Chapter 2
Benefits and Challenges of Collaborative Learning in Online Teacher Education

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ABSTRACT

Demand for online learning is increasing in US colleges and universities. Learning does not occur in a vacuum; students learn independently and collaboratively. But, is there room for collaborative learning in online courses? This chapter presents information on how a teacher educator designed and implemented collaborative learning in a developmental reading online course for preservice and inservice educators in grades P-12. The author presents details on course design issues, instructional practices, benefits, and challenges associated with collaborative learning in this online course, and implications for further development and evaluation of collaborative learning in teacher preparation programs. The author also provides recommendations from lessons learned for promoting collaboration in online teacher education courses.

INTRODUCTION

In this chapter, I will describe how collaborative learning was designed and incorporated in a graduate level online course in reading for preservice and inservice educators. The purpose of this chapter is not to formally assess or evaluate collaborative learning; instead, I will present my rationale for incorporating collaborative learning experiences in an online education course, the ways in which collaborative learning was incorporated, assessed, and monitored, and lessons learned about benefits and challenges associated with collaborative learning in this situated context. I will also reflect on the role of collaborative learning in teacher preparation courses in the context of 21st century learning. Collaborative learning can support online and teacher preparation learning goals and objectives by promoting critical thinking skills, perspective taking, shared knowledge and decision-making, content knowledge, and reflection.

BACKGROUND

Online Learning and Teacher Education

Although college enrollment overall is in decline, online enrollments have been steadily increasing with each year (Allen & Seaman, 2017). Trends in online education show that approximately 68% of college students who enroll in online courses attend public institutions. In addition, today's college students are career-driven and many report that they enjoy courses that engage them in problem-solving activities that will strengthen their college and career readiness. (Allen & Seaman, 2017; BestColleges.com, 2018).

The convenient accessibility of knowledge, ongoing participation, dialogue, feedback from peers and instructor, availability of formats for presenting materials (Li & Irby, 2008), plethora of readily available tools and resources, learner self-regulation (Li & Irby, 2008; Thomson, 2010), and opportunities for differentiated online instruction (Thomson, 2010) have made online learning a very attractive and relevant learning choice for postsecondary students (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009; Rourke & Kanuka, 2009). Almost 30% of all college and university students now take at least one course online (Allen & Seaman, 2010). As adoption of online learning continues to increase, issues related to quality of online learning become vital. Sener (2010) proposes that soon online education will become an integral part of the educational experience.

Although many obstacles still remain to full-scale adoption of online higher education, all higher education students will experience online education at some point of their academic careers. It is predicted that college students will be able to take online or blended programs in almost any discipline (Sener, 2010). The goal of online learning is to improve the quality of the learning experience for students, offer alternative means of learning, and allow them to experiment, become independent learners, and become drivers of change. In spite of its rapid growth and availability, much online learning is still designed using standard educational practices (e.g., lectures, discussions, quizzes, etc.; Norton & Hathaway, 2008).

Concerns with traditional pedagogy facilitated by course management systems raise questions about the quality of the learner's experiences. Factors such as learner self-monitoring; the social, teaching, and cognitive presence of the online instructor or facilitator; instructional design factors; relevancy and quality of content; collaborative learning opportunities; and participants' perceptions of the instruction, collaboration, and online learning all influence the online learning experience. In the context of steady increase in online courses by U.S. postsecondary students, the types of learning students experience online becomes critical to program development, delivery, instruction, student satisfaction, and quality assurance.

Preparing teachers who can effectively meet the needs of all students is a major concern of policymakers, teacher educators, and the public. Recently, teacher education has been under the political spotlight due to the lack of performance of students in Grades pre-K–12 (P–12) in national and international assessments, the need for technological advancement, and the need to prepare students who will be responsible citizens and effective participants in the global marketplace of the 21st century.

Expectations for teachers are very high in today's era of educational reform. Teachers are expected to be experts in more than one subject. They also need to be prepared to handle the challenges of a growing diverse population of students. Colleges of education need to be preparing teachers for the interconnected world. Teacher preparation should be filled with high quality learning experiences based on sound theoretical principles. Teacher preparation programs should allot significant time for applying theory into practice and reflecting on one's learning (Young, Grant, Montbriand, & Therriault, 2001).

All teachers must be prepared to implement effective instruction designed to meet educational objectives for all learners (American Association of Colleges of Teacher Education [AACTE] & Partnership for 21st Century Skills [P21], 2010).

In 2010, the AACTE and P21 released *21st Century Knowledge and Skills in Educator Preparation.* This report calls for establishing a shared vision for preparing teachers who will in turn prepare all students with 21st century knowledge and skills. In order to meet the demands of a global economy, teachers will need to exemplify these principles and embed them in their instruction:

The mastery of 21st century skills such as critical thinking, problem-solving, communication, collaboration and creativity and innovation. This includes the application of technology to support more robust instructional methods and understanding the relationship between content, pedagogy and technology through dissemination of Technological Pedagogical Content Knowledge (TPCK) theory and research. (AACTE & P21, 2010, p. 6).

Although there is evidence about the rapid growth in online course offerings, many in higher education have raised concerns about the ability of distance learning to produce teachers who will be problem-solvers and will have the knowledge, skills, and dispositions necessary to handle the real world challenges of classroom life (Duffy, Webb, & Davis, 2009). Some researchers argue that the methods instructors employ to engage the learner in learning are more important than the delivery method; student interactions with instructor and peers effect learning outcomes (Dooley, Linder, Dooley, & Wilson, 2005).

What role will teacher education programs that utilize online teaching and learning play in preparing teachers to meet current and future challenges in P–12 schools? Because teachers will always need to collaborate with other educators in planning effective instruction, assessing students' needs, and improving curricula and other programs, what role should collaborative learning play in the knowledge, skills, and experiences of preservice and inservice teachers? In this chapter I will share how I promoted collaborative learning in an online teacher education course by designing authentic, reflective, and connected real-world tasks (Darling-Hammond, Hammerness, Grossman, Rust, & Shulman, 2005), assignments, experiences, and providing scaffolded feedback and support throughout the course.

Andragogy and Online Learning

Michael Knowles (1980, 1986, 1990; Knowles, Holton, & Swanson, 2005) has helped us better understand the ways in which adults learn through his work on andragogy, the science of adult learning. Adults learn differently than children or adolescents. Adult learners have specific learning goals and outcomes, are self-reliant and self-motivated, bring a variety of life experiences, require relevant purpose in learning, have time constraints, seek solutions to problems that affect their daily activities and responsibilities, and tend to be independent thinkers and learners. Adult learners also desire immediacy in feedback and relevancy in tasks. Their "need to know" requires meaningful learning contexts.

Educators of adult learners need to consider andragogy principles when developing learning environments, programs, and other professional experiences. Adults like to explore possibilities and act as mentors. They enjoy organized settings, opportunities to build productive relationships, and choice over tasks and solutions (Knowles et al., 2005). Adult learners also enjoy discussions and collaborations with other learners and facilitators in the learning process. It is important that adult learning environments allow for sharing and usage of past experiences, setting of flexible goals, providing feedback on the

learning process, provisions for adult learning needs (e.g., vision, hearing, physical, and other disabilities), sequencing of tasks, active participation and freedom of expression, creative tasks, and open-ended questions. Active participation for adult learners can include a variety of collaborative activities and tasks (e.g., relevant games, role-playing, simulations, case studies, debates, question and answer sessions, discussions, demonstrations, problem-solving tasks; Ota, DiCarlo, Burts, Laird, & Gioe, 2006).

Collaborative Learning

According to the 2008 *Horizon Report*, a "renewed emphasis on collaborative learning is pushing the educational community to develop new forms of interaction" (New Media Consortium & EDUCASE Learning Initiative, 2008, p. 5). The report identified six emerging technologies that will likely enter mainstream use for teaching, learning, or other creative applications. One of those six emerging technologies that relates to the focus of this chapter is collaboration webs. Collaboration is no longer difficult or expensive; there are several free and flexible tools people can use to collaborate with others. In addition, the way we work, collaborate, and communicate is ever evolving. This emerging trend of available communication and collaboration tools (e.g., online collaborative spaces, Skype, social networking tools, mobile devices) is also transforming online higher education and student demographics—many international students are able to enroll in online courses and use such tools to collaborate and learn from a distance (New Media Consortium & EDUCASE Learning Initiative, 2008).

The effectiveness of collaborative learning as a pedagogical approach in face-to-face learning environments is well supported (Barkley, Cross, & Major, 2014; Johnson, Johnson, & Smith, 2006; Schmuck & Schmuck, 2001). Cognitive science tells us that transference of knowledge from teacher to learner cannot happen. Learning is a complex, active, and socially constructed process. Learners must engage meaningfully with learning, establish connections between old and new information, and assimilate new information into existing schemas. Pascarella and Terenzini (2005) stated that as a result of their mammoth review of studies about how college affects students, "the weight of evidence from this research is reasonably consistent in suggesting that collaborative learning approaches can significantly enhance learning" (p. 103).

Dewey (1916/1997), Piaget (1969), Vygotsky (1978), and Lewin (1935) have all highlighted the importance of student-centered learning. Collaborative learning is mainly based on constructivist theories that view knowledge as socially constructed by communities of people (MacGregor, 1990).

Constructivists believe that the way we learn is by interpreting our experiences based on our prior knowledge, making connections between old and new information, constructing meaning, and revising our understanding as a result of new experiences. In a constructivist learning environments students should be engaged in activities and assignments that include authentic and reflective tasks embedded in real-world contexts. The relationship between the instructor and students is one of cognitive apprenticeship, in which the instructor models problem-solving, creates learning experiences, provides scaffolding as students attempt tasks, and encourages ongoing reflection. Students collaborate with others and confront multiple perspectives on the content being learned. Students are encouraged to reflect on their experiences and learning at all times.

In the online learning environment, students benefit from group work by listening to, and examining multiple perspectives on the same topic, defending propositions by providing supporting evidence, and practicing critical thinking skills by making connections among viewpoints and pieces of information. They learn how to become a productive member of a learning community. Collaborative learning in

online environments promotes student participation, socialization (even in the absence of face-to-face interaction), reflection, self-development, and learning.

Collaborative learning can help students to appreciate the importance of collaborative inquiry in learning; students will experience knowledge not as a mere transmittance from instructor to student (Sheridan, 1989) or book to student but instead, as a co-constructed process. Higher education focuses on helping young adults take responsibility for their own learning and become effective problem solvers and team members in their disciplines and fields of study (Saroyan & Amundsen, 2004; Weimer, 2013). Accountability for learning, decision-making, collaboration, and reflection are basic tenets of teacher education training. Pre-service teachers need to develop necessary knowledge, skills, and dispositions that will help them to become effective teachers in P–12 grades.

Collaborative learning is a wonderful way to introduce active, student-center learning (Conrad & Donaldson, 2004; Faja, 2013; Koh & Hill, 2009; Palloff & Pratt, 2004). Collaboration and community building depend on one another (Palloff & Pratt, 2004). Community building is a prerequisite to collaboration (Lowell, 2006). In order for collaborative learning to take place in an online environment, the course facilitator has to design and structure activities that will promote it (Lowell, 2006). For collaborative learning to be successful, much attention must be given to the structuring of the learning task(s), the alignment of such tasks with overall learning goals, group placement and size, the conditions set by the instructor for dialogue, the role of the facilitator, student orientation to collaborative learning expectations and individual accountability, and assessment and evaluation of collaborative work (Barkley et al., 2014).

Nearly 20 years ago, Garrison, Anderson, and Archer (2000) introduced the Community of Inquiry (CoI) model in an effort to deal with challenges associated with their online graduate program. Garrison and Anderson (2003) believe that an effective online learning community must include social presence, teaching presence, and cognitive presence. They define social presence in an online environment as "the ability of participants in a community of inquiry to project themselves socially and emotionally as 'real' people, through the medium of communication being used" (p. 29). Social presence refers to the degree to which a person feels "socially present" and is actively taking part in community interactions (Gunawardena, 2005; Wise, Chang, Duffy, & Del Valle, 2004). Teaching presence is defined as the design, facilitation, and direction of cognitive and social processes for the purpose of achieving meaningful learning outcomes (Swan, Garrison, & Richardson, 2009). Cognitive presence is defined "as the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry" (Garrison & Anderson, 2003, p. 28).

The CoI model has made several contributions to our understanding of online and blended learning (Swan & Ice, 2010). Social, teaching, and cognitive presence are closely related to collaborative learning in any online course. In a long distance medium, the facilitator must gauge the social presence of students in the learning community—for example, frequency of logins, expression of emotion and humor, personalization, sharing of life details (self-disclosure), replying to others' discussions and continuing on a thread, reflecting to others' messages, asking questions, and sharing resources and ideas. What participants do in an online medium matters for community-building, social presence (Wise et al., 2004), collaboration, and learning.

Student interaction is essential to successful online learning. Collaboration and group work are important teaching and learning strategies but often leave students dissatisfied by the process. In order to increase student satisfaction and learning effectiveness, students should be supported in both the development of collaborative technology tool use and the development of collaborative group work skills. One successful model for developing online collaborative teams is the phases of engagement model

(Conrad & Donaldson, 2004). This model was designed to "transform" a student from being a newcomer to an online course to an actively participating community member. The model includes introductory community-building activities that help build confidence, trust, and a risk-free environment. Here are the phases and shifting roles of engagement:

- **Co-Exist:** Learner: newcomer; instructor: social negotiator; Weeks 1–2; Instructor activities that are interactive and help students to get to know one another (e.g., icebreakers, personal introductions, community Netiquette and other rules). Instructor communicates course expectations for engagement and provides orientation to the course.
- **Communicate:** Learner: cooperator; facilitator: structural engineer; Weeks 3–4; Instructor forms student dyads and provides activities that require critical thinking, reflection, and sharing of ideas.
- **Cooperate:** Learner: collaborator; instructor: facilitator; Weeks 5–6; Instructor provides activities that require small groups to collaborate, problem-solve, solve, and reflect on experiences.
- **Collaborate:** Learner: initiator/partner; instructor: community member/challenger; Weeks 7–end of semester; Activities are learner-led. Discussions reflect group's learning and decisions. Group decides how they will present/share learning.

Another influential model for online interaction is the five-stage model by Salmon (2011). This model presents the "interaction effects" of e-moderating, the role of student use of technology, and student learning; it focuses on how the instructor can moderate, facilitate, or support student technology use. Please see the following summative description of the five-stage model.

- **Stage 1:** Access and motivation
  - **E-Moderating:** Welcoming and encouraging
  - **Technology:** Setting up system and accessing
- **Stage 2:** Online socialization
  - **E-Moderating:** Familiarizing and bridge-building (cultural, social, learning)
  - **Technology:** Sending and receiving messages
- **Stage 3:** Information exchange
  - **E-Moderating:** Facilitating tasks and supporting use of learning materials
  - **Technology:** Searching, personalizing software
- **Stage 4:** Knowledge construction
  - **E-Moderating:** Facilitating process
  - **Technology:** Conferencing
- **Stage 5:** Development
  - **E-Moderating:** Supporting, responding
  - **Technology:** Proving links outside close conferences

The 21st Century workplace calls for adults who can work well in collaborative problem-solving teams. In addition, the Millennium generation has been experiencing the power of collective knowledge (McLoughlin & Lee, 2008). Creating successful online teams is based on thoughtful and intentional planning instead of merely the availability of emergent tools integrated into more traditional instructional approaches. Although much supporting evidence exists in the role of collaborative learning for student

learning in face-to-face environments, research that examines collaborative learning as an instructional practice in online settings is limited.

Challenges Associated With Collaborative Learning

There are several challenges associated with collaborative learning in an online environment. Aside from standard learner, instructor, and task factors, technology in itself, as well as the inherent restrictions of some learning management systems (LMSs) can become added barriers to the collaborative learning experience. Online learning requires certain learner characteristics that can compete with collaboration, depending on the characteristics and skills of the learner. For some online learners, collaboration can be challenging. Online learning trends show that the profile of the isolated, independent, place-bound learner which largely characterized the "classic distance education learner," is now being altered by the new generation's online learner and by socially mediated online learning activities that de-emphasize independent learning while stressing social interaction and collaboration (Dabbagh, 2007).

Students often enroll in online courses because they are independent learners and thinkers, they have a certain level of knowledge and experience with technology, they have their own time management and learning styles, and they are goal-oriented. Many adult learners value self-reliance and individualism and often do not know how to collaborate with others. Others have difficulty providing or receiving feedback from peers (Andres & Shipps, 2010). Collaborative learning calls for a shift in the learner's role. In a collaborative learning setting, the student will be an active participant, a listener, a problem-solver, will need to be socially present (Garrison & Anderson, 2003), and a co-developer of common group goals, rules, and tasks; sometimes, he or she will play the role of the group encourager, rule enforcer, note-taker, problem-solver, and so on.

Research indicates that interpersonal and communication skills (which include writing skills) and fluency in the use of collaborative online learning technologies are critical competencies for the online learner (Dabbagh, 2007; Dabbagh & Bannan-Ritland, 2005). On the other hand, competency in communication and collaborative technologies does not ensure meaningful interaction, collaboration, and knowledge building in online learning environments (Lindblom-Ylänne & Pihlajamäki, 2003). It is important that online learners develop collaborative learning skills (e.g., conflict resolution, communication, perspective-taking, self-reflection, group reflection, self and group monitoring, and evaluation) independent of these technologies (Graham & Misanchuk, 2004; Orvis & Lassiter, 2008; Roberts, 2004). Other challenging issues with collaborative learning in online courses include certain students' aversion toward group work, the way groups are selected and formed, students who lack essential group skills, free-riders, potentially unequal student abilities, the withdrawal of certain group members, and the assessment of individuals within the group (Chiong & Jovanovic, 2012; Roberts & McInnerney, 2007).

Instructors will need to prepare learners for these role shifts, including inculcating an expectation to assume greater responsibility for their learning. Collaboration implies that the course instructor will practice a model of gradual release of responsibility in the learning environment, will relinquish control, and will create relevant and meaningful tasks (Pearson & Gallagher, 1983). Instructors have the responsibility of establishing clear objectives, explaining collaborative learning purposes and processes, and preparing learners for success by communicating clear expectations about group work, roles, outcomes of group work, the value assigned to group work, support systems, assessment, and monitoring of learning. Adult learners value challenging tasks that allow them to apply their knowledge, experiences, interests,

and learning preferences; it is important that learning tasks meet course learning goals and objectives. Collaboration requires planning, trust, security, community, support, reflection, and monitoring. It also requires intensity, directionality, and intentionality.

MAIN FOCUS OF THE CHAPTER

Course Description

This fully online course is offered each semester at the University of Central Florida (UCF), College of Community Innovation and Education, for preservice teachers in initial certification programs (P–12) and inservice elementary and secondary grade educators pursuing graduate studies. It meets state policy for teacher preparation in seven graduate programs (i.e., elementary education, reading education, secondary education [English language arts, etc.], exceptional education, school psychology, school counseling, and communicative disorders), plus initial certification (preservice education). First, I will share information about the instructional design elements, content development guidelines, delivery, and pedagogy involved with this comprehensive teacher education course. Secondly, I will present evidence through student work samples and assessments designed to promote collaborative learning in teacher education programs. Lastly, I will discuss the role of collaborative learning in building and maintaining a professional learning community and challenges associated with collaborative learning in teacher education online courses.

The course is 14 weeks long and it is offered each semester; I transformed the face-to-face course into a fully online course over a decade ago and have been updating the course on an annual basis to reflect current online learning trends and technological advancements. I introduced collaborative learning elements to the course eight years ago and since then have been modifying and adjusting collaborative learning activities using student feedback. Major collaborative learning adjustments have included designing tasks that (a) have a "real-classroom" feel for prospective P–12 teachers that includes whole class, small group, and one-on-one (as needed) instruction along with tasks that are authentic, job-embedded and relevant; (b) offer opportunities for preservice teachers to develop their instructional decision-making skills; (c) are flexible and allow for student choice; (d) promote self-regulation of learning; and lastly, (e) encourage ongoing collaboration with other preservice teachers throughout the duration of the course. On average, 30 preservice and inservice teachers enroll in the course on a semester basis; 80% of the students are preservice teachers and 20% are inservice teachers and other future educators (i.e., students in school psychology, counselor education, communicative disorders, exceptional education, and other education programs). The course content focuses on reading development, research, and instruction for preservice or inservice teachers and other educators in Grades P–12 who will be working in elementary and secondary school settings. As part of the *No Child Left Behind Public Act of 2011*, *Teacher Quality* federal initiative, preparation of educators in reading has been an integral part of teacher education preparation programs. This accounts for the diverse student demographics for this course. As result, the wide student and programmatic diversity represented in this course presents a unique challenge to its development and instruction. The course is designed in such a way that course objectives, readings, assignments, activities, and assessments meet the program and student needs from each discipline.

The LMS for the course is Canvas, the official LMS for UCF. I developed all course content for this course. The course includes many multimedia elements and I utilize Adobe Connect for synchronous

course meetings and discussions. I also use a wide array of other presentation tools (e.g., Prezi, Slideshare, Glogster, Wordle), video tools (e.g., Animoto, XtraNormal), and community tools (e.g., Google Docs, Wikispaces). Students in the course use additional tools (e.g., social networking tools, exchanged phone numbers, used Facebook Messenger, etc.).

Collaborative Learning: A Situated Perspective

Because collaboration is important to teacher and student learning, I decided to create various structured collaborative learning experiences for students in this course for the following purposes: (a) to create and maintain a professional learning community; (b) to stimulate further interactions among students of various backgrounds and disciplines; (c) to promote deeper knowledge development beyond the standard online discussions and synchronous and asynchronous communications; (d) to facilitate reflection and critical thinking skills; and, (e) to experience first-hand the benefits and challenges of collaboration. In planning for collaborative learning in this online teacher education course, I implemented elements of the CoI model (Garrison et al., 2000), the phases of engagement model (Conrad & Donaldson, 2004), and the five-stage model (Salmon, 2011). I create a culture of collaboration in my course by creating authentic tasks, designing learning experiences that involve collaborative work and reflective thinking, guiding student learning, modeling task performance, and providing scaffolded support throughout the learning process.

Collaborative learning took place in the following ways in this course:

- Course discussions boards—coffee shop, weekly online discussion posts to readings (asynchronous communication and interactions), and replies to each other's postings, questions, and ideas.
- Online conferences using the course conference feature (video and audio conferences were used both by the instructor to confer with the entire class, small groups, and individual students; students used the conference feature to work in their groups, set-up book group meetings, review course assignment expectations, etc.).
- Synchronous communication/interactions via Adobe Connect (e.g., three formal instructor presentations, discussions with students on course assignments, and discussions on course issues as they arose).

Collaborative learning course tasks included the following:

A Professional Book Group

In addition to the online course content, as instructor of the course I selected four teacher professional books for students to choose to study and reflect upon during the course. I chose the books based on each student's program area and on current reading research and instruction issues for Grades P–12. Aside from the introductory, community-building tasks of the first week of classes, by the end of that first week of classes, students had to select a book they would like to study during the semester. The instructor asked students to share their choice with the course instructor who then assigned groups of 4–5 students according to their book choice.

The group size was kept small intentionally for the purpose of maximizing student-to-student interactions. Choice of the book was left up to each student but the professional book group collaboration

requirement was mandatory. I presented information on each book, offered suggestions on why I selected these books, and explained how they would benefit the students. I included specific descriptions about the task, the process of collaboration, and the value added to this experience, along with rubrics, examples, and step-by-step instructions on the entire process. Explanations were included in the course (Module 1: Introduction, in the course syllabus, and via period instruction during instructor meetings and through instructor communications and reminders throughout the course.). By the first day of the second week of classes, I had posted the course book group placements and had emailed each group about their group peers.

Upon receiving their group placement, the next task students had to complete was to contact one another in their respective groups, introduce themselves again (each student had already done a formal introduction during Week 1 of the course), and decide on group roles. The instructor designed specific student-led group roles for this collaborative task. Each group decided how to communicate with group members. The roles were as follows: (a) Group facilitator: Kept group on track and facilitated discussion based on provided questions; (b) Group organizer: Sent reminders to group about upcoming chat; (c) Chat note-taker: Took any notes to discuss at a later date and posted for further review and debate in the discussion room; and, (d) Chat cheerleader/time manager: Every group needs an encourager!—this group member helped create a positive atmosphere among group members and also helped everyone stay on-task and meet deadlines.

Three Online Collaborations (Synchronous or Asynchronous) Set and Offered by Each Group

According to the course schedule, each group was expected to conduct three formal, public online meetings/collaborations on their book. Collaboration 1 was to take place during Week 4, Collaboration 2 during Week 6, and Collaboration 3 during Week 8. It was important that most of these collaborative activities took place at the beginning through the middle of the course with the hope that relationships that were formed between students remained throughout the course. I broke each book into manageable sections and also wrote guiding questions to be answered by each group during each meeting. Group members had the freedom to go beyond the assigned questions and discuss other topics or course-relevant issues. These meetings were designed for student–student collaborations. Reiterating from my syllabus and course modules, I explained that I would visit various group meetings but did not guarantee I would attend. Groups knew that these online meetings were to be held by them, for them, and for interactions with other course members who could attend their meeting. Students used their own ways of communicating and making group decisions; they met several times to negotiate on schedules, deadlines, and discuss their book—some groups used Wikispaces while others used Google Docs, Skype, or even met face-to-face for coffee at various locations and at the university library.

Group attendance, monitoring, participation, and development of a report on the content of the collaboration and the group's thoughts, discussions, and questions, was required to be posted in the course within 24 hours from the completion of the chat by one student per group (usually, the note-taker compiled notes for the report and submitted it online). As part of the report, students had to state who attended the collaboration, who submitted group responses and ideas, questions about the material, questions and thoughts from the group and others to the instructor, and which member played which role (i.e., note-taker, chat monitor, etc.). All of these tasks were left entirely up to the students to decide and negotiate upon.

As instructor, I provided a template for the report students could use to summarize their thoughts and ideas. Students would be evaluated on the content of their report (how thoroughly they examined assigned questions from the book) and their attendance. I provided a rubric for assessing and evaluating their work; I placed particular emphases on evidence-based and reflective thinking, critical evaluation of material, Netiquette, respect and collaboration with one another, and on following a communication protocol.

ISSUES, CONTROVERSIES, PROBLEMS

In order to promote collaborative learning in this online course, I designed a situated model of collaboration. Literature shows that collaboration is not an automatic result of placing people in groups. There are certain conditions that need to be met in order for collaboration to be developed and maintained in an online setting. In this case, I used progressive scaffolds and provided guided supports for collaborative learning. First of all, collaboration cannot be "caught"; it has to be planned with intentionality (purpose), directionality, and intensity. Students need to have clear expectations about goals and outcomes, about their roles, and about what is allowed and what is not. In this context, I provided students with "guided" collaborative tasks, assumed the role of facilitator throughout the process, monitored student progress and outcomes, provided feedback as needed on what worked and what did not work with each group's collaborative efforts, and placed value on collaborative tasks beyond the regular, expected types of interactions that "naturally" occur in an online course. To have collaboration, one must plan for collaboration (and also be ready to deal with challenges that will arise).

Collaboration could not have happened without the existence of explicit expectations, support systems, and flexibility from both the instructor and students. Throughout the course, I explicitly modeled, supported, and guided collaborative learning. Rubrics, examples of tasks/outcomes, step-by step instructions, time to reflect and adjust tasks and processes as needed, flexibility, reflection, and social and teaching presence are important requirements for student collaboration.

Collaboration did not work well for all groups; some became frustrated when others did not fulfill their responsibilities, or came to a meeting unprepared, or did not submit their work on time, which in turn, caused the entire group report to be submitted late. Some students disappeared for a while and their group members became frustrated with spending so much time trying to reach them, et cetera. Group dynamics and conflict resolution were left to the groups to address. I intervened with suggestions only in extreme cases (this happened at least once per semester with a group when two out of the four group members were not participating and I had to work with the group to redesign the group roles). I also intervened and provided support to students when a group member did not display essential group-work social skills.

Information on how to make group work successful was available to students throughout the course. I gave class presentations on how to collaborate online, provided students with information on communication tools and strategies, shared tips from lessons learned, and addressed issues through course email and conferencing. Close monitoring of the collaborative learning process with each group helped me provide students with relevant and specific feedback.

Another factor that contributed to the positive collaborative learning experiences was the group size and formation. Choice is important to adult learners; students had choice over which book to choose

to study and discuss in a group and they also had choice over which role to fulfill in each group, when to set up their meetings, and how to present their final project outcome. Keeping the group sizes small helped students get to know each other easier and better (as they stayed in the same group for 13 weeks), to spend less time trying to meet schedule restrictions, and to spend more time with one another—it made collaborative learning tasks more manageable. Once students chose the role they wanted to play in the group, they had clear expectations of what was expected of them. Group members helped keep each other accountable in the process. Another advantage of the group was that its members had shared interests in a topic. In addition, the small group size helped the instructor monitor and evaluate each group's activities and collaborative learning outcomes.

By the end of the course, students were commenting on how much they learned from one another and from the collaborative learning tasks (overall, 90% of the students each semester report that they enjoy and learn from the peer collaborations). Students were loquacious about what was working and what was not working with the online group collaborations; they also shared across groups and received tips and suggestions from others on various group-related tasks. In order for collaboration to happen, the instructor has to establish the environment, model desired outcomes, be present to respond to student needs, provide relevant feedback and guidance, and evaluate the process. It is important that students know the outcomes of their activities and efforts. Students will not generate knowledge in the absence of community, support, choice, flexibility, relevance, cooperation, and collaboration. Learning is a socially constructed process. It is of immense value for students to examine and problem-solve problems of practice through different lenses.

As part of this course, students had a number of assignments and requirements. The professional book group meetings and project were just two of the overall course assignments. But, what happened as a result of these collaborations is that students started to respond more to their group members' postings in discussion boards, offer more feedback, interact more with one another, share more resources relating to different course topics, and talk more openly about their own experiences with teaching or preparing to teach. In addition, they developed a better understanding of the roles and responsibilities each future educator would have to play in P–12 students' learning. Students better understood the role a school psychologist would play in a response-to-intervention school team and how important it is that all educators collaborate, share data, share ideas, and come together to solve instructional and other problems toward the improvement of student learning. Learning to learn collaboratively often involves a shift in one's views of teaching and learning (Dirkx & Smith, 2004).

SOLUTIONS AND RECOMMENDATIONS

There are many lessons to be shared from the integration of collaborative learning activities in this online teacher education course. Interactions can be rich and sustained over time when students feel safe, when their voices are valued, when they are given choices, and when they are encouraged (and expected) to take charge of their own learning. Rigor, relevance, and relationships are important prerequisites to effective online collaborative learning. The course design facilitated interactions between the course instructor and students and also among students through multiple communication methods, mandatory instructor and student-led synchronous (and asynchronous) meetings, and provision of specific deadlines, rubrics, examples, benchmarks, and weekly reminders. All of these design elements are particularly useful to

future teachers who will be handling deadlines, collaboration and communication with multiple audiences, and planning effective instruction using a variety of benchmarks and objectives.

Teacher educators who teach online courses need to provide the learning environment preservice teachers need to collaborate and learn through collaboration (Kirschner, Strijbos, Kreijus, & Bears, 2004). In this course, the process of collaboration was supported through advanced planning, the group formation process (i.e., guidelines, group placement, group size, group roles, helping match students with books), allowing time for group members to get to know each other before they have to produce an artifact, introducing students to communication tools and group work products, monitoring of group collaborations, providing rubrics for different activities, and also providing students with means for self and group evaluation. I purposely modeled collaborative learning, scaffolded its elements, provided feedback, and monitored academic and collaborative progress throughout the process. Preservice teachers have to experience collaborative learning and its advantages and disadvantages for them as learners and also as future teachers.

Heterogeneous small collaborative groups can be productive (Clark & Mayer, 2008) and they can engage in more critical discourse (McLoughlin & Lee, 2008). Group diversity produces different perspectives that can either support or inhibit the collaborative learning process (Posey, 2007). Asynchronous communications between instructor–students and among students facilitate reflection and synchronous communications help to enhance social presence, community building, and even conflict resolution (Harvard, Du, & Xu, 2008). Regular interactions among group members contribute to trust, community building, and group performance (Orvis & Lassiter, 2008). Providing group members with group roles can contribute to individual accountability (Kirschner et al., 2004).

Collaborative assignments should be assessed collaboratively (i.e., self-assessment, peer assessment, and instructor assessment; Palloff & Pratt, 2007). Student ownership of tasks will happen over time if student learning is scaffolded, individual perspectives and creativity are valued, support systems are readily available, and the course instructor has an online presence throughout the learning process.

Building a positive, active, and collaborative online learning community requires time, advanced planning, attention, and monitoring. Collaborative learning is not necessarily easier learning—some have indicated that online group work may be perceived as more challenging than group work in face-to-face settings (Kim, Liu, & Bonk, 2005). Collaborative learning should be relevant, achievable, engaging and motivating. Building positive relationships among students, using groups as a platform for problem-solving complex learning tasks, designing relevant quality learning tasks, helping students with communication skills and motivation, and assessing and evaluating collaborative learning, when properly modeled and supported, can advance the students' online learning experiences.

Because collaborative learning in online courses has its own challenges (e.g., takes time from instructor to plan, model, support and monitor; students have to negotiate schedules, roles, and content with other students for completion of assignment; not everyone knows how to or wants to collaborate, etc.), instructors should build time and a system for promoting and maintaining student socialization in the collaboration process. They should also provide support to new online learners. Students will benefit from examples and feedback on how to resolve conflict resolution and interpersonal teamwork challenges such as lack of participation, free-riders, inequalities in ability, and personality clashes. Collaborative learning can be used as a teaching and a learning activity. The likelihood of successful achievement of learning objectives and achieving course competencies increases through collaborative engagement (Palloff & Pratt, 2004).

FUTURE RESEARCH DIRECTIONS

The number of students enrolling in higher education distance programs is steadily increasing in colleges and universities in the United States and abroad. As a result, many institutions have been developing plans to either implement or improve online education. Technology systems to support online education, the training and compensation of online instructors, the needs of today's online students, and evaluation and assessment all present ongoing challenges to online learning. In the highly networked context of 21st century learning, instructors and institutions have to rethink the role of collaboration in online learning. The future of online learning will be affected by learner needs, technology, pedagogy, and learning paradigms (Bonk, 2004; Kim, Bonk, & Zeng, 2005).

Peer-to-peer collaboration, especially as it relates to knowledge transmission, plays a critical role in student learning and satisfaction. There is a need for online environments that facilitate deeper student learning, reflection, real-world problem solving, and engagement (Bonk, Wisher, & Lee, 2003). Online courses should promote learner-centered experiences that involve students in critical thinking, peer learning, and interdisciplinary experiences (Weigel, 2005). In addition, online teacher education courses that involve preservice and inservice teachers in using technology will help teachers value the positive effects of technology on student engagement with learning and its connection to 21st century skills. Online collaborative learning is not only beneficial to preservice teachers as learners, but it will also prove to be useful for their future students. Learning how to collaborate online helps educators learn how to operate in their personal and professional contexts. In a 2010 speech, U.S. Secretary of Education Arne Duncan stated the following about educators, technology, and 21st century skills:

In the 21st century, students must be fully engaged. This requires the use of technology tools and resources, involvement with interesting and relevant projects, and learning environments—including online environments—that are supportive and safe.

In the 21st century, educators must be given and be prepared to use technology tools; they must be collaborators in learning—constantly seeking knowledge and acquiring new skills along with their students. (Duncan, 2010, paras. 25–26)

In order for teachers to incorporate technology in their classroom instruction and foster 21st century skills, they have to experience technology and use it as part of their own learning. Preservice and inservice teachers need to learn in a culture of collaboration, discussion, and reflection in their face-to-face and online courses. Online instructors, researchers, and administrators must continue to examine pedagogical issues in online teacher education. More research is needed in how online learning can develop educators' content, pedagogical, and 21st century skills such as collaboration, critical thinking, personal expression, negotiation skills, and evaluation skills. Technology and 21st century skills will help teacher education programs to achieve critical educational outcomes. Teacher education programs have a responsibility to make technology a core aspect of teacher training so teacher educators can be a model for preservice and inservice teachers to use technology in their classrooms to meet their students' needs.

A process that involves inquiry confronts the unknown and relies on personal or collective resources to resolve questions. The online environment in which inquiry can flourish is gradually built by collaborative

and collective contributions. Such collaboration efforts are likely to result in better outcomes, designs, practices, or products. (Collison, Elbaum, Haavind, & Tinker, 2000, p. 30)

CONCLUSION

In the context of global educational collaborations, online learning has the potential to revolutionize higher education. Although results from many studies indicate that online courses can be as effective, if not more so, than face-to-face courses (Means, Toyama, Murphy, Bakia, & Jones, 2010), and although students generally have positive attitudes toward online learning, its use is not without challenges. Some teacher educators and policy makers object to online instruction in teacher preparation programs (Midobuche & Benavides, 2006); they call for the exclusive use of face-to-face experiences for teacher candidates. There is a need for research that examines the effectiveness of online learning specifically on the preparation of teachers. What types of online instruction and experiences have the most impact in helping develop preservice teachers' knowledge, skills, and dispositions? Do preservice teachers who participate in authentic collaborative learning experiences develop certain decision-making skills that will serve them well throughout their careers? On the other hand, as more two- and four-year institutions offer more online routes for teacher certification, the question remains about what types of teachers such programs will produce.

Other online learning and teaching implications for teacher educators and administrators include learning how to adapt to new learning environments by knowing how to turn face-to-face courses into online ones, creating appropriate adjustments and providing resources for students (Tallent-Runnels et al., 2006), maximizing communication in online learning, designing meaningful collaborative learning experiences, and providing reflective practice to meet learners' and institutions' needs (Palloff & Pratt, 2008). Students in online courses must also shift their perspectives about how learning "happens" and how knowledge is acquired and developed in a 21st century online course. Higher education institutions, and especially colleges of education, must broaden their vision about how they can utilize online learning to "produce" teachers who will be well equipped (in content, pedagogical and technological knowledge, and dispositions) to meet the needs of their students in grades P–12 (Mishra & Koehler, 2006). Teacher educators must resist the pressure to hastily develop online courses that primarily place a textbook online. Effective online learning, and collaborative learning, in particular, requires rigor, planning, resources, instructor expertise, technology infrastructure, and ongoing monitoring of student learning. Learning about effective online pedagogical practices and innovative uses of technology is important for teacher educators who teach online courses.

For meaningful and thought-provoking interactions to take place in online courses, student–student and instructor–student interactions in an online environment have to move beyond discussion boards (Al-Bataineh, Brooks, & Bassoppo-Moyo, 2005). Assignments that require group participation can be enjoyable and effective in online courses (Palloff & Pratt, 2004). Communication between group members working on a significant course project can help promote sustained collaboration (Palloff & Pratt, 2008) as students work together to develop the project ideas, schedule chat/meeting times, assign roles and responsibilities, and negotiate on meaning. Collaboration in online courses supports social and academic connections that impact learning and create a sense of professional belonging.

In this chapter, I described how I intentionally (and intensively) designed collaborative learning and incorporated it in a graduate-level online course in reading for preservice and inservice educators. My

observations from several semesters of implementation reflected benefits on student learning, class community, and teacher preparation. Challenges associated with this type of collaborative learning still remain in the course, but ongoing monitoring and student input have helped me streamline many of the related processes and make the collaborative experiences smoother, clearer, and more student-centered.

For collaborative learning to be productive, the instructor must, first and foremost, work throughout the duration of the course (and not only at the beginning) to develop and sustain spaces for positive, safe, and professional learning community. Engaging students in some type of socialization process that meets their academic goals and personal interests contributes toward a community of learners. I believe that teacher educators who plan for online collaborative learning experiences must begin with the student in mind. If the goal is student involvement, problem-solving, synthesizing evidence from multiple sources, and deep comprehension of texts/content, then student activity, interactivity, and engagement with learning throughout the course become prototypical course design and instructional elements. My observations from teaching this collaborative course over the past years have shown that advanced planning, resources, clear and ongoing communication, community-building, student choice, relevant and authentic assignments and materials, rubrics, support and guidance, instructor social presence, flexibility, and ongoing monitoring and evaluation contribute to the success of collaboration among students and between instructor and students in this course. Collaboration is a core daily activity for every educator, and although it has its own challenges and demands when used as a learning tool in an online learning environment (Zygouris-Coe & Swan, 2010), it carries tremendous value for the training of teachers.

While flexibility and convenience still remain top reasons for students' enrollment in online courses (Palloff & Pratt, 2008), time spent in active and meaningful learning can be another time saver in the long run. Teacher education and other online courses presented in interactive, collaborative, authentic, and relevant project-based formats can be both enjoyable and productive experiences in students' academic lives. Participating in collaborative learning experiences online helps teacher candidates and other educators to not only use collaboration as a learning tool for them as learners, but to also use it as a learning tool for developing their students' 21st century skills. Building a positive, active, and collaborative online learning community requires time, advanced planning, attention, and monitoring but it can also shape preservice and inservice teachers' instruction (Romaniuk, 2018). There is a need for monitoring effective student-to-student interactions in online collaborative groups and assessing the impact of collaborative learning on student learning (Calvani, Molino, & Ranieri, 2010). Lastly, colleges of education need to provide teacher educators with the training, resources, and support necessary for them to continue to explore new ways to make online learning more meaningful, relevant, enjoyable, and productive for preservice and inservice teachers.

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KEY TERMS AND DEFINITIONS

Andragogy: The study and science of adult learning.

Collaboration or Collaborative Learning: Refers to the process of co-laboring: a group of people working together toward a common goal(s).

Constructivism: A type of learning theory that views human learning as an active effort to construct meaning in the world around us. Constructivists believe that actual learning takes place through accommodation, which occurs when students allow new information to change their existing ideas or knowledge.

Engagement: The process of active participation in a learning task. An engaged learner is actively participating, thinking, and questioning, in the learning process; he or she makes connections to existing knowledge and experiences and is reflective about learning.

Instructional Practices: Teaching and learning techniques and activities.

Learning Community: A group of people who share common interests and are actively engaged in learning from one another.

Online Learning: All forms of electronically supported learning and teaching. The delivery of training or an education program by electronic means. Online learning involves the use of a computer or other electronic devices and means to provide training, educational, or learning material.

Pedagogy: The art, science, and profession of teaching. Also refers to philosophy, beliefs, and strategies of instruction.

Social Presence: Refers to the ability of participants in a learning community to project themselves socially and emotionally as "real" people, through communication.

Student-Centered Learning: Learning that places the student in the center of the learning process.