# Learning Through Simulation: An Integrative Literature Review

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## ABSTRACT

The goal of this project was to analyze the correlation between nursing student's critical thinking, perception of learning, and self confidence when applied to nursing scenarios in simulation laboratories. Simulation labs can be facilitated in many ways. High-fidelity mannikins (which can simulate various bodily functions and actions), actors, virtual reality, and computerized labs are all various formats utilized by nursing educators to teach simulation. Each method has varying costs, availability, and accessibility for students and the educational facility. There are several advantages to the integration of simulation into nursing schools. Numerous benefits, such as increased critical thinking, advanced hands-on skills practice, availability of clinical scenarios, patient safety, practice in professional communication, and student confidence are among many reasons to have simulation added to the nursing curriculum.

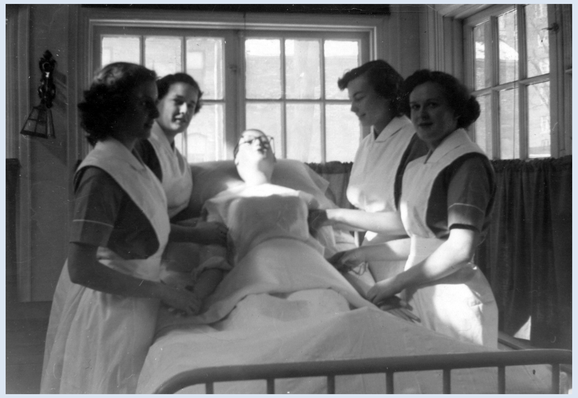
## HISTORY OF SIMULATION-BASED LEARNING

1900s: Simulation is utilized in several areas such as the military, healthcare, and aviation crews.

1911: Ms. Chase became the first prototype for simulation mannequins in healthcare.

1980: High-fidelity mannequins became commercialized for healthcare usage. These mannequins can respond to interventions and perform bodily functions.

2020: The usage of simulation in healthcare exponentially increased due to the pandemic.



## METHODOLOGY

A review of literature was performed in order to complete this project. Information for this project was obtained from electronic databases such as EBSCOhost and the National Institutes of Health website.

Criteria for inclusion:

Academic journals from the year 2018 – present.

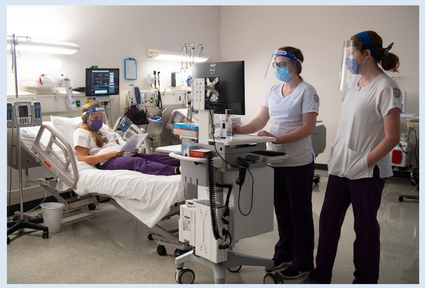
Initial search for academic journals on simulation in nursing education yielded 29,000 results.

Journals further narrowed to 8,500 results by including 'peer reviewed' as criteria.

Journals were narrowed to 21 articles for the purpose of this project.

## KEYWORDS

Keywords included in search: *nursing education, simulation, critical thinking, self-confidence, perception of learning, theoretical foundations of learning, student nursing,* and *patient safety.*



## RESULTS

Twenty one articles were selected for review in this project. The literature was separated into three themes: improved self-confidence in nursing students, improved critical thinking in nursing students, and improved perception of learning due to the implementation of simulation in curriculum.

## CONCLUSION

The literature revealed that students did have improved clinical reasoning and increased self-confidence in their nursing skills when simulation was implemented during their programs. According to the literature, nursing students self-reported better understanding of course content and improvement in critical thinking skills/self-confidence.


## THEORETICAL FRAMEWORK

**Bandura's Social Cognitive Theory:** Students model a demonstration from their instructor and modify the behavior to fit their learning style.

**Constructivism:** Students obtain new knowledge through collaboration with instructors and peers. Problem-Based Learning (PBL) stems from this model and is used in simulation to reproduce a real-world scenario that requires critical thinking and collaboration with others.

**Jeffries' Simulation Model:** Establishes the framework of a simulation lab through providing goals, expected outcomes, and design.

**Bloom's Taxonomy:** Provides the framework that designates the difficulty of the content provided in the simulation lab. This is determined by the expected level of understanding that the learner has.

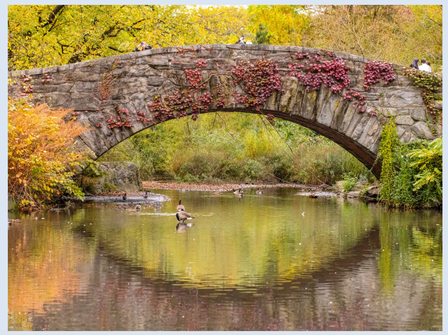
**Kolb's Experiential Learning Theory:** This focuses on four different methods of learning: convergence, assimilating, divergence, and accommodating. Instructors must incorporate each learning technique into their simulations.

## EMERGING THEMES

Increased Self-Confidence in Nursing Skills → Improved Critical Thinking → Improved Perception of Learning

## CLINICAL BASIS FOR SIMULATION LABS

- Simulation is designed to "bridge the gap" between didactic learning and clinical application.
- In North Carolina, nursing students are required to complete clinical hours in order to meet graduation criteria. This can be done in simulation or at traditional clinical sites.
- Simulation can account for 25% of focused clinical time or 50% of generalized clinical time.
- Offers opportunity for focused clinical experiences and reduces harm risk in critical scenarios



## CONSIDERATIONS FOR SIMULATION

- Extreme need for qualified nursing educators to facilitate simulation labs.
  - Specialty Certification
  - Mentorship
  - Co-facilitation with simulation experts
- Continuity in goals for simulation labs across nursing programs in the United States.
- Differences in theoretical modeling in each program that implements simulation.
- There is a gap in studies that measure the correlation between patient safety outcomes and simulation in nursing.

## REFERENCES

SEE HANDOUT

Western Carolina University