

2019

FROM DISTANCE EDUCATION TO ONLINE EDUCATION: A REVIEW OF THE LITERATURE

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FROM DISTANCE EDUCATION TO ONLINE EDUCATION: A REVIEW OF THE
LITERATURE

By

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Professional Paper

presented in partial fulfillment of the requirements
for the degree of

Educational Specialist
in Educational Leadership

The University of Montana
Missoula, MT

May 2019

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Abstract: From Distance Education to Online Education: A review of the literature

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Distance learning has come a long way over the past 150 years. From the initial days of text based correspondence courses by mail to the immediate learning powered by the internet and online courses, distance learning is a much more interactive and engaging learning experience in 2019. The third generation of distance education, online learning, has delivered powerful learning models and frameworks, like Community of Inquiry and Adolescent Community of Engagement. These models and frameworks help educators create meaningful teacher to student interactions. Additionally they provide researched based approaches to designing powerful authentic learning opportunities where student to student discussion and communication deepens the learning experience. As researchers have moved into the third decade of the third generation of distance learning, a more nuanced approach to student online learning has emerged. Researchers have begun to examine supporting student success at each level of the K-20 online educational experience and are finding different learner needs at each level. This literature review aims to review the history of distance education to create a historical background of the development of this learning avenue which has become very common today. With a historical perspective in place, this review will look at the current factors in this generation of distance education (online learning) that have impacted successful student outcomes.

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The educational landscape in 2019 is vastly different from twenty years ago. School choice, combined with ever growing course formats and options, have created many different learning pathways for students. One of these options is online learning. All educational leaders need to know and understand this learning design as it is becoming an increasingly popular option across the country. This understanding is helpful for school leaders to advise and educate the school community of the best learning pathways for individual students (Tokuhama-Espinosa, 2014). It is also important for school leaders to understand the history of online learning. To understand online learning an educational leader must first understand how online learning emerged from distance education.

Literature Review

Distance education has been part of the educational landscape in the United States for over 150 years. Anna Ticknor has been recognized as the first to offer distance education when she established the Society to Encourage Studies at Home in 1873 (Casey, 2008). Over that time, distance education has gone through three generations of development to the current online learning of today. This literature review aims to review the history of distance education to create a background of the development of this learning avenue which has become very common today. With a historical perspective in place, this review will look at the current factors in this generation of distance education (online learning) that have impacted successful student outcomes.

The Department of Education (College Accreditation in the United States, 2019) defined distance education as:

education that uses one or more of the technologies listed in paragraphs (1) through (4) to deliver instruction to students who are separated from the instructor and to support

regular and substantive interaction between the students and the instructor, either synchronously or asynchronously. The technologies may include--

- (1) The internet;
- (2) One-way and two-way transmissions through open broadcast, closed circuit, cable, microwave, broadband lines, fiber optics, satellite, or wireless communications devices;
- (3) Audioconferencing; or
- (4) Video cassettes, DVDs, and CD-ROMs, if the cassettes, DVDs, or CD-ROMs are used in a course in conjunction with any of the technologies listed in paragraphs (1) through (3). (p. 2)

This definition has been especially comprehensive as it references techniques and technologies of the past and our present in 2019. Distance learning has evolved through three generations of development (Nipper, 1989). There are some common threads throughout each generation even as technology has made it possible to diversify and evolve the learning model.

The First Generation Of Distance Education (1852 – 1939)

In 1852 the Pittsburg Shorthand training program was the first correspondence course in the United States (Casey, 2008). This program utilized the United States postal service to mail cutting edge stenographic techniques to secretaries across the country. Participating secretaries would be mailed their initial packet of learning exercises. Once they completed the required coursework, they would send their work to the Phonographic Institute in Cincinnati, OH, and then would receive a certificate of expertise in stenographic shorthand skills (Matthews, 1999). Correspondence courses became even more widely used in the 1870's with the creation of the first school focused entirely on distance learning. The Society to Encourage Studies at Home was founded by Anna Eliot Ticknor in 1873. "Ticknor's Society established one of America's

first correspondence schools, a distance learning option conducted through the mail” (Caruth & Caruth, 2013, p. 141). The Society focused on correspondence courses for women and served over 7,000 students during the school’s 24 years of operation. By the end of the 19th century and beginning of the 20th century, more and more organizations were offering distance learning courses to a wide range of learners. “Correspondence study was flourishing with universities and private schools providing instruction to elementary, secondary, higher education, and vocationally-oriented learners” (Willis, 1993, p. 9).

The widespread adoption of correspondence courses opened opportunities for rural Americans to have access to degree programs that were previously only available to those that lived near larger cities. This offered opportunities for colleges and universities to expand their reach and achieve their goal of enrollment growth. “Education by mail was a quality approach to achieve such a goal because it allowed the university to access an infinite number of potential students” (Larreamendy-Joerns & Leinhardt, 2006, p. 572). While broad access to coursework was a benefit to the industrialization of the United States, correspondence courses did have some drawbacks. “Inhibiting factors included slow physical delivery of materials and the lack of inherently valuable feedback/communication necessary to the teaching and learning process” (Courtney & Wilhoite-Mathews, 2015, p. 262).

Correspondence courses during the first generation of distance education suffered from allowing for one-way communication that was isolated and did not offer an opportunity to collaboratively learn new concepts. “Correspondence study was, ultimately, a very individualized mode of learning that tends to isolate and insulate students from group learning processes” (Sumner, 2000, p. 275).

The Second Generation Of Distance Education (1940-1999)

The invention and wide distribution of radio and television technologies defined the second generation of distance education. While still one-way mediums of information transfer, radio and television offer a more personalized experience for the learner by being able to hear and see the instructor (Casey, 2008). This generation of distance learning spanned most of the 20th century and was defined by the establishment of the Open University of the United Kingdom in 1969. “The Open University was a reflection of the time and place in which it arose, and an influence on numerous institutions in subsequent years” (Holmberg, 1986, p. 30). The establishment of the Open University was seen as “the beginning of a more prestigious era in the history of distance education” (Holmberg, 1986, p. 32). The addition of supplementary broadcasting and publishing to correspondence instruction as well as the addition of residential short courses, and support services at the local and regional levels modernized and revitalized the approach to distance education (Selman & Dampier, 1991).

While the additions of audio and video technologies added the opportunity to engage in more diverse learning practice, the one-way learning pathway remained an ongoing issue. Part of the issue was, “in spite of the accelerating development of new educational technologies, the vast majority of distance education throughout the world at the end of the 1980s was still primarily print-based” (Bates, 1993, p. 8). Additionally, much like the first generation of distance education, the second generation was mostly concerned with, “the production and distribution of teaching/learning material to the learners. Communication with the learners has been marginal, and communication amongst the learners has been more or less non-existent” (Nipper, 1989, p. 63). This meant that the second generation of distance learning continued to be an isolated learning experience.

The lack of social interaction in the learning process has been an issue in first and second-generation distance learning. Nipper (1989) noted, “it is not possible to promote the notion of learning as a social process without access to interactive communication facilities” (p. 64).

Although the technological innovations in mass communication provided an array of instructional choices for the creative instructor, the uneven nature of the communication flow meant that teacher-student interactions remained cumbersome, and less sophisticated modes of communication were used for student feedback to the teacher. (Casey, 2008, p. 47)

As the United States entered the 21st century and Americans began adding personal computers into the home on a wide scale, the third generation of distance learning would have all the technology in place to provide true two-way learning in distance education.

The Third And Current Generation of Distance Education (2000 – current)

The technology revolution of the 21st century has impacted every aspect of our culture, including distance education. “The computer was the missing piece of the educational puzzle that would facilitate the free flow of information between teacher and learner as well as introduce the previously absent interpersonal aspects of communication” (Sumner 2000). While the personal computer was the first step to moving distance education into its third generation, the evolution of the internet firmly differentiated the learning experience. “With the introduction of high-speed broadband transmission, distance learning over the Internet became the next instructional frontier. The potential for interactive, virtual classrooms was limited only by the budget, institutional vision, and course management software” (Casey, 2008, p. 48). The internet

has been so impactful on distance education that the term used for learning from a distance has changed to be commonly known as “online learning” (Casey, 2008).

Course management software, more commonly referred to as Learning Management Systems (LMS), brought a technological solution to harness the vastness of the internet for focused learning pathways. One of the first LMS’s to the market was Blackboard IncTM with the release of Blackboard CourseInfo in 1998. Since then, many more organizations have come to the marketplace. Some of the current major players in the Learning Management System marketplace are Moodle, Canvas, Schoology, and Blackboard. “These rapid technological advancements have provided enormous opportunities for academic institutions to better meet students’ instructional needs” (Casey, 2008, p. 48).

Another structural advancement in the current third generation of distance learning has been the “learning object”. Wayne Hodgins of the Institute of Electrical and Electronics Engineers (IEEE) Learning Standards Committee has been commonly regarded as the father of the “learning object” (Polsani, 2003). The IEEE defined the learning object as “any entity, digital or non-digital, which can be used, reused or referenced during technology supported learning” (Polsani, 2003, p. 2). The learning object was not possible in the first two generations of distance learning. The Wisconsin Learning Resource Center emphasizes this on their University of Wisconsin-Milwaukee’s Center for International Education Web page which stated:

Learning objects are a new way of thinking about learning content. Traditionally, content comes in a several hour chunk. Learning objects are much smaller units of learning, typically ranging from 2 minutes to 15 minutes.

Learning objects:

- Are self-contained - each learning object can be taken independently
- Are reusable - a single learning object may be used in multiple contexts for multiple purposes
- Can be aggregated - learning objects can be grouped into larger collections of content, including traditional course structures
- Are tagged with metadata which allows every learning object to be easily found by a search due to the descriptive information (2010, para. 4).

These learning objects not only build efficiencies for the instructor designing the learning, but also offer the ability to program immediate feedback for the learner.

As distance education has evolved with the ubiquity of the internet, so have our educational institutions. In 2000, the Open University had grown from a few hundred enrollments to serve “158,000 undergraduate students and 25,000 postgraduate students” (Casey, 2008, p. 48). The explosion of online courses has not just occurred at the higher education level. In 2015, over 2.2 million students were enrolled in at least one online course (Gemin, Pape, Vashaw, & Watson, 2015). This widespread adoption across the K-20 spectrum necessitates a clear understanding of the current factors that are leading to successful student outcomes in online learning.

Current Factors Impacting Student Outcomes In Online Learning

Given the widespread usage of online learning across the educational landscape, more and more researchers are investigating the components necessary to produce successful outcomes. The current research has focused around four components in online learning that lead to student success. Those four components are:

- teacher to student and student to student interaction responsibilities and perceptions

- authentic learning
- best discussion and communication design
- emerging research to promote student engagement

Teacher to student and student to student interaction responsibilities and perceptions. Teacher to student interactions have always been an important aspect of the learning process. This continues to be true in online learning. “The instructor significantly influences the learning process, even in the online classroom” (Baker, 2004, p. 2). Two types of teacher to student interaction have distinguished themselves as practices that lead to successful student outcomes. Those two interactions are presence in the online classroom and immediacy of communication.

Being a present teacher in the face to face classroom requires showing up to school for the day. Presence as an online teacher requires thoughtful and purposeful communication (Baker, 2004). Online teachers can develop close relationships with their students (Borup, Graham, & Drysdale, 2014) through thoughtful execution of multiple communication approaches. One of those approaches has been the use of video lectures in the online classroom.

Online courses should consider the inclusion of video lectures in their course materials because the use of video meets different learners’ preferences, increases students’ engagement with content, enhances students’ perception of better learning experiences through content interaction, and reinforces teaching presence in online courses.

(Scagnoli, Choo, & Tian, 2019, p. 408)

Video presence of the teacher, “bring(s) insights to the course, as an added value to the class” (Scagnoli, Choo, & Tian, 2019, p. 408). Another communication approach that increases teacher to student interaction has been the teacher’s consistent social presence in the online classroom.

This allows the teacher to “not just be a name on a screen” and for students to see them as “a real, live person” (Borup & Stimson, 2019, p. 36). Some of the strategies to reach this social presence are adding complete profile pages with hobbies and interests, video introductions, and by “sharing personal information throughout the semester in their one-on-one communications with students and course announcements” (Borup & Stimson, 2019, p. 34).

The second type of teacher to student interaction has been immediacy of communication. Some of the strategies teachers can apply are daily reminders, weekly announcements, periodic commentaries, and frequent updates (Baker, 2004). Additionally, online teachers need to prioritize responding to email and online discussions to reinforce their presence. “Lengthy delays between student inquiries and teacher responses communicate a sense of social distance to the students, analogous to the failure to return telephone calls or open the office door when knocked upon” (Baker, 2004, p. 11). Immediacy of communication is not limited to just text-based communication methods. Adding synchronous tools like phone conversations and web conferencing adds a level of depth to the communication that is difficult to convey through text. “An oft-noted limitation of textual communication is the lack of voice tone, and yet with a simple telephone call or audio clip, an instructor can use his or her voice to set the proper mood” (Baker, 2004, p. 11). When teacher presence has been reinforced by immediacy of communication, students are often successful. “It is proven that students attribute a successful learning experience with teaching presence” (Garrison, 2017, p. 48).

A profile has been emerging since 2000’s of the characteristics that predict a successful online student. Near the beginning of the third generation of distance education, a large study conducted at the University of Tennessee at Chattanooga by Roblyer, Davis, Lloyd, Mills, Steven, Marshall, & Pape (2008) identified key characteristics of an online learner that are still

widely referenced today. In their study, Roblyer et al., field tested their Educational Success Prediction Instrument-V2 on over 4,000 students enrolled in the Virtual High School (VHS). In this study Roblyer et al. (2008) found that:

As may be expected, students' past ability (e.g., as reflected in GPA) is a significant predictor of current success, but logistical analysis results indicate that, in addition to this student characteristic, cognitive student characteristics (e.g., technology access and self-efficacy and achievement and organization beliefs) also make a significant contribution. In addition, results indicate that environmental variables can play as important a role in students' success as the characteristics and background students bring to the course. In other words, certain learning conditions (e.g., allowing time at school to complete an online course, having a computer at home) can be combined with the prior achievement of a student (GPA) and individual cognitive student characteristics as measured by ESPRI to develop a useful predictive model for success in an online VHS course. (p. 105)

In addition to these findings, Garrison, Anderson, & Archer's (2000) Community of Inquiry (CoI) Framework adds an important characteristic to the online learner profile. Their CoI framework states that "a social presence is required for students to co-construct knowledge together because students need to feel comfortable communicating with each other prior to having meaningful content-centered discussions" (Garrison et al., 2000, p. 94). More recently, The Adolescent Community of Engagement (ACE) framework hypothesized that students are more likely to engage in courses when given collaborative learning opportunities that allow them to construct new knowledge jointly with their peers (Borup et al., 2014).

Both teacher to student and student to student interactions and perceptions have a lasting impact on the overall success of a student in an online course. Students that enter an online course with a high GPA, willingness to participate with others, have basic technology skills, and have adequate time in their day for the course are more ready to be successful in the environment. If that student is then paired with a teacher that prioritizes immediacy of communication with a willingness to build relationships, current research suggests that student will be successful in an online course.

Authentic learning. The glossary of educational reform (2013) defines authentic learning as, “a wide variety of educational and instructional techniques focused on connecting what students are taught in school to real-world issues, problems, and applications” (para. 2). Authentic learning is designed to teach curriculum through the lens of real-world issues, problems, and applications. Newmann and Wehlage (1993) conceptualized five components of authentic learning from pedagogy and instruction perspectives. They contend that authentic learning entails:

- A. focusing on higher-order thinking as opposed to rote memorization of factual information
- B. involvement in deeper knowledge construction including problem-solving and understanding of complex meaning
- C. connectedness to the larger real-world social context
- D. engagement in substantive conversation, such as discussion and sharing of ideas and dialogue
- E. inclusion of social support for all students to achieve high expectations. (p. 8)

This expands on the research of Garrison et al. (2000) in that there is a greater focus on knowledge construction and online lesson design. The inclusion of higher-order thinking skill

emphasizes the need for more dynamic lesson presentation. In 2003, Herrington, Oliver, and Reeves created a checklist of ten characteristics of authentic activities. Their checklist includes the following:

1. Authentic activities have real-world relevance
2. Authentic activities are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity.
3. Authentic activities comprise complex tasks to be investigated by students over a sustained period of time.
4. Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources.
5. Authentic activities provide the opportunity to collaborate.
6. Authentic activities provide the opportunity to reflect.
7. Authentic activities can be integrated and applied across different subject areas and lead beyond domain-specific outcomes.
8. Authentic activities are seamlessly integrated with assessment.
9. Authentic activities create polished products valuable in their own right rather than as preparation for something else.
10. Authentic activities allow competing solutions and diversity of outcome. (Herrington et al., 2003)

More recently, Old Dominion University professors, Luo, Murray, & Crompton (2017) studied the impact of using the Herrington et al. checklist of ten characteristics of authentic activities in an online course. Luo et al.'s research provides an important understanding of how authentic learning can occur in online courses. Throughout the course Luo et al. (2017) found that modern online learning activities such as blogging, creating wiki's, and audio and video collaboration tools are capable of creating authentic learning experiences.

Blogging allows a student creative freedom to design and present information in an individualized manner. In its simplest terms, a blog is an internet based journal that can allow

others access to interact and respond to an individual learner's thoughts and beliefs. Luo et al. (2017) utilized blogs as a planning, documenting, and reflection area. Planning, documenting, and reflection are outlined as critical processes in Herrington's authentic learning checklist. Angelino, Williams, & Natvig (2007) suggested beginning the semester with a "virtual icebreaker" blog activity to stimulate communication and collaboration among new members of the course. Shim & Guo (2009) add that the use of blogs substantially enhances students' overall learning experience.

"Wikis are a technology that can be used in online classes to support simple web pages that groups can edit together" (Revere & Kovach, 2011, p. 116). Wikis allow for authentic learning experiences through their ease of allowing students to create a product together, regardless of time and space. Wikis are an engaging tool for teachers to utilize when student assignments involve defining or researching selected topics or when an entire class is required to contribute to the final work product (Meyers, 2008). Additionally, the commenting feature in Wikis allows for the authentic learning experience to provide the opportunity for students to examine the task from different perspectives, using a variety of resources. Multiple resources can be presented in a wiki and then students can utilize the comment feature to debate the most relevant resources to use in the final product. This debate meets Herrington et al.'s (2003) final authentic learning item which is to allow competing solutions and diversity of outcome.

Luo et al.'s (2017) final online learning technology assessed through Herrington et al.'s (2003) authentic learning checklist was audio and video collaboration. VoiceThread was the audio collaboration tool used by participants of the study. "VoiceThread, brings traditional threaded discussions to life, thereby engaging students in meaningful communication with both their peers and the instructor" (Pacansky-Brock, 2010, para. 3). Additionally, the study used

synchronous, or real time, video to allow participants the ability for discussion and debate. This allowed participants the opportunity to see and hear classmates speak which then reinforced asynchronous, or time-shifted, written communications (Luo et al., 2017). Ultimately the study found that technology for collaboration, such as blogging, wikis, and audio and video collaboration tools, yielded evidence that meaningful authentic learning activities could successfully be incorporated into online learning (Luo et al., 2017).

As Lou et al. concluded, authentic learning experience can be designed for online learners. Allowing for collaboration and interaction among participants helps to lessen the isolation that can be felt in online learning. “Collaborative courses with interaction to support the students in constructing meaning achieve the best learning outcomes” (Oviatt, Graham, Davies, & Borup, 2018, p. 358). As the second decade of the third generation of distance learning comes to an end, the internet is advanced enough to allow for both collaborative and authentic learning.

Best discussion and communication design. A consistent component of distance learning during the third generation is the discussion forum in online courses. “Online asynchronous discussion forums are becoming a common feature in online courses as they allow students and instructors to communicate with each other regardless of time and space” (Nandi, Hamilton, & Harland, 2012, p. 6). Liu, & Yang (2014) added that asynchronous online discussions have many advantages, including a lack of time and space restrictions, an increase in opportunities for access and interaction, more flexibility in instruction, more time for students to reflect on topics and search for relevant information, and the preservation of discussion content for thorough analysis. With asynchronous discussions becoming common place during this generation of online learning so too have frameworks of best practice.

One of the most referenced models in regards to online discussion has been the Community of Inquiry (CoI) model. The CoI model created by Garrison, Anderson, and Archer (2000) is intended for analyzing text-based online discussion content. In 2007, Garrison conducted a review of the ten years of research related to the CoI model and found that, “CoI benefits the discussion process if learners understand the discussion theme and recognize the value of group interaction” (Garrison, 2007, p. 62).

The CoI model describes three types of presence: cognitive, social, and teaching. Cognitive presence can be used as a tool to measure critical thinking or knowledge construction. From a low level to a high level, knowledge construction entails triggering events, exploration, integration, and resolution. When students solve a problem by interacting and applying new knowledge, a high level of knowledge construction has been achieved (Garrison et al., 2000, p. 89).

Community of Inquiry: Teaching Presence. The teaching presence section of the CoI model provides insight into the role of the teacher when facilitating discussion online. Discussion in the literature generally suggests that it is important that instructors play an active, visible part in forum discussions (Salmon, 2000). This is reinforced by the work of Mazzolini and Maddison (2007) in which they investigated what students felt should be the role of an online instructor. They outlined the following expectations:

- asking follow-up questions while answering one;
- Introducing new concepts or new ways of thinking about solutions;
- answering questions as soon as possible;
- providing feedback;
- discussing the student solutions from different dimensions or angles.

These student expectations coincide with CoI model and Garrison's (2017) immediacy research. Garrison et al. (2000) stated that the only way to create full student engagement in an online discussion is to provide direct feedback with questions that connect ideas and students. According to Garrison et al. (2000), the instructor should vary the types of questions to force three different types of thinking from students: convergent, divergent, and evaluative. Convergent thinking comes from questions that have a straightforward answer. Typical convergent thinking question starters begin with why and how. Divergent thinking requires the learner to consider multiple pathways to a problem. Some divergent thinking question starters begin with "suppose" or "how might". Evaluative thinking requires students to reflect on this issue and use verified evidence to come to a sound judgement. Evaluative thinking question starters often begin with "defend" or "justify".

Community of Inquiry: Cognitive Presence. The second section of the CoI model is cognitive presence. Garrison et al. (2001) defined cognitive presence as the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication. For an instructor to attain a high level of cognitive learning it, "often requires additional solid framing and assistance" (Liu & Yang, 2014, p. 330). This requires online discussions to be thoughtfully designed with the inclusion of clear objectives, tasks, work standards, and writing styles (Weinberger, Reiserer, Ertl, Fischer, & Mandl, 2005). "If the teaching goal is to improve the cognitive level, one should carefully handle topics that involve pure theory exploration or debate topics and consider gradually guiding theoretical exploration discussions toward higher-level teaching objectives and strengthening the weaving and summarizing scaffolding" (Liu & Yang, 2014, p. 350).

Community of Inquiry: Social Presence. The final section of the CoI model is social presence. Social presence has been defined as the ability of learners to project their personal characteristics into the community of inquiry, thereby presenting themselves as “real people” (Rourke, Anderson, Garrison, and Archer, 2001). “A social presence is required for students to co-construct knowledge together because students need to feel comfortable communicating with each other prior to having meaningful content-centered discussions” (Garrison et al., 2000). Four social presence behaviors that have been found to impact student engagement are (Borup, 2016) befriending, motivating, instructing, and collaborating.

Befriending. Borup (2016) defined befriending as students building friendships that extended beyond the confines of the online course. He noted that this is extremely difficult in an online course where none of the students have had any previous face to face interaction. Borup (2016) stated that, “teachers found that online interactions were less social than face-to-face communication” even when students had a face to face meeting. He suggested utilizing asynchronous or synchronous video icebreakers throughout the semester as a way to create befriending opportunities. Borup (2016) acknowledged that teachers need to be aware that not every student is seeking a befriending opportunity in an online class and that some students are motivated to complete their course with less social interaction.

Motivating. The second social presence behavior Borup (2016) listed is “motivating”. He found two key ways students were motivated in online courses: students taking the course with a friend and teachers facilitating student praise of other students work. When examining the impact of students taking an online course with a friend, Borup (2016) shared this observation by a participant teacher:

I think if [students] at least know a couple of other students that they could chat with or ask questions if they have a problem it makes them feel more included, more secure.... I would say that it would make them less likely to give up. (p. 239)

In regard to teacher facilitation of student praise of other students' work, Borup (2016) shared this strategy:

Part of [student encouragement] takes place in the "strut your stuff" wall where I put things up and then the kids notice who is there and they always comment like, "Oh yeah! I really liked this!" or "That was cool how you did that." or "I didn't think about it that way." (2016, p. 239)

This dedicated forum for students to share their creations and receive peer feedback and praise is reinforced by Gerbic's (2006) finding that the main motivators for participation in online discussion forums are the need to exchange ideas and seek feedback.

Instructing. The third social presence behavior listed by Borup (2016) is instructing. The instructing behavior consists of both traditional teacher to student sharing of knowledge and highlights the importance of peer to peer knowledge exchange. "Peer instruction appeared especially valuable in math courses where it was difficult for instructors to tutor all of their students individually" (Borup, 2016, p. 240). These peer to peer exchanges require setup and monitoring by the instructor to maximize their effectiveness (Borup, 2016).

Collaborating. The fourth and final social presence behavior outlined by Borup (2016) is collaborating. Borup (2016) differentiates collaborating from peer instruction in that students do not have to bring expertise to the interaction. Rather, students come to the interaction as co-contributors of knowledge acquisition. During collaboration times, Borup (2016) stated that teachers need to be ready to provide appropriate scaffolding to assist students in deepening their

knowledge. This coincides with Garrison et al.'s (2000) claim that during student collaboration the instructor must be ready to facilitate discourse. Some of the strategies provided by Garrison et al. (2000) for facilitating discourse are:

- a. identifying areas of agreement/disagreement
- b. seeking to reach consensus/understanding
- c. encouraging student contributions
- d. setting the climate for learning
- e. continually assessing the learning path.

Whether asynchronously or synchronously, through written or audio communication, instructors facilitate discourse by the way they address each of the mentioned components. The following sentence starters by Garrison et al. (2000) are suggested to facilitate collaborative discourse:

- **Agreement/Disagreement:** “Joe, Mary has presented a compelling counter example to your theory. Would you care to respond?”
- **Seeking to reach Consensus/Understanding:** “I think Joe and Mary are essentially saying the same thing...”
- **Encouraging student contributions:** “Thank you for your insightful comments”
- **Setting the climate for learning:** “Don’t feel self-conscious about “Thinking out loud” in the forum...”
- **Assessing the learning path:** “I think we’re getting off track here” (p. 101-102)

Discussions and communication are an important part of distance learning in its current generation. Regardless if the online course is delivered asynchronously or synchronously or in combination, rich discussion and immediate communication are key drivers of student success.

Emerging research to promote student engagement. The past decade (2010 -2019) has produced a handful of recent research articles addressing student engagement that must be noted in this literature review. While additional research continues to be needed, there are a few studies that indicate some important considerations when evaluating student engagement in K-12 online learning. The two areas of emerging research are:

- The K-12 vs. the Higher Education Online Learner
- Additional adult support beyond the instructor

These research contributions help to build a bridge from the first twenty years of the current generation of distance learning to the next phase or perhaps even a new generation of distance learning.

Much of the initial research during the third generation of distance learning revolved around the higher education online student. In just the past decade researchers have begun to focus online learning research on the K-12 online learner. “Young adult college students and adolescent high school students differ in their levels of maturity and in their development of significant learning skills such as self-regulation, internal locus of control, independence and autonomy, and metacognitive abilities” (Borup, Graham, & Davies, 2013, p. 154). Borup et al. (2013) specifically addresses that the Community of Inquiry research developed out of evaluating higher education students. “The CoI framework also emerged in higher education contexts, and more exploratory and descriptive work is required to apply the framework to the K-12 online learning environment” (Borup et al., 2014, p. 793). Borup et al. (2014) references Garrison, Anderson and Archer’s (2010) acknowledgment of this gap in research when they stated that “work remains in validating the composition of the presences across various populations (eg, colleges, professional development, high schools)” (p. 794). One example of a

significant difference in teaching the K-12 online student vs. the higher education student is the amount of parent communication. “Facilitating discourse with parents also emerged as a major responsibility” (Borup, Graham, & Drysdale., 2014, p. 796). In Borup et al.’s (2014) Adolescent Community of Engagement framework he contended that the higher engagement of the online teacher, parent, and peers in the student’s online experience, the more engagement the student experiences. This research is an indication that while there are best practices that are universal to online learning, teachers need to be aware of the unique learning needs of the specific age range of their students.

Just as Borup et al. (2014) found that facilitating discourse with parents is an important component to working with the K-12 online learner, so too is the need for additional adult support beyond the parent and online teacher. The role of the on-site facilitator has emerged as an important adult support to the K-12 online learner. The on-site facilitator typically has been located in the classroom with the student while they engage in the online course. Harms, Niederhauser, Davis, & Gilbert (2006) were the first to conduct research on on-site facilitators and noted the following common responsibilities:

- Advising students on course selection
- Coaching students on online learning skills
- Acting as a communication link between the online teacher, local school, and parents
- Promoting peer-support
- Promoting student engagement (p. 11)

“By sharing responsibilities with on-site facilitators, online teachers can focus more on their responsibilities such as tutoring, assessing, and providing feedback to students” (Harms et al., 2006, p. 7). On-site facilitators are typically an employee of the face to face school. By being

part of the staff of the face to face school, the on-site facilitator has the physical access to facilitate interactions with the online learner in ways that differ from the remote teacher. On-site facilitators commonly facilitate the following interactions: orienting, nurturing face to face relationships, initiating communication, monitoring, and motivating (Harms et al., 2006).

On-site facilitators play an important role in orienting the K-12 online learner, “providing a combination of whole-group and one-on-one orientation” (Borup & Stimson, 2019, p. 36) that assists new online learners in where and how to access the online orientation materials. Additionally, on-site facilitators help students overcome any initial challenges that may be present at the local school level. One example of this is the local school’s internet firewall. “On-site facilitators also ensured that students had the learning materials they needed and resources were not blocked by the school’s firewall” (Borup & Stimson, 2019, p. 36). These initial navigation and school based obstacles are difficult for the remote online teacher to address. By having an on-site facilitator the local school ensures a smoother start to the online course for the student.

Many research articles such as Angelino et al. (2007), Garrison (2007), Meyers (2008), Pacansky-Brock (2010), and Borup et al. (2014) have been published regarding strategies for how the online teacher can build successful relationships with their students online. Even though it has been possible to create relationships online with students, it can be challenging. “In general, teachers believed it was more difficult to develop relationships with students at a distance because the large majority of their communication was in asynchronous text” (Borup & Stimson, 2019, p. 37). While building relationships with the teacher online has been critical, the addition of an on-site facilitator gives the K-12 student a face to face relationship with a local adult that has been associated with the student’s online success. Borup & Stimson (2019) found

that facilitators more easily developed relationships with students because they shared the same school culture and attended the same extracurricular events.

Once the relationship has been built between the on-site facilitator and the remote teacher, the environment is set for the facilitator to help motivate and monitor the student while additionally communicating with the remote teacher. “Online teachers and on-site facilitators closely monitored students’ behavior and progress” (Borup & Stimson, 2019, p. 38). Where the online teacher can view time logged in and quality of assignment submission, the facilitator helps to fill in the life circumstances surrounding the student. “Online teachers relied heavily on facilitators to closely monitor student behavior and share pertinent information” (Borup & Stimson, 2019, p. 34). This helps the online teacher to have a more well-rounded picture of the student and can help the online teacher frame the way they give feedback to the student. When the personal circumstances of the student interfere with student learning the facilitator can address the behavior in real time and make the online teacher aware. Borup & Stimson (2019) found that facilitators are the first line of defense in making sure that students are as productive and successful as possible.

The emerging research around student success in K-12 online learning suggests that K-12 educators need to be aware of the additional adult supports necessary to improve the likelihood of success for students. Unlike the higher education learner, both parents and local school on-site facilitators play an important role in the online educational experience of the student. Given the early results of published research, future research continues to be needed to quantify the findings and build them up.

Conclusion

Distance learning has come a long way over the last 150 years. From the initial days of text based correspondence courses by mail to the immediate learning powered by the internet and online courses, distance learning is a much more interactive and engaging learning experience in 2019. The third generation of distance education, online learning, has delivered powerful learning models and frameworks, like CoI and ACE. These models and frameworks help educators create meaningful teacher to student interactions. Additionally, they provide research based approaches to designing powerful authentic learning opportunities where student to student discussion and communication deepens the learning experience. As researchers move into the third decade of the third generation of distance learning, a more nuanced approach to student online learning emerged. Gone are the days of combining all online learners into one category. Researchers have begun to examine supporting student success at each level of the K-20 online educational experience and finding different learner needs at each level. This research trend bodes well for the future of online learning as it becomes more refined at creating successful pathways for student learning.

References

- Angelino, L. M., Williams, F. K., & Natvig, D. (2007). Strategies to engage online students and reduce attrition rates. *The Journal of Educators Online*, 4(2), 1-14.
- Baker, J. D. (2004). An investigation of relationships among instructor immediacy and affective and cognitive learning in the online classroom. *Internet and Higher Education*, 7, 1-13.
- Bates, T. (1993). *Theory and practice in the use of technology in distance education* (New York, Routledge).
- Borup, J., Graham, C.R., & Davies, R.S. (2013). The Nature of Adolescent Learner Interaction in a Virtual High School Setting. *Journal of Computer Assisted Learning*, 29(2), 153-167.
- Borup, J., West, R.E., Graham, C.R. & Davies, R.S. (2014). The Adolescent Community of Engagement Framework: A Lens for Research on K-12 Online Learning. *Journal of Technology and Teacher Education*, 22(1), 107-129. Waynesville, NC USA: Society for Information Technology & Teacher Education. Retrieved March 30, 2019 from <https://www.learntechlib.org/primary/p/112371/>.
- Borup, J., Graham, C. R., & Drysdale, J. S. (2014). The nature of teacher engagement at an online high school. *British Journal of Educational Technology*, 45, 793–806.
- Borup, J. (2016). Teacher Perceptions of Learner-Learner Engagement at a Cyber High School. *International Review Of Research In Open And Distributed Learning*, 17(3), 231-250.
- Borup, J., & Stimson, R. (2019). Responsibilities of Online Teachers and On-Site Facilitators in Online High School Courses. *American Journal of Distance Education*, 33(1), 29-45.
- Casey, D. (2008). A Journey to Legitimacy: The Historical Development of Distance Education through Technology. *TechTrends*, 52(2), 45-51.

- Caruth, Gail D., & Caruth, Donald L. (2013). Distance Education in the United States: From Correspondence Courses to the Internet. *Turkish Online Journal of Distance Education*, 14(2), 141-149.
- Center for International Education. University of Wisconsin-Milwaukee. (2010). What are learning objects? Retrieved from http://www4.uwm.edu/cie/learning_objects.cfm?gid=56
- Courtney, M., & Wilhoite-Mathews, S. (2015). From Distance Education to Online Learning: Practical Approaches to Information Literacy Instruction and Collaborative Learning in Online Environments. *Journal of Library Administration*, 55(4), 1-17.
- College Accreditation in the United States-- Pg 12. (2019, March 18). Retrieved from https://www2.ed.gov/admins/finaid/accred/accreditation_pg12.html
- Garrison, D. R. (2007). Online community of inquiry reviews: Social, cognitive, and teaching presence issues. *Journal of Asynchronous Learning Networks*, 11(1), 61-72.
- Garrison, D. R. (2017). *E-learning in the 21st century: A community of inquiry framework for research and practice* (3rd ed.). New York, NY: Routledge.
- Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical Thinking, Cognitive Presence, and Computer Conferencing in Distance Education. *American Journal of Distance Education*.
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87-105.
- Gemin, B., Pape, L., Vashaw, L., & Watson, J. (2015). *Keeping pace with K-12 digital learning: An annual review of policy and practice*. Evergreen Education Group.

- Gerbic, P. (2006). To post or not to post: Undergraduate student perceptions about participating in online discussions. In L. Markauskaite, P. Goodyear, & P. Reimann (Eds.), *Proceedings of the 23rd Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education* (pp. 271–281). Sydney: Sydney University Press.
- Herrington, J., Oliver, R., & Reeves, T. (2003). Patterns of engagement in authentic online learning environments. *Australasian Journal of Educational Technology*, 19(1), Australasian Journal of Educational Technology, 03/17/2003, Vol.19(1).
- Holmberg, B. (1986). *Growth and Structure of Distance Education* (NH, Croom Helm).
- Liu, C., & Yang, S. (2014). Using the Community of Inquiry Model to Investigate Students' Knowledge Construction in Asynchronous Online Discussions. *Journal of Educational Computing Research*, 51(3), 327-354.
- Pacansky-Brock, M. (2010). Online teaching strategies: Building an interactive learning environment. Retrieved from:
<http://blogs.teachingwithoutwalls.com/blog/2010/04/02/tww-webinar-online-teaching-strategies-building-an-interactive-learning-environment>
- Polsani, P. R. (2003). *Use and abuse of reusable learning objects*. *Journal of Digital Information*, 3(4).
- Larreamendy-Joerns, J., & Leinhardt, G. (2006). Going the distance with online education. *Review of Educational Research* 76(4), 567-605.
- Luo, T., Murray, A., & Crompton, H. (2017). Designing Authentic Learning Activities to Train Pre-Service Teachers About Teaching Online. *International Review of Research in Open and Distance Learning*, 18(7), 141-157.

- Harms, C. M., Niederhauser, D. S., Davis, N. E., Roblyer, M. D., & Gilbert, S. B. (2006). Educating educators for virtual schooling: Communicating roles and responsibilities. *The Electronic Journal of Communication*, 16(1 & 2).
- Matthews, D. (1999). The origins of distance education and its use in the United States. *T.H.E. Journal*, (27)2, 54-59.
- Mazzolini, Margaret, & Maddison, Sarah. (2007). When to Jump in: The Role of the Instructor in Online Discussion Forums. *Computers & Education*, 49(2), 193-213.
- Meyers, S. A. (2008). Using transformative pedagogy when teaching online. *College Teaching*, 56 (4), 219-24.
- Nandi, D., Hamilton, M., & Harland, J. (2012). Evaluating the quality of interaction in asynchronous discussion forums in fully online courses. *Distance Education*, 33(1), 5-30.
- Nipper, S. (1989). *Third generation distance learning and computer conferencing*. In R. Mason & A. Kaye (Eds.), *Mindweave: Communication, computers, and distance education*. Oxford, England: Pergamon Press.
- Newmann, F. M., & Wehlage, G. G. (1993). Educational leadership: Five standards of authentic instruction. *Educational Leadership*, 50(7), 8-12.
- Oviatt, D., Graham, C., Davies, R., & Borup, J. (2018). Online Student Use of a Proximate Community of Engagement in an Independent Study Program. *Online Learning Journal (OLJ)*, 22(1), 223-251.
- Partnership, G. S. (2013, September 16). Authentic Learning Definition. Retrieved from <https://www.edglossary.org/authentic-learning/>

- Revere, L., & Kovach, J. (2011). ONLINE TECHNOLOGIES FOR ENGAGED LEARNING: A Meaningful Synthesis for Educators. *Quarterly Review of Distance Education*, 12(2), 113-124,149-150.
- Rourke, L., Anderson, T. Garrison, D. R., & Archer, W. (2001). Assessing social presence in asynchronous, text-based computer conferencing. *Journal of Distance Education*, 14(3), 51-70.
- Roblyer, M. D., Davis, Lloyd, Mills, Steven C., Marshall, Jon, & Pape, Liz. (2008). Toward Practical Procedures for Predicting and Promoting Success in Virtual School Students. *American Journal of Distance Education*, 22(2), 90-109.
- Salmon, G. (2000). E-moderating: The key to teaching and learning online. London: Kogan.
- Scagnoli, N., Choo, J., & Tian, J. (2019). Students' insights on the use of video lectures in online classes. *British Journal of Educational Technology*, 50(1), 399-414.
- Selman, G. & Dampier, P. (1991). *The Foundations of Adult Education in Canada* (Toronto, Thompson Educational).
- Shim, J. P., & Guo, C. (2009). Weblog technology for instruction, learning, and information delivery. *Decision Sciences Journal of Innovative Education*, 7(1), 171-193.
- Sumner, J. (2000). Serving the System: A Critical History of Distance Education. *Open Learning*, 15(3), 267-85.
- Tokuhama-Espinosa, T. (2014). *Making classrooms better: 50 practical applications of mind, brain, and education science*. W.W. Norton & Company.
- Weinberger, A., Reiserer, M., Ertl, B., Fischer, F., & Mandl, H. (2005). Facilitating collaborative knowledge construction in computer-mediated learning environments with cooperation scripts. In R. Bromme, F. W. Hesse, & H. Spada (Eds.), *Barriers and biases*

in computer-mediated knowledge communication—and how they may be overcome (pp. 15-38). Boston, MA: Kluwer.

Willis, B. (1993) *Distance Education: a practical guide* (Englewood Cliffs, NJ, Educational Technology).