

## JCEN Teaching Tips Manuscript

Title: Teaching tips for integrating systems thinking into nursing education

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Abstract:

There is a critical need for nursing leadership in today's complex health care settings. Systems thinking can be incorporated in nursing education at all levels while using evidence based principles in education. Teaching tips are provided using a systems awareness model to guide nurse educators in assessment and integration of systems thinking while engage learners in interprofessional education and practice.

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A new era in nursing education has arrived, and with it nurse educators must apply evidence based teaching to advance learner applications into real world scenarios (American Association of Colleges of Nursing [AACN], 2016). Gone are the days where nurses are socialized through content-laden lectures and high stakes exams to symbolize mastery. Today, engaged learners demonstrate mastery through a variety of competencies cultivating a shared vision of a culture of health (Robert Wood Johnson Foundation [RWJF], 2014).

The challenge nurse educators face is how to refine the delivery of material across varying delivery modalities (face-to-face, skills labs, online, hybrid, up-scale or lecture hall classrooms, practice settings) while addressing all essential concepts, measuring competencies, and managing time. An additional challenge nurse educators face is preparing nurses to function and lead in complex health care settings (AACN, 2009, *BSN Essential II*).

Systems thinking is an applied process intended to impact cause and effect through collaborative effort where solutions to complex problems improve components, as well as, the greater whole (Stalter et al., 2016). Systems thinking is accomplished through personal ability and confidence with relationships. Personal effort, reliance on authority, and system interdependencies predict systems thinking that promotes interprofessional practice (Stalter et al., 2016) and positive patient outcomes (Dolansky & Moore, 2013). Helping nurses to understand systems thinking and to acquire the skills needed to lead complex systems is imperative. In this column, a model beneficial to guiding nurse educators in assessment of skill acquisition will be used to integrate systems thinking into nursing education (Phillips, Stalter, Dolansky & Lopez, 2016). The model can be used to plan learning experiences and assessment activities for knowledge and skill acquisition.

The purpose of this article is to provide teaching tips about how to advance systems thinking across multiple nurse audiences, as well as, in multiple course delivery modes, including practice settings. To advance the teaching tips, the model will be aligned with seven principles of good teaching practice in undergraduate education (Chickering & Gamson, 1987).

The model, a system awareness model (SAM), Process of Increasing System Level Awareness, offers nurse educators a means of guiding beginner, intermediate and advanced systems thinkers through seven phases (Phillips et al., 2016). Phases 1-3 describe beginning level nurses with limited experience precognitive system level awareness and the need to seek approval in order to take action and understand consequences of behavior. Phases 4 and 5 exemplify intermediate level nurses who have an understanding of how quality and safety impacts organizations as a whole. Intermediate level system thinkers are more confident decision makers and collaborate within teams to offer best practice solutions and ethical approaches to protecting the public from harm. Phases 6 and 7 are represented by nurses who make an ongoing personal effort to function according to professional standards that mitigate poor health outcomes, as well as, the health care delivery system. Overall, the model serves to move learners from a precognitive level of systems to a professional nurse able to lead in complex health care systems (Phillips et al., 2016).

Student engagement, regardless of the teaching venue, can be enhanced using the SAM model (Phillips et al, 2016) in combination with Chickering and Gamson's (1987) seven principles of good practice in undergraduate education. Using these evidence-based principles, nurse educators will likely see improved learning outcomes (Phillips, 2016). These principles include the following: (a) encourage contact between students and faculty, (b) develop reciprocity and cooperation among students, (c) encourage active learning, (d) give prompt

feedback, (e) emphasize time on task, (f) communicate high expectations, and (g) respect diverse talents and ways of learning. These principles were updated to leverage technology as a teaching tool (Chickering & Ehrmann, 1996) and then updated again so as to reach a larger audience (Chickering & Gamson, 1999).

Below is a table aligning the SAM model (Phillips et al., 2016), exemplar teaching strategies, and tips using the seven principles of good practice in undergraduate education (Chickering & Ehrmann, 1996). Ideally, these teaching strategies are best integrated in academic-clinical practice partnerships to engage learning communities. The AACN, in their report, *Advancing Healthcare Transformation* (2016) recommends multidisciplinary academic-practice partnerships at multiple levels (BSN, MSN, PhD, and DNP) preparing the leadership in healthcare for the future.

Table 1. *Teaching strategies with tips for each phase of the system awareness model (SAM)*

SAM Phase	Exemplar Teaching-Learning Strategies	Tips using seven principles of good practice (Chickering & Ehrmann, 1996)
Phase 1 Basic Nursing Care	Assess level of system awareness in an ice-breaker interprofessional education (IPE) simulation game about medical error reporting & cost to health care system & patient outcomes	Engage learners through interaction with one another and the educator
Phase 2 System- based Awareness	Just culture awareness exercise based on students' experiences in the workforce with other healthcare professionals, i.e. pharmacists, medical students, physical therapy students to address transparency ethical delivery of care	Enhance collaboration among participants to collectively address culture of blame
Phase 3 Critical Reasoning about challenges	Team work exercise with businesses, healthcare workers, and governing boards to brainstorm challenges in	Promote active learning through teamwork by collective action

in health care	delivering safe, quality care across committees and organizations	
Phase 4 QSEN Mastery in system-level synthesis	Evidence based practice proposal with interprofessional change team using system thinking to transform practice	Allow sufficient time for the task while providing opportunity to synthesize evidence
Phase 5 System level analysis based on professional standards of conduct	Flipped classroom exercise whereby students conduct information mining (searching) about professional standards of conduct, then assemble IPE teams and apply findings to system-level analysis	Communicate high expectations about professional standards of conduct
Phase 6 Decision making and application of system-level awareness	Online interaction module of Root Cause Analysis with each student taking a different role, ie: researcher, recorder, editor, synthesizer, etc.	Respect diverse ways of learning
Phase 7 Professional nurse leadership in complex health care system	Implement Systems Thinking Scale to measure systems thinking. Address the need for research to measure impact of systems thinking on health outcomes related to a culture of health	Give prompt feedback to students about the results of their systems thinking on improving the culture of health within the system

Regardless of the teaching–learning environment, integration of systems thinking into nursing education is an essential foundation for interprofesional leadership in the continuum of complex health systems, while advocating for a culture of health. Using the SAM model (Phillips et al., 2016) in combination with the seven principles of good practice in higher education (Chickering & Gamson, 1987; Chickering & Ehrmann, 1996; Chickering & Gamson, 1999), can provide a usable framework for nurse educators to engage learners using exemplar teaching strategies designed to set the stage for creating critically needed leadership in coordinating transitions of care.

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