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Teaching Methodologies for Improved Student Engagement in Online or Distance Education

Courses

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University of North Dakota

An Independent Study Submitted to the Graduate Faculty of the University of North Dakota in
partial fulfillment of the requirements for the degree of Master of Science

Teaching Methodologies for Improved Student Engagement in Online or Distance Education
Courses

Department: Nursing

Degree: Master of Science

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Date: December 8, 2019

Abstract

Research demonstrates the importance of learner engagement and social presence achievement of student learning outcomes and increased student satisfaction. However, little guidance is available to educators on how to create effective online and distance education courses that are engaging, interactive, student-centered, and effective. A literature review was completed to determine which online and/or distance education teaching methodologies are best for improving student engagement, and therefore improving student outcomes. Thirteen articles published between January 2014 and December 2019 were identified from a search of two databases. Ten of these articles were further analyzed according to the Community of Inquiry (CoI) framework. A variety of online and distance education teaching strategies have been shown to be effective in engaging students, including discussion forums, online virtual simulation, and gaming. This literature review will provide online and distance educators with an overview of the effectiveness of a variety of teaching modalities in student engagement and improved learning outcomes.

Teaching Methodologies for Improved Student Engagement in Online or Distance Education Courses

The demand for flexibility and convenience has changed the face of higher education. Today's students are balancing academic pursuits, work, family, and personal commitments. Some may be limited by location or the inability to relocate and, therefore, are unable to attend face-to-face courses. These demands combined with the rapid growth of technology has led to the expansion of online programs (Alvarez, Dal Sasso, & Iyengar, 2017; Alston, Moore, & Thomas, 2017; Billings, Skiba, & Connors, 2005; "Effective strategies", 2017; Gazza, 2017; Gazza & Matthias, 2016; Green, Hamarman, & McKee, 2015; Halpin, Golden, Hagins, Waller, & Gopalan, 2018; Hampton, Pearce, & Moser, 2017; Jefferies, 2005; Luo & Kalman, 2018; McAfooes, 2016; Oermann & Gaberson, 2017; Schnetter, Mitchell, Bakrim, Allen, & O'Neal, 2014; Wingo, Peters, Ivankova, & Gurley, 2016). With more than 6.3 million U.S. students taking at least one online course (Friedman, 2018), educators are called to develop creative, interactive, engaging, cost-effective, student-centered, high-quality courses that meet the needs of varied learning and generational preferences, promote a sense of community, and produce competent students (Billings et al, 2005; "Effective strategies", 2017; Gazza, 2017; Gazza & Matthias, 2016; Halpin et al., 2018; Hampton et al, 2017; Jefferies, 2005; Lou & Kalman, 2018; McAfooes, 2016; Milne, Skinner, & Baird, 2014; Ochs, 2017; Schnetter et al., 2014; Smith & Wortley, 2017; Stanley, Serratos, Matthew, Fernandez, & Dang, 2018; Stott & Mozer, 2016; van Kessel, Gill, & Milanese, 2018; Zhen, Bender, Reid, & Milani, 2017). However, little research is available to guide faculty in selecting the best teaching methodologies for online learning (Anderson & Krichbaum, 2017; Hampton et al., 2017; Garrison, 2017; Stanley et al., 2018; Swartzwelder, 2014; Wingo et al., 2016), leading to confusion on how to integrate new

technologies, limited use of interactive technologies, student dissatisfaction, and decreased student engagement (Gazza & Matthias, 2016; Poot, de Kleijn, van Rijen, & van Tartwijk, 2017; Smadi, Parker, Gillman, & Muller, 2019; Stanley et al., 2018; Wingo et al., 2016).

Distance education or distance learning is an additional emerging modality created to provide student access to higher education when the ability to attend face-to-face instructional courses is limited (Calloway-Graham, Sorenson, Roark, & Lucero, 2016; Tavares, Leite, Silveria, Santos, Brito, & Camacho, 2018). Taveras et al. stated that distance education “allows the population greater access to initial and continuing education, because it breaks with the difficulties imposed by time and space” (2018, p. 215). Distance education technologies, such as Interactive Video Connected (IVC), Interactive Video Network (IVN), virtual classrooms, and videoconferencing, have made the delivery of courses possible for students and instructors that are physically separated (Calloway-Graham et al., 2016; Tavares et al., 2018). However, according to Delgaty (2015), there is a lack of support and guidance for faculty when it comes to the development and implementation of distance learning with “significant modifications of existing models are necessary” (p. 41). These technologies must have appropriate integration and teaching methodologies must be engaging, student-centered, collaborative, and possessive of the qualities that preserve the foundations of a good education. They must also develop the learner’s social, emotional, cognitive, and professional abilities (Calloway-Graham et al., 2016; Tavares et al., 2018).

Purpose

The purpose of the literature review is to identify teaching methodologies that improve student engagement in online or distance education courses. Asynchronous environments, such as online environments, have long been criticized for decreased student engagement, increased

student isolation, and decreased teacher presence (Luo & Kalman, 2018; Claywell, Wallace, Price, Reneau, & Carlson, 2016; Boyd, Baliko, & Polyakova-Norwood, 2015). Challenges associated with distance education methodologies include technology issues, classroom management, and variability of student engagement (Calloway-Graham et al., 2016). According to Vertejee, Somani, Allana, and Maria Dias (2015), “student engagement is the most significant factor for learning and personal development” (para 13) and has “been associated with better learning outcomes” (van Kessel et al., 2018, p. 283).

Student engagement can be defined as the learner’s ability to understand, analyze and apply content knowledge to decision making (Vertejee et al., 2015) and “is a complex multifaceted process of interactions between students, educators, and the university environment” (van Kessel et al., 2018, p. 283). Effective use of online and distance education practices and “robust flexible delivery of teaching” (as cited in Milne et al., 2014, p. 5) “stimulate active student engagement” (Stanley et al., 2018, p. 245; Stott & Mozer, 2016) and improve student outcomes (van Kessel et al., 2018).

Significance

Guidance provided by research on best practices in online and/or distance education teaching methodologies help faculty develop courses that meet institutional benchmarks and increase student engagement. Implementation of varied and engaging teaching strategies increases student participation in online and/or distance education modalities, thereby increasing student satisfaction, deeper learning, higher order thinking, and collaboration (Hampton et al., 2017; Mills, Yates, Harrison, Woods, Chamberlain-Salaun, Trueman, & Hitchins, 2016; Trocky & Buckley, 2016; Duff, Miller, & Bruce, 2016). “The literature attests to effective online learning through pedagogical practices that stimulate active student engagement” (Stanley et al.,

2018, p. 245). The problem lies with knowing which teaching strategies best illicit student engagement and stimulate learning.

Billings et al. stressed the need for continued research into best practices for online learning and factors that encourage the development of “learning communities” or student engagement (2005, p. 131). Boyd et al. felt that faculty interaction in the online environment is key to student engagement in course materials and with each other (2015). While Smadi et al., encouraged the use of more interactive, advanced functions available through a variety of learning management systems to enrich student learning. “It is imperative to incorporated innovative and alternative learning modalities to engage” students (Ochs, 2017, p. 368).

A literature review was completed utilizing the Communities of Inquiry (CoI) framework to determine which teaching modalities are best in encouraging student engagement. Articles were evaluated on whether all three presences of the CoI framework: social, cognitive, and teaching were implemented in the researched teaching strategy.

Theoretical Framework

Community of Inquiry framework integrates social, cognitive, and teaching presences (Green et al., 2015; Mills et al., 2016; Smadi et al., 2019). Research has demonstrated CoI’s effectiveness in the design of online curriculums in a variety of disciplines ranging from foreign languages to business. Community of Inquiry is a “collaborative constructivist model of teaching and learning” and “assumes that learning occurs within a community through interaction” of the social cognitive, and teaching presences (Smadi et al., 2019, p. 18) The framework’s interactive nature between all three presences (see Fig. 1) has been shown to have a positive impact on the educational experience in the areas of student satisfaction, retention rates, promotion of inquiry,

higher-order learning and positive collaborative experiences (Mills et al., 2016; Smadi et al., 2019).

Social presence is defined as the learner's ability to relate emotionally and socially in the online setting or as the learner's sense of being connected (Garrison, 2007; Mills et al., 2016; Smadi et al., 2019, Green et al., 2015). Social presence can be subdivided into three main categories: emotional expression, open communication, and group cohesion" (as cited in Smadi et al., 2019, p. 22) or "effective communication, open communication, and group cohesion" (Garrison, 2007, p. 63). Garrison (2007) felt that the groups' feelings of safety in participating in open communication and common focus towards a goal(s) were important for a learning community to sustain itself. The author stressed that social presence must move beyond the establishment of personal relationships towards cohesion through intellectual focus and mutual respect (Garrison, 2007).

Cognitive presence is the ability of the learner to "construct and confirm meaning" (Smadi et al., 2019, p. 18; Green et al., 2015, p. 21). Garrison defined cognitive presence as the "exploration, construction, resolution, and confirmation of understanding through collaboration and reflection in a community of inquiry" (2007, p. 65). Learners should move from a simple understanding of the problem, through investigation, incorporation, and application (Garrison, 2007).

Teaching presence is defined as "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (as cited in Smadi et al., 2019, p. 18 & Green et al., 2015, p. 21). Teaching presence "encompasses all that the teacher does" (Mills et al., 2016, p. 34) and is "a critical part of the process because it sustains the CoI" (Green et al., 2015, p. 21). Teaching presence has

three tasks: course design and organization, directed instruction, and supporting discourse (Garrison, 2007; Smadi et al., 2019). As cited in Garrison (2007), “the body of evidence is growing rapidly, attesting to the importance of teaching presence for successful online learning” (p. 67).

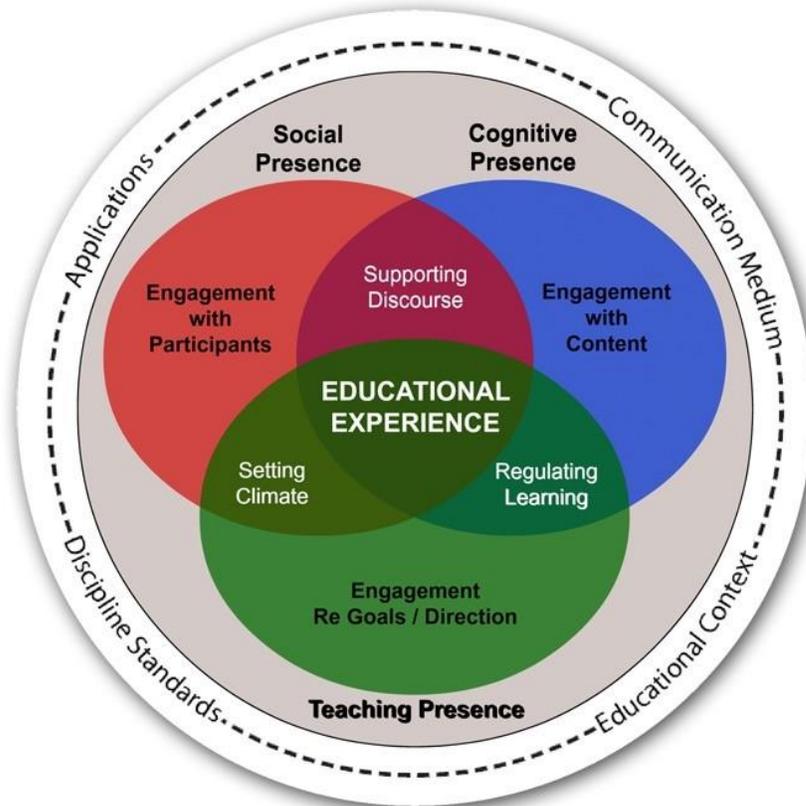


Figure 1. Community of Inquiry framework (The Community of Inquiry, n.d.)

Definitions

In order to discuss online and distance education, it is important to understand the commonly used terminology. These terms include:

- Brainstorming – Technique used to create and explore ideas (Green et al., 2015)

- Distance education – “Educational modality in which pedagogical didactic mediation in the teaching/learning processes occurs with the use of information and communication technologies and with students and teachers developing educational activities in diverse places and times” (Tavares et al., 2018, p. 215).
- Forced Choice Activity – Students choose between one side of an issue or another (Green et al., 20115).
- Game-based Learning or Quest-based Learning – “instructional design theory that leverages game-mechanics and gamer-like learning communities” (Davidson & Candy, 2016, p. 287).
- Interactive Video Conferencing (IVC)- Also referred to as Interactive Video Network (IVN) or Interactive Television (IVT). “A synchronous technology interface frequently used in distance education delivery” (Calloway-Graham et al., 2016, p. 287).
- Learning management system (LMS) – “A web-based technology designed to support learning and teaching” (Schnetter et al., 2014, p. 636).
- Online learning – Teaching and learning interactions occurring through internet-based technology (van Kessel et al., 2018).
- Simulation – learning activities designed to replicate clinical situations using manikins, standardized patients, or virtual/computer-based patients (Dubovi, 2018).
- Virtual Object Learning – “A small unit in the educational context that can be reused in different contexts or for different purposes with the support of in-classroom learning, blended learning, or exclusively online strategies that allow storage and monitoring” (as cited in Alvarez, Dal Sasso, & Iyengar, 2017, p. 110).

Process

PubMed, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) Complete databases were searched for articles related to teaching methodologies used in online or distance course delivery that improved student engagement within the course. The databases searches were restricted to articles dating from January 2014 to the present, human subjects only, English language only, full text only, and academic journals. Key words for the databases: “student engagement” AND “teaching methodologies” OR “teaching strategies” AND “online learning” OR “distant learning” AND “undergraduate students”. The database search yielded sixteen articles from PubMed and seventy-four articles from CINAHL Complete.

A cross comparison of search results was completed to limit duplicate articles. Articles not pertaining to undergraduate students, online or distant learning, or unavailable in full text via the internet were not utilized in the review of literature. Articles were not restricted to a single discipline, so the author could provide a comprehensive review of available teaching methodologies. Article abstracts were then reviewed for relevancy. Two articles from the PubMed database and seven articles from the CINAHL Complete database using the key words were selected for further review and analysis using the Community of Inquiry framework. One additional article was selected for analysis using the Community of Inquiry framework that did not populate with the search criteria but was utilized in gaining information for the introductory section of this paper (Table 1).

Three articles from the PubMed database and seven articles from the CINAHL Complete database utilizing the key words were selected for further review and critique. Three additional articles were selected for critique that did not populate with the search criteria but were utilized in gaining information for the introductory section of this paper (Table 2). Additional

information was retrieved from the above listed databases regarding online education, student satisfaction, and Community of Inquiry framework. References from retrieved articles were analyzed for pertinence to the authors independent study focus. No additional articles were selected from the reviewed references.

Review of Literature

The ten articles selected for analysis using the Community of Inquiry framework were individually evaluated on whether the researched teaching strategy meet each of the three Community of Inquiry presences: social, cognitive, and teaching (Table 1).

Article	Social Presence	Cognitive Presence	Teaching Presence
Alvarez, Dal Sasso, & Iyengar, 2017	Learning nodes were completed individually with no interaction between students	Simulated clinical scenarios, interactive tools, problem-based learning	Program generated feedback, but no faculty presence noted
Calloway-Graham, Sorenson, Roark, & Lucero, 2016	IVC technologies included discussion, video observation and analysis of expert and peer role play, and group work.	IVC technologies included screencast, lecture, discussion, reading, video observation and analysis of expert and peer role play, and group work	IVC technologies included screencast, lecture, discussion, reading, video observation and analysis of expert and peer role play, and group work
Davidson & Candy, 2016	Competition between friends and classmates- students had the ability to see other's progress, but no direct interaction or communication during the questing	"high levels of engagement" (p. 290), students continued "questing" after achieving course outcomes, students meet mastery level of learning	"prompt, just-in-time feedback" (p. 290), encouragement given by faculty, individualized guidance given plus additional learning activities and the chance for the student to revise previous assignments
Dubovi, 2018	Online simulations were completed individually. Not interaction between classmates.	Students were provided with a variety of teaching strategies including case study scenarios with virtual patients, games, 3D visualizations, and interactive videos	Virtual mentoring provided by the SimNurse platform. No interaction with faculty during the completion of the activity
Green, Hamarman, & McKee, 2015	Brainstorming- "students can collectively generate lists of ideas" (p. 22). Could implement in discussion forums or create a wiki, which	Brainstorming- if utilized in a discussion forum, students can dive deeper into the content and analyze the results.	Brainstorming- faculty feedback, questioning, and interaction in discussion forums or wikis

	<p>“promotes interaction and collaboration among students and instructors” (p. 22).</p> <p>Forced Choice- online use could be designed for individual or group use, in the classroom or via IVC would make the activity more interactive. Follow-up assignments could illicit student conversation and highlight similar trains of thought.</p> <p>Demonstrations- could assign as group work to encourage collaboration, discussion boards or peer feedback encourages engagement with other participants.</p> <p>Films and video- initially viewing is not interactive, but additional assignments related to the viewing can be.</p> <p>Role Play- if used synchronously, the activity is more interactive. Students could video their scenario for classmate viewing and post-viewing commentary/discussion</p>	<p>Forced Choice- use of a poll or survey allows for anonymous responses, a tallied list could be presented for use in a discussion forum.</p> <p>Demonstrations- “provide students with the opportunity to gain accurate information, correct previous misinformation” (p. 24).</p> <p>Films and video- students may skip or speed up sections of the video- to limit this, additional tasks can be added to the assignment such as submitting a summary and/or group discussion.</p> <p>Role Play- students may have to research the topic prior to completing the role play activity. Post activity discussion encourages further study.</p>	<p>Forced Choice- instructors can illicit further discussion on the student choices through discussion forums or journaling assignments</p> <p>Demonstration- instructors can model a behavior and have students perform a return demonstration, instructor feedback on the completed demonstration.</p> <p>Films and video- can be used as one portion of an assignment- students watch the video, then provides a summary of key points, and then join a group discussion with instructor feedback.</p> <p>Role Play- the instructor can use guided questions, facilitate feedback and conversation about the scenario.</p>
<p>Luo & Kalman, 2018</p>	<p>Students completed learning modules in asynchronous online nursing courses with assignments including discussion posts and online chats.</p>	<p>Learning modules with assignments such as discussion posts, reading, online chats</p>	<p>Summary lectures were presented after each learning module- quotes from student’s writing were used to connect at a personal level with each student, as well as discussion on real-life scenarios and the benefits and challenges of newly obtained knowledge. Summary presentations were concise and included graphs. Feedback provided on completed</p>

			assignments as well. Reinforcement of expert's opinion. Summary videos used the teacher's voice and image
Nystrom, Dahlberg, Hult, & Dahlgren, 2016	Study participants were observers of a simulation in either close proximity to the simulation or at a distance. Study participants were not engaging or touching the simulation materials. Distant observation- small talk about what the participants were observing, overall the student role was more individual and passive.	Students were briefed prior to simulation on material arrangements, technical features of the manikin, room set up, a description of the scenario and roles to be enacted. Students were given specific tasks as an observer Distant observation- student role was more passive	Instructors prepped the students by stressing the benefit to their learning through observation. Proximate observation- instructors provided comments and asked questions about the simulation, clinical issues, and professional behavior. A "traditional didactic role" was utilized (p.713). Distant observation- no interaction with the instructor
Poot, de Kleijn, van Rijen, & van Tartwijk, 2017	Initially there would be minimum interaction. After questions were formulated, students were asked to give peer feedback	Students must have a basic understanding of the content prior to formulating their own multiple-choice questions. Answering classmates' questions requires further study and content knowledge.	No mention of instructor feedback was made in this article.
Swartzwelder, 2014	No mention of students receiving a group text message that could increase student discussion and collaboration.	Students "received weekly text messages" or emails "consisting of thought-provoking questions based on the unit of instruction" and were required to respond to the question" (p. 405).	Instructors sent weekly text messages
Youngwanichsetha, Chatchawet, Kritcharoen, Kala, & Thitimapong, 2019	First and Second group: Students learned from the case study in groups- which promoted critical thinking and collaboration	First and Second group: Students collected data from a clinical agency that correlated with a selected case study, active learning classroom activities used Second group: participants were provided with information on the purpose and significance of the learning activity, active learning classroom activities used	First group: teacher assigned as a mentor Second group: mentor motivated students, they assisted in case study selection and pointed out interesting data for use in class discussion.

Five of the thirteen articles met criteria for all three CoI presences- Green et al. (2015), Luo and Kalman (2018), Stanley et al. (2018), and Youngwanichsetha et al. (2019). The remaining eight articles contained at least one CoI presence. However, the teaching strategies discussed in each article could be modified to include the missing presence.

Alvarez et al. (2017) conducted a quasi-experimental, non-equivalent study using pre- and post-testing to evaluate undergraduate nursing students learning of acute pain assessment in adults and newborns, before and after an online educational intervention. A virtual object technology, called m-OVADor, was utilized and allowed students to assess acute pain through interactive tools. Each learning simulation provided student questions, feedback, and informational links. Post test results indicated effectiveness of the virtual object technology with significant increases in all but two participants scores. Cognitive presence was the only presence demonstrated in this study. The virtual object technology provided a variety of teaching modalities to stimulate student engagement and increased learning. Social presence was not evident, as the student's completed the learning activities individually. Teaching presence was not evident, as the instructor did not provide instruction or feedback to the student throughout the completion of the simulation activities. Limitations of this study include a small sample size of women only, no control group, and two outliers showing decreased post-test scores rather than increased.

Dubovi (2018) conducted a study comparing the effectiveness of online simulations using Productive Failure approach versus Simple-to-Complex approach. The study included 103 undergraduate nursing students with no prior clinical experience. Students completed four simulations, two utilizing the Productive Failure approach and two utilizing the Simple-to-Complex approach. A Clinical Reasoning Evaluation (CRE) tool was completed by the students

before and after each simulation. The amount of time a student spent on the simulation learning activities and the frequency of their attempts was also measured and analyzed. Study results indicated that student engaged more in the simulations designed with the Simple-to-Complex approach with higher learning gains in critical reasoning. The study demonstrated one of three CoI presences, cognitive presence. The simulations provided the students with a wide range of teaching/learning strategies, including case study scenarios, games, 3D visualizations, and interactive videos, increasing student engagement in learning. Social presence was not met, as students completed the learning activities individually. Teaching presence was not met as there was not any interaction with faculty, however, virtual mentoring was provided by the SimNurse platform. Limitations include a lack of generality in application of the findings as participants were all selected from one nursing program.

Nystrom et al.'s (2016) comparative analysis study explored how the socio-material arrangements for student observation of an interprofessional collaborative simulation affected student participation and learning. The study included 106 participants of which 66 were nursing students and 40 were medical students. The researchers wanted to determine whether student observers were engaged in the simulation despite not having an active role. The findings showed that observation near the simulation elicited more student engagement. Students in the distant observation group experienced more passive participation and did not benefit from instructor interaction, resulting in less student engagement. CoI cognitive presence was met in the proximate observation group. Students were more engaged in the simulation. Cognitive presence was not met in the distant observation group, as students took on a passive role. Social presence was not met as the students in both observation groups were not active participants in the simulation nor involved in active discussion throughout the simulation. Teaching presence was

met in the proximate observation group as the instructor was able to point out important clinical issues, provide feedback on professional behaviors and question students about their observations. Teaching presence was not met in the distant observation group as there was no interaction with the instructor throughout the simulation. Limitations include possible variance in faculty interaction with the two groups. Results may have been different if faculty were present during observation with the distant group, providing feedback and guidance.

Calloway-Graham et al. (2016) concluded an exploratory study to test “the difference between students’ perception of growth patterns of self-efficacy surrounding group work skills among traditional and IVC courses” (p. 291). The study population included enrolled undergraduate students in three different sections of a group work practice course. The main campus face-to-face section included 46 students, while the two IVC Distance sections had 47 total students. Results indicated improvement in self-efficacy in both groups with distance sites showing “larger gains in self-rated confidence (Calloway-Graham et al., 2016, p. 293). However, the distance sites averaged lower beginning confidence scores, which may account for the significant difference. The Calloway et al. (2016) study met all three of the CoI presences. The use of discussions, video observation, peer role play, and group work increased student collaboration and interaction, encourage greater cognitive engagement, and allow for instructor interaction and feedback in real time. Limitations include small sample size and lower distance site confidence scores at the start of the study. As well as, the qualitative nature of the study and the use of self-reported confidence levels.

Davidson and Candy (2016) evaluated student satisfaction, engagement, and achievement of learning outcomes in an Evidence-based Practice (EBP) course after the use of game-based learning. The retrospective study analyzed 22 students’ mid-term and end of course evaluations

self-reported satisfaction with the EBP course, as well as gaming analytics and final letter grade earned. The students completed learning quests within 3D GameLab. The learning builds on previously mastered content with experience points being earned rather than marks or grades. The study demonstrated high levels of self-reported satisfaction in the EBP course, increased student engagement and increased academic achievement. The study met two of the three CoI presences- cognitive and teaching presence. Social presence was partially demonstrated. Students completed the learning quests on their own but had the ability to see other student progress which fueled some of the participants competitive natures. The authors noted “high levels of engagement” in the learning quests with students continuing their participation in the quests even though course outcomes had been achieved (Davidson & Candy, 2016, p.290). Instructors provided encouragement and individualized guidance, as well as additional learning activities and the chance to revise previous assignments. These activities are important in the CoI teaching presence. Limitations of the study included a small sample size, lack of a control group, and low response rates to course evaluations.

Green et al. (2015) translated five face-to-face teaching strategies into online teaching modalities. The five strategies include brainstorming, forced choice, demonstrations, films and videos, and role play. The authors provided sage advice on how to utilize these effective in-person modalities in an online application. All five teaching strategies met the guidelines for the three CoI presences- social, cognitive, and teaching. The authors suggested that with brainstorming, “students can collectively generate ideas” through discussion forums or wikis (Green et al., 2015, p. 22). Collaboration through discussion forums or wikis builds community over a shared topic and increases social interaction. Discussion forums, also, encourage deeper

learning and cognitive engagement in the topic of discussion. Faculty feedback, guidance, questioning and interaction in both discussion forums and wikis demonstrates teaching presence.

Forced choice describes the process where a student must pick between a variety of offered choices based on their personal values or preferences. This modality can be modified for online use through student survey or polls. Results can be tallied and presented for online discussion, follow-up assignments such as journaling or writing a paper to support your choice or argue against other options. Forced choice encourages student engagement, discussion and research, and teacher interaction through feedback, facilitated discussion, and questioning.

Demonstrations can be assigned as an individual or group project. Group demonstrations require collaboration and communication between online students. Students must research the proposed topic to provide relevant and accurate information leading to increased knowledge and a deeper understanding of the topic. Instructors can serve as role models if the demonstration is a skill or behavior the instructor desire the student to replicate. Instructor and peer feedback can provide increased collaboration and interaction.

Films and video viewing may initially not be considered a social presence construct, however, additional assignments such as written summaries with peer feedback and discussion posts can move this modality into the CoI social presence. Green et al. (2015) voiced concerns about students skipping over or speeding through the recorded content. However, additional tasks can be added such as video summaries, post-video quizzes, or group discussion. The addition of other assignments increases the student engagement in the video and learning more about the presented content. Again, instructor feedback and guidance can be provided in group discussions or individual journaling. Additional resources can be provided to encourage deeper learning and instructors can pose thought-provoking questions.

The final teaching strategy, role play, is a bit harder to implement into an asynchronous online environment but could easily be added to a synchronous online environment. Students could perform given scenarios live or present recorded scenarios for their classmates to view and provide post-viewing commentary or discussion. Being able to see and hear one's classmates creates a sense of community and familiarity. Students creation of scenarios requires research and basic knowledge of the topic area and post-viewing discussion encourages cognitive growth. Instructors can use guided questions and facilitate discussion on the presented scenarios.

Luo and Kalman's (2018) mixed methods study on the use of summary videos in online courses was a two-phase study to investigate student perceptions of engagement and a sense of being helped in an asynchronized online course. Phase one participants included seventeen Bachelor of Science completion program nursing students and ten Doctor of Nursing Practice students. Phase two participants included 41 mixed level students at baseline, 35 mixed level students at point two in the study, and 28 mixed level students at point three. The study was an exploratory sequential mixed methods- two phase study with phase one a qualitative phase and phase two quantitative. Instructors would provide summary lectures after student completion of learning modules. They often used student quotes from the student's writing to connect on a personal level (Luo & Kalman, 2018). Instructors would, also, provide real life scenarios that related to the module, feedback, and discuss the benefits and challenges of the newly obtained knowledge. Students reported that summary videos created a caring environment, fostered cognitive engagement, and reinforced prior knowledge (Luo & Kalman, 2018).

The study conducted by Luo and Kalman (2018) met guidelines for all three CoI presences. Social and cognitive presences were established throughout the completion of the asynchronous learning modules through discussion posts and online chats. Faculty provided

summary lectures post learning module utilizing their voice and image, providing a personal aspect to the lecture. Summary presentations were concise but personalized to each student. Reinforcement of expert opinions and feedback on completed assignments helped cement newly gained knowledge. Limitations of the study include small sample size, self-reporting nature of the qualitative phase, and lack of diversity of the participants.

Poot et al. (2017) questioned whether student generation of multiple-choice questions affected student motivation and student outcomes. The qualitative analysis involved 109 undergraduate biomedical students with a mean age of 20 years. The results indicated that only 41% of students demonstrated motivational behaviors and that there was no difference in motivational attitudes between students that participated and those that did not. Student outcomes did show significant improvement for students who participated in the study. The authors felt that “maybe due to too much autonomy, not all students who were motivated to participate finally engaged in the task” (Poot et al., 2017, p. 319). The teaching strategy of student-generated questions partially met the guidelines for two of the three CoI presences- social and cognitive. Initial development of the questions would not be considered a socially interactive process, unless the instructor paired students to create the student-generated questions. However, once the questions have been presented to the rest of the class for peer feedback, the social aspect would increase. Cognitive presence was demonstrated through the required higher-level thinking that is required to formulate questions related to the topic of study. Students must have a basic understanding of the content prior to question formation. They will gain further understanding through the answering of their classmates formulated questions and by providing them constructive feedback. Teaching presence was not demonstrated in this article but could easily be implemented through faculty feedback and supply of additional resources.

Limitations to this study include the lack of a control group, qualitative nature of the study, and lack of participation possibly related to other factors than motivation such as lack of time or other commitments.

Swartzwelder (2014) examined the effect of texting on students' perception of learning. The qualitative study included 117 nursing students enrolled in an online mental health course in the second term of their nursing program. Sixty-one students were in the control group and 56 in the experimental group. Four students did not complete the entirety of the study. Participants in the experimental group received weekly text messages from their instructor with thought-provoking questions related to the content covered in class that week. If the student did not have text messaging capabilities, an email would be sent to the student instead. Swartzwelder found "a positive impact on students' perception of learning when texting was utilized" (2014, p. 406). The study demonstrated cognitive and teaching presence through the interactions between student and faculty in discussing covered content further through thought-provoking questions and weekly communication via text message. Students were required to respond to the question eliciting further study and application of knowledge. No mention was made in the article of whether the text message was a group message, or one made individually to the student. Therefore, it is hard to evaluate whether social presence was enhanced through group responses and participation. Limitations of this study include the qualitative nature of the study, the lack of generalizability of the study results, and concerns of reliability of the study. In addition, the study included two different instructors – one for the control group and one for the experimental group, which can affect consistency of instruction given to both groups.

Youngwanichsetha et al. (2019) studied the effect of taking a field trip for case study in 160 third year nursing students enrolled in a midwifery course. There were two phases to the

action research study with a modification made after implementation of phase one. Phase one consisted of 80 students collecting clinical data from a postpartum ward for a selected case study. Phase one modification included detailed information about the purpose and significance of the learning activity. Phase two consisted of active learning activities added to the classroom after students collected the data for the selected case study. The study revealed that “most of the students gained positive learning experiences and were satisfied with going to the field trip” (Youngwanichsetha, 2019, p. 85). The study met criteria for all three CoI presences. Social presence was augmented through group discussion, collaboration, and critical thinking centered around the selected case study. Cognitive presence was enhanced by the onsite visit to collect data pertinent to the selected case study. The field trip provided students with the opportunity to experience the clinical setting. The addition of active learning activities in Phase two provided additional application of knowledge. In both phases the instructor acted as a mentor. In phase two, the instructor was not only mentor, but motivated students, assisted in case study selection, and pointed out interesting data for use in classroom discussion. Limitations of this study include a lack of statistical data in the article for the reader to analyze. Findings of this study may not be relevant to the general population or to other courses of study, nor may this activity be feasible to online and distance education settings.

The thirteen articles selected for critique were evaluated on study details, the objective or purpose, the methodology used, main findings and limitations (Table 2).

Citation	Study Details	Objective/Purpose	Methodology	Main Findings and Limitations
Alvarez, Dal Sasso, & Iyengar, 2017	75 (44.1%) students from second to fourth year of an undergraduate nursing course	Evaluate learning among undergraduate nursing students on assessment of acute pain before and after	quasi-experimental, non-equivalent study using pre- and post-testing	Post-test results demonstrated significant increase in student learning compared to pre-test results after use of m-

		online educational intervention.		<p>OVADor, a virtual object technology.</p> <p>Limitations: study participants were all women and small study sample. Two outliers showed decreased performance on post-test. No control group for comparison.</p>
Calloway-Graham, Sorenson, Roark, & Lucero	46 students in one face-to-face section and 47 students in two IVC Distance Education sections.	Evaluate change and growth in student self-efficacy as it relates to group work practice skills after implementation of technology-based approach to learning	Exploratory study	<p>“Distance sites students seemed to experience larger gains in self-rated confidence” (p.293).</p> <p>Limitations: Distance site students averaged lower confidence scores at the beginning of the semester, which may skew the final results. Small sample size. Qualitative, self-reported results.</p>
Claywell, Wallace, Price, Reneau, & Carlson, 2016	280 online course sections: “70 from each of 2 Registered Nurse-Bachelor of Science in Nursing (RN-BSN) programs and 70 from each of 2 Master of Science in Nursing (MSN) programs” (p.176)	Determine if correlation exists between faculty participation in online discussions and student-perceived learning and satisfaction.	Exploratory descriptive study-retrospective, correlational design	<p>RN-BSN: mixed results-low and high level of faculty posts resulted in low student satisfaction and perceived learning ratings. Medium level of faculty posts resulted in higher self-reported satisfaction and learning ratings.</p> <p>MSN: students self-reported increased learning and satisfaction in courses with more faculty posts.</p> <p>Limitations: learning ratings are based on self-perception, rather than with more objective assessment criteria.</p>
Davidson & Candy, 2016	22 students enrolled in an Evidence-based Practice (EBP) course, ages 23-40 years old	Evaluate student satisfaction, level of engagement, and overall achievement of learning outcomes in an EBP course after utilization of game-based learning.	Retrospective study	<p>High level of self-reported student satisfaction in the EBP course, increased student engagement based on the gaming program analytic reports, increased student achievement in learning outcomes based on final letter grade.</p>

				Limitations: Small sample size, no control group for comparison, low response rate to course evaluations.
Duff, Miller, & Bruce, 2016	Twelve studies published between 2008 and 2015 examining online virtual simulation in multidisciplinary health care education.	Examination of virtual simulation in online classrooms to inform education of a variety of health care providers.	Scoping review utilizing Arskey and O'Malley's framework	Self-reported feelings of increased engagement with online virtual simulation. Limitations- varied descriptions of instructional design and online virtual simulation technologies, small sample size, no comparison groups
Dubovi, 2018	103 undergraduate nursing students with no clinical practicum experience at the University of Haifa in Israel.	Comparison of the effectiveness of online computer-based simulations using Productive Failure or Simple-to-Complex sequencing on clinical reasoning skills.	Within-group pre- and post-test, time-series design using a quantitative approach	Simple-to-Complex approach is more engaging with higher student outcomes in clinical reasoning Limitations- non-randomized. Participants are from one nursing program.
Gill, Andersen, & Hilsman, 2019	20 articles reviewed using Kirkpatrick's framework and the Medical Education Research Quality Instrument	Describe best practices for teaching undergraduate baccalaureate nursing students pharmacology	Systematic review	Online, simulation, and integrated methods increased student satisfaction and learning. Traditional lecture, problem-based learning and flipped classroom were least effective. Limitations: focused on pharmacology only
Luo & Kalman, 2018	Phase one: 17 Bachelor of Science completion program nursing students, 10 Doctor of Nursing Practice students Phase two: baseline- 41 students, time point 2- 35 students, and time point 3- 28 students	Investigate student perceptions of summary videos on engagement in asynchronous online courses and their sense of being helped.	Exploratory sequential mixed methods- two phases: initial qualitative phase and follow-up quantitative phase	Students reported that summary videos reinforced their previous knowledge, created a caring learning environment that fostered cognitive engagement. Limitations: small sample size, self-reporting; lack of variety in sample size culturally, age-related, and gender-related.
Nystrom, Dahlberg, Hult, & Dahlgren, 2016	106 students- 66 nursing students and 40 medical	Explore socio-material arrangements for	Comparative analysis	Proximate observation allowed for more student-faculty interaction and

	students; 71 females and 35 males.	observation of interprofessional collaboration in a simulated situation		<p>communication. Faculty were able to comment immediately on the simulation and point out areas of concern and importance. Distant observation resulted in less faculty interaction and more passive participation.</p> <p>Limitations: variance in faculty interaction between the two groups. Groups were not randomized. Qualitative study.</p>
Poot, de Kleijn, van Rijen, & van Tartwijk, 2017	109 undergraduate biomedical students- 37 men and 72 women with a mean age of 20 years	Measure the extent of student-generated questions in an online environment in student motivation and outcomes.	Qualitative analysis based on the theoretical framework of motivation – a one-way ANOVA	<p>41% of students demonstrated motivational behavior. No difference in motivational attitudes between students that participated and those that did not participate was found. Students that participated had significantly better scores on four learning strategies.</p> <p>Limitations: no control group, qualitative study, student lack of time may be evaluated as lack of motivation</p>
Swartzwelder, 2014	117 nursing students in the second term of the nursing program in the online mental health course. 61 students in the control group and 56 students in the experimental group. Four students did not complete the study	Determine the effect of texting in an online class on the learning experience	Qualitative	<p>There is “a positive impact on students’ perception of learning when texting was utilized” (p.406).</p> <p>Limitations: different instructors taught the groups- one taught both control groups and a different one taught the experimental groups. Qualitative research, cannot be generalized to the larger community, concerns of reliability</p>
Tavares, Leite, Silveira, Santos, Brito, & Camacho, 2018	18 articles that include the” use of virtual technologies for distance	Analyze publications with a nursing distance education focus	Integrative systematic review of literature	Distance education is an effective teaching-learning strategy.

	education in nursing, construction of virtual learning environments with the aid of virtual technologies for distance education in nursing; and evaluation of the learning process through virtual technologies for distance education of nurses” (p. 214).			Limitations: variety of technologies were studied, and no comparison was made between them. Studies concentrated on Brazilian publications, so findings may not be generalized to other areas.
Youngwanichsetha, Chatchawet, Kritcharoen, Kala, & Thitimapong, 2019	160 third year nursing students enrolled in a midwifery course	Determine the effect of active learning experience, field trip for case study, on improving teaching strategy and learning outcomes	Action research	<p>“Most of the students gained positive learning experiences and were satisfied going to the field trip” (p. 85).</p> <p>Limitations: specific data was not supplied in the article for analysis. Findings may not be relevant to the general population or to other courses of study.</p>

Claywell et al. (2016) conducted an exploratory descriptive study that was retrospective and utilized a correlational design. The study “examined student satisfaction and perceived student learning with frequency of faculty posting in online nursing classes” (Claywell et al., 2016, p. 176). Two hundred eighty online courses – 140 from two RN-BSN programs and 140 from two MSN programs were evaluated. Mixed results were obtained from the RN-BSN program with low and high levels of faculty presence resulting in low student satisfaction. Whereas, a medium level of faculty presence resulted in higher self-reported satisfaction and student learning ratings. The MSN group, on the other hand, preferred higher levels of faculty presence. Limitations of this study include learning ratings are based on self-perception rather than more objective assessment criteria such as letter grade.

Duff et al. (2016) examined virtual simulation in a variety of health care provider online classrooms. The study was a scoping review of twelve studies utilizing Arskey and O'Malley's framework. The authors found that online virtual simulation compared equally or better to in-person simulation regarding student engagement in learning. Limitations of this literature review include a variety of definitions and descriptions were utilized to describe instructional design and online virtual simulation technologies. In addition, the reviewed studies had small sample sizes and no comparison groups.

Gill et al. (2019) conducted a systematic literature review on twenty articles using Kirkpatrick's framework and the Medical Education Research Quality Instrument. The purpose of the review was to describe best practices for teaching pharmacology to undergraduate baccalaureate nursing students. The authors found that online, simulation, and integrated methods increase student satisfaction and learning, whereas, traditional lecture, problem-based learning, and a flipped classroom were least effective (Gill et al., 2019). Limitations of the study is the narrowed focus of pharmacology content which may affect applicability to other nursing courses or non-nursing courses.

Tavares et al. (2018) completed an integrative systematic review of literature to analyze publications with a nursing distance education focus. The authors reviewed eighteen articles that included the "use of virtual technologies for distance education in nursing, construction of virtual learning environments with the aid of virtual technologies for distance education in nursing; and evaluation of the learning process through virtual technologies for distance education of nurses" (Tavares et al., 2018, p. 214). Overall analysis concluded that distance education is an effective teaching-learning strategy for nursing programs. Limitations include the broad range of technologies that were included in the study with no comparisons made between the

technologies. Additional limitations include the focused review of Brazilian publications, which may limit generalization of the findings to other geographically or cultural areas.

Discussion

In a time of change and innovation in higher education delivery systems, educators struggle to develop and present courses that are grounded in educational theory, meet higher education and accreditation standards, and are creative and engaging. In order to keep pace, educators need “functional and expedient guidelines on how to apply online teaching technologies that actively engage students in the learning process” (Stott & Mozer, 2016, p.152). Although little research is available regarding best practices for online and distance teaching modalities, the use of the Community of Inquiry framework provides guidance in evaluating existing teaching modalities and their potential for increasing student engagement, satisfaction, and learning outcomes.

According to Stott and Mozer, “research on student-centered learning suggests that student engagement is highly indicative of student success” (2016, p. 153). Online and distance education modalities traditionally have been known for their lack of student engagement, instructor presence, and content overload. Parsh and Gardner (2016) provide the following six tips for teaching a great online course:

1. Provide your students with clear directions, especially when it comes to expectations for participation.
2. Engage your students by showing your passion for the topic. Learn your student’s names and foster “helping-trusting-caring relationships” (p. 24).
3. Encourage participation and keep students engaged throughout the week by using polls, breakout rooms, and even homework.

4. Be sure to honor breaks. Students need frequent breaks in order to remain engaged.
5. Stress organization for both the instructor and the student. Online success requires organization and motivation. Online courses may require more discipline and focus than expected.
6. Use of technology can be challenging and frustrating at times. Be sure to offer technological support to your students.

Schnetter et al. (2014) recommended the use of the Sloan Consortium “five pillars of online education” for course development (p. 636). The pillars encompass “learner effectiveness, student satisfaction, faculty satisfaction, cost effectiveness, and access” (Schnetter et al., 2014, p. 636). This literature review focused on teaching modalities that improved student engagement and learner effectiveness. Learner effectiveness focuses on comparable quality between online and traditional content delivery with an “emphasis on student-student interaction, faculty-student interaction, methods of engagement, online course design, communication, learning outcomes, and metric tracking” (Schnetter et al., 2014, p. 636). This concept closely aligns with the Community of Inquiry presences- social presence, cognitive presence, and teacher presence.

Hampton et al. (2017) highlighted the need for educators to understand what formats and teaching methodologies their students prefer. However, the authors encouraged the use of a variety of teaching methodologies and interactive methods (Hampton et al., 2017). This literature review highlights a variety of effective teaching strategies that can be incorporated into either online or distance education. A common theme of the need for active learning modalities and communication was evident. Student-to-student and student-to-faculty interactions helped to build community, which in turn increased student satisfaction and engagement in the course (Alston et al., 2017; Alvarez et al, 2017; Anderson & Krichbaum, 2017; Billings et al., 2005;

Boyd et al., 2015; Calloway-Graham et al., 2016; Claywell et al., 2016; Davidson & Candy, 2016; Delgaty, 2015; Dubovi, 2018; Duff et al., 2016; “Effective strategies”, 2017; Garrison, 2017; Gazza, 2017; Gazza & Matthias, 2016; Gill et al., 2019; Green et al., 2015; Halpin et al., 2018; Hampton et al., 2017; Luo & Kalman, 2018; McAfoos, 2016; Mills et al., 2016; Milne et al., 2014; Nystrom et al., 2016; Schnetter et al., 2014; Smadi et al., 2019; Stott & Mozer, 2016; Swartzwelder, 2014; Tavares et al., 2018; Trocky & Buckley, 2016; Wingo et al., 2016; Youngwanichsetha et al., 2019). Instructor feedback, regardless of the teaching modality, was stressed in multiple articles to increase student engagement (Calloway-Graham et al., 2016; Claywell et al., 2016; Davidson & Candy, 2016; Garrison, 2007; Green et al., 2015; Luo & Kalman, 2018; Nystrom et al., 2016; Swartzwelder, 2014; Youngwanichsetha et al., 2019).

The call for creative and engaging teaching strategies and increased implementation of technology can be daunting for educators. Continuing education on current technologies, learning management systems, and teaching practice must be made available to educators (Alston et al., 2017). Delgaty (2015) recommended training in the areas of pedagogy and course design to increase social presence; in development of online competencies and facilitation techniques; and in project management. Technological support is a must for both the educator and the students enrolled in online and distant education courses. Basic troubleshooting knowledge will assist the educator in working through minor technology and program glitches.

Delgaty (2015) recommended reassessing workload when courses are adapted to online and distance education deliveries. According to the author’s experience, “approximately 12 hours were used to plan and develop one hour of online student activity” and “over 200 academic hours” were dedicated to development only of a 20-credit module (Delgaty, 2015, p. 42). The research shows that educators experience new stressors when involved in distance learning.

Stressors include increased workload, lack of compensation, lack of technology and faculty support, role ambiguity, and lack of time (as cited in Delgaty, 2015). Implementation of support services, workload adjustments, compensation policies, and clear guidelines on roles can be invaluable to the success of the course.

According to Alston et al., “course design, delivery, and assessment of student learning are essential components to the success of online teaching” (2017, p. 417). A well-designed course activates student cognition and increases the possibility of student success in meeting learning outcomes (Dubovi, 2018). Use of a theoretical framework can provide a platform for the design and implementation of meaningful learning experiences (Mills et al., 2016). Frameworks such as Communities of Inquiry, Sloan Consortium Five Pillars of online education, or TPACK can guide educators in effective integration of technology and implementation of engaging teaching strategies.

Limitations of many of the reviewed articles were small sample size, lack of a control group, and lack of generality. Future research is needed on teaching strategies implemented in larger class sizes and with diverse populations. Greater than 60% of the reviewed articles were qualitative in nature. Although self-reporting allows for analysis of trends in student perceptions of engagement and satisfaction, it makes cross-comparison of research results difficult. Research implementing quantitative design to measure student learning outcomes and engagement would add reliability and validity to the research. Very little research is available on best practices in implementing teaching strategies in online and distance learning environments or on comparison of one teaching strategy versus another. Focused research on which teaching strategy is the best would provide the needed guidance educators are looking for, as well as, give empirical support to teaching strategies currently implemented in programs of study for accreditation.

Summary

Online and distance education delivery can be both exciting and challenging. Use of the Community of Inquiry framework can provide much needed guidance in selecting effective and engaging teaching strategies form implementation into online and distance education courses. Distance education students expect communication with the instructor, instructor feedback, and challenging content (Hampton et al., 2017). Use of discussion forums, online virtual simulation with instructor feedback, wikis, summary videos, text messaging, and gaming can increase student engagement and achievement of student learning outcomes.

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