

## The Infusion of Learning - Transfer Evaluation Model in Undergraduate Nursing Education During COVID-19 Pandemic: Leadership Simulated

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### ABSTRACT

**Introduction:** The Learning-Transfer Evaluation Model (LTEM), is particularly designed to assist institutions and learning professionals to decide if their evaluation methods are effective in providing valid feedback as studies have reported that previous evaluation models have not done so effectively. LTEM is composed of eight levels starting from completely inadequate methods of learning evaluation to the effects of learning transfer. The model is designed to be critical for all learning interventions, including classroom learning, e-learning, mobile learning, on-the-job learning, self-study learning, etc. Hence, the rationale for using this learning model to evaluate an undergraduate Leadership and Management online class during the 2021 Spring semester. LTEM could be used anywhere to evaluate if learning has occurred. The terminology may eventually change evaluation practices; however, the new model is designed to help bring wisdom and knowledge to faculty teaching efforts. Hence, the rationale for using this learning model to evaluate an online class during the COVID-19 pandemic.

**Methods:** Articles were extracted from PubMed and only five articles were chosen for the review prior to designing the online Leadership class. The inclusions were learning interventions, classroom learning, e-learning, mobile learning, distance learning, simulation, hybrid, discussion board. Exclusions were teaching and all non-learning and evaluation activities in higher education.

**Result:** The learning outcomes of the leadership class was analyzed and tabulated according to the LTEM evaluation models (1-8). The results showed that using simulation technique was a very effective way evaluating learning when compared to other teaching methods such as role model, test, quizzes, etc. The rationale being that students were able to think critically and the outcomes of their learning dramatically changed on pre-post evaluation on Leadership and Management cues.

### Keywords

Learning, Class, styles, design, online, leadership, evaluation.

### Introduction

Much trust has been placed in the nursing care to significantly impact the U.S. health care institutions. However, concerns about student's safety and quality education coupled with the ongoing COVID-19 pandemic beckon higher education to reassess traditional teaching practices. Professional nursing programs

goals are to prepare novice nurses with exceptional clinical skills to effectively and safely care for their patients. However, faculty shortages and fewer clinical sites particularly with the ongoing COVID-19 pandemic present numerous challenges to faculty. Limited exposure in the clinical practice setting hinders the development of intuition. In addition, new graduates often enter practice with an unclear understanding of their role at the bedside. Nursing faculty like other healthcare professionals are often challenged to find other strategies to make their teaching

strategic and to effectively prepare new graduates for entering the workforce with less stress. Hence, simulation has been shown to be a valuable teaching-learning strategy.

It is imperative that new baccalaureate nursing graduates must possess leadership skills, unfortunately only few opportunities exist to embed such leadership abilities in a clinical environment. Simulated learning-transfer evaluation model may be the tool to increase the leadership skills of competence, self-confidence, and self-reflection in senior students as using human patient simulation provides such important opportunities to develop leadership skills. With faculty supervision, senior baccalaureate students were led in small-group simulation experiences and subsequent debriefings were conducted thereafter in this study. Quantitative and qualitative descriptive data allowed evaluation of students' satisfaction with this teaching innovation and whether the experience affected students' desire to take on leadership roles. Furthermore, with rapid adoption of Simulated hours as part of clinical hours by higher education during the COVID-19 pandemic, sim-EHR knowledge and skills are becoming mandated National curriculum requirements for nursing schools at all levels.

Simulated teaching techniques are evolving and is one of the nation's largest growth clinical methods with the ongoing COVID-19 pandemic. However, most nursing schools have not fully-adopted and infused sim-EHR across their curriculum partly due to resource disparity among underserved communities, hence the rational to review the benefits of infusing simulation in Nursing programs and the impact on students' outcomes in an online Leadership and Management course.

## Method

The learning- transfer evaluation model was used as the basis for simulation activities in an undergraduate curriculum. The eight steps of **A-** attendance, **A-** activity, **L-** learner perception, **K-** knowledge, **D-** decision making competence, **T-** task competence, **T-** transfer and **E-** effects of transfer were used to teach and evaluate an online Leadership and Management class as shown in table 1. In addition, five articles on simulation techniques (Table 2) were extracted from PubMed and reviewed as supporting evidence to the effectiveness and how critical it is that every nursing school should adopt and infuse this teaching technique across clinical/practicum courses for a students' positive learning outcomes.

## Result

The result of this learning model showed that the simulated learning transfer evaluation model was effective. *The students were tested using the 8-step model. The beginning stages of the model included the categories: Being in Classroom and Learner's perspective and expected outcome of the learner signs his/her name on Zoom Chat, at the beginning and end of the lecture, Learner seen on Zoom video with full attention, nodding his/her head, agreeing and asking/answering questions by typing: "What are the strength and weaknesses of an autocratic leader?".* The students' outcomes included adherence to number of words posted on the discussion board as stipulated in the assignment. Also, if he/she has responded to other students postings in a timely manner. The effectiveness test shows that the learner is satisfied with the videos, pictures, storytelling, etc. used during the lecture.

The second category was "giving Pre- and Post-Quiz during or after the lecture to ascertain short- or long-term knowledge retention

**Table 1:** Assessing Student's Skill on Online Leadership and Management Styles Using the Eight Levels of LTEM

Evaluation Levels	Assessment Type	Outcome Evaluation
Attendance	Check attendance—At the start and End of the lecture.	The learner signs his/her name on Zoom Chat, at the beginning and end of the lecture
Activity	Check for attention, interest, participation and Discussion Board postings with stipulated number of words and deadline on posting and responding to other students' postings on the discussion board platform.	Learner seen on Zoom video with full attention, nodding his/her head, agreeing and asking/answering questions by typing: "What are the strength and weaknesses of an autocratic leader?". Adherence to number of words posted on the Discussion Board as stipulated in the Assignment. Also, if he/she has responded to other student's postings in a timely manner.
Learner Perception	Ask the learner to give his/her own opinion about the lecture to ascertain the effectiveness of the methods used during the lecture.	Effectiveness test shows that the learner is satisfied with the videos, pictures, storytelling, etc. used during the lecture
Knowledge	Give Pre- and Post-Quiz during or after the lecture to ascertain short- or long-term knowledge retention.	The learner scores C (75% and below) on pre-test and 75% and above on post -test.
Decision Making Competence	Present scenarios of a nursing unit with on Discussion Board and ask the learner to ascertain which management types would lead to a positive outcome in such situations.	The learner accurately identifies the management styles with rationales and appropriately responds to other postings as required.
Task Competence	Group the learners and assign a leader to the team and ask the group to respond to an emergency situation as in Code blue.	Observe the leader's control of the situation by directly calling team members with specific task to perform. Observe members' body language attentiveness and adherence to directions to enable safe the situation.
Transfer	Assign a group of students to a leadership project and evaluate the project using a leadership grading criteria	The team leader democratically rallied other members in a group project and guide the members from start to finish on a project utilizing share governance, formative and summative evaluations.
Effects of Transfer	Group the class into two and expose one group to a leadership knowledge and the other without such a knowledge Give the same exam content to both groups and see how each group scores.	The group that was exposed to the content scores higher (75%) and above than the counterpart group not exposed to the same content.

**Table 2:** Literature Review on Transfer of Learning in Nursing Education.

Article	Reference	Summary	Discussion	Transfer Level
High Fidelity Simulation Effectiveness in Nursing Students' Transfer of Learning	**Tera R. Kirkman, R, T (2013). High Fidelity Simulation Effectiveness in Nursing Students' Transfer of Learning <i>International Journal of Nursing Education Scholarship</i> ; 10(1): 171–176, Doi 10.1515/ijnes-2012-0009	**Simulation is integrated into nursing curricula as a means of developing and evaluating clinical judgment, but there are few valid and reliable tools available and evaluation is not consistently theory based. When the Lasater Clinical Judgment Rubric (LCJR) was introduced in 2007, it provided a common evaluative language for assessment of clinical judgment but had limited support of its validity and reliability. Based on Tanner's Model, the LCJR organized nursing actions into eleven dimensions and four behavioral categories and defined specific actions in each which are typical of developmental phases (Lasater, 2007). The LCJR has been adopted by many nursing programs with limited support of its validity and reliability.	**The findings indicated that there was a significant difference ( $p = 1/40.000$ ) in transfer of learning demonstrated over time. Transfer of learning was demonstrated and the use of HFS was found to be an effective learning and teaching method. Implications of results are discussed	Level 8
Transfer of Learning from University-Based Simulation Experiences to Nursing Students' Future Clinical Practice: An Exploratory Study	** Bruce, R, Levett-Jones, T, Courtney-Pratt, H (2019). Transfer of Learning From University-Based Simulation Experiences to Nursing Students' Future Clinical Practice: An Exploratory Study <i>Clinical Simulation in Nursing</i> Volume 35, October 2019, Pages 17-24 <a href="https://doi.org/10.1016/j.ecns.2019.06.003">https://doi.org/10.1016/j.ecns.2019.06.003</a>	**Despite increasing use of simulation in nursing education, there is limited understanding of how simulation experiences influence students' future practice. The study used an exploratory design framed by a qualitative descriptive methodology. Six nurses who had completed 3 to 12 months of clinical practice after graduation participated in semi-structured interviews were thematically analyzed. This study provided new insights into the transfer of learning from university-based simulation experiences to students' practice after graduation. Further research with other groups of learners and larger sample sizes will be valuable in taking this work forward.	**The importance of accepting responsibility, interprofessional communication, leadership skills, and promoting patient safety emerged as recurring themes.	Level 7
Simulation Learning and Transfer in Undergraduate Nursing Education: A Grounded Theory Study	** Miles DA (2018). Simulation Learning and Transfer in Undergraduate Nursing Education: A Grounded Theory Study. <i>J Nurs Educ.</i> Jun 1;57(6):347-353. doi: 10.3928/01484834-20180522-05. PMID: 29863735.	**Experiential learning through simulation allows students to improve their cognitive, affective, and psychomotor skills. Yet, the process of how simulation learning transfers to clinical learning remains unanswered. The classical grounded theory method was used to conceptualize the process by which simulation learning transfers to the clinical environment.	**Simulation learning enhanced transfer of learning, specifically allowing students to take on the role behaviors of what will be expected of them as a practicing nurse.	Level 7
Comparison of Learning Transfer Using Simulation Problem-Based Learning and Demonstration: An Application of Papanicolaou Smear Nursing Education.	**Lee J, Son HK (2021). Comparison of Learning Transfer Using Simulation Problem-Based Learning and Demonstration: An Application of Papanicolaou Smear Nursing Education. <i>Int J Environ Res Public Health.</i> Feb 11;18(4):1765. doi: 10.3390/ijerph18041765. PMID: 33670295; PMCID: PMC7918073.	** A quasi-experimental control group pretest-posttest design was used in this study. Nursing students classified as advanced beginners were randomly allocated to the control group ( $n = 53$ ) or the experimental group ( $n = 52$ ). Students in the control group participated in a conventional demonstration of a Papanicolaou smear, while students in the experimental group participated in S-PBL. The students' self-confidence, learner satisfaction, and critical thinking were measured via a self-reported questionnaire. Compared with the control group, self-confidence, learner satisfaction, and critical thinking increase significantly more ( $p < 0.001$ ) in the experimental group. S-PBL was found to be an effective strategy for improving learning transfer, applying learned nursing knowledge to simulated nursing situations. Thus, S-PBL is recommended to improve training in nursing education. Self-confidence was found to have significantly increased in the experimental group than in the control group after the intervention.	** Accurate self-evaluation of a learner's nursing skill performance is a necessary step for professional nurses to understand their strengths and weaknesses and to promote their development. Simulations provide nursing students with opportunities to practice decision-making and develop team skills in a non-threatening environment.	Level 8

Evidence-based nursing education: effective use of instructional design and simulated learning environments to enhance knowledge transfer in undergraduate nursing students	** Robinson BK, Dearmon V (2013). Evidence-based nursing education: effective use of instructional design and simulated learning environments to enhance knowledge transfer in undergraduate nursing students. <i>J Prof Nurs</i> . Jul-Aug;29(4):203-9. doi: 10.1016/j.profnurs.2012.04.022. PMID: 23910921.	** Using an instructional design model that is student centered as the basis for simulation activities in an undergraduate curriculum is one method to effectively provide much needed clinical experience in a safe learning environment. This article details the application of the ADDIE (analysis, design, development, implementation, evaluation) model of instructional design to the use of simulation in nursing education in an effort to facilitate improved clinical performance in new graduate nurses.	**Simulation has been shown to be a valuable teaching-learning strategy	Level 7
Leadership Development Through Peer-Facilitated Simulation in Nursing Education.	**Brown KM, Rode JL (2018). Leadership Development Through Peer-Facilitated Simulation in Nursing Education. <i>J Nurs Educ</i> . 2018 Jan 1;57(1):53-57. doi: 10.3928/01484834-20180102-11. PMID: 29381162.	**Students expressed satisfaction with the peer-facilitated simulation experience and confidence in mastering the content while developing necessary skills for practice.	**Peer-facilitated simulation provides an opportunity for leadership development and learning. Study results can inform the development of nursing curricula to best develop the leadership skills of nursing students.	Level 3

and present scenarios of a nursing unit with on discussion board, and asking the learner to ascertain which management types would lead to a positive outcome in such situations.” Students’ outcomes showed that the learners scored C (75% and below) on pre-test and 75% and above on post -test and accurately identified the management styles with rationales and appropriately responded to other postings as required.

The third and final stages of the model were “grouping the learners and assigning a leader to the team, asking the group to respond to an emergency situation as in Code blue; assigning a group of students a leadership project and evaluating the project using a leadership grading criterion; grouping the class into two and exposing one group to a leadership knowledge and the other without such a knowledge, then give the same exam content to both groups and see the difference in group scores. Students’ outcomes included the leader’s control of the situation by directly calling team members with specific task to perform, the leader observed members’ body language attentiveness and adhered to directions to enable safe the situation; the team leader democratically rallied other members in a group project and guided the members from start to finish on a project utilizing share governance with formative and summative evaluations. The group that was exposed to the content scores higher (75%) and above than the counterpart group not exposed to the same content.

## Conclusion

This study has revealed that the simulated Learning-Transfer Evaluation Model has increased the leadership skills of competence, self-confidence, self-reflection, and role modeling of senior students in nursing undergraduate education. Utilizing human patient simulation therefore provides students’ opportunities to

develop leadership skills. In this study, with faculty supervision and guidance the students were able to experience small group leadership skills with subsequent debriefings. In addition, the students' satisfaction with teaching innovation was evaluated to verify whether the experience affected students' desire to take on leadership roles.

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