

Constructivist Strategies in Online Distance Education in Nursing

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ABSTRACT

This article reviews the use of constructivism in traditional brick-and-mortar classrooms, as opposed to the online learning environment. The applicability of constructivism to nursing education is discussed. The article concludes with recommendations for online nursing education programs, offering ways that constructivist methodologies can be applied to online distance education.

The Internet has created opportunities never before imagined in higher education. Students can now pursue a multiplicity of degrees in the absence of an institution of higher learning within close geographic proximity. Busy careerists can enhance their marketability by obtaining advanced degrees without having to surrender their current position. Men and women of the U.S. armed services can pursue college degrees despite deployments to different geographic areas of duty. Adults no longer have to choose between family and higher education. A recent report by the Sloan Consortium reported that the current number of students taking at least one online course totaled 2.3 million as of fall 2004 (Allen & Seaman, 2005).

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The shift to online learning has been made possible by the power of technology and its application to higher education via distance learning. This flexibility is particularly appealing to RNs. Nursing career advancement is often contingent on advanced degrees, and given the nature of nurses' schedules, especially in this era of a nursing shortage, extra shifts and mandatory overtime can be major obstacles to pursuit of an advanced degree in a traditional setting at a fixed time. Many nurses are turning to distance education for undergraduate degree completion or preparation at the master's level (Kozlowski, 2002).

With the opportunities created by this new learning technology comes a potential danger. But is it truly a "danger" or simply a different approach to learning? Heppell and Ramondt (as cited in Edward, 2001) contended that:

learners still need to do things, to have a sense of audience for and feedback on what they are doing, to feel progress, to be provoked and guided in their learning and to celebrate their own capabilities whilst acknowledging those of others. (p. 433)

Both they and Savin-Baden (2000) warned us against the possibility of educational technology contributing to the isolation of learners, which is a violation of the underlying theories of the constructivist approach.

As distance education continues to expand and the delivery of postsecondary education to adults continues to grow in popularity among learners, theory must be examined for its applicability to this new frontier in higher education. The use of the constructivist model as a framework for understanding knowledge acquisition and learning has been well documented (Dantonio & Beisenherz, 2001; Holly, Adelman, Mueller, & Legg, 2005). Along with constructivism's demonstrable applicability in ground-based education, a growing body of literature, discussed below, has shown its applicability to distance education. However, less is known about the application of constructivist principles to distance education in nursing. This is

an important area of inquiry, as it is essential to discover which of those theories on which our practice in brick-and-mortar institutions is based may be applied to the online environment.

In this article, we will review the use of constructivism in traditional brick-and-mortar settings, as well as the online learning environment. We will further explore the applicability of constructivism in nursing education and ways that constructivist methods can be applied to online distance education in nursing.

LITERATURE REVIEW

Applicability of Constructivism to Disciplines Other Than Nursing

In response to the assertion that schools are failing, Wagner (2004) contended that schools have not failed, but rather they continue to serve the same purpose that they were designed for a century ago, still using methods used at the inception of these early schools. The contention is that it must be collectively decided what students should know and be capable of doing and then how learners can be best supported in achievement of educational goals.

The nature of the concepts that converge in the term constructivism are complex. The term, not a single unified concept, is derived from the work of several fields, including psychology, philosophy, anthropology, and education. Windschitl (1999) posited that constructivism is premised on the belief that learners actively create, interpret, and reorganize knowledge in individual ways. These fluid intellectual transformations occur when students reconcile formal instructional experiences with their existing knowledge, the cultural and social context in which ideas occur, and a host of other influences that serve to mediate understanding.

Constructivism has demonstrated its utility in the arenas of traditional, ground-based kindergarten through grade 12 and higher education settings. For example, in online biology courses based on constructivist teaching principles, significant differences in quiz scores, appreciation of science, classroom attendance, and increased participation in laboratory activities resulted, compared with traditional rote models of memorization (Burrows, 2003; Travis & Lord, 2004). Connolly and Begg (2006) published preliminary results of a study that indicated the utility of constructivist techniques in teaching information systems courses. In a similar study, drawing on the use of constructivist education models used in medicine, architecture, engineering, and technology, Tetard and Patokorpi (2005) noticed an increase in student dedication toward their work in information systems in university-level courses. The same kinds of findings have been demonstrated in other countries as well (Edward, 2001). Regarding teacher education, the literature is replete with examples of constructivist ideology and methodology implemented in traditional basic teacher preparation programs (e.g., Brown, 1992; Brown & Campione, 1994; Mintrop, 2001).

No theory exists without challenges to some or all of its overarching premises. Windschitl (2002) acknowledged that the practice of constructivism is steeped in ambiguities and tensions surrounding its use as a basis for teaching. Bailey and Pransky (2005) posited that constructivism's universalized claim of applicability to all learning settings is inappropriate and pointed to the understanding that learning theory and learning processes are inextricably rooted in culture. Despite the existence of some very legitimate claims of limitation, the use of constructivism has demonstrated its utility in traditional education. A strong case can be made for constructivism's use in other disciplines such as nursing.

The Applicability of Constructivism to Online Distance Education

The Internet has enabled a new kind of educational paradigm, online distance education. Prior to the Internet's advent, distance education consisted mainly of independent study programs for a degree, certificate, or professional continuing education. Perhaps one of the best models of distance education prior to the advent of the Internet could be found at Open University in the United Kingdom. The idea for Open University was born in the 1920s; however, it was not until 1971 when the first students were admitted to this truly multimedia educational endeavor. Today, Open University is successful and has been rated above Oxford University and University College London in terms of teaching quality (Open University, n.d.). According to Gourley, Open University's Vice Chancellor, the reason for the university's success is:

OU's teaching quality—together with our expertise in supported learning methods [which] continues to not only help thousands of our students fulfil *[sic]* their ambitions, develop their skills and further their careers, but also provides leadership for distance learning providers the world over. (Coaten, 2004, ¶6)

The use of the Internet in distance education has received and continues to receive much attention. Archaic discussions about the quality of distance education or whether it is as good as traditional classroom or brick-and-mortar educational experiences will not be entertained in this discussion. The literature is replete with studies indicating that education delivered via online distance learning technologies is at least equal and, in many cases, superior to traditional ground-based education (Allen & Seaman, 2005; Shachar & Neumann, 2003). In their meta-analysis of 86 studies, Shachar and Neumann (2003) demonstrated that in two thirds of cases, students who took courses using distance education "outperformed their student counterparts enrolled in traditionally instructed courses" (p. 1). The results of this study and similar studies most likely account for the fact that approximately 56% of colleges and universities surveyed identified online education as a major consideration in long-term planning and why 65% of schools offering graduate courses offer courses online (Allen & Seaman, 2005).

What remains to be answered is the applicability of constructivist theory to online education. In keeping with the fundamental tenets of constructivism, which acknowledge that adult learners are active participants in their learning, El-Hindi (1998) asserted that the way in which knowledge is constructed through learner use of the Internet is supportive of the constructivist paradigm. The challenge is for the online educator to create learning environments for students they will not meet face-to-face in traditional classroom settings. Because of this absence of a face-to-face presence in a formal classroom, the educator is charged with the responsibility of developing strategies that enhance student motivation and encourage interaction with the subject matter (Bennett & Lockyer, 2004). Other challenges have been identified, including the necessity of the educator shifting thinking from the role of content expert to that of facilitator of learning (Murphy & Cifuentes, 2001). This shift results in a movement from teacher-centered to learner-centered instruction.

To establish a case for the applicability of constructivism to online education, it would be helpful to consider one of the most essential concepts of constructivist theory, *scaffolding*. This term has been widely used since it was originally coined by Wood, Bruner, and Ross in 1976 as a metaphor to describe effective intervention of one individual and the resultant influence on the learning of another. This concept is important because learner support is essential to success in the online classroom environment. Liaw (2004) thought that although the learner has the ability to solve real-life and practical problems, technology can become confusing, leading to boredom, inattention, information overload, and frustration. Further support for this contention comes from Odin's 2002 study, which concluded that the educator's role in the online classroom is one of guidance and the creation of a shared context of learning. In this capacity, the educator facilitates students' abilities to construct knowledge and then apply it in other contexts.

Several studies have sought to examine the applicability of constructivism to online distance education. Neo (2005) found that students who engaged in online courses better understood the problems posed, worked collaboratively, constructed solutions, determined learning outcomes, and thought that they were more active participants in the learning process, which helped to enhance their critical thinking skills as opposed to their ground-based counterparts. An earlier study by Murphy and Cifuentes (2001) noted that students negotiated meaning with others and were self-regulating in the online environment. Other studies have further demonstrated the applicability of constructivism in online distance education (Dickey, 2003; Gabriel, 2004).

The Applicability of Constructivism to Online Distance Nursing Education

In studies that explored distance education in nursing, the applicability of online distance education to nursing education programs is readily apparent. Thiele (2003) reported that nursing students who took online courses

became more independent and self-disciplined learners. Their students reported that they felt an increased trust in their own judgment and that they explored course content in greater depth than they did in traditional classes.

Through an online survey of 171 nursing faculty in the United States, Christianson, Tiene, and Luft (2002) found that although the time commitment associated with an online course was greater than in an on-campus course, faculty thought that the experience was successful. Faculty also thought that the medium was a valuable teaching methodology appropriate to any kind of nursing course. The respondents also indicated that they preferred the online environment to face-to-face instruction.

Some critics have asserted that professional socialization is not possible in distance education in nursing. Nesler, Hanner, Melburg, and McGowan (2001) contended that students who pursued nursing education via distance education completed their programs with socialization outcomes comparable to their traditional program counterparts. Brigham (2001) noted that the use of electronic networking can be a means of socialization of students through the use of technologies such as real-time chat rooms for the purpose of discussing coursework, comparing notes, or discussing noncourse-related or nonacademic matters. These activities reduce the learner's feelings of isolation in the online environment while assisting in socialization with peers who share similar academic backgrounds and career aspirations.

A literature review yielded few studies exploring the applicability of constructivism to nursing education. The reason for this is unclear, although perhaps it is because nursing education has not been considered a specialty area, as is the clinical nurse specialist or nurse practitioner track. If this were the case, this would explain why constructivism in nursing has received minimal research in terms of educational epistemologies. In support of the role of nursing education as a specialty, Zungolo (National League for Nursing, 2006) stated:

The art of teaching is science unto itself. Education is a specialty. Just because someone has advanced education and preparation in nursing, it does not automatically mean that one possesses the skill, talent, and knowledge base required to transmit that information into the classroom and clinical area. (¶2)

Regardless of the reason, the paucity of literature on constructivism in nursing education is compelling and should not be ignored.

Peters (2000) noted that constructivism offers an alternative to traditional pedagogy in nursing education in that it not only considers previous learning but also is learner centered and results in the building, modification, and expansion of new knowledge. He further contended that if the purpose of nursing education at the degree level is to produce highly capable graduates capable of being reflective practitioners with the ability to evaluate situations, engage in self-learning, and be otherwise aware, then a constructivist approach should be used as the means to achieve these goals.

Constructivist approaches and their applicability to the preparation of new nursing faculty were explored by Johnson-Crowley (2004), who noted that little was known about the programs used to prepare nursing faculty. Acknowledging that traditional survey-type courses had a minimal influence on students, resulting in the students teaching as they were taught, the author looked to emerging practices of constructivism in the field of education. Through an experimental course, the author demonstrated the relevance of constructivist theory in promoting educator competence among graduate students interested in pursuing nursing faculty positions upon graduation.

CONSTRUCTIVIST STRATEGY OVERVIEW

In an attempt to provide educators with the tools needed to implement constructivist strategies in the online learning environment, several models, methods, and techniques have been proposed in the literature. The problem with many of these approaches suggested in the literature is stated eloquently by Dooley, Linder, and Dooley (2001) in their contention that constructivist course design principles are problematic to put into practice because constructivist theory deals with general principles and, rarely, with processes offering direct teaching methods.

Although we recognize the description of this problem as accurate, we seek here to explore some of the available processes proposed in the literature in an attempt to provide educators with a broad overview of constructivist course design principles. It is also our intent to stir interest in one or more of the models that we will discuss and ignite curiosity to supplement this overview with a more in-depth exploration of one or more of the models.

Not all constructivist models can be used with all teaching and learning approaches. Fardanesh (2006) examined 10 instructional design models based on constructivist theory. He classified these models into six categories, with the teaching and learning approaches used in each model classified as individual, group, or dual purpose. In assignment of each of the 10 instructional design models into one of the classification systems, he concluded that none of the models were applicable to both teaching and learning. Most models fell into the individual category with a few of the models in the group category.

In his discussion of constructivism applied to adult learners in online programs, Huang (2002) noted the importance of the educator building experiences that enabled the learner to search for new knowledge, find resources to build on this knowledge, and solve problems. According to Huang (2002), online courses need to provide opportunities for educators and learners to interact, which is possible through several methods including e-mail, synchronous discussion (e.g., chat), and asynchronous discussion (e.g., threaded discussion). Other authors focus on the use of teaching methods that address the mechanics or how-to of constructivist thinking. Oliver and Herrington (2001) listed several teaching methods that have their foundation in constructivism. These methods included

situation-, problem-, case-, project-, and inquiry-based learning, as well as role-playing.

Savery and Duffy (2006) proposed some useful principles that can help online educators develop a learning environment rich in constructivist ideology with the goal of helping learners achieve positive learning outcomes. The principles proposed include:

- Anchoring all learning activities to a larger task or problem.
- Supporting the learner in developing ownership for the overall problem or task.
- Designing an authentic task and learning environment to reflect the complexity of the environment they should be able to function in at the end of learning.
- Giving the learner ownership of the process used to develop a solution.
- Designing the learning environment to support and challenge the learner's thinking.
- Encouraging testing ideas against alternative views and alternative contexts.
- Providing an opportunity for and support of reflection on both content and learning process.

In still another example of a learner-centered approach to instructional strategies, Hirumi (2005) proposed the following strategies:

- Set a learning challenge.
- Negotiate learning goals, objectives, and learning strategies.
- Construct knowledge.
- Negotiate performance criteria.
- Assess learning.
- Provide feedback.
- Communicate results.

What is immediately apparent from the literature review is that constructivist strategies, which have already been demonstrated to be not only applicable but useful in the brick-and-mortar environment, can also be used in the online environment. Although the technological component of distance education possesses its own unique challenges, the ability to construct knowledge is not compromised. The only apparent alteration in the applicability of constructivist teaching methods is found the mechanics of course delivery. This is an important conclusion as questions of quality continue to permeate rhetoric about the adequacy of online courses and education. Despite the growing body of literature that demonstrates the effectiveness of online education, many in academia continue to doubt the value and legitimacy of online education (Allen & Seaman, 2005).

CONCLUSION AND RECOMMENDATIONS

In this article, we explored constructivism as a theory, as well as its tenets and applicability to traditional educational settings. We also examined its applicability to online education, in which we clearly saw how it can be applied and how its tenets represent ways in which adult learners can structure knowledge and learning in the

online environment. Also considered was the role of constructivist education in nursing education. What remains to be explored, however, is the role of constructivist theory in online nursing education programs.

As RNs seek to expand professional competence through higher education, a proliferation of online programs offering the master of science degree in nursing exists. Literature review has confirmed that little is known about these programs and their curricular foundations. How are these programs designed? What fundamental tenets of their educational epistemology are used to guide the creation of learning experiences? If not constructivist techniques, then what techniques are being used to enhance knowledge construction and increase learner self-sufficiency? Have differing educational epistemologies resulted in equal or superior achievement of learning outcomes? Clearly, these questions, as well as others, must be explored to arrive at best practices to guide the future development of distance education programs in nursing.

How can constructivistic methodology be used to educate RNs in the online environment? The following are some suggestions to help novice and experienced nurse educators use this method:

- Investigative strategies would include transforming social facts into problem solving. Providing real-world scenarios for students to investigate allows the student to apply the knowledge learned in a meaningful way.

- Formulating understandings can occur by developing critical thinking skills through involving the student in participative activities, such as discussion threads, group projects, and practicum and field experiences. Allow the student to participate in the actual process of constructing their learning. This can be done by having students contract for field and practicum experiences, decide to which of several discussion threads to respond, and allowing the student to find his or her own resources.

- Reflecting on knowledge through assignments that apply the knowledge learned. An example of this would be to have students in a class on health care systems identify an important health care issue in their communities and participate in changing the outcome through political action, offering community education courses, or volunteering in the community.

- Authentic communication involves having learners participate in meaningful social dialogue through discussion threads, chat rooms, and other synchronous and asynchronous activities (Dantonio & Beisenherz, 2001). Faculty participation in these communications is necessary to provide role modeling for the students. Intervening, when appropriate in interstudent communications, may be necessary if students do not show they can interact in positive and constructive dialogues on topics that provoke strong emotions.

- Evidenced-based discourse through the use of meaningful citations would be expected in all assignments, including discussion threads. Students should be guided, if they do not do so themselves, to making connections be-

tween the research and theories they read to real-life situations and applied to practice.

- Discussions and assignments should build on previous courses and previous weeks' work. A central question should be used to focus each week's assignments and to focus on the objective for the week. Then, succeeding questions and assignments should be used to process content leading to clarification of ideas, providing of evidence in support of ideas, and developing critical thinking skills.

- Socratic questioning is a tool of the constructivistic method but must be approached carefully so it has meaning. Students must be lead to forming connections between theory and the real world with questions that ask for clarification, deeper insight, and quality responses. Questions should refocus (e.g., "As I read what you wrote, I wondered if you had considered..."), clarify (e.g., "Can you explain what you are trying to say here in terms of the theorist we are studying this week?"), verify (e.g., "How can we prove what you are saying? How do we know this to be true?"), and support (e.g., "You say that this is what happened. We read in our course materials that this should have happened. How can we say that what actually happened is related to what should have happened?") (Dantonio & Beisenherz, 2001).

Using constructivism in the online nursing classroom can be an experience that allows learners to take control of their learning. It can push learners to look deeper into issues and apply theory to real-world situations. Constructivism allows educators to facilitate and guide learning, ending the "I am the fount of all knowledge" of traditional education and leading to the "We are colleagues, at different levels, sharing and exploring the field of nursing together" approach that values learners and educators in a partnership of exploration.

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