

Curriculum and Simulation: Are They Related?

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Summary

- **Simulation activities are a critical way for faculty to prepare students ready for real-world nursing and healthcare situations.**
- **National Council of State Boards of Nursing (NCSBN) simulation guidelines offer a starting point for educators and curriculum designers.**
- **Integrating simulation activities into a nursing curriculum requires a structured approach to design, assessment, and, especially, evaluation.**
- **Simulation should be treated like any other part of the curriculum, and requires strategic planning, evaluation, assessment, and mapping to student learning and program outcomes.**



"If your philosophy is to use more simulation it has to be an integral part of the total systematic evaluation plan for your program."



Introduction

Nurse educators across the country spend great effort thinking of ways to train students so that they graduate fully prepared to address ongoing changes in healthcare. Faculty and curriculum developers have a responsibility, after all, for designing undergraduate curricula that reflect what they'll face in actual nursing practice. That includes formulating measurable and feasible learning outcomes, teaching strategies and activities that reflect real-world scenarios, and accurate and productive evaluations. One activity that many seasoned educators believe deserves a closer look is simulation. The challenge for many faculty, however, is in integrating simulation into day-to-day as well as long-term teaching in order to effectively enhance program development as well as student learning.

Elaine Tagliareni, Chief Program Officer and Past President of the National League for Nursing (NLN), and **Susan Forneris**, Excelsior Deputy Director of the NLN Center for Innovation in Simulation and Technology, have been heavily involved in nursing curriculum design for decades and believe simulation can be an important strategy that accurately informs faculty on whether students are absorbing the curriculum. They've traversed the country, advising programs of all sizes and budgets and listening to educators describe their own successes using simulation. From this extensive work, they've come up with practical, simple-to-follow best practices for working simulation activities into curriculum design, assessment, and evaluation.

Integrating Simulation into a Nursing Curriculum

Many faculty struggle with where to even begin folding simulation activities into their overall teaching and curriculum plans. Tagliareni and Forneris recommend the NCBSN (National Council of State Boards of Nursing) Guidelines for Pre-licensure Nursing Programs for a useful starting point, outlining the importance of thoughtful and productive integration of simulation into the curriculum. The Guidelines advise that, similar to any teaching strategy, simulation should have clear connections to expected student learning outcomes, which are, ideally, defined in the program curriculum and communicated to students prior to the simulation activity. Further, the Guidelines specifically stipulate that there should be objectives—both short- and long-term—not only for student learning but also how the simulation activity can be evaluated. Simulation is an extremely sophisticated teaching strategy, and educators should focus on its role in the total curriculum plan rather than as a tangential activity. That requires simulation evaluation and using those evaluation findings to inform, develop, and refine teaching strategies that ensure positive program and student outcomes—as well as a return on investment (ROI), given the real financial costs of simulations and clinical placements that many institutions continue to face.

Tagliareni and Forneris echo the NCBSN with their own advice that, first and foremost, educators should treat simulation identical to any other aspect of the curriculum—as a strategy that must be assessed and evaluated for its utility and contribution to overall outcomes. To do that, it's helpful, they argue, for faculty to “begin with the end in mind”—to focus on and map out what they want the student to achieve upon completion of the simulation. For example, in a concept-based curriculum in which students would be assessed on their knowledge of Critical Thinking in Oxygenation, any hypothetical simulation activity, like any teaching strategy, should be derived from concrete learning objectives for that concept. In this case, an effective simulation could illustrate, with evidence, the need for a nursing intervention—perhaps even a diagnosis—so that the lesson can focus on behaviors that get a student to practice managing a patient's oxygen.

Crucially, the simulation should also demonstrate its efficacy as a teaching tool. Does the activity inform faculty whether it's the most appropriate activity for the specific lesson? Has the simulation been leveled to the learning outcomes (Tagliareni and Forneris recommend 3-4 learning outcomes as a best practice)? The next step is to review learning outcomes and findings—using specific learning examples—gleaned from the simulation and map them to the outcomes and objectives of the entire course. Though educators may balk at how tedious and time-consuming this can be, it helps force them to look deeply at why they're doing the simulation in the first place, and make curriculum-wide adjustments if necessary. That can only be accomplished if the simulation has been codified as part of the overall course and curriculum map.

Evaluating the Simulation: Learning Outcomes

Well-defined learning outcomes, then, are critical to the success of a simulation activity. Yet outcomes, in turn, should get educators to consider how they're going to evaluate their simulations. One useful resource Tagliareni and Forneris recommend for thinking about how to evaluate simulation outcomes is “An Updated Review of Published Simulation Evaluation Instruments” (Adamson, Kardong-Edgeren, and Wilhaus), published in the *Clinical Simulation in Nursing* journal in 2013, which scans an extensive amount of literature on the simulation activities being used to evaluate student learning. The article organizes the reviewed simulation activities into four levels of learning, in descending order from impact on patient care in actual nursing practice:

- **Level 4: Outcomes** – significantly impacted by the training program (results of the simulation improved patient outcomes)
- **Level 3: Behaviors** – capability to perform learned skills while on the job (results carry over into patient care setting)
- **Level 2: Learning** – extent to which learners gained knowledge or skills (results demonstrated in simulation lab); simulation assessments may include skills checklists; knowledge exams; self-confidence surveys; and caring, culture, and sensitivity surveys
- **Level 1: Reaction** – how learners reacted to the learning process (not applicable to translational research); simulation assessments may include a satisfaction survey



“Simulation is not additive; it is very strongly incorporated into the curriculum to meet those learning outcomes.”



The goal is to think strategically: to design simulations that ultimately accomplish a higher level of student learning—not simply whether the activity demonstrates that students liked the simulation or built confidence. Here, in curriculum planning, Tagliareni and Forneris suggest strongly that simulation faculty work closely with curriculum faculty when developing activities, including the learning and the evaluation. In doing so, it’s important to recognize that simulation and clinical are not identical. Many educators believe simulation is ideal for training students on interventions in a safe, secure environment—a key tenet of clinical training—but simulation can also be used during the didactic part of any curriculum. In-class virtual simulations are a good example. In sum, however, simulation is no different than any other teaching strategy, and curriculum planners must account for this, whether the activity is in a classroom or a lab.

Evaluating the Simulation: Constructing the Evaluation Plan

Similar to how educators should “begin with the end in mind” when programming simulation activities, Tagliareni and Forneris believe there should also be a focus on evaluation of the simulation activities overall. To that end, they recommend faculty and curriculum developers build in evaluations that evaluate: 1) total **number of anticipated simulations** 2) **student learning**; 3) students’ **simulation experience** (whether or not the experience is being implemented consistently across classes and courses, for example); 4) the **simulation program** as a whole (how effective it is at positively impacting outcomes, for example), 5) **faculty development**, including roles and responsibilities and best practices in using simulation; and 6) **evaluation of faculty facilitation** (how does it compare to the facilitation conducted in the classroom?).

There are a number of easily accessible tools and instruments that can support educators’ efforts to measure and evaluate the above factors effectively. The Creighton Simulation Evaluation Instrument, Creighton Competency Evaluation Instrument, Clinical Simulation Evaluation Tool, Lasater Clinical Judgment Rubric (which focuses on

clinical judgment and reasoning), Clark Sweeney Clinical Simulation Evaluation Rubric, and the Clark Sweeney Simulation Effectiveness Tool are ideal for measuring **student learning**. In fact, at the very least, student learning should be captured by a progression template or outline so that it’s clear what faculty facilitators need to observe during the simulation. A simple check-off list of demonstrated actions can be effective. To help with evaluating the **simulation experience**, Tagliareni and Forneris recommend both the NLN Simulation Design Scale and the NLN Student Satisfaction and Self-Confidence in Learning Scale. The Simulation Society in Healthcare (SSIH) offers numerous guidelines and suggested policies and procedures to help simulation lab staff create a structure—including parameters and boundaries—for how **simulation programs** should be run. Finally, to evaluate faculty facilitation and debriefing, they recommend the Debriefing Assessment for Simulation in Healthcare (DASH or DASH-SV), which measures the quality of the debriefing as delivered by the faculty. Both educators and students can utilize this tool.

Evaluation results data for each individual simulation encounter should be analyzed and incorporated back into the course. Analysis should address whether the activity met the learning outcome for the course, using quantitative data—which many of the instruments referenced above are designed to measure—so that faculty can quantify learning and, thus, more easily map the data to student, course, and curriculum outcomes.



“Build in evaluation tools from the start, so you can trend that data across the program; trended data will speak to overall outcomes.”



Conclusion: Moving Forward

Simulation can be an effective tool to train students on what they will inevitably face in their nursing practice. For that to happen, however, and to ensure simulation activities aren't simply a teaching strategy without any meaning, Tagliareni and Forneris recommend educators and curriculum developers focus on a few core actions. First, educators and curriculum developers should purposefully integrate simulation into their curriculum. Second, they can do this by directly linking simulation activities to course and program outcomes. Finally, simulation evaluation plans should be comprehensive and address not only the simulation program, but also each discrete simulation activity, outcomes, and the work of faculty facilitators, among other elements. Faculty spend a considerable amount of time and effort on curriculum development, after all, and it's critical that all who participate agree on the purpose and outcomes of any teaching strategy, including simulation. A systematic evaluation plan supported by evaluation data can go a long way toward helping students make meaningful gains in their learning.



"Every faculty should be able to understand how the simulation informs learning in that course."



Takeaways

- **Make sure simulations inform curriculum decisions and outcomes.**
- **Every simulation should have a progression outline so that faculty can easily check off skills students achieve.**
- **Construct simulation evaluation using tools that quantify data, which can then be used to accurately inform curriculum and course adjustments.**
- **Visit the National League for Nursing's website to find free simulation design templates (accessible via the Research tab in the Resources section or in the ACE.S. section).**