

Supporting learning with creative instructional designs: Focus on case-based teaching

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Introduction

Starting in the 19th century, researchers have developed and put forth various learning theories including behaviorism (observing, eliciting, and changing behavior), cognitivism (making sense of the material world) and constructivism (how learners create meaning (Harasim, 2012, pp. 10-12). Many researchers and educators believe constructivist learning has the potential to be the most impactful, resulting in lasting learning. Harasim states that teaching approaches that best support constructivism include active learning, learning-by-doing, scaffolded learning and collaborative learning (p. 68). Naidu describes the importance of using “powerful cognitive strategies” that scaffold student learning, allowing students to develop “desirable cognitive skills” (2004, p. 109). The purpose of this paper is to describe the creative instructional designs referred to by Naidu, particularly story-centered learning, the correlation between story-telling and case-based learning, and the evidence demonstrating positive educational outcomes with case-based learning.

Creative Instructional Designs

In the article titled “Supporting learning with creative instructional designs” Naidu (2004) stresses the importance of supporting learners in a “scaffolded” approach (p. 109). He describes this approach to teaching and learning as a “transitional support strategy” (p. 109) that helps learners develop the desired cognitive skills. Naidu’s position contends that using active learning strategies in effect teaches learners *how* to learn (p. 110). This is highly consistent with the constructivist model where learners “construct their own understanding and knowledge of the world through experiencing the world, and reflecting on those experiences” (Harasim, 2012, p. 60). Some strategies that Naidu proposes for modeling a real-life experience include story-

centered learning, problem-based learning, critical incident-based learning, design-based learning and role play-based learning. Each of these strategies simulates a real world situation, in effect a “baptism by fire” approach to learning.

Naidu (2004) expands on the story-centered learning approach by explaining that students play a key role in a scenario (e.g., they assume the role of manager, supervisor, employee or some other role) and work through resolution of the scenario. Naidu further explains that story-telling is as old as humankind itself, and stories frame the way we related to the world. He explains that a story-based activity is an example of active learning, simulating an authentic learning experience. While this approach seems reasonable, can it be used to teach specific groups of learners, such as health care professionals?

What is the role of stories in health care?

Stories can be used to teach health care professionals in training. Weston (2011, 2012) described the experiences of midwifery students and their perceptions of story-telling as part of their training. Seven story-telling themes emerged from this study including those that validated experiences, reflection stories, listening to other student’s stories, retold stories, lecturers’ humorous stories, non-judgmental stories and opportunities for story-sharing (2012). Results showed that students valued story-telling as part of their training, helping them to integrate and reflect on learned content.

Stories, when told in the context of a patient-specific situation, are cases. Have students consider the presentation and resolution of a patient case is referred to as “case-based learning” (CBL) (Williams, 2005, p. 577). Per Williams, CBL is demonstrated by posing a “case, problem, or inquiry...to stimulate and underpin the acquisition of knowledge, skills and attitudes” (2005,

p. 577). The case usually presents the patient's complaint, analysis of the complaint, past medical history, laboratory values, physical examination findings and other relevant data. The learner is then asked to work with a group or independently to determine the most appropriate course of action. Bano, Arshad, Khan and Safdar note that case-based learning is an andragogical approach that displays "active involvement of learners, social interaction, tutor and peer input, communication, modeling professional thinking and action, providing direction and feedback, and creating a collaborative learning environment leading to active construction of knowledge" (2015, p. 118). When introduced to the patient's "story" (case), the learner is in the center of the process, and it's the learner's responsibility to resolve the case.

Evidence Supporting Case-Based Learning in Health Care Education

Thitlethwaite and colleagues completed a meta-analysis of the effectiveness of case-based learning in health professional education (2012). Reviewing research conducted in health care programs including medicine, dentistry, veterinary science, nursing and midwifery and allied health professionals, 104 research initiatives were analyzed. Their conclusions were that learners and teachers overwhelmingly enjoyed CBL although performance data was inconclusive.

Focusing on specific health care disciplines, Brown, Pond and Creekmore (2011) evaluated the impact of a case-based toxicology elective course on student performance on the Pharmacy Curriculum Outcomes Assessment (PCOA) exam. Students who learned about toxicology using a case-based approach had higher performance scores on the PCOA exam, and they were satisfied with this active learning approach.

Case-based learning has been extensively implemented and evaluated in nursing education. Raurell-Torreda and colleagues (2014) randomized undergraduate nursing students to either a traditional lecture and discussion section, or a lecture, discussion, and case-based learning section of the course “Adult Patients 1.” The group of nursing students who also participated in case-based learning demonstrated enhanced patient assessment skills as seen in an objective structured clinical examination (OSCE) assessment.

Forsgren, Christensen, and Hedemalm (2014) reviewed course evaluation results from nursing students regarding their perceptions of case-based learning. Four questions were included in the course evaluation that specifically addressed the use of cases as a teaching technique. The majority of respondents were favorably impressed with case-based learning including enhanced integration of theory and practice, deeper knowledge of disease presentation, self-perceived enhanced performance in seminar, and greater confidence in leading seminar discussions.

Medical students have also demonstrated superior outcomes with case-based learning. Bhardwaj and colleagues (2015) evaluated the impact of case-based learning, finding enhanced student perceptions about integrated, case-based teaching, and better performance on objective assessments. Vora and Shah (2015) compared two groups of medical students in a pharmacology class. Half the class used the case-based learning approach while the other group received content via lecture. The students who received content through a case-based approach had greater test scores and rated CBL very positively.

Similar results were seen in a case-based learning course taught to undergraduate students in a nutrition program (Harman, Bertrand, Greer, etc., 2015). Students who received case-based education performed better academically and was very favorably received by students.

Conclusion

Naidu (2004) provides a compelling argument for creative instructional design learning activities that are scaffolded and provide students with simulated learning opportunities. Among other examples, Naidu described the utility of story-centered learning as an opportunity to put the learner in the center of the activity. Stories (cases) can be used to describe a patient, including his or her medical problems. Research has shown that students who receive content via case-based learning perform better on objective assessment activities, and express a strong preference for CBL as opposed to other teaching methods such as lecture. The purpose of this paper was to provide evidence supporting Naidu's position that active learning strategies such as story-telling are beneficial, which has been consistently demonstrated among health care students.

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