitator competencies and/or essential elements, which were then coded, and themes abstracted using a computer assisted qualitative data analysis software. Elements were then expanded and operationalized.*

Results: *From the eight documents and 23 articles, content analysis identified over 1200 facilitator competency related statements which were thematically grouped into seven categories: 1) Knowledge underpinning simulation, 2) Skills to deliver simulation, 3) Skills to support participants, 4) Skills to support debriefing and/or assessment, 5) Facilitator comportment or qualities, 6) Commitment to continuous quality and safety improvement, and 7) Committment to professional development at every level. The analysis identified 30 essential elements which were expanded and operationalized into 149 sub-elements for evidence-based facilitation.*

Conclusion: *Simulation facilitator development should be based on expert consensus and evidence-based practice. This research expands and operationalizes essential elements of healthcare simulation facilitation and provides a focused pathway for development and professional advocacy to advance the science of simulation..*

Keywords

Simulation, Educator, Facilitator, Professional Development, Competency, Healthcare Education.

Abbreviations

AHRQ: Agency for Healthcare Research and Quality; ASPE: Association for Standardized Patient Educators; AV: Audiovisual; CHSE: Certified Healthcare Simulation Educator; CPOE: Computerized physician order entry; EBP: Evidence-based practice; IMSH: International Meeting of Simulation in Healthcare; INACSL: International Association for Clinical Simulation and Learning; IP: Interprofessional; IT: Information technology; KSA: Knowledge, skill, attitude; NCSBN: National Council of State Boards of Nursing; NLN: National League for Nursing; PRISMA ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews; QSEN: Quality and Safety Education for Nurses; SBE: Simulation-based education;

SFD: Simulation facilitator development; SP: Standardized or simulated patients; SSH: Society for Simulation in Healthcare; TeamSTEPPS: Team Strategies and Tools to Enhance Performance and Patient Safety.

Background

Ensuring high quality simulation experiences drives the standards and recommendations advanced by simulation leadership and professional organizations. Publications that explore, advance and share simulation best practices have reached an all-time high. Organizations have been developed, financial resources allocated, staff roles created, programs advanced, certifications formed, and best practices recommended, all to transform education to engage participants at a higher level. These efforts guide the quest of healthcare simulationists to improve the quality of care and enhance patient safety.

Competent healthcare simulation facilitators are foundational to providing high quality educational experiences to practicing and future healthcare professionals. The International Nursing Association for Clinical Simulation and Learning (INACSL) defines a facilitator as one "who has the education, skill, and ability to guide, support and seek out ways to assist participants in achieving expected outcomes" [1]. However, there is a gap in our ability to articulate and measure evidence-based elements of facilitator competency [2-4].

Recent rapid growth in simulation, coupled with its potential to positively impact patient care, supports the need for consensus and consistency regarding the essential elements of facilitation. The absence of a synthesized and operationalized consensus of essential elements contributes to a lack of clarity and consistency for facilitator development.

In 2015, Topping's [4] systemized rapid review proposed a preliminary facilitator competency framework comprised of three learning domains: 1) Knowledge, 2) Skills and behaviors, and 3) Comportment, a term that encompasses professional attitudes and values. The domains are divided into five categories which include: 1) Required knowledge underpinning simulation, 2) Skills to deliver simulation, 3) Skills to support students, 4) Skills to support debriefing and/or assessment, and 5) Educator comportment or qualities (Table 1).

Building upon Topping's competency framework [4], the purpose of this study is to synthesize current consensus of essential elements for simulation facilitators, to expand and operationalize the elements, and to offer clarity and consistency for facilitator development education.

Simulation has used various terminology such as educator and faculty or students and learners interchangeably in the literature. To remain inclusive, we will use the terms facilitator and participant throughout this article.

Table 1: Precursor Competencies for Delivering Simulated Learning in Nursing Programs [4].

DOMAIN: KNOWLEDGE	
Category	Element
Required knowledge underpinning simulation	• Understanding of learning theories and strategies • Curriculum development and integration • Practical/expert knowledge of subject (clinical realism) • Repertoire of real-world examples • Theory of group dynamics
DOMAIN: SKILLS AND BEHAVIORS	
Skills to deliver simulation	• Create and program realistic scenarios • Mastery of equipment operation (simulators, computers, simulation equipment) • Mastery of interprofessional cooperation
Skills to support students	• Skills to prepare students to simulation (theory, roles) • Team facilitation (small and large group dynamics) • Didactic skills (facilitate/guide students' learning)
Skills to support debriefing and/or assessment	• To provide critical (positive and negative) feedback • Use video and critical reflection, deep dialogue • Timing quality feedback, face to face • Guide learning through debriefing • Ability to assess learning outcomes
DOMAIN: COMPORTMENT	
Educator comportment or qualities	• Able to create positive, comfortable, trusting atmosphere and learning climate (emotional safety) • Able to bring theory and practice together • Able to pose as a real-world role model • Passion for teaching and learning • Flexibility or adaptability to what the content/kit can offer • Student centered approach

[4] Topping A, Bøje RB, Rekola L, Hartvigsen T, Prescott S, Bland A, et al. Towards identifying nurse educator competencies required for simulation-based learning: a systemised rapid review and synthesis. Nurse Educ Today. 2015;35(11):1108-13.

Objectives

- Discover current consensus of essential elements of simulation facilitation through content analysis and crosswalking of recommendations from professional organizations and last five years of literature identified in a scoping literature review.
- Operationalize essential elements for use in evidence-based facilitator development.
- Determine which elements ranked highest in agreement, to aid in prioritization of facilitator development.

Method

Aim

The aim of this research is to provide an evidenced-based reference to support organized and consistent facilitator professional development, allowing greater adherence and accountability to best practice.

Research Team

Initial work on this study began with a group of five National League for Nursing (NLN) Simulation leaders while engaged in the NLN Simulation Leadership Program 2018 cohort [5]. As a group, all five members contributed to and presented preliminary

data from this project at the January 2020 International Meeting of Simulation in Healthcare (IMSH) Conference in San Diego, California. Following the presentation, three group members, reviewed and approved the final data. Upon project completion, two group members authored and submitted this manuscript.

Design

This qualitative study used a combination of a scoping literature review conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) [17], content analysis and crosswalk methodologies to organize current recommendations regarding essential elements for facilitation.

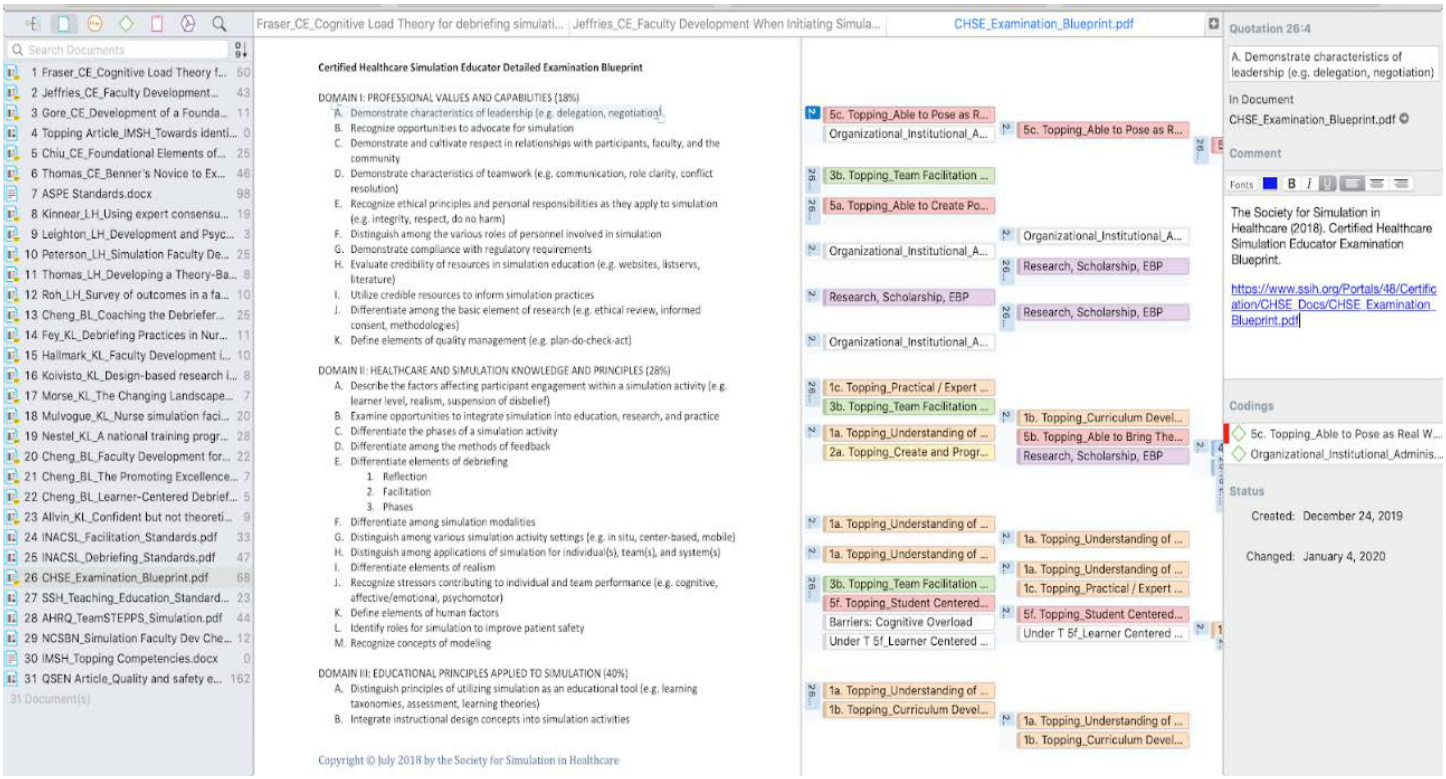
Content analysis provides a means of organizing and interpreting data to allow conclusions to be drawn from targeted units of analysis [6,7]. In this study, units of analysis included eight documents from six organizations and the 23 articles identified in the scoping review. Meaning units, groups of words containing elements of facilitator knowledge, skills and abilities, were analyzed from each of the 31 texts. A crosswalk analysis was used to connect concepts and allow data to be compared, contrasted, and synthesized [8].

Initially, the group collaborated via shared Google Docs, Excel spreadsheets, and bi-weekly video conference calls. As the amount and depth of data increased, Atlas.ti [9], a computer-assisted qualitative data analysis software, was selected to complete the analysis and coding. Data collection and analysis consisted of two primary phases. In phase one, the eight documents were entered into ATLAS.ti and content was analyzed using an inductive coding process. Phase two consisted of the scoping literature review followed by the same process of content analysis and coding in Atlas.ti for the 23 articles.

First, each of the 31 documents were carefully read to understand the gestalt of the text. Second, each text was analyzed for meaning units related to facilitation essential elements. Third, meaning units were identified and inductively coded to identify related content areas. Figure 1 provides a snapshot of the coding process using the Atlas.ti platform with the Certified Healthcare Simulation Educator (CHSE) Examination Blueprint [11].

To increase validity, each group member independently conducted the analysis and coding of meaning units and then verified agreement from a minimum of two other group members. To strengthen reliability and trustworthiness of results, each stage was completed multiple times with at least three group members for agreement. When a meaning unit did not fit into an existing category or content area, it was coded as an additional element to be later analyzed and collapsed into themes. If an item seemed unclear, the item was discussed and mutually agreed upon by all group members. As a result of repeated coding, meaning units were categorized and condensed into evolving themes. Finally, for respondent validation, final results were presented to all group members for agreement.

Figure 1: Example of Coding and Analysis of CHSE Examination Blueprint with Atlas.ti [9].



ATLAS.ti 8 Scientific Software Development. Available from: https://atlasti.com/. Accessed June 8 2020. [9]

Phase I

Content Analysis of Guiding Documents in Simulation

Current standards and guidelines of best practice for simulation from international and national simulation professional organizations, as well as government and regulating bodies were identified, mapped, and crosswalked to provide the baseline of recommended elements of facilitation. Authors selected eight documents, well-known and familiar to most simulationists, from leading organizations commonly used to guide simulation facilitator development. Each of the guiding documents included in this research is described below.

Society for Simulation in Healthcare (SSH) Accreditation Self Study: Teaching Education Standards and Measurement Criteria [10]

The Society for Simulation in Healthcare offers five areas for accreditation of simulation centers. The Teaching/Education Accreditation Standards and Measurement Criteria were designed to certify programs that substantiate evidence-based simulation educational activities The four sections of Education Standards are: 1) education design, 2) qualified educators, 3) educational activities, and 4) evaluation and improvement.

Society for Simulation in Healthcare Certified Healthcare Simulation Educator Blueprint [11]

The Certified Healthcare Simulation Educator Blueprint is a comprehensive practice analysis document that illustrates the knowledge, skills, and abilities (KSAs) expected from an educator at a two-year competency level in simulation education. The blueprint is delineated into four domains with well-defined KSAs described using Bloom's Taxonomy. All CHSE exam questions map back to KSAs within the following domains: 1) professional values and capabilities, 2) healthcare and simulation knowledge/ principles, 3) educational principles applied to simulation, and 4) simulation resources and environments.

International Association for Clinical Simulation and Learning (INACSL): Standards of Best Practice: Simulation℠ Facilitation [1]

The INACSL Standards of Best Practice: Simulation℠ Facilitation provides evidence-based guidelines for simulation facilitation using specific criteria and required elements to manage the simulation-based experience.

International Association for Clinical Simulation and Learning: Standards of Best Practice: Simulation℠ Debriefing [12]

The INACSL Standards of Best Practice: Simulation℠ Debriefing emphasizes planned debriefing as an educational priority aimed at safeguarding the attainment of learning outcomes.

National Council of State Boards of Nursing (NCSBN) Simulation Faculty Preparation Checklist [13]

Informed by the results of their landmark study [2], the NCSBN created a 12-point checklist for simulation faculty preparation. The elements outlined in the checklist focus on the need for faculty who are prepared to deliver simulation that is grounded in educational theory, based on current best practice guidelines, creates safe learning environment, uses a standardized method of debriefing, and includes a thorough evaluation plan.

Association for Standardized Patient Educators (ASPE): Standards of Best Practice [14]

The ASPE: Standards of Best Practice were developed to guide simulation educators who work with human role players, referred to as standardized or simulated patients (SP), with a focus on safety, quality, professionalism, accountability, and collaboration. The five domains of best practice are: 1) safe work environment, 2) case development, 3) SP training for role portrayal, feedback, and completion of assessment instruments, 4) program management, and 5) professional development.

Quality and Safety Education for Nurses (QSEN) Competencies [15]

QSEN has established six areas that are essential to nursing faculty to integrate into curricula. The competencies designated by QSEN are: 1) patient-centered care, 2) teamwork and collaboration, 3) evidence-based practice, 4) quality improvement, 5) safety, and 6) informatics.

Agency for Healthcare Research and Quality (AHRQ) Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS®) Training guide: Using Simulation in TeamSTEPPS® Training [16]

TeamSTEPPS® is an evidence-based framework developed by the Department of Defense and AHRQ to improve interprofessional collaboration and patient outcomes by integrating communication and teamwork principles into healthcare settings. The core TeamSTEPPS® domains are: 1) communication, 2) leadership, 3) situational monitoring, and 4) mutual support.

Phase II

Scoping Review and Content Analysis of Recent Literature

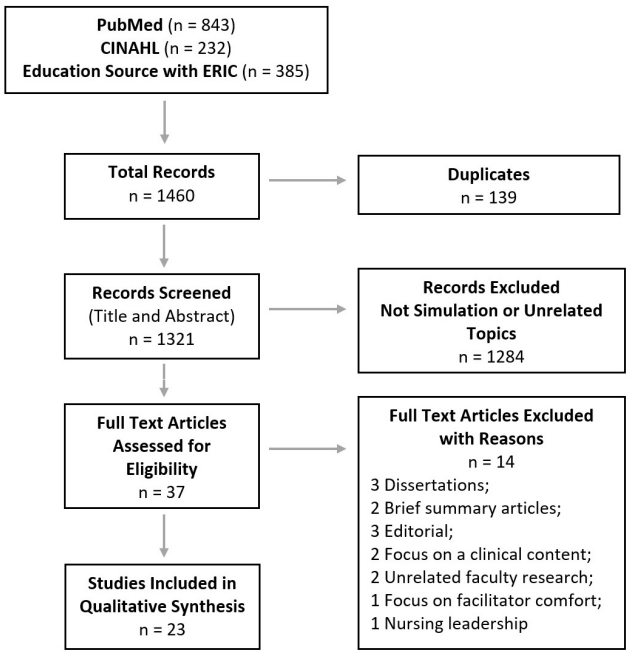
A scoping review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) [17]. The following bibliographic databases were searched from 2015-2019 and included Medline via PubMed, CINAHL via EBSCO, and Education Source with ERIC. Keywords for each of the core concepts were identified and translated into comprehensive search strategies tailored to the controlled vocabulary for each database. The search terms used in various combinations were: professional competence; professional development; compten*; mentors; mentor*; faculty; facilitator; facilit*; educator; educator*; simulation; simulation training; simulat*. In each database, the search was limited to articles published in English, including human subjects and healthcare simulation. Initially, a wide range of articles was retrieved: Medline (843), CINAHL (232) and Education Source with Eric (385). Duplicates were subsequently removed, and the titles and abstracts of 1321 records were screened for relevance by the project team using the Covidence [18] platform for collaboration.

Upon screening for relevance to health care simulation facilitator development essentials, 37 articles were identified for full

text assessment. Further inclusion criteria of evidence-based, research articles with facilitator/educator focus, and exclusion of dissertations yielded 23 articles for inclusion in this review (Figure 2). Authors reviewed and summarized the 23 articles, noting the focus and theoretical framework of each (Table 2).

Figure 2: PRISMA Scoping Literature Review Flow Diagram.

Databases:	Medline via PubMED; CINAHL; Education Source with ERIC
Search terms:	Competency-based education; clinical competence; core competencies; professional competence; professional development; compten*; mentors; mentor*; faculty; facilitator; facilit*; educator; educator*; simulation; simulation training; simulat*
Inclusion criteria:	English language articles; published; focus on simulation facilitator development and/or making recommendations about simulation facilitator competencies
Exclusion criteria:	Intervention studies; opinion-based articles; dissertations



To discover and crosswalk competency related statements from the literature, authors proceeded to analyze and code each of the 23 articles from the scoping review.

Finally, all coded statements from the organizational documents and the literature were thematically categorized and reviewed by at least three group members.

Results

The original five categories and 22 essential elements outlined in Table 1, were expanded to seven categories, 30 elements and 149 operationalized sub-elements (Table 4).

Elements Ranked

Table 3 shows the number of meaning units coded to each of the seven categories. Facilitator comportment, the category which includes elements of safe learning environment and attention to human-centeredness, was the most referenced category in the texts by a large margin. The categories in second, third, and fourth position were *required knowledge underpinning simulation, skills to support debriefing and/or assessment,* and *skills to deliver simulation*.

Changes and Expansions

To include all who facilitate and participate in simulation, verbiage in the expanded categories and elements was changed to reflect current trends in literature: "Student-centered" changed to "human-centered" or "participant-centered", "students" changed to "participants", and "educator" changed to "facilitator". All changes and expansions in the tables are denoted by bolded text.

Two new categories, *Commitment to professional development at every level,* and *Commitment to continuous quality and safety improvement*, were added from the research. One additional element, *Knowledge of evidence-based simulation practice*, was added to the first category, *Required knowledge underpinning simulation.*

Table 4 adds the KSA statements using Bloom's taxonomy to operationalize each of the elements. For example, understanding of learning theories and strategies, was divided into 13 functional sub-elements, or components, to be used to identify, demonstrate, measure, and evaluate competence.

Enablers and Barriers

From the literature, 290 statements regarding identified enablers and barriers to simulation facilitator development were identified, coded and collapsed into themes for each category (Table 5). Enablers to facilitator development: 1) Community of simulation support, 2) Strong debriefing foundation, 3) Subject matter expertise, 4) Resources to support simulation facilitator development, 5) Supportive learning environment. Barriers to facilitator development include: 1) Lack of funding and time to support systematic training, 2) Cognitive overload, 3) Relative paucity of evidence regarding development of facilitator knowledge, skills, attitudes, and behavior, 4) Differing mental models and, 5) Limited understanding of competency assessment.

Discussion

The purpose of this study was to synthesize current consensus of essential elements for simulation facilitators, to expand and operationalize the elements, and to offer clarity and consistency for facilitator development. In this study, 30 essential elements and 149 sub-elements of evidence-based facilitation were identified from the research. By providing a line-by-line description of essential elements, this framework provides a foundation for facilitator orientation and ongoing learning. The ability to clearly articulate the essential elements of facilitator competence supports professional and regulatory standards as well as the ability to measure and evaluate facilitator competence.

These essential elements can be used to inform content for facilitator development courses, performance evaluations, as well

Table 2: Characteristics of 23 Studies from Scoping Literature Review.

Author(s)	Title	Year	Country	Focus	Theoretical Framework
Allvin, R., Berndtzon, M., Carlzon, L., Edelbring, S., Hult, H., Hultin, M., et al. (19)	Confident but Not Theoretically Grounded-Experienced Simulation Educators' Perceptions of Their Own Professional Development	2017	Sweden	Thematic analysis of simulation educators' development; qualitative exploratory study; Five themes were identified: shifting focus, from following to utilizing a structure, setting goals, application of technology, and alignment with profession.	Ramsden's Understanding Teaching; Bigg's Thinking about Teaching; Stenfor-Hays Hierarchical Levels of Clinical Teaching
Cheng, A., Grant, V., Dieckmann, P., Arora, S., Robinson, T., Eppich, W. (20)	Faculty Development for Simulation Programs: Five Issues for the Future of Debriefing Training	2015	Canada	Discussion of key issues that shape debriefing training for facilitators; faculty development	N/A
Cheng, A., Grant, V., Robinson, T., Catena, H., Lachapelle, K., Kim, J., et al. (21)	The Promoting Excellence and Reflective Learning in Simulation (PEARLS) Approach to Health Care Debriefing: A Faculty Development Guide	2016	Canada	Resources to serve as a faculty development guide for implementation of PEARLS	The Promoting Excellence and Reflective Learning in Simulation (PEARLS)
Cheng, A., Morse, K., Rudolph, J., Arab, A., Runnacles, J., Eppich, W. (22)	Learner-Centered Debriefing for Health Care Simulation Education: Lessons for Faculty Development	2016	Canada	Review of the literature and critical discourse on learner centered versus instructor centered teaching in simulation-based education	Learner Centered Teaching
Cheng A, Grant V, Huffman J, Burgess G, Szyld D, Robinson T, et al. (23)	Coaching the Debriefer: Peer Coaching to Improve Debriefing Quality in Simulation Programs	2017	Canada	Peer coaching for debriefing in simulation education	N/A
Chiu, M., Posner, G., Humphrey-Murto, S. (24)	Foundational Elements of Applied Simulation Theory: Development and Implementation of a Longitudinal Simulation Educator Curriculum	2017	Canada	Framework of curriculum development via a longitudinal simulation educator curriculum (FEAST; Foundational Elements of Applied Simulation Theory)	Kern's Six Step Approach to Curriculum Development Program Evaluation using Kirkpatrick's Model
Fey, M., Jenkins, L. (25)	Debriefing Practices in Nursing Education Programs: Results from a National Study	2015	United States	Describe debriefing practices in nursing programs in the United States; cross-sectional internet survey	Kolb's Experiential Learning Theory
Fraser, K., Meguerdichian, M., Haws, J., Grant, V., Bajaj, K., Cheng, A. (26)	Cognitive Load Theory for Debriefing Simulations: Implications for Faculty Development	2018	Canada	Faculty development for debriefing simulations; learning strategies to mitigate high mental workloads and improve quality of debriefings	Cognitive Load Theory
Gore, T., Singh O. (27)	Development of a Foundations of Simulation Teaching Course for Nurse Educators	2019	United States	Development of an online course to enhance simulation faculty knowledge	NLN/Jeffries Simulation Theory
Hallmark, B. (28)	Faculty Development in Simulation Education	2015	United States	Highlights the importance of training educators in simulation according to standards and recommendations	Constructivist Theory Benner's Novice to Expert Model
Jeffries, P., Thomas Dreifuerst, K., Kardong-Edgren, S., Hayden, J. (2)	Faculty Development When Initiating Simulation Programs: Lessons Learned from the National Simulation Study	2015	United States	Guidelines for faculty development based on the NCSNBN study	N/A
Kinnear, J., Smith, B., Akram, M., Wilson, N., Simpson, E. (29)	Using Expert Consensus to Develop a Simulation Course for Faculty Members	2015	England	Determine essential elements of a simulation faculty training course using a Delphi study	N/A
Koivisto, J., Hannula, L., Bøje, R., Prescot,t S., Bland, A., Rekola, L., et al. (30)	Design-Based Research in Designing the Model for Educating Simulation Facilitators	2018	Finland Denmark UK Estonia	Describes development of an education based model for facilitator training	Design Based Research to create the NESTLED model
Leighton, K., Mudra, V., Gilbert, G. (31)	Development and Psychometric Evaluation of the Facilitator Competency Rubric	2018	United States	Evaluation of the psychometric properties of the Facilitator Competency Rubric (FCR)	Benner's Novice to Expert Model
Morse, C., Fey, M., Kardong-Edgren, S., Mullen, A., Barlow, M., Barwick, S. (32)	The Changing Landscape of Simulation-Based Education	2019	United States	Prebriefing, debriefing, and safety in simulation-based education with an emphasis on successful use of simulation including facilitator competencies	Kolb's Experiential Learning Theory
Mulvogue, J., Ryan, C., Cesare, P. (33)	Nurse Simulation Facilitator Experiences Learning Open Dialogue Techniques to Encourage Self-Reflection in Debriefing	2019	Australia	An intervention study to help nursing simulation facilitators learn and develop self-reflective learning skills	Open Dialogue Therapy

Nestel, D., Bearman, M., Brooks, P., Campher, D., Freeman, K., Greenhill, J., et al. (34)	A National Training Program for Simulation Educators and Technicians: Evaluation Strategy and Outcomes	2016	Australia	Development of a national training program for simulation-based education to enhance the quality and scale of simulation; e-learning and workshops	N/A
Peterson, D., Watts, P., Epps, A., White, M. (35)	Simulation Faculty Development: A Tiered Approach	2017	United States	Lessons learned through implementation of a tiered faculty development program	N/A
Roh, Y., Kim, M., Tangkawanich, T. (36)	Survey of Outcomes in a Faculty Development Program on Simulation Pedagogy	2016	Thailand	Evaluation of faculty learning and attitudes after participation in a simulation development program; retrospective pre-course and post-course design	Theory of Planned Behavior
Stephenson, E., Poore, J., Byrne, B., Dwyer, J., Ebert, D., Hasty, G., et al. (37)	Interprofessional Educator Development Course for Simulation	2019	United States	Description of the development, implementation, and results of an Interprofessional Educator Development Course for simulation educators	N/A
Thomas, C., Sievers, L., Kellgren, M., Manning, S., Rojas, D., Gamblian, V. (38)	Developing a Theory-Based Simulation Educator Resource	2015	United States	Established categories of faculty development to create a Simulation Educator Toolkit	Benner's Novice to Expert Model
Thomas, C., Kellgren, M. (3)	Benner's Novice to Expert Model: An Application for Simulation Facilitators	2017	United States	Application of developmental stage model to formal training and education of simulation faculty	Benner's Novice to Expert Model
Topping, A., Bøje, R., Rekola, L., Hartvigsen, T., Prescott, S., Bland, A., et al. (4)	Towards Identifying Nurse Educator Competencies Required for Simulation-Based Learning: A Systemised Rapid Review and Synthesis	2015	Qatar Denmark Finland UK Australia	Synthesized rapid review of literature to identify simulation educator precursor competencies	N/A

Table 3: Expansions from the Research Including Number of Coded Statements.
Note: Bolded text are the changes or expansions from the research

DOMAIN: KNOWLEDGE	
Category	Element
Required knowledge underpinning simulation **N= 390**	• Understanding of learning theories and strategies • Curriculum development and integration • Practical/expert knowledge of subject (clinical realism) • Repertoire of real-world examples • Theory of group dynamics • **Knowledge of evidence-based simulation practice**
DOMAIN: SKILLS AND BEHAVIORS	
Skills to deliver simulation **N= 210**	• Create and program realistic scenarios • Mastery of equipment operation (simulators, computers, simulation equipment) • Mastery of interprofessional cooperation
Skills to support **participants** **N= 158**	• Skills to prepare **participants** to simulation (theory, roles) • Team facilitation (small and large group dynamics) • Didactic skills (facilitate/guide **participants**' learning)
Skills to support debriefing and/or assessment **N= 380**	• To provide critical (positive and negative) feedback • Use video and critical reflection, deep dialogue • Timing quality feedback, face to face • Guide learning through debriefing • Ability to assess learning outcomes
DOMAIN: **ATTITUDE**	
Facilitator comportment or qualities **N= 602**	• Able to create positive, comfortable, trusting atmosphere and learning climate (emotional safety) • Able to bring theory and practice together • Able to pose as a real-world role model • Passion for teaching and learning • Flexibility or adaptability to what the content/kit can offer • **Human**-centered approach
Commitment to continuous quality and safety improvement **N= 95**	• **Identify and manage sources of risk** • **Create and foster culture of safety** • **Ensure systematic approach to continuous quality improvement**
Commitment to professional development at every level **N= 162**	• **Identify need for initial formal training for facilitation** • **Value cooperative learning with peers to improve performance, offer mutual support, exchange ideas and build team learning culture** • **Serve as expert mentor and coach**

Table 4: Elements Expanded and Operationalized for Simulation Facilitator Development.

Note: Bolded text are the changes or expansions from the research

DOMAIN: KNOWLEDGE		
Category	Element	**Sub-Elements Operationalized**
Required knowledge underpinning simulation	Understanding of learning theories and strategies	**1. Describe importance of standardized initial facilitator training and ongoing professional development** **2. Describe history of simulation in healthcare education and relevance to safety, quality in healthcare** **3. Articulate theory-based teaching and learning strategies and role in simulation-based education (SBE)** **4. Summarize benefits, indications and challenges of SBE** **5. Determine simulation objectives and outcomes through needs assessment** **6. Select appropriate number, level and content of clear, measurable objectives and outcomes** **7. Describe rationale for selecting preparatory/prebriefing activities, level of facilitation, and theory-based debriefing framework based on participant level and identified objectives/outcomes** **8. Demonstrate selection of simulation settings and modalities that align with educational goals** **9. Understand best practices for the inclusion of embedded participants** **10. Recognize safety, confidentiality and integrity as essential elements of a learning culture** **11. Explain the impact of fidelity and cueing on participant engagement** **12. Recognize value of standardized approach to evaluation and outcome measurement** **13. Identify pilot testing as an essential scenario quality improvement activity intended to uncover necessary modifications that improve the educational experience for participants**
	Curriculum development and integration	**1. Illustrate advantages of integrating simulation into education and practice-based curricula** **2. Describe value of standardized facilitator training toward ensuring consistent curricular integration of SBE** **3. Select scenarios with outcome-focused learning objectives that address specific participant and curricula needs (entrustable professional activities, milestones)**
	Practical/expert knowledge of subject (clinical realism)	**1. Appraise one's own limitations and level of expertise in SBE and clinical evidence-based practice (EBP)** **2. Recognize opportunities to deepen experience and confidence level in simulation and clinical EBP** **3. Describe benefits of matching competence level of facilitator to difficulty of simulation and level of participant** **4. Consult subject matter experts, both in simulation and clinical EBP, to ensure authenticity and realism, to serve as content experts, and to discern when deviation from EBP is advisable** **5. Explain importance of suspension of disbelief and the fiction contract as means to enhance fidelity and engage participants** **6. Recommend participants function within their own scope of practice during simulation**
	Repertoire of real-world examples	**1. Critique the clinical authenticity and realism of simulation** **2. Recognize importance of aligning learning outcomes to clinical diagnosis, interventions, and intended purpose**
	Theory of group dynamics	**1. Examine principles of group dynamics that optimize participation, communication, problem-solving, interaction and collaboration** **2. Recognize the effects of group size, structure, and dynamics on facilitation strategies and learning**
	Knowledge of evidence-based simulation practice	**1. Describe ways to incorporate simulation EBP and research into facilitation** **2. Outline elements of a learning culture that support inquiry and curiosity** **3. Appraise and apply simulation research back to practice and education** **4. Contribute to simulation innovation, scholarship and research in a means and level consistent with one's role, education, and experience**
DOMAIN: SKILLS AND BEHAVIORS		
Category	Element	**Sub-Elements Operationalized**
Skills to deliver simulation	Create and program realistic scenarios	**1. Engage simulation experts to inform and contribute to design** **2. Employ standardized design template to maintain consistency and enable scenario replication** **3. Articulate relationship between educational goals and level of participant in selection of modality and location of simulation** **4. Create/select evidence based, realistic, clinically authentic scenario content that meets the educational purpose** **5. Ensure availability of essential resources and adequate time to complete** **6. Conduct pilot testing prior to implementation to identify scenario elements requiring modification** **7. Ensure adherence to safe, ethical practices** **8. Engage learners in fiction contract and suspension of disbelief to optimize simulation fidelity**
	Mastery of equipment operation (simulators, computers, simulation equipment)	**1. Demonstrate basic, safe, effective understanding and use of various types of simulation equipment and technology (task trainers, simulators, medical, AV and IT equipment, communication technologies, etc.)** **2. Select, secure, and integrate appropriate simulation modality, equipment and supplies to support learning goals** **3. Identify recommendations and resources for safety, cleaning, maintenance and troubleshooting with simulation equipment and technology** **4. Outline the complementary roles and responsibilities of facilitators and simulation operations specialists and how each contributes to meeting educational goals** **5. Identify opportunities to integrate informatics, documentation, and error prevention technology (barcoding, CPOE, alarms) into SBE**
	Mastery of interprofessional cooperation	**1. Conduct interprofessional (IP) SBE that recognizes and values the unique roles, scopes of practice, contributions, and perspectives of all healthcare team members, including patients and families** **2. Construct IP SBE designed to improve IP collaboration through effective communication and teamwork strategies** **3. Outline impact of IPE on team performance and safe clinical practice** **4. Advocate for, and participate in, education that includes training of unique skills necessary for facilitating IP education, debriefing**

Skills to support **participants**	Skills to prepare **participants** to simulation (theory, roles)	**1. Conduct effective preparatory activities that provide adequate information for participant success** **2. Create safe container of learning** **3. Establish psychological safety** **4. Discuss expectation of confidentiality and fiction contract** **5. Orient to simulation environment** **6. Outline ground rules and logistics** **7. Allow adequate time to familiarize with simulation environment (i.e. simulators, clinical equipment and location of any needed supplies)** **8. Outline expectations for all parts of the simulation** **9. Discuss simulation objectives, anticipated outcomes, and purpose** **10. Provide necessary background information** **11. Identify participant and facilitator roles** **12. Allow skills review/practice if needed** **13. Describe process, time allotted, and expectations of all 3 phases of simulation (briefing/prebriefing, simulation, debriefing)**
	Team facilitation (small and large group dynamics)	**1. Exchange constructive peer and participant feedback to foster a culture of safety, teamwork, and commitment to shared team goals** **2. Engage all members of the group and balance participation** **3. Select appropriate level of facilitation and cueing for the group** **4. Encourage and model mutual respect and role clarity among all group members** **5. Model shared decision making with participants, team members and co-facilitators** **6. Allow group members to guide group discussion and reflections, ask questions, and offer feedback to one another** **7. Encourage team members to learn from each other** **8. Adapt facilitation to group needs, focus, behaviors** **9. Anticipate sources of group conflict and employ strategies to mitigate and resolve**
	Didactic skills facilitate/guide **participants**' learning)	**1. Select appropriate educational methods to achieve targeted goals** **2. Establish and communicate expectations for team and individual performance measures** **3. Encourage participants to share concerns, insights, takeaways and reflections**
Skills to support debriefing and/or assessment	To provide critical (positive and negative feedback)	**1. Seek out opportunities to practice effective summative and formative feedback skills** **2. Role model the regular exchange of reliable constructive feedback with peers and participants to build trust, and improve teamwork** **3. Train simulated patients to provide outcome targeted feedback** **4. Articulate the expectation for participants to share specific, timely feedback with one another**
	Use video and critical reflection, deep dialogue	**1. Use video for facilitator reflection, evaluation and development** **2. Use video, group discussion, and reflection techniques to effectively engage and guide participants to discover individual and team strengths and opportunities, barriers and solutions, gain insights, and identify ways to apply new knowledge to future clinical situations** **3. Identify benefits and risks of video recording in SBE**
	Timing quality feedback, face to face	**1. Describe factors to consider when selecting the most appropriate feedback method** **2. Select appropriate method to provide participant-centered, targeted, accurate, specific, and timely formative and summative feedback**
	Guide learning through debriefing	**1. Advocate for and seek out opportunities to learn, practice and improve debriefing skills (peer coaching, ongoing evaluation, competency assessment tools)** **2. Articulate the goals, purpose, techniques, theories, and challenges of debriefing** **3. Use theory-based debriefing models, scripting, feedback and assessment tools** **4. Create a shared mental model of simulation events with participants and guide collaborative reflection to discover solutions to performance gaps** **5. Match level of debriefer to anticipated difficulty of debriefing** **6. Identify strategies, benefits and risks to co-debriefing** **7. Outline unique challenges and strategies for interprofessional (IP) debriefing**
	Ability to assess learning outcomes	**1. Ensure outcomes are clearly defined and communicated** **2. Observe and evaluate participant performance to identify gaps and achievement of goals and outcomes** **3. Integrate checklists and instruments to assess individual and team performance** **4. Identify real-time adaptations that may be required to aid participants in achieving learning outcomes**

DOMAIN: **ATTITUDE**		
Category	**Element**	**Sub-Elements Operationalized**
Facilitator comportment or qualities	Able to create positive, comfortable, trusting atmosphere and learning climate (emotional safety)	**1. Exemplify professional integrity and ethical conduct** **2. Acknowledge the presence and impact of one's own emotions, beliefs, and biases** **3. Maintain psychological, physical, environmental safety to promote trust and build rapport** **4. Advocate for privacy, confidentiality and security of all sensitive data** **5. Contribute to team collaboration and mutual benefit through respectful, honest communication, and shared power and decision making** **6. Pay attention to participant emotional responses and cognitive load** **7. Invite participants to share needs, emotions, and reactions and respond with genuine interest, curiosity, and caring** **8. Actively listen and display openness through body language and tone of voice** **9. Communicate clear expectations to decrease anxiety and/or defensiveness, and allow for informed decision making of all stakeholders** **10. Ensure confidentiality and commitment to professionalism in all peer coaching and feedback interactions to encourage shared learning, growth and team building**
	Able to bring theory and practice together	**1. Value participant evaluation to decrease variation and improve validity and reliability** **2. Employ standardized knowledge of simulation to support consistency between facilitators** **3. Seek opportunities to integrate simulation into education, research and practice** **4. Encourage participants to reflect on performance gaps, lead discussions of lessons learned, draw parallels, and transfer knowledge to their work environment**
	Able to pose as a real-world role model	**1. Remain adaptive and present in all simulation experiences** **2. Serve as simulation professional role model** **3. Participate in peer coaching/mentoring/feedback** **4. Appreciate scope, responsibilities and contributions of each team member's role** **5. Advocate for simulation stakeholders to practice competently within their own professional role** **6. Support team members and team leader through effective professional communication and commitment to team goals**
	Passion for teaching and learning	**1. Demonstrate passion and interest via tone of voice, body language, active listening** **2. Encourage participants' curiosity and collaboration**
	Flexibility or adaptability to what the content/kit can offer	**1. Manage evolving and unexpected needs** **2. Adjust methods and approaches quickly in response to rapid changes** **3. Balance priorities and resources to maximize benefit, make changes "on the fly" when appropriate/beneficial**
	Human-centered approach	**1. Describe strategies and barriers to participant-centered facilitation** **2. Acknowledge the unique psychological, behavioral, social, physical and cultural diversity of each individual** **3. Effectively manage sources of stress, conflict** **4. Respect individual communication styles and encourage expression** **5. Integrate cultural humility, diversity, and build accommodation and inclusion strategies into SBE** **6. Identify and manage own biases to avoid stereotyping** **7. Respect individuals' preferences, values, emotions, and boundaries** **8. Acknowledge limits of human performance** **9. Value the contributions and experiences of each person** **10. Recognize the impact of individual factors on learning outcomes** **11. Modify facilitation to support individual learning style, level of knowledge and experience, perspective, input, agenda** **12. Encourage participant self-reflection to identify gaps and solutions** **13. Allow learners to share previous experiences to reduce cognitive load and make connections to new knowledge**
Commitment to continuous quality and safety improvement	**Identify and manage sources of risk**	**1. Anticipate potential sources of risk** **2. Identify root causes of errors, near misses and report system weaknesses** **3. Employ quality measures and tools to evaluate variations in care**
	Create and foster culture of safety	**1. Ensure accountability and safety of all simulation stakeholders** **2. Encourage open communication, transparency** **3. Use simulation to improve teamwork, employ error reduction strategies, pilot test new procedures/ processes, and improve patient safety**
	Ensure systematic approach to continuous quality improvement	**1. Modify future SBE activities based on stakeholder feedback and evaluation for continuous improvement** **2. Integrate standardized systemic strategies for managing risks into SBE (protocols, technologies, checklists)**
Commitment to professional development at every level	***Discovery (17)*** **Identify need for initial formal training for facilitation**	**1. Seek out initial formal training for facilitation** **2. Use simulation best practices to guide facilitation** **3. Engage in repetitive practice and seek feedback from participants and experienced facilitators**
	Growth (17) **Value cooperative learning with peers to improve performance, offer mutual support, exchange ideas and build team learning culture**	**1. Use participant evaluation data to improve facilitation skills** **2. Participate in simulation professional organizations, continuing education and leadership development opportunities** **3. Commit to ongoing self-reflection, assessment and evaluation** **4. Observe and analyze SBE events using established instruments (i.e. checklists and rating scales, participant and facilitator evaluations) to validate ongoing competence** **5. Seek professional certification**
	Maturity (17) **Serve as expert mentor and coach**	**1. Remain actively engaged in simulation practice and apply expertise to difficult and complex problems** **2. Discern when deviation from best practice is advisable** **3. Contribute to the profession of simulation**

[4] Topping A, Boje RB, Rekola L, Hartvigsen T, Prescott S, Bland A, et al. Towards identifying nurse educator competencies required for simulation-based learning: A systemised rapid review and synthesis. Nurse Educ Today. 2015;35(11):1108-13.
[17] Cheng A, Eppich W, Kolbe M, Meguerdichian M, Bajaj K, Grant V. A Conceptual Framework for the Development of Debriefing Skills: A Journey of Discovery, Growth, and Maturity. Simul Healthc. 2020;15(1):55-60.

as to define and update new standards of practice and certification test blue prints. Cheng [17] proposed a new conceptual framework for the development of debriefing skills based on Dreyfus and Dreyfus' model of skill development which includes three stages of development: Discovery, Growth, and Maturity. Written using Bloom's taxonomy, the sub-elements identified from our research lend themselves to this type of developmental model and provide a foundation for a multi-year facilitator professional development plan.

Table 5: Barriers and Enablers to Simulation Facilitator Development from the Literature.

Barriers		Enablers	
Lack of funding, resources, and dedicated time to support systematic training	62	Community of simulation support	49
Paucity of information about how to develop expertise of simulation facilitators	26	Strong debriefing foundation	37
Cognitive Overload	3	Subject matter expertise	22
Variability in mental models of professional development	18	Supportive learning environment	18
		Resources to support facilitator development	13
Total	145		145

This research also informs prioritization of content and focus in facilitator development programs. Based on the data, facilitator comportment was ranked as the category with the most coded elements. These elements include: 1) Able to create positive, comfortable, trusting atmosphere and learning climate (emotional safety), 2) Able to bring theory and practice together, 3) Able to pose as a real-world role model, 4) Passion for teaching and learning, 5) Flexibility or adaptability to what the content/kit can offer, and 6) Human centered approach.

The knowledge that, according to the literature, the greatest barrier to facilitator development is lack of funding, resources, and dedicated time to support systematic training, prioritizing the six elements that comprise the facilitator comportment category would be advantageous (Table 4).

Limitations

There were several identified limitations to this work. Generalizability would be strengthened by future replications of this research with a larger sample which includes more global and multidisciplinary organizations. Some of the organizational guidelines, standards, and recommendations are collections of best practices rather than rigorous studies to create industry standards. Selecting organizational documents to include, the statements within each document and literature article to be coded, how each coded statement aligned with elements, how additional competencies were collapsed into themes, and the themes identified, all have an inherent level of subjectivity and personal bias.

The use of video conferencing, with its inherent trials, to collaborate on such detailed and comprehensive work added time and difficulty to the project. Finally, the coding of competency related statements was not mutually exclusive as several essential elements were commonly referenced in a single statement. This resulted in many statements being coded with more than one code.

Conclusion

Simulation facilitator development should be guided by a set of common facilitator competencies grounded in expert consensus and evidenced based practice. However, substantial variation in facilitator preparation, evaluation of competencies, and ongoing development in simulation pedagogy persists among simulationists across academic and clinical environments. By identifying and ranking consensus of essential elements, this research provides a summary of operationalized facilitator KSAs to inform evidence-based orientation and ongoing development. Further, this research provides prioritization of KSAs required for quality healthcare simulation facilitation and contributes to the foundation of rigorous research on facilitation competencies.

Authors' contributions

The conception and coordination of the study design was done by LH, CE, KL, BL, and LL. Coding and analysis of data was completed, reviewed, and approved by LH, LL and CE. Contributions to portions of the writing were made by all five group members. Final manuscript creation and submission was completed and approved by LH and LL.

Acknowledgements

We wish to thank each one of our NLN simulation colleagues who took part in this research.

- Dr. Carrie Eaton, PhD, MSN, RNC-OB, C-EFM, CHSE, Assistant Professor; Director of Simulation, University of Connecticut School of Nursing, who introduced us to the Atlas.ti program, managed the data and research process and was vital to the success of this work.
- Beth Latimer, DNP, GNP-BC, CHSE, New York University Rory Meyers College of Nursing Clinical Assistant Professor and Kelley Larson, MSN, RN, CHSE, Nightingale College, for their commitment and efforts in the initial development of this work.

Thank you to the NLN Leadership Institute (5) for their guidance in simulation, leadership, and for all of the amazing networking opportunities. The NLN program has profoundly impacted us personally and professionally.

The first author also wishes to thank Jennifer Olson, Franciscan Health Director of Education, for her unending support and professional guidance; Amanda Gill, Simulation Educator, for assistance with editing, and Julia Wood, Franciscan Health Medical Librarian, for her expertise and assistance in formatting.

Authors' Note

Portions of this work were presented at the International Meeting of Simulation in Healthcare Conference in San Diego, January 2020.

References

1. INACSL Standards Committee. INACSL standards of best practice: simulation[SM] facilitation. Clin Simul Nurs. 2016; 12: S16-S20.
2. Jeffries PR, Dreifuerst KT, Kardong-Edgren S. Hayden J. Faculty development when initiating simulation programs lessons learned from the national simulation study. J Nurs Regul. 2015; 5: 17-23.
3. Thomas CM, Kellgren M. Benner's novice to expert model an application for simulation facilitators. Nurs Sci Q. 2017; 30: 227-234.
4. Topping A, Boje RB, Rekola L, Hartvigsen T, Prescott S, Bland A, et al. Towards identifying nurse educator competencies required for simulation-based learning: a systemised rapid review and synthesis. Nurse Educ Today. 2015; 35: 1108-1113.
5. National League for Nursing. National League for Nursing [Internet]. Washington (DC): NLN; c2020. NLN leadership institute; [cited 2020 July 6]; http://www.nln.org/professional-development-programs/leadership-programs
6. Downe-Wamboldt B. Content analysis method applications and issues. Health Care Women Int. 1992; 13: 313-321.
7. Krippendorff K. Content analysis: an introduction to its methodology. 2 ed. Thousand Oaks. Sage Publ. 2009.
8. Hai-Jew S. Creating an Exploratory "Crosswalk Analysis": C2C Digital Magazine. [Available from: https://scalar.usc.edu/works/c2c-digital-magazine-spring--summer-2019/creating-an-exploratory-crosswalk-analysis]
9. Scientific Software Development GmbH. ATLAS.ti [Internet]. Berlin (DE): Scientific Software Development GmbH; c2020. All-in-one research software ATLASti - discover insights for your research projects; [cited 2020 June 8]; [about 12 screens]. Available from: https://atlasti.com/
10. Accreditation Committee for Accreditation of Healthcare Simulation Programs. SSH Society for Simulation in Healthcare, [Internet]. Dyersburg (TN): SSH; c2016. Teaching/education: standards and measurement criteria; [cited 2020 July 6]; [3 screens]. Available from: https://www.ssih.org/Portals/48/Accreditation/2016%20Standards%20and%20Docs/Teaching-Education%20Standards%20and%20Criteria.pdf
11. Accreditation Committee for Accreditation of Healthcare Simulation Programs. SSH Society for Simulation in Healthcare, [Internet]. Dyersburg (TN): SSH; c2018. Certified healthcare simulation educator examination blueprint: 2018 version; [cited 2020 July 6]; [4 screens]. Available from: https://www.ssih.org/Portals/48/Certification/CHSE_Docs/CHSE_Examination_Blueprint.pdf
12. INACSL Standards Committee. INACSL standards of best practice: simulation[SM] debriefing. Clin Simul Nurs. 2016; 12: S21-S25.
13. National Council of State Boards of Nursing. NCSBN Faculty Preparation Checklist [Internet]. Chicago (IL): NCSBN; 2016. [cited 2020 July 6]. Available from: https://www.ncsbn.org/16_Simulation_Faculty_Checklist.pdf
14. Lewis KL, Bohnert CA, Gammon WL, Hölzer H, Lyman L, Smith C, et al. The Association of Standardized Patient Educators (ASPE) standards of best practice (SOBP). Adv Simul Lond. 2017; 2: 1-8.
15. Cronenwett L, Sherwood G, Barnsteiner J, Disch J, Johnson J, Mitchell P, et al. Quality and safety education for nurses. Nurs Outlook. 2007; 55: 122-131.
16. Agency for Healthcare Research and Quality. Agency for Healthcare Research and Quality, [Internet]. Rockville (MD): AHRQ; c2020. Training guide: using simulation in teamSTEPPS® training; [updated June 2019; cited 2020 July 6]; [1 screen]. Available from: https://www.ahrq.gov/teamstepps/simulation/index.html
17. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. Ann Intern Med. 2018;169(7):467-73.
18. Covidence. Covidence [Internet]. Melbourne (AU): Covidence; c2020. Better systematic review management; [cited 2020 July 6]; [about 4 screens]. Available from: https://www.covidence.org/home
19. Allvin R, Berndtzon M, Carlzon L, Edelbring S, Hult H, Hultin M, et al. Confident but not theoretically grounded - experienced simulation educators' perceptions of their own professional development. Adv Med Educ Pract. 2017; 8: 99-108.
20. Cheng A, Grant V, Dieckmann P, Arora S, Robinson T, Eppich W. Faculty Development for Simulation Programs Five Issues for the Future of Debriefing Training. Simul Healthc. 2015; 10: 217-222.
21. Cheng A, Grant V, Robinson T, Catena H, Lachapelle K, Kim J, et al. The Promoting Excellence and Reflective Learning in Simulation PEARLS Approach to Health Care Debriefing A Faculty Development Guide. Clinical Simulation in Nursing. 2016; 12: 419-428.
22. Cheng A, Morse KJ, Rudolph J, Arab AA, Runnacles J, Eppich W. Learner-Centered Debriefing for Health Care Simulation Education Lessons for Faculty Development. Simul Healthc. 2016; 11: 32-40.
23. Cheng A, Grant V, Huffman J, Burgess G, Szyld D, Robinson T, et al. Coaching the Debriefer Peer Coaching to Improve Debriefing Quality in Simulation Programs. Simul Healthc. 2017; 12: 319-325.
24. Chiu M, Posner G, Humphrey-Murto S. Foundational Elements of Applied Simulation Theory: Development and Implementation of a Longitudinal Simulation Educator Curriculum. Cureus. 2017; 9: e1002.
25. Fey MK, Jenkins LS. Debriefing Practices in Nursing Education Programs: Results from a National Study. Nurs Educ Perspect. 2015; 36: 361-366.
26. Fraser KL, Meguerdichian MJ, Haws JT, Grant VJ, Bajaj K, Cheng A. Cognitive Load Theory for debriefing simulations implications for faculty development. Adv Simul Lond. 2018; 3: 28.

27. Gore T, Singh OB. Development of a Foundations of Simulation Teaching Course for Nurse Educators. Nurs Educ Perspect. 2019; 40: 179-180.

28. Hallmark BF. Faculty development in simulation education. Nurs Clin North Am. 2015;50(2):389-397.

29. Kinnear J, Smith B, Akram M, Wilson N, Simpson E. Using expert consensus to develop a simulation course for faculty members. Clin Teach. 2015; 12: 27-31.

30. Koivisto JM, Hannula L, Boje RB, Prescott S, Bland A, Rekola L, et al. Design-based research in designing the model for educating simulation facilitators. Nurse Educ Pract. 2018; 29: 206-211.

31. Leighton K, Mudra V, Gilbert GE. Development and Psychometric Evaluation of the Facilitator Competency Rubric. Nurs Educ Perspect. 2018; 39: E3-E9.

32. Morse C, Fey M, Kardong-Edgren S, Mullen A, Barlow M, Barwick S. The Changing Landscape of Simulation-Based Education. Am J Nurs. 2019; 119: 42-48.

33. Mulvogue J, Ryan C, Cesare P. Nurse simulation facilitator experiences learning open dialogue techniques to encourage self-reflection in debriefing. Nurse Educ Today. 2019; 79: 142-146.

34. Nestel D, Bearman M, Brooks P, Campher D, Freeman K, Greenhill J, et al. A national training program for simulation educators and technicians evaluation strategy and outcomes. BMC Med Educ. 2016; 16: 25.

35. Peterson DT, Watts PI, Epps CA, White ML. Simulation Faculty Development A Tiered Approach. Simul Healthc. 2017; 12: 254-259.

36. Roh YS, Kim MK, Tangkawanich T. Survey of outcomes in a faculty development program on simulation pedagogy. Nurs Health Sci. 2016; 18: 210-215.

37. Stephenson E, Poore J, Byrne BJ, Dwyer J, Ebert D, Hasty G, et al. Interprofessional Educator Development Course for Simulation. J Contin Educ Nurs. 2019; 50: 463-468.

38. Thomas CM, Sievers LD, Kellgren M, Manning SJ, Rojas DE, Gamblian VC. Developing a Theory-Based Simulation Educator Resource. Nurs Educ Perspect. 2015; 36: 340-342.