



RNovating the Classroom: Simulation & technology beyond the lab

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Sections

Introduction

1: Rationale and Justification

2: Scenario Development

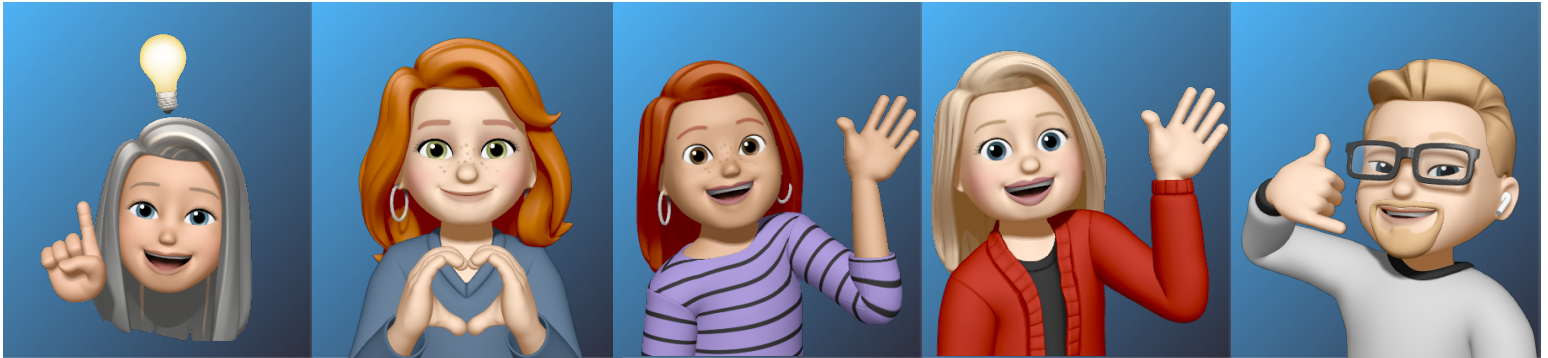
3: Pre-Briefing and Debriefing

4: Technology

5: Benefits and Challenges

6: Applying the Toolkit to an ACE.S Case

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Introduction

The purpose of this toolkit is to serve as a resource guide for didactic or lecture faculty to plan, develop, and implement simulation strategies in the classroom of pre-licensure nursing courses. This toolkit explains how to use the International Nursing Association for Clinical Simulation and Learning's (INACSL) Healthcare Simulation Standards of Best Practice™ for classroom activities (INACSL, 2021). Free and low-cost and/or low-tech resources are highlighted. This toolkit also includes a section illustrating the application of this toolkit to an NLN ACE-case scenario.

Throughout this toolkit, there will be suggestions of resources and technologies. These are examples only, the NLN does not endorse, promote, provide or receive any funding from the resources mentioned in this toolkit

This toolkit includes six main sections. These include:

Section 1: Rationale and justification for the use of simulation in the classroom.

- Simulation's background in teaching and learning theories and how simulation supports learning
- White paper infographic to aid buy-in from administrators, faculty, staff and curriculum committees.

Section 2: A process guide for developing scenarios.

- Using INACSL's Healthcare Simulation Standards of Best Practice
- Resources for free scenarios that have been tested

Section 3: Simulation framework for implementation, including pre-brief and debrief techniques.

- Based on INACSL's Healthcare Simulation Standards of Best Practice
- Including specific classroom considerations

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Section 4: Navigating common challenges.

- Addresses barriers of students, faculty, and technology.

Section 5: Menu of various simulations/technology options.

- Ranging from low tech to high tech options
- Includes free options

Section 6: Application of Toolkit to NLN ACE.S Case.

- Including applications to different learner levels
- Mapped to the 2021 American Academy of Colleges of Nursing (AACN) Essentials



SECTION 1: Rationale and Justification

Simulation has been used extensively in pre-licensure and advanced practice nurse education. Jeffries, et al. (2015) described the simulation experience as “experiential, interactive, collaborative, and learner-centered” (p. 292).

Simulation facilitation intentionally creates a safe learning environment as a means to engage and encourage students. Simulation can augment clinical experience or be used in evaluation of performance or skills. Traditionally, this would occur in the simulation laboratory. However, simulation has potential as a teaching technique outside the lab and in the classroom.

With the increase in technology-driven initiatives, nursing education pedagogy must adapt to using innovative techniques to engage learners. Simulation is an active learning strategy that is suited for the modern student. Students positively perceive nurse educators using technology in the classroom and they expect instructors to use some degree of innovation in teaching (Harerimana & Gloria Mtshali, 2019). Since technology is ever-changing, providing a comprehensive guide specific to nursing is impossible. Therefore, we plan to empower nurse educators to use this guide to update their toolkits and teaching pedagogy to include simulation techniques and technology in the classroom.

Theories Associated with Simulation

There are various teaching and learning theories associated with the use of simulation. These include:

- Kolb’s Theory of Experiential Learning (1984) and Learning Styles Inventory (1999)
 - Associated with learner satisfaction and various learning styles
- Bandura’s Social Cognitive Theory (1986) and Concept of Self-Efficacy (1977)
 - Associated with learner confidence and self-efficacy



- Benner’s Novice-to-Expert Model (1984)
 - Associated with learner-level adaptations
- Vygotsky’s The Sociocultural Theory (Constructivism) (1930)
- Knowles’ Adult Learning Theory (1980)
- NLN/Jeffries Simulation Theory (2015)
 - Associated with knowledge transfer, student satisfaction, and teaching effectiveness.

Development of Best Practice

In 2021, the International Nursing Association for Clinical Simulation and Learning (INACSL) used the most current literature and the NLN/Jeffries Simulation Theory (2015) to develop the Healthcare Simulation Standards of Best Practice™. The ten standards:

- Discuss all aspects of simulation, such as simulation scenario development, prebriefing, debriefing, facilitation, and simulation operations.
- Provide institutions and facilitators with evidenced-based guidelines to provide the most efficient and effective simulation experience for learners.

Benefits and Limitations of Traditional Simulation Experiences

There have been many benefits to simulation reported in the literature:

- Reduced anxiety
- Increased performance
- Knowledge transfer to clinical
- Increased student engagement
- Improved self-perceived competence, confidence, and preparedness for practice (El Hussein & Cuncannon, 2022; Herron, et al., 2019; Miles, 2018; Oliveira Silva, et al., 2022)

Limitations to using simulation include:

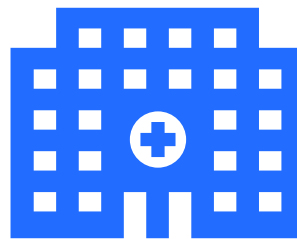
- Costs and space associated with the equipment, such as mannikins.
- Rotating small groups through various experiences and scenarios in a lab may not be logical or possible for large courses
- Faculty must be trained as facilitators
- Mixed results regarding knowledge transfer to practice
- Further studies are needed to see if the knowledge attained in simulation is retained over time.

(El Hussein & Cuncannon, 2022; Grey, 2022; Harvey et al., 2021; Herron, et al., 2019; Hess et al, 2022; Oliviera Silva et al., 2022)

Evaluation of Students Using Simulation

Simulation may be used to evaluate students' learning, performance, and competency. Simulation may be a very useful tool in Competency-Based Education, as recommended by the AACN Essentials (2021). Outcomes of simulation evaluation can be widely varied and include:

- Knowledge attainment
- Skill demonstration
- Learner Satisfaction
- Learner Confidence
- Critical Thinking



Knowledge attainment can be assessed using pre- and post-tests. There are many rubrics available to assess student performance and operationalize critical thinking. Rubrics for simulation can be used by the student observers, as well as the facilitator.

Rubrics may be modified to apply to specific scenarios and learner level. These evaluations may be formative or summative. Examples of validated rubrics include:

- Creighton Competency Evaluation Instrument (C-CEI; Todd, et al. 2008) and Creighton Simulation Evaluation Instrument (C-SEI; Adamson, et al., 2011)
 - Evaluates competency through observable skills, communication and critical thinking.
- Clinical Simulation Evaluation Tool (CSET; Radhakrishnan, 2007)
 - Evaluates safety, communication, assessment, reflection, and critical thinking.
- Lasater Clinical Judgment Rubric Scoring Sheet (Lasater, 2007)
 - Based on Tanner's Critical Thinking Model
 - Evaluates prioritization, communication, clinical judgment, and reflecting.
- NLN's Student Satisfaction and Self-Confidence in Learning (Unver, et al., 2017)
 - Evaluates learner satisfaction and self-confidence.
- Simulation Effectiveness Tool – Modified (SET-M; Leighton, et al., 2015)
 - Evaluates satisfaction, teaching effectiveness, and confidence.

[INACSL Repository of Instruments Used in Simulation Research](#)

Simulation in the Classroom

While simulation as a teaching and evaluation strategy is well supported in the literature, the use of these strategies in the classroom setting is an emerging area of interest. Many simulation strategies used in the classroom have been reported in the literature, each with varying outcomes. These strategies vary from simple to complex and illustrate the opportunities for innovation in bringing simulation into the classroom.

- Strategies include digital storytelling
- Mannequin demonstrations followed by high-fidelity simulation (HFS) sessions

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- Tag-team simulations based on theatrical structures,
- Scenarios utilizing standardized patients (SP) and structured debriefing sessions,
- Video simulations, virtual reality (VR), and virtual dramatized (scripted) with an SP (Beck & Neil, 2021; Farra et al., 2018; Grey, 2022; Harvey et al., 2021; Herron et al., 2019; Hess et al., 2022)

The use of simulation strategies in the classroom has many benefits for students.

- Video-based simulation and VR allow students to visualize patients to actively engage in case studies.
- Virtual simulation experiences can improve student knowledge
- Structured debriefing supports reflective thinking among students, preparing them for future clinical experiences
- More efficient and cost-effective manner than the traditional HFS lab

(Farra et al., 2018; Herron et al., 2019; Harvey et al., 2021; Hess et al., 2022)

On the following page is a white paper that faculty can use to aid in getting buy-in from faculty, curriculum, or administrators.

Using SIMULATION IN THE CLASSROOM

Your roadmap to successful implementation!

- ### 1 GROUNDING IN THEORY

Simulation in nursing education is grounded in several teaching and learning theories:

 - **Kolb's Experiential Learning**
 - **Bandura's Social Cognitive**
 - **Benner's Novice to Expert**
 - **NLN/Jeffries Simulation Framework**
- ### 2 ACTIVE LEARNING

 - AACN recommends the use of simulation in nursing education.
 - Perfect **flipped classroom** activity
 - Fits many different **learning styles**
 - Simulation is correlated with increased **student engagement** and **student satisfaction**
- ### 3 PERFECT FOR CBE!

Looking to apply CBE to your Nursing Curriculum?

 - **Learning can be assessed** after sim
 - Shown improvements in **self-confidence, self-efficacy and improved self-perception of competency**
- ### 4 ASSESS CLINICAL JUDGEMENT!

Clinical Judgement is basis for **NextGen NCLEX** and **NCBSN Clinical Judgement Measurement Model**

 - Sim may be used to assess clinical judgement
 - Rubrics include **operationalized Clinical Judgement, Tanner's Clinical Judgement Model**
 - **Observers can assess clinical judgement also**
- ### 5 NO TECH REQUIRED!

Simulation is a technique not a technology!

 - Sim can be done in many formats, including **role playing** and **evolving case studies**
- ### 6 SIM BEST PRACTICE

The International Nursing Association for Clinical and Simulation Learning (**INACSL**) has developed the **Healthcare Simulation Standards of Best Practices**

 - **Free, Evidenced-Based** resources
 - Learn, train, develop scenarios and more!
- ### 7 FREE SCENARIOS

NLN and other organizations have **free scenarios for use by educators**

 - Scenarios include background, evolving case
 - Scenarios include **topics for care of seniors, pediatrics, LGBTQ+, veterans** and more!
 - Can be **mapped to AACN Essentials!**
- ### 8 BE CREATIVE!

Want to teach a **low frequency, but high skill topic**?
Sim can be **whatever case scenario you can imagine!**

 - **INACSL provides resources** to create and test your own cases!
 - Have a sim team? They can probably help you!

Figure 1: Simulation Road Map. Colleen King Goode.

SECTION 2: Scenario Development

Background

Effective simulation should be purposeful and well-designed to provide learners with the best experience and consistent exposure (INACSL Standards Committee et al., 2021; Wilson & Hagler, 2023). Simulation as a teaching strategy, even outside of the traditional simulation environment, can be utilized to address gaps in student learning as well as promote clinical judgment (Reibel et al., 2019). A well-planned activity can also help faculty navigate unexpected events during a simulation. When implementing simulation activities in a classroom with a potentially large number of learners, the educator should review special considerations which are discussed within this section.

Scenario Definition

The scenario is defined as a description of all components of a simulation case including the objectives, narrative description of the client and case, modality, environment set-up instructions, scripts for participants, technology needs, and operation instructions. Scenarios should be valid, and the development of this simulation case is a multistep process that should involve collaboration from expert simulationists, content experts, and in the case of the classroom, course faculty (Britt & Pitt, 2023).

Standards of Best Practice

INACSL Healthcare Simulation Standards of Best Practice: Simulation Design

INACSL Healthcare Simulation Standards of Best Practice: Outcomes and Objectives

Important Components

Content experts and simulationists

Scenario development by the expert in simulation should occur in conjunction with a content expert to ensure conceptual fidelity and validity. This ensures the scenario is

logical, the case is complete and meets learning objectives and can feasibly be implemented. For the novice, pre-written scenarios can be tweaked to meet learning outcome needs (Britt & Pitt, 2023, INACSL Standards Committee et al., 2021).

Needs assessment

It is critical the educators complete a needs assessment prior to implementing simulation. Gaps in performance or knowledge can be identified and addressed with simulation. Simulation in the classroom could help clarify didactic content that can be difficult for students to grasp in a traditional classroom setting. Simulation can also be used to expose students to less frequent situations that require advanced skills. There are several key areas to gather information for a needs assessment such as exam scores, NCLEX scores, or new clinical protocols (INACSL Standards Committee et al., 2021; Wilson & Hagler, 2023).

Measurable objectives

Objectives must be clearly defined to achieve the desired outcome in a classroom which should link to course and/or module objectives.

Modality

Selected in order to meet the learner's needs and objectives.

Fidelity, realism

Physical, conceptual, and psychological fidelity should be integrated in order to increase realism. A backstory should also be included to create a realistic starting point of the nurse-patient encounter.

Learner-centered

While learners are dependent on the facilitator in the simulation experience, the simulation should always relate back to learner needs.

Resources

[NLN Simulation Design Template](#)

The NLN Simulation Design Template could be utilized to develop any classroom activity. While not all components of the template would need to be completed for simulation, using the template would ensure faculty have considered all aspects of the activity including objectives, flow, case details, and debriefing questions.

[NLN Advancing Care Excellence \(ACE\) Cases](#)

The ACE Cases are available for free through the NLN. These unfolding simulation cases could be utilized in classroom settings through a variety of teaching strategies and focus on caring for vulnerable or underserved populations.

[Laerdal Scenario Cloud](#)

Laerdal Medical offers twenty free validated simulation scenarios developed in partnership with the American Heart Association, NLN, and more. Additional scenarios are available for purchase.

[CAN-Sim \(Canadian Alliance of Nurse Educators Using Simulation\)](#)

CAN-Sim provides several free virtual simulation games that could be utilized in a video vignette or case study style approach in the classroom setting. They have additional resources available for purchase.

[Montgomery College Simulation Scenario Library](#)

Numerous free scenarios are available on the Montgomery College website.

[EM Sim Cases](#)

While these open access emergency medicine cases are geared for advanced providers, they could be tweaked for utilization in various degree programs.

Classroom Considerations

Simulation may “look” different in a classroom setting versus a simulation center. Whereas the environmental design of simulation in a traditional simulation center often incorporates a physical healthcare setting and patient (either task trainer, manikin, or simulated participant); the classroom environment is likely limited in moulage capability depending on the structure and design of the classroom. Faculty may need guidance on how best to plan out a scenario in this setting, and training for this environment is often limited. Faculty should view simulation as a teaching modality in the classroom as a method to adopt a flipped classroom approach that enhances student engagement and experiential learning.

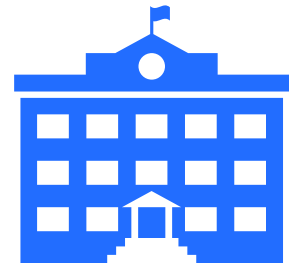
- Simulations can range in complexity depending on objective(s), learner level, time constraints, and availability of resources.
- With often large classes compared to a smaller group of learners, strategies must be utilized to engage everyone. Consider the layout of the presentation area as well as seating and rearrange as necessary.
- The number of faculty needed to operate simulation in the classroom and control the learning would depend on the number of learners, physical space, and objectives of activity. Faculty would also need to consider any regulatory guidelines for the state and institution.
- The learner level must be considered for the classroom as well as fundamental knowledge of the content in the simulation. Where in the module/unit does the simulation take place? Initial phase? Conclusion?
- Logistics of the classroom to consider include technology as it compares to the simulation lab, equipment, accessibility, allotted class time to include prebrief, simulation, and large scale debrief.

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- Clarify roles and set expectations in the simulation activity. Are all learners participating individually or as teams, or will there be designated nurse participants with a large number of observers? This would also impact the schedule and flow of activity.
- Pilot test the activity to ensure it meets the objectives of the activity and course. The pilot test can also determine effectiveness and identify potential technology barriers as well.
- Even though the simulation is in the classroom, it still should be evaluated. Evaluation is critical to determine if learning occurred and should be completed prior to learners leaving the activity. A list of validated evaluation rubrics can be found in Section 1.

Example Classroom Activities to Incorporate Simulation

- Board/table-top games
- Unfolding case studies
- Role-playing
- Video vignettes
- Electronic games
- VR simulation with the utilization of screen sharing
- Computer-based simulation
- Think-pair-share
- Fish bowl activity to incorporate observers
- Concept mapping
- Storytelling



SECTION 3: Pre and Debrief

Background/Rationale

For simulation in the classroom to be successful, learners must be adequately prepared for the learning experience. Learners also need the opportunity to reflect on the experience, explore and analyze their actions and behaviors, and leave with a shared understanding of the learning objectives of the experience (Grey, 2022; Harvey et al., 2021, INACSL Standards Committee et al., 2021). To accomplish this, faculty must develop prebriefing and debriefing activities when using simulation in the classroom setting.

This chapter will provide faculty with best practices and resources for developing these components of the simulation experiences.

Prebriefing

Definition: Prebriefing is a process that includes preparing learners for a simulation experience, including the educational content and the expectations and rules of the experience. Prebriefing activities are developed to ensure the learning objectives can be met, psychological safety is maintained, and an overall orientation is provided (INACSL Standards Committee et al., 2021a).

Standards of Best Practice

INACSL Healthcare Simulation Standards of Best Practice™ Prebriefing: Preparation and Briefing

Important Components

Prebriefing must occur before the simulation experience.

- General Criteria
 - Faculty or staff must be knowledgeable of the scenario and learning objectives.

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- Prebriefing components should align with learning objectives and take into consideration the knowledge, skills, and abilities of the learners.
- Preparation Criteria
 - Learners should receive adequate preparation for the experience, which can be accomplished with many different activities. Examples include readings, concept maps/care plans, quizzes, the practice of psychomotor skills, lecture or didactic sessions, review of virtual experiences or videos, or other resources to provide them with the cognitive and psychomotor skills needed to be successful.
- Briefing Criteria
 - Learners must receive information about the expectations during the experience including the schedule and organization of the event.
 - A fiction contract should be established, requesting learners to engage in the experience as though it is real life to best support the fidelity of the experience.
 - Learners must be oriented to the participants, roles, responsibilities, method of evaluation, technology and tools being utilized, and support available to assist them.
 - Remind learners that it is a safe learning environment in which all participants will demonstrate respect, allowing everyone to feel psychologically safe.

(INACSL Standards Committee et al., 2021a)

Models/Resources

- [National League for Nursing's \(NLN\) Mindfulness in Prebriefing](#) (Cunningham et al., 2017)
- [NLN's Pre-briefing elements checklist](#) (del Monaco et al., 2018).
- [Critical Conversations: The NLN Guide for Teaching Thinking \(Volume 1\) and Moving from Monologue to Dialogue \(Volume 2\)](#). (cost associated)

Classroom Considerations

- Consider creating a ticket to class after preparatory materials are completed, or consequences for learners who do not complete the required pre-work.
- Create a clear schedule of events for learners, including breaks, lengths of activities, and additional space for learners to take notes during the event.
- Develop a prebriefing script that can be used to ensure all faculty/facilitators share the same information.

(INACSL Standards Committee et al., 2021a)

Debriefing

Definition: A facilitated process that allows for feedback, debriefing, and guided reflection, with the intent to promote reflective thinking, develop learner insights, and improve learning and performance (INACSL Standards Committee et al., 2021b).

Standards of Best Practice

- INACSL Healthcare Simulation Standards of Best Practice™ The Debriefing Process

Important Components

- Debriefing should be based on a theoretical framework or evidence-based concepts and occur after the prebriefing and simulation experiences.
- Debriefing should be developed and facilitated by someone competent in debriefing practices and who knows the content and scenario well.
- Group size should allow for all learners to be engaged and actively participating.
- Essential elements include: establishing psychological safety, sharing a basic assumption, setting debriefing rules, setting a shared mental model, addressing learning objectives, using open-ended questions, and using silence.

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- Conversational techniques/educational strategies include: Learner self-assessment (ex: Plus-Delta), providing directive feedback (positive and constructive feedback should both be included), and using focused facilitation techniques (ex: Advocacy-Inquiry)
- Debriefing adjuncts to consider: Co-debriefers, using a debriefing script, using video review.

(INACSL Standards Committee et al., 2021b; Sawyer et al., 2016)

Models/Resources

- [NLN's Debriefing Across the Curriculum](#)
- [Critical Conversations: The NLN Guide for Teaching Thinking \(Volume 1\) and Moving from Monologue to Dialogue \(Volume 2\)](#). (cost associated)

Advocacy-Inquiry

- [Debriefing Using the Advocacy-Inquiry Method](#)
- [What is Advocacy-Inquiry?](#)
- [Socratic Method: Getting Started with Debriefing for Meaningful Learning](#)
- [Debriefing with Good Judgment](#)
- A variety of models/structures can be found in the [INACSL Healthcare Simulation Standards of Best Practice™ The Debriefing Process](#).

Theoretical Underpinnings of Existing Debriefing Models (Beginner Resources)

- [Schön's Reflective Practice Model](#)
- [Reimagining reflective practice and reflective practice environments in a post pandemic world: A discussion paper \(Double Loop Learning\)](#)
- [Double Loop Learning \(YouTube\)](#)
- [Ladder of Inference](#)

Training/Education Resources

- NLN's Self-Paced Prebriefing and Debriefing: Facilitating the Learning Experience Foundational Course. (cost associated to enroll)
- NLN's Synchronous Prebriefing and Debriefing Deeper Dive: Navigating challenges and leveraging opportunities. (cost associated to enroll)

Debriefing Evaluation Tools (also available in the Standards of Best Practice linked above)

- [Debriefing Assessment for Simulation in Healthcare \(DASH\)](#)
- [Methods and Evaluations for Simulation Debriefing in Nursing Education](#)
- [Debriefing for Meaningful Learning Evaluation Scale](#)

Classroom Considerations

- All faculty involved in the simulation experiences must receive training in the prebriefing and debriefing standards. Specific guides or scripts should be developed to ensure consistency when more than one faculty is involved.
- The classroom environment and class size must be considered to facilitate debriefing sessions so all members are involved, feel safe in sharing their beliefs and opinions, and where confidentiality can be maintained. This may require smaller group sessions, the use of technology or video aids, and/or multiple facilitators.
- Selection of the specific structure, process, or framework to be used will depend on the scenario objectives, level of the learner, facilitator experience, debrief setting, and philosophical beliefs of the institution.
- Faculty may decide to use self-debriefing, group in-person debriefing, or group virtual debriefing. More information about these can be found here: [Virtual Gaming Simulation: Exploring Self-Debriefing, Virtual Debriefing, and In-person Debriefing](#)



SECTION 4: Technology

Background

Using technology to augment learning is beneficial. Technology may also be embedded within your classroom simulation to add fidelity and another layer of depth. Many applications and resources exist that can be used to retain information, self-quiz, and produce imagery to help master content. Technology increases the engagement and satisfaction of learners. Thus, making the material more meaningful to the student. Nurse educators must be very clear when using smartphones, computers, and tablets that technology should augment the learning process and cannot replace didactic methods of instruction. While most learners have access to a technology device, all may not. In addition, connectivity to internet sources may be a challenge (Gause et al., 2022).

Since technology is ever-changing, providing a comprehensive guide specific to nursing is impossible. The goal of this toolkit is to empower nurse educators to update their teaching pedagogy to include technology. The resource below allows nurse educators to take initial steps in renovating the classroom to add technology innovations to assist and improve learning.



Selecting & Implementing Technology

What are three apps or programs that you should start with? For a tablet, download basic video creation software, a spreadsheet program, and a presentation slide-show program. A very small listing of applications & equipment is provided to help you get started!

No Cost (FREE)	Low Cost (\$50 or less)	High Cost (More than \$50)
Jig Space <i>Augmented Reality App</i>	Padlet <i>Collaboration Website: great for sharing documents and collaborating with others.</i>	Tablets
Numbers <i>Spreadsheet App</i>	Insight Heart <i>Medical App</i>	Audiovisual Equipment
Pages <i>Publication App</i>	Heart Pro <i>Medical App</i>	Training
Keynote <i>Presentation App</i>	FullCode <i>Medical App</i>	Laptop
Flip <i>Video Discussion Website</i>	Human Body 3D <i>Medical App</i>	Canva <i>Video and Graphic Software</i>
Bacteria 3D <i>Medical App</i>	Complete Anatomy <i>Medical App</i>	
Mentimeter <i>Collaboration Website: great for in-class polling and quizzing</i>		
AR MAKR <i>Augmented Reality Creation App</i>		
CLIPS <i>Video Creation App</i>		

Table 1: *Resource Listing*. These technology items are not endorsed by the NLN or any member of this authorship group. They are provided as an example only, and no representation is made they are superior to other programs available.



Figure 2, Steps to implementing technology in the classroom. By Will Brewer using a Canva template.

Virtual Reality and Screen-Based Learning

Virtual reality(VR) and screen-based learning are beneficial means of content delivery. In VR, the student is fully immersed in a virtual world with goggles and hand devices to treat clients. With screen-based learning, the student treats an avatar client using pre-determined text or artificial intelligence to question the client. Afterward, they deliver care based on an assessment. Both modalities are difficult to implement in large class sizes and have costs associated with equipment and license fees.

Augmented Reality

Augmented reality may be a term that is new to you. Here is a video that will explain what it is and how it can be used!



Video 1, Augmented Reality. By Will Brewer using the CLIPS app.

SECTION 5: BENEFITS & CHALLENGES

Background

The lecture is still the most common form of instruction in the didactic classroom, and current nursing education pedagogy in the classroom has been found to lack student interaction and centeredness. Some schools have moved to using a flipped classroom (FC) for their classes. In this active learning methodology, the students are given content before class time, and then class time is filled with the application of the content. This kind of active learning lends to the use of simulation in the classroom (Wang et al., 2020). Though the effectiveness of a flipped classroom in nursing education is being studied, current data reveals that learning strategies in the FC are in need of more research. Cognitive, psychomotor, and affective learning domains are used together in the flipped classroom, which may enhance the learning process. Flipped classrooms have been shown to be an effective teaching method in literature, but further studies are needed to assess critical thinking and competency. Despite this, benefits include:

- Improved grades on assignments and exams and improved learning effectiveness (Lu, et al., 2023, Markwick & Sacco, 2021).
- Promoting critical thinking by applying knowledge to real-world problems (Barbour & Schuessler, 2019).
- Better clinical performance, achievement of competencies, motivation and satisfaction (Barranquero-Herbosa, et al., 2022, Tseng, et al., 2021)

A blended learning design, which balances traditional lecture and FC methodologies can include reading assignments, instructor-prepared lectures, videos prepared by skilled lab faculty, task trainers, and models (Aksoy & Gurdogan, 2021). Below we discuss the challenges and solutions to implementing simulation into the classroom.

Challenges and Solutions for Implementing Simulation in the Classroom

The challenges of incorporating simulation into the classroom vary based on institutions, learning goals, and instructor and student perceptions. Common challenges are listed below with recommended solutions.

Instructor perception may be a challenge due to:

- Lack of technology expertise
- Comfort and experience with other pedagogical strategies
- Influence of other faculty's perceptions of simulation

Solution: Use the white paper and INACSL links in this toolkit and your simulation team to help gain buy-in and provide training on simulation pedagogy.

Student perception may also limit acceptance of the modality due to:

- A perceived lack of control and self-regulation of learning skills
- Prior knowledge of content (too much and too little)
- Attitudes, perceptions, and previous negative experiences in simulation
- Current workload, stress levels, and in-/out-of-class demands

Solution: Provide students with clear expectations for the experience and use the pre-brief recommendations in Section 3 to create psychological safety and a safe learning environment.

Simulation teaching must be evaluated for effectiveness.

Solution: use of free, standardized, customizable evaluation tools or pre-post-knowledge scores.

[INACSL Repository of Instruments Used in Simulation Research](#)

Simulations may be time-consuming to prepare

Solution: adequate timing allotted for planning and implementation and/or use of free scenarios that have already been developed and tested.

Use/Knowledge of guidelines/standards

Solution: this toolkit provides links to the most pertinent standards for implementation in the classroom.

Lack of faculty expertise in simulation scenario content

Solution: plan for a brainstorming session with content experts to map out a scenario.

The utilization of prebuilt simulations may be a hindrance due to inconsistency in faculty knowledge of simulation, adherence to best practice standards, and subject matter expertise.

Solution: create your own simulation (see Section 2 of this toolkit) or edit an existing simulation to meet your needs.

SECTION 6: APPLICATION TO ACE.S CASE

Background

The NLN has several free simulation scenarios that focus on care for seniors, persons with disabilities, caregivers, veterans, LGBTQ+, and children called Advancing Care Excellence (ACE). This section will apply this toolkit using the Julia Morales and Lucy Grey ACE.S case, specifically Scenario 1. This case involves a nurse performing a home visit to a senior patient with cancer who wishes to stop treatment. There are many ways to use this case and it's 3 scenarios, including with and without physical assessment. The case has 14 downloadable files. The case can be found here:

[Julie Morales and Lucy Grey ACE.S Case](#)

This case scenario is applicable for use in pre-licensure nursing courses when covering topics of:

- Lung Cancer
- Aging Adults
- End of Life/Hospice
- Use of assessment tools (ie. SPICES and Katz Index of Independence in Activities of Daily Living)

This case has been mapped to the 2021 AACN Essentials.

You may also want to visit the [Simulation Innovation Resource Center](#) and view the Essentials Mapping Tool.

Scenario

Consider the use of these NLN files when developing the scenario and considering classroom activities.

[Simulation Design Template for Julia Morales and Lucy Grey](#)

The pre-developed scenario could be adapted in numerous ways for a classroom activity. It provides all of the case information a faculty might need to develop a role-play activity or case study as examples.

[Instructor's Toolkit for Julia Morales and Lucy Grey Simulation](#)

The document provides examples of how the simulation case could be incorporated into a classroom setting.

Developing the Pre-brief and Debrief

When using the Julia Morales and Lucy Grey case in the classroom, consider the following resources and ideas for pre-briefing and debriefing:

Pre-brief

- Review the [Simulation Design Template for Julia Morales/Lucy Grey](#), paying close attention to the section titled “Cognitive Activities Required of Participants Prior to Simulation”
 - Ensure students receive this content either during class time or as a pre-work assignment.
- Review the [Instructor Toolkit for Julie Morales Monologue](#) and consider developing a pre-work assignment for students based on the questions provided. You can provide students access to the [Julie Morales Monologue Audio File](#) and/or [Julie Morales Monologue Script](#) as a supplement to the assignment.
- Review the [Simulation Design Template for Julia Morales/Lucy Grey](#), specifically the Pre-briefing/Briefing section. Develop a pre-briefing checklist using the pre-briefing elements checklist and complete the pre-briefing at the beginning of class.

Debrief

- Review the [Simulation Design Template for Julia Morales/Lucy Grey](#), paying close attention to the section titled “Debriefing/Guided Reflection”

- Use the debriefing questions included to facilitate either large-group or small-group debriefing sessions at the conclusion of the activity.

Technology

The use of technology may be achieved in the ACE.S case study by incorporating an electronic health record. The case study is equipped with [simulation chart items](#) which may be downloaded to a tablet or commercial electronic health record (EHR) system. The educator should make this scenario as realistic as possible and using an EHR can certainly increase fidelity. Additionally, audio files (as previously discussed) are included so the learner may hear the client's voice.

Evaluation of the ACE.S Case Simulation in the Classroom

The evaluation of this case can be done using various reliable tools. However, focusing on what outcome measures will determine which tool may be best. All of these tools can be found in the [INACSL Repository of Instruments](#) (linked in Section 1)

- Outcome: Confidence and Satisfaction
 - To be completed following the simulation experience
 - Simulation Effectiveness Tool – Modified (SET-M; Leighton, et al., 2015)
 - NLN’s Student Satisfaction and Self-Confidence in Learning (Unver, et al., 2017)
- Outcome: Clinical Judgement
 - Can be completed by observers during the simulation and used as discussion points in post-conference
 - Lasater Clinical Judgement Rubric Scoring Sheet (Lasater, 2007)

Competency-Based Education (CBE)

This simulation may also be used as a Competency-Based Education (CBE) assessment. The educator may use a quick knowledge and confidence check prior to the

NLN SIMULATION LEAD

simulation, then perform the same knowledge check after the simulation, combined with one of the tools above. A well-structured debrief and knowledge check answers with rationales provide the students with valuable feedback. This would serve as the “practice” and formative evaluation that can proceed summative evaluation (i.e. unit quiz or exam).

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