# K-12 Community of Inquiry: A case study of the applicability of the Community of Inquiry framework in the K-12 online learning environment

## KYLE SANDERS
ksande80@kennesaw.edu

## ANISSA LOKEY-VEGA
anissa.vega@kennesaw.edu

*Kennesaw State University*

Teaching practices and rationales of experienced online social studies teachers at one fully online high school in the southeastern United States were aligned with the Community of Inquiry theoretical framework using the descriptive case study method. The practices and beliefs of three male teachers and one female teacher, all with three or more years of experience in the online classroom, were studied using interviews, observations, and document analysis. Results led to an adaptation of the Community of Inquiry framework to the K-12 setting entitled the K-12 Community of Inquiry framework. Further research is needed to identify practices of K-12 fully online teachers for all subject areas and to verify the applicability of the K-12 Community of Inquiry framework.

*Keywords: Virtual school, Community of inquiry, Online teachers, Online teacher practices, Virtual pedagogy, K-12 online learning*

## INTRODUCTION

K-12 online enrollments have grown rapidly over the past two decades, but has recently leveled off to a slower, more-consistent growth rate for fully-online school programs. Over 300,000 full-time online K-12 students and over 400,000 additional students in supplemental programs are served by thousands of online teachers in the United States (Digital Learning Collaborative, 2019). Understanding characteristics and practices of online teachers will help us to better prepare future online teachers who serve this established student population.

## LITERATURE REVIEW

### Online Teachers and Their Work

Research has shown that the online teacher population reflects the demographics of traditional K-12 teachers in race, age, and ethnicity; however, they tend to have more advanced degrees and/or additional teaching credentials (Archambault & Crippen, 2009). These online teachers choose to teach online because they appreciate the flexibility afforded by their jobs. Additionally, they are more likely to remain online when they have an affective commitment to their school and an active professional community (Larkin, Brantley-Dias, & Lokey-Vega, 2016).

When we evaluate the practice of online teachers, there are a number of commonalities between face-to-face and online teacher practice. First, both face-to-face teachers and online teachers use strategies to foster a positive, safe classroom environment and facilitate positive classroom management (Capella, Aber & Kim, 2015; DiPietro, Ferdig, Black, & Preston, 2008; Emmer & Stough, 2001; Ferdig, Cavanaugh, DiPietro, Black, & Dawson, 2009). Second, both face-to-face teachers and online teachers emotionally support students to promote classroom engagement (Baker, 2006; DiPietro et al., 2008; Ferdig et al., 2009; Pianta & Hamre, 2009); and third, both face-to-face teachers and online teachers demonstrate extensive pedagogical and content knowledge (DiPietro et al., 2008; Ferdig et al., 2009; Mishra & Koehler, 2006).

However, there are key differences between the teaching practices of K-12 online teachers and face-to-face teachers. One difference is the increased need for online educators to monitor, facilitate, and troubleshoot student technology-use (DiPietro et al., 2008; Ferdig et al., 2009). While these skills may be beneficial for face-to-face teachers, they are essential for online teachers as students receive their instruction entirely through technical modes. Another difference is face-to-face teachers deviate from lesson plans when a lesson is not going well while research has not identified such

responsive action as an effective practice in online classes (Borup & Stimson, 2019). A third difference is the need for online teachers to consciously stay in touch and communicate with their students using technology according to clear time tables and using an established framework (DiPietro et al., 2008; Ferdig et al., 2009; Weiner, 2003). Finally, a fourth difference between online teaching practices and face-to-face teaching practices is online educators have an increased responsibility to model, promote, and enforce online communication etiquette (DiPietro et al, 2008; Ferdig et al., 2009). These established practices of K-12 online teachers provide us with broad strokes in understanding best practice in the work of a K-12 online teacher. However, when it comes to examining the pedagogy of experienced and effective online teachers, the research remains limited. After interviewing 16 virtual school teachers, DiPietro, Ferdig, Black and Preston (2008) identified 23 different pedagogical strategies across six topic areas including assessment, technology, student engagement, meaningful content, support, and community. However, this individual study only looked at teachers of English, science, and mathematics. No research exists on the practices of experienced K-12 online high school social studies teachers. Moreover, little research exists exploring the applicability of the Community of Inquiry theoretical framework to the K-12 setting. This lack of research supports the claims that a research gap remains in the field of K-12 online learning regarding K-12 online learning theoretical frameworks and teaching practices (Barbour, 2012; Barbour, 2015; Rice, 2006; Zweig & Stafford, 2018).

## Community of Inquiry

To better understand the work experiences and practices of K-12 online social studies teachers, we look to related fields for theories that may inform our investigation. It is the task of researchers to identify and investigate instances of success in order to test well-supported distance learning theory in the K-12 context (Lokey-Vega, et. al, 2018). One of the most referenced theories in online education is the Community of Inquiry framework (Garrison & Akyol, 2013). Community of Inquiry was developed within the context of postsecondary distance education (Garrison & Akyol, 2013). Garrison and Akyol (2013) define a community of inquiry as "a group of individuals who collaboratively engage in purposeful critical discourse and reflection to construct personal meaning and confirm mutual understanding" (p. 106). According to the Community of Inquiry theoretical framework there are three key categories of teachers' practices which are effective in the online postsecondary classroom. The categories are social presence, cognitive presence, and teaching presence. A key barrier in postsecondary online instruction is lack of nonverbal cues (Oyarzun et al., 2017). Many of the strategies and characteristics of the three presences help overcome the lack of nonverbal cues in the online environment. However, the three elements of teacher presence are interrelated and should not be viewed as discrete categories.

Teacher presence is "the design and facilitation of cognitive and social processes for the purpose of realizing intended outcomes" (Oyarzun, Conklin, & Barreto, 2017, p. 107). There are three elements of teacher presence. They are design and organization, facilitating discourse, and direct instruction (Anderson, Rourke, Garrison, & Archer, 2001; Oyarzun et al., 2017). Benefits of teacher presence include increased student perception of learning and the development of a community in the online classroom (Akyol, Garrison, & Ozden, 2008; Brook & Oliver, 2007; Swan & Shih, 2005).

Social presence is "the degree of salience or awareness between two or more communicators through a communication medium" (Oyarzun et al., 2017, p. 114). Garrison and Akyol (2013), echoing Garrison's earlier research, provide a more detailed definition of social presence as

> the ability of participants to identify with the group or course of study, communicate purposefully in a trusting environment, and develop personal and affective relationships progressively by way of projecting their individual personalities. (p. 107)

According to Akyol, Garrison, and Ozden (2009), there are three aspects to social presence: affective expression, open communication, and group cohesion. Day, Bogle, Swan, Matthews, and Boles, (2013) define affective expression as "participants' abilities to express their personalities in virtual environments" (p. 397). Open communication is "a climate wherein which students feel free to express themselves" (Day et al., 2013, p. 397). Finally, group cohesion is "a sense of group commitment, a feeling that the class is a community in which participants interact around shared intellectual activities and tasks" (Day et al., 2013, p. 397). According to the Community of Inquiry theoretical framework, postsecondary online educators use a number of strategies to facilitate affective expression, open communication, and group cohesion (Akyol et al., 2009; Clark & Mayer, 2016; Day et al., 2013).

Day et al. define cognitive presence as "the extent to which learners are able to construct and confirm meaning through course activities, sustained reflection, and discourse" (2013, p. 399). According to the Community of Inquiry framework there are four phases involved in cognitive presence (Arbaugh, 2007; Day et al., 2013; Garrison et al., 2001). The four phases comprise the Practical Inquiry Model and include the following: a triggering event, exploration, integration, and resolution.

The purpose of this case study was to understand online high school social study teacher practice, and to explore the relationship between the Community of Inquiry framework and those practices. Accordingly, this case study employed three research questions. The questions are:

1. What are the practices of experienced online social studies teachers?
2. Why are experienced online social studies teachers using these practices?
3. In what ways, if any, do the practices of online social studies teachers align with the Community of Inquiry framework?

The data collected and its resulting themes were consequently aligned with the Community of Inquiry framework in order to ascertain the applicability of the Community of Inquiry framework to the K-12 online learning setting.

## METHOD

This study used the descriptive case study method (Merriam, 1998), and focused on the teaching practices of online social studies teachers in one full-time online high school in the southeastern United States. Thusly, the case is bounded by its focus on only social studies teachers in a single virtual school. The school, hereafter entitled Southeastern Virtual School, was established in 2007 and has a full-time enrollment of over 13,000 students. The school was chosen for this case study because of its large staff of approximately 131 teachers, which allowed the inclusion of an adequate number of participants in this investigation. The school is authorized by a State Charter Schools Commission. Southeastern Virtual School regularly uses both synchronous and asynchronous methods to deliver content. At the beginning of the year, teachers are given a course framework and teachers must create their own course within the framework. They also work to manage the learning management system. Teachers are given a large amount of flexibility regarding how their courses are delivered. They create their own lessons and lesson plans. The lessons must align with the state standards and school goals. Teachers, coaches, and supervisors meet biweekly to ensure lessons and plans are properly aligned with the school mission, school goals, and state standards. Teachers are required to communicate with students who are identified as needing intervention. Moreover, each department sets stakeholder communication goals that are defined within their department meetings and their biweekly data meetings. Approximately 69% of students qualified for free and reduced lunch in the 2015-2016 academic year. The average class size is large with classes averaging 50 students per class. All teachers are certified by the state licensing agency.

Observations took place at participants' workspaces and in their virtual classrooms. Participants used computers and the internet to connect with colleagues, stakeholders, and students. The school model implemented both synchronous and asynchronous learning opportunities. Synchronous small group and whole class meetings were conducted daily. Attendance to

synchronous meetings was mandatory for students performing at or below grade level and optional for students performing above grade level. The majority of students were required to attend synchronous sessions. Researchers observed participants as they taught synchronously, updated and managed asynchronous courses, communicated with stakeholders, planned instruction, and met with colleagues.

### Participants and Participant Selection

This study used a criterion purposeful sampling strategy to select participants (Merriam, 1998; Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015). Criterion purposeful sampling is when the researcher identifies and selects all the cases that meet pre-determined selection criteria, in this case the sample needed to represent instances of successful online social studies teachers. The task of defining successful instances is fraught with debate and consensus is unlikely; however, following the example of DiPietro (2008), this investigation used experience and certification status to define successful instances and identify sample participants. Certification status is an important predictor of teacher effectiveness (Darling-Hammond, 2000). Likewise, teacher inexperience – defined as less than three years of teaching experience, is another predictor of teacher ineffectiveness. (Cappella, Aber, & Kim, 2015; Darling-Hammond, 2000). DiPietro (2008) explains the rationale for sampling in this manner:

> Prior teaching experience and certification status served as the primary criteria used for sampling participants to identify successful K-12 virtual school teachers. Experience was defined by 3 years of virtual school teaching and was closely tied to certification status, the second criteria. The time period of 3 years was selected based on the requirements outlined by Title XI of the No Child Left Behind (NCLB) act for highly-qualified instructors. (p. 50)

However, this study deviates from DiPietro's (2008) original sampling method because the participants had to be certified social studies teachers who had taught social studies online for at least three years. Given the parameters of participant qualification, 12 teachers qualified and only four teachers consented to participate in this investigation. Of the four participants, only one was female, all were White, and they ranged in age from 30-50 years old. These four participants were assigned aliases including Peter, Mary, Mike, and Tommy.

**Data Collection and Analysis**

Following the suggestions of Merriam (1998), this investigation used interviews, observations, and document analysis as data, which was collected in a recursive manner, meaning data was transcribed, analyzed, and coded while data collection continued to take place.

*Interviews*

Participants engaged in two rounds of semi-structured interviews: pre-observation interviews and post-observation interviews. Participants answered seven questions during the pre-observation interviews and answered six questions in the post-observation interviews. The questions are located in the appendix.

*Observations*

Observations took place at participants' residences and synchronous online classrooms. The researcher completed 27 hours of observations while teachers worked through a typical workday. The researcher observed teachers as they taught online from their homes. These observations were intended to provide a view into a typical day for online social studies teachers and to reveal practices as they synchronously taught students. In addition, the researcher sought to observe participants as they communicated with students and stakeholders, as they started their day, taught their virtual classes, and completed a number of tasks that impacted their pedagogical practice.

*Document analysis*

Documents, or any written message, were collected and analyzed as data. Documents collected included "living documents," which are documents that are updated on a regular basis and consequently change. These living documents were captured at a specific point in time and were not followed throughout their iterations. Before, during, and after observations, documents were collected in order to provide triangulation for research findings. Seventeen documents including teacher schedules, school directives, planning documents, and guides were collected and analyzed using Merriam's (1998) guidelines of questioning in order to establish trustworthiness. Merriam's questions were used to initially analyze the documents. Additional questions included:

- What roles does the document assign teachers?
- What pedagogical practices does the document mandate or suggest for teachers?
- What justification does the document provide for using certain pedagogical practices?

By asking these questions of the documents, researchers gained valuable information regarding the teaching practices of online social studies teachers.

Following the suggestions of Decuir-Gumby, Marshall, and Mculloch (2011), this study used open coding to code data at the "level of meaning" (p. 145). This method of coding allows text to be analyzed on a number of levels, including line, sentence, or paragraph levels. "From this perspective, the 'lumping' and 'splitting' of text could occur at different locations, enabling a code to be made up of a line, sentence, or paragraph, as long as the essence is the same" (Decuir-Gumby et al., 2011, p. 10). By "essence" we mean the intrinsic quality of having a meaning regarding teacher pedagogy in the online classroom. Decuir-Gunby et al. (2011) refer to this method of developing codes as data-driven codes. In this process, the researcher codes the data in "every way possible" and asks the following questions of the data: "'What is this data a study of?', 'What category does this incident indicate?', 'What is actually happening in the data?', 'What is the main concern being faced by the participants?', and 'What accounts for the continual resolving of this concern?'" (Bryant & Charmaz, 2007, p. 275). For example, during observations, we observed the following: "Mary creates a private room just in case someone has something private they need to discuss. A student has a private question." Using open coding, we assigned this data a code number, 1003, and a code definition: "Practice – one on one instruction." A definition and example of the code was also provided in the codebook (Sanders, 2019). By using level of meaning open coding, the researcher retains their focus as they engage with the data.

From the interview analyses 28 codes emerged. The observations resulted in 17 codes, and the document analysis revealed 10 codes. The initial open coding resulted in 55 codes which were defined in a codebook. The resulting codes were analyzed to form core categories. Categories and codes were then analyzed using the constant comparative method (Bryant & Charmaz, 2007; DiPietro et al., 2008; Ruona, 2005). During the constant comparative process, the researcher used the codebook to review the initial open coding, relabeling or reassigning codes where appropriate.

In the second cycle of coding, the researchers took the initial codes and collapsed them. During the collapsing process, the researchers looked for patterns among the codes and grouped similarly coded data into new codes (Larkin, 2015). This led to several initial codes being collapsed. First, the 44 initial practices codes were collapsed to 31. Next, the 11 justification codes were collapsed to seven. Finally, the new codes were analyzed in order to group them into three categories and three themes. Data from two themes answered the research questions in this investigation. The final theme was beyond the scope of this article.

## RESULTS

Results of this investigation demonstrated the applicability of the Community of Inquiry framework to many of the practices participants implemented in their online classrooms. Many participant practices mirror the practices of postsecondary teachers (Sanders, 2019). Garrison and Akyol (2013) define a community of inquiry as "a group of individuals who collaboratively engage in purposeful critical discourse and reflection to construct personal meaning and confirm mutual understanding" (p. 106). For example, humanization was a practice participants in this study often used to bridge the distance between learner and teacher to humanize and present a personality to the students. To this end, participants would often include pictures and video of themselves in both the asynchronous and synchronous sections of their courses. Participants were friendly and used a conversational style of voice during communications with students and stakeholders. Moreover, participants avoided sarcasm and were meticulously polite when providing feedback to learners. Participants believed that these humanization strategies helped to foster social presence.

Along with humanization principles, participants in this study used a number of strategies to promote social presence in their courses. One strategy teachers used to promote social presence was practices that fostered affective expression. Affective expression is "participants' abilities to express their personalities in virtual environments" (Day et al., 2013, p. 397). Participants addressed affective presence by allowing students to express themselves using the whiteboard, microphone, chat box, or small groups. Moreover, participants worked to ensure learners safely expressed themselves by teaching students proper ways of interacting with one another and by monitoring student activity during synchronous sessions and asynchronous discussions. In addition, participants often provided ways for students to express their personality through extension activities.

Participants also promoted open communication in order to facilitate social presence in the classroom. Participants facilitated open communication and social presence by using small groups and one-on-one groups in order to promote communication between learners and the teacher. In addition, participants used a number of strategies to consistently and frequently communicate with stakeholders – especially with students and learning coaches.

The teachers in this study also promoted group cohesion in their courses. Group cohesion is "a sense of group commitment, a feeling that the class is a community in which participants interact around shared intellectual activities and tasks" (Day et al., 2013, p. 397). One aspect of participants' pedagogy which promoted group cohesion was the use of small groups which

allow learners to interact with shared intellectual activities and tasks. Another way participants fostered group cohesion was by allowing students to teach their peers in one-on-one, small-group, and whole-group settings. This was achieved by using synchronous break-out rooms for students to teach peers. Fostering group cohesion is an important element of promoting social presence.

Teacher practices also promoted teacher presence. Teacher presence is "what the participants (usually the instructor) do to create a purposeful and productive community of inquiry" (Garrison & Akyol, 2013, p. 110). There are many elements online teachers use to foster teacher presence. First, teachers must make and model classroom norms and expectations so students can understand and conform to them. All participants implemented this practice by modelling the use of netiquette and ensuring students conform to netiquette by monitoring student communications. Another practice participants used to promote teacher presence was to plan a full course of instruction for students and frequently and regularly inform their students about the plan of instruction. Teachers would often communicate to students where they should be in the course and where they were going in the course. For example, participants would address student pacing during one-on-one learning sessions.

The participating teachers also worked to facilitate discourse in their courses. Discourse is written or spoken communication. Discourse took place among participants in a number of ways. For instance, teachers used hooks like educational videos to hook student attention in the course content. Hooking student interest, which acts as a triggering event, is a key element of the practical inquiry model (Day et al., 2013). The hook promotes cognitive presence. Another example was when a participant connected learning to the real world by illustrating the effects of urbanization on his home town. Teachers also modelled and monitored appropriate interactions between students in the course. Facilitating discourse by hooking and maintaining student interest in the content was a major priority for the participants in this study. In addition, teachers and students used small groups and one-on-one sessions to communicate. Furthermore, students completed written assignments that were turned into the teacher and were graded by the teacher. The teacher then provided feedback to these assignments. Moreover, teachers and students used technology tools to promote discourse. Tools such as Kahoot, Quizlet, polling, and Blackboard Learning allowed students and teachers to communicate with one another. Finally, students used a variety of technological means to communicate with one another and with the teacher. The technology students used included: slide shows, word documents, audio recordings, video recordings, memes, and Kahoots to communicate with the community of inquiry.

Another method participants used to foster teacher presence was direct instruction. For Anderson et al. (2001), direct instruction is the strategies teachers use to "provide intellectual and scholarly leadership and share their subject matter knowledge with students" (p. 8). Direct instruction is an important element of promoting teaching presence in an online course (Anderson et al., 2001; Oyarzun et al., 2017). Participants in this study used direct instruction in a number of ways. First, they modelled how to do processes like studying for assessments and finding information using maps. Second, teachers provided comments at appropriate moments in order to scaffold student instruction. For example, when one student in Peter's class was struggling to find information on a map, Peter directed the student to use the map key. This was a way for Peter to foster teacher presence.

Perhaps the most important aspect of teacher presence is timely and regular feedback. Regular and timely feedback is one of the most effective practices educators use to promote learning (Hattie, 2009). All participants self-reported that they provided timely and regular feedback to their students. In addition, we observed participants provide timely and regular feedback to student. Indeed, according to internal documents of the school, all teachers at Southeastern Virtual were required to provide timely and regular feedback to students. Participants in this study provided feedback through written comments on assignments, through emails, through one-on-one sessions with students, through phone conversations, through the Desire2Learn platform, and through text messages.

In addition, teachers used a number of practices to promote cognitive presence. Cognitive presence is "the extent to which learners are able to construct and confirm meaning through course activities, sustained reflection, and discourse" (Day et al., 2013, p. 399). According to the Community of Inquiry framework there are four phases involved in cognitive presence (Arbaugh, 2007; Day et al., 2013; Garrison et al., 2001). The four phases comprise the Practical Inquiry Model and include the following: a triggering event, exploration, integration, and resolution.

A triggering event is "an issue, problem, or dilemma that needs a resolution" (Day et al., 2013, p. 399). Participants often used real-world examples and introductory videos to present and hook student interest through triggering events. The next phase in practical inquiry is exploration. During this phase, participants frequently used direct instruction and discussion to promote student understanding of the content. Participants also provided resources such as articles, short videos, and interactive games to guide student knowledge construction during the exploration phase. The next phase is integration where students construct answers to the problem or issue. Participants often used student re-teaching and discussion strategies to promote the integration phase of the practical inquiry model. The final phase is the

resolution phase where the problem or issue is resolved. Teachers facilitate integration and resolution by modeling testing and information-organizing behavior. Participants in this study used modeling and information-organizers such as tables to help students during the resolution phase. In addition, teachers often engaged in discussion with students in order to facilitate integration and resolution. It is important to note that not all participants were documented using all of the practices presented in this paper. However, during member checking, we shared the major findings which emerged from the data analysis portion of this study to participants. We asked participants to comment on the findings and provide their opinions about the accuracy of the findings. All four participants responded to our query. All four believed the findings accurately reflect the practices, beliefs, and roles of experienced online social studies teachers. Table 1 provides a list of teacher practices from this study that aligned with the Community of Inquiry framework.

**Table 1**

**Alignment of Participants' Practices with Community of Inquiry Framework**

| Presence Types | Participants' Practice (with sample data) |
| --- | --- |
| Cognitive Presence | • **Small groups** ("We have breakout rooms where we can set up mini-classrooms inside the classroom. So that's useful because you can set up individual activities and gear those activities for a specific group").<br><br>• **Student-led instruction** ("Also small groups helps with like student-facilitated learning because then I can set up activities in a break out room and sort of help guide them towards sort of running their own room. Sort of set of instructions: this is what you need to do. And I've done that and they do quite well with it").<br><br>• **Discussion** (For Peter, synchronous discussion is better than brick-and-mortar discussion: "We can talk about the China one-child policy and sort of have a Socratic seminar and having the tools Blackboard provides definitely makes it easier").<br><br>• **Real-world examples** ("So when I teach I try to bring in a lot of real-life examples. So that you bring it down to earth so somebody can relate to. So, what I think the challenge is whatever the concepts you're teaching always try to relate it to something in that person's environment so they can connect with it instantly").<br><br>• **Access student's prior knowledge** (Researcher: "You say you're trying to connect economics to their prior experience?" Mike: "To their prior experience, to their understanding, to their day-to-day life, their everyday realities you know? To bring it (subject matter) down to earth and put it into words that the average person can connect with").<br><br>• **Hooking strategies** (Mary explains each lesson has a hook and a YouTube video). |

## Table 1, *Continued*

| Presence Types | Participants' Practice (with sample data) |
| --- | --- |
| Teaching Presence | • **One-on-one instruction** (In an interview Mary said, "Teachers are required to provide eight to twelve hours of learner conference and these are one-to-one sessions with students that we feel need the most help"). |
| | • **Frequent, timely feedback** ("Well, you need to make sure that you're giving detailed but not burdensome, brief detailed, feedback to all their efforts"). |
| | • **Data-driven instruction** ("You have to be a self-starter to do the research of okay, this is how these kids did on this assessment, this is where they're still lacking, what do I need to go back and do to fill in the gaps?"). |
| | • **Formative Assessment** (During one observation, Mike had his students use the chat box feature or white board feature in Blackboard to respond to the question: "In which kind of economy are prices determined by supply and demand and government input?" Mike was able to use the responses of students to quickly assess student learning). |
| | • **Summative Assessment** (All teachers at Southeastern are required to plan summative assessments for the full semester and list them in a form before the semester begins). |
| | • **Curating and providing supplemental resources** ("Within my lessons, I use Edpuzzle, Quizziz, Kahoot, Nearpod, Google geography app (not sure what is called), Google tours, Google maps, and more"). |
| | • **Time management** ("Being a really good manager of your time is important, knowing how to make a schedule and stick to it"). |
| | • **Chunking material** ("I'm doing a lot more of that and I call it chunking, there's a lot more chunking in economics. You get into bite-sized pieces, topic-specific, very focused and you want to focus on that little piece"). |
| | • **Differentiation** ("I think the main goal is to just try to differentiate the instruction, to you know, as a teacher I think you understand that not all students are the same"). |
| | • **Direct instruction** ("I have to have 15 hours of live teaching availability per week. Six of those hours are live session actually teaching content"). |
| | • **Modeling** (During one observation of Mike, he compared and contrasted market, traditional, command, and mixed market economies using a table as an instructional aid). |
| | • **Incentives** (Peter: So for example, if every once and while when I'm doing Kahoot games, I'll actually offer a prize for the winner). |
| | • **Poll students** (Peter used the polling tool to find out how students felt about their preparation for a major upcoming summative assessment). |
| | • **Course management** (one school-level directive called for teachers to "Lock all modules for 11:59 pm" and "summer school classes setup by 6/2"). |
| | • **Flipping the classroom** (The teacher provided a module on the material in the Desire2Learn platform. The material is again presented in a YouTube video, a video of a Southeastern Virtual teacher teaching the material, and external practice is provided through a website). |
| | • **Planning instruction** (Mary worked on a PowerPoint for her synchronous session for an hour and a half). |
| | • **Teach pacing** (Peter reviewed what students should have already done and what they should be doing. He projected a calendar on the whiteboard so students could see it as he discussed their work. He reminded students they needed to stay on task). |
| | • **Standards-based instruction** (At Southeastern Virtual teachers are required to focus on at least one standard for each lesson and all of the teachers who participated in this study complied with this directive. This was evident in both their lesson plans and in their actual teaching). |

**Table 1,** *Continued*

| Presence Types | Participants' Practice (with sample data) |
| --- | --- |
| Social Presence | • **Teacher communication** ("Communication is key, and I do communicate with my students often over the telephone, through email, through Blackboard connect, texts, and through the Desire2Learn announcements"). |
| | • **Humanization** (Researcher: "Why do you choose to build those relationships?" Peter: "Because it makes it makes it more enjoyable for me. I enjoy knowing them and knowing personal things about their lives and their back story and why they're here"). |
| | • **Building personal relationships** ("Kids are smart. They pick up on whether the teacher wants to be there or not and they pick up on whether you respect them or not"). |
| | • **Fostering positive learning environment** ("So this brings us to another value which is the role of the instructor as the protector of the class"). |
| | • **Classroom management** ("In smaller groups it's easier and I tend to open the microphone in smaller groups more. In larger groups students have to raise their hand and then I'll open up the microphone for them"). |

## A New Theme

There are a number of participant practices, which occupied a large amount of participants' vocational time, that are not addressed by the Community of Inquiry framework. Accordingly, based off the empirical data in this case study, we modified the Community of Inquiry framework to match the K-12 learning environment. The modified framework is called the K-12 Community of Inquiry framework and it adds another presence – collegial presence. The additional element of the framework incorporates the participant practices that did not conform to the constructs in the postsecondary Community of Inquiry framework. The key difference between the two frameworks is the setting for which they are designed. Community of Inquiry is a theoretical framework for the postsecondary setting while K-12 Community of Inquiry is designed for the K-12 online environment. Moreover, much of the activity, but not all, that takes place under the construct "collegial presence" happens outside of the online course materials and classroom. The post-secondary Community of Inquiry framework argues that "an educational experience intended to achieve higher-order learning outcomes is best embedded in a community of inquiry composed of students and teachers" (Garrison & Akyol, 2013, p. 105). However, the modified K-12 Community of Inquiry framework requires that an educational experience intended to achieve positive learning outcomes is best embedded in a community of inquiry composed of students, teachers, and colleagues. The emphasis on colleagues is an important distinction between the two frameworks and the distinction is derived from the unique conditions that differ between the two environments of post-secondary and K-12 online schools.

The difference between the two frameworks is shown by examining a definition of post-secondary community of inquiry. Garrison and Akyol (2013) define community of inquiry as "a group of individuals who collaboratively engage in purposeful critical discourse and reflection to construct personal meaning and confirm mutual understanding. There is both independence and interaction in a community of inquiry" (p. 105). This definition could equally be applied to the K-12 Community of Inquiry framework. However, there is one important distinction: the K-12 framework includes an *additional group of individuals*. This additional group of individuals is colleagues – adults who work with the instructor and the students – to help all members of the community of inquiry construct personal meaning and confirm mutual understanding.

In fact, scholars of Community of Inquiry have noted the framework is not static but should be changed based off differences in setting. Garrison and Akyol (2013) note:

> More research is needed regarding the application of the CoI theoretical framework to different contexts. The development and progression of the CoI elements may vary according to the context. Some of the roles and responsibilities of the framework may not be needed to the same degree, or additional roles and responsibilities may be required as a result of the particular context (p. 115).

As Garrison and Akyol suggested may be necessary, this study has led to a modification of the Community of Inquiry framework for this K-12 particular case setting.

Collegial presence is when colleagues are able to construct meaning allowing them to better facilitate the social, cognitive, and teaching presences of a community of inquiry. Colleagues are any adult who works with course teachers and/or course students to support student learning. Colleagues include the following adults: learning coaches/parental guardians, teachers, co-teachers, administrators, support personnel, and counselors. Notice the learning coach is not an employee of the K-12 school and yet serves in the capacity of a colleague. Consider an example from this case study. A teacher in a virtual department meeting discusses a high-interest hook they implemented with their students that motivated students to learn about "the ring of fire" in a geography lesson on the Pacific region of the world. The teacher shares the hook, a well-produced video demonstrating the real-world impact of tsunamis, with her colleagues. Her colleagues in her department then implement the video in their classrooms in order to serve as a triggering event  - a hook which promotes student interest and puzzlement in the "ring of fire" concept.

Many of the practices of the participants in this investigation were used solely by their colleagues. For example, participants regularly met with colleagues to share strategies and resources. In this moment, the colleagues are working together to promote a community of inquiry in their separate online classrooms or learning spaces. A list of practices identified in this case which promote collegial presence include:

- Collaboration with learning coach/parental guardian in order to help learners construct and confirm meaning.
- Collaborating with co-workers in order to disseminate and adapt practices that foster learner cognitive presence.
- Communication with supervisors and co-workers in order to facilitate understanding of students.
- Collaboration with co-workers which facilitates the teaching presence of colleagues.
- Collaboration with co-workers which facilitates the social presence of colleague's communities of inquiry.
- Meeting school-mandated expectations (such as completing learning maps with their colleagues for the entire course before the course begins) in order to promote student cognitive presence.
- Working with colleagues to develop educationally worthwhile learning outcomes for students.
- Adapting a practice from a colleague which promotes learner knowledge construction.
- Working with colleagues in order to ensure students are able to safely communicate in the learning community.

An addition to the previous table, Table 2 provides the list of teacher practices that aligned with the new Collegial Presence theme for the K-12 Community of Inquiry framework.

**Table 2**

**Alignment of Additional Participants' Practices Beyond the Community of Inquiry Framework**

| Presence Types | Participants' Practice (with sample data) |
| --- | --- |
| Collegial Presence | • **Collaboration with parental guardians/learning coaches** ("I showed her (the learning coach) how she can check his (the student's) progress to see what he has done and what he hasn't done and she was shocked"). |
|  | • **Collaboration with teachers** ("I think team work makes the dream work is key here. I have a really close relationship with the other US history teachers and the other teachers on our team"). |
|  | • **Collaboration with supervisors** ("But our assistant principal, she's there for our data meetings that I was talking about earlier. She rotates between the different content"). |
|  | • **Collaboration with support staff** (Mary talked with the help desk technician to fix her email problem. She is concerned because her lead wants her to regularly send out messages). |

Collegial presence appears to be an important element of the K-12 online educational experience. More research is needed to understand how collegial presence may impact the Community of Inquiry framework in the K-12 online setting. Moreover, further research is needed to clarify how collegial presence might best be represented in the current Community of Inquiry model.

## IMPLICATIONS AND CONCLUSIONS

Little research has examined the applicability of postsecondary online education theories to the K-12 online learning environment. More specifically, few studies have examined the applicability of the Community of Inquiry theoretical framework to the K-12 online learning setting. This investigation sought to examine the fitness of the Community of Inquiry framework to the K-12 online setting.

### Limitations

This study has three limitations. The first limitation is the research design. As with all qualitative research, a limitation of this descriptive case study is generalizability, also known as transferability (Merriam, 1998). The goal of qualitative case studies is to provide a holistic description and analysis of a bounded phenomenon (Merriam, 1998). Accordingly, the applicability of the findings of this investigation is not generalizable to schools outside the bounded case of Southeastern Virtual. The generalizability and applicability of case study research can be judged by the reader.

Another limitation was the participants themselves. Participation in this study was voluntary. Consequently, the majority of social studies teachers at Southeastern Virtual did not participate in this study.

Still another limitation of this case study was the definition of experienced online teachers used in this investigation. Because there is no current definition regarding successful online teachers we used the limited research base to construct an ad-hoc definition for this study. As DiPietro writes: "it is important to acknowledge that this definition of successful online teachers may be incorrect or lack certain aspects of successful virtual school teachers" (2008, p. 65). A final limitation of this investigation was the content area. Only social studies teachers participated in this case study. Researchers may find additional modifications of the K-12 Community of Inquiry theoretical framework will be necessary based on research from other content areas.

There are a number of implications based on the results of this investigation. First, the Community of Inquiry theoretical framework is applicable to the K-12 online setting. The purpose of theory is to explain the way

things work and how they work by identifying relationships across constructs (Ravitch & Riggan, 2017). As such researchers may find the Community of Inquiry theoretical framework a useful tool for grounding further investigations into practices of the K-12 online learning environment. As research further refines and fosters understanding of the way K-12 online learning works, the refined K-12 Community of Inquiry framework may identify important relationships that are necessary for K-12 online students to thrive. For example, this case study found that collegial presence was essential for student success. Investigations such as this may help K-12 online stakeholders understand and fulfill their roles. Such an understanding should benefit student learning.

Consider an example. A guardian is considering placing her ninth grader in a K-12 online school. What will the guardian's role be in this new schooling paradigm? A modified K-12 Community of Inquiry theoretical framework may help the guardian understand her essential role and may help other stakeholders communicate the guardian's role to the guardian.

Second, more research is needed to verify the fitness of the K-12 Community of Inquiry framework to the K-12 online learning setting. This study was limited by the number of participants. Additional research is needed to ascertain the applicability of the K-12 Community of Inquiry to the elementary and middle K-12 online environment. Moreover, research should investigate the applicability of K-12 Community of Inquiry in additional course content areas.

The results of this investigation demonstrate the applicability of the K-12 Community of Inquiry framework to the K-12 online learning setting. The framework should be developed and modified based on future research conducted with various grade levels and content areas. While more research is needed to further establish the theory, the K-12 Community of Inquiry framework may aid researchers as they investigate the unique conditions and attributes of the K-12 online learning environment.

## References

Akyol, Z., Garrison, D. R., & Ozden, M. Y. (2009). Development of a community of inquiry in online and blended learning contexts. *Procedia - Social and Behavioral Sciences, 1*, 1834–1838.

Anderson, T., Rourke, L., Garrison, D. R., & Archer, W. (2001). Assessing teaching presence in a computer conferencing context. *Journal of Asynchronous Learning Networks , 5*(2), 1– 17.

Arbaugh, J.B. (2007). An empirical verification of the Community of Inquiry framework. *Journal of Asynchronous Learning Network, 11*(1), 73-85.

Archambault, L. & Crippen, K. (2009). K–12 distance educators at work: Who's teaching online across the United States. J*ournal of Research on Technology in Education,*

*41*(4), 363–391.

Baker, J. (2006). Contributions of teacher–child relationships to positive school adjustment during elementary school. *Journal of School Psychology, 44*, 211–229.

Barbour, M. K. (2012). Models and resources for online teacher preparation and mentoring. In K. Kennedy & L. Archambault, (Eds.), *Lessons learned in teacher mentoring: Supporting educators in K-12 online learning environments* (pp. 83-102). Vienna, VA: International Association for K-12 Online Learning.

Barbour, M. (2015). The disconnect between policy and research: Examining the research into fulltime K-12 online learning. In D. Slykhuis & G. Marks (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference*. 2015 (pp. 1438-1445). Chesapeake, VA: Association for the Advancement of Computing in Education.

Barbour, M. K. (2018). *Lessons for K-12 distance, online and blended learning from research in higher education.* Lansing, MI: Michigan Virtual Learning Research Institute at Michigan Virtual University. Retrieved from https://mvlri.org/research/publications/examining-online-research-in-higher-education-what-can-we-replicate-in-k-12/

Borup, J. & Stimson, R.J. (2019) Responsibilities of online teachers and on-site facilitators in online high school courses. *American Journal of Distance Education, 33*(1), 29-45.

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.

Brooks, C., & Oliver, R. (2007). Exploring the influence of instructor actions on community development in online settings. In N. Lambropoulos & P. Zaphiris (Eds.), *User-centered design of online learning communities* (pp. 341–364). Hershey, PA, USA: IGI Global.

Bryant, A. & Charmaz, K. (2007). The SAGE handbook of grounded theory. Thousand Oaks, CA :Sage.

Cappella, E., Aber, J. L., & Kim, H. K. (2015). Teaching beyond achievement tests: Perspectives from developmental and education science. In D. H. Gitomer, & C. A. Bell (Eds.), *Handbook of research on teaching* (pp. 249-348). Washington, DC: American Education Research Association.

Clark, R. C., & Mayer, R. E. (2016). E-learning and the science of instruction: proven guidelines for consumers and designers of multimedia learning. Hoboken, IL: Wiley.

Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state Policy evidence. *Education Policy Analysis Archives, 8*(1).

Day, S., Bogle, L., Swan, K, Matthews, D., & Boles, E. (2013). Improving Student Learning in a Fully Online Teacher Leadership Program: A Design-Based Approach. In T. L. Heafner R. Hartshorne, & T. M. Petty (Eds). *Teacher education programs and online learning tools.* (392-416). Hershey, PA : Information Science Reference.

DeCuir-Gunby, J., Marshall, P., and Mculloch, A. (2011). Developing and using a codebook for the analysis of interview data: An example from a professional development research project. Field Studies 23(2), 136-155.

Digital Learning Collaborative. (2019). *Snapshot 2019: A review of K-12 online, blended, and digital learning.* Retrieved from https://static1.squarespace.com/static/5a98496696d4556b01f86662/t/5d1a04667b1a9300018b12ad/1561986155026/DLC-KP-Snapshot2019_062919-a.pdf

DiPietro, M. (2008). *Virtual school pedagogy beliefs, goals, and practices of K-12 virtual School teachers.* (Doctoral Dissertation). Retrieved from http://ufdc.ufl.edu/UFE0021628/00001

DiPietro, M., Ferdig, R. E., Black, E. W., & Preston, M. (2008). Best practices in teaching K-12 online: lessons learned from Michigan Virtual School teachers. J*ournal of Interactive Online Learning, 7*(1), 10–35.

Ferdig, R. E., Cavanaugh, C., DiPietro, M., Black, E., & Dawson, K. (2009). Virtual schooling standards and best practices for teacher education. *Journal of Technology and Teacher Education, 17*(4), 203-226.

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *The American Journal of Distance Education, 15*(1), 7– 23.

Garrison, D.R. & Akyol, Z. (2013). The community of inquiry theoretical framework. In M.G., Moore (Ed.). *Handbook of distance education*. (pp. 104 – 120). New York: Routledge.

Gemin, B., Pape, L., Vashaw, L., Watson, J., & Evergreen Education, G. (2015). Keeping pace with K-12 digital learning: An annual review of policy and practice. Twelfth Edition.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York, NY: Routledge.

Larkin, I. (2015). *Job satisfaction, organizational commitment, and turnover intention of online teachers in the K-12 Setting*. (Unpublished doctoral dissertation). Kennesaw State University, Kennesaw, GA.

Larkin, I., Brantley-Dias, L., & Lokey-Vega, A. (2016). Job satisfaction, organizational commitment, and turnover intention of online teachers in the K-12 setting. *Online Learning, 20*(3), p26-51.

Lokey-Vega, A., & Barbour, M. K. (2015). Introduction. *Online Learning, 19*(5), 9-12.

Lokey-Vega, A, Jorrín-Abellán, I., & Pourreau, L. (2018). Theoretical perspectives in K-12 online learning. In R.E. Ferdig & K. Kennedy (Eds). *Handbook of research on K-12 online and blended learning: 2nd edition*. (335-356). Pittsburgh, PA: ETC Press.

Merriam, S. (1998). *Qualitative research and case study applications in education*. San Francisco, Ca: Jossey-Bass Publishers.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers college record, 108*(6), 1017-1054.

Moore, M. (1993). Theory of transactional distance. In: Keegan, D. (Ed.), *Theoretical principles of distance education*. New York: Routledge

Oyarzun, B., Conklin, S.A., & Barreto, D. (2017). Instructor presence. In Vu, P., Fredrickson, S., & Moore, C. (Eds.). *Handbook of research on innovative pedagogies and technologies for online learning in higher education*. (106-126). Hershey, PA: Information Science Reference.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health, 42*(5), 533-544.

Pianta, R. C., & Hamre, B. K. (2009). Conceptualization, measurement, and improvement of classroom processes: Standardized observation can leverage capacity. *Educational Researcher, 38*, 109–119.

Rice, K. L. (2006). A comprehensive look at distance education in the K-12 context. *Journal of Research on Technology in Education, 38*(4), 425-448.

Ravitch, S. M., & Riggan, M. (2012). *Reason & rigor: How conceptual frameworks guide research*. Thousand Oaks, CA: Sage Publications.

Ruona, W. (2005). Analyzing qualitative data. In R.A. Swanson and E.F. Holton (eds.), *Research in Organizations: Foundations and Methods of Inquiry.* (pp. 233 – 263). San Francisco, Ca: Berrett-Koehler Publishers.

Sanders, K. (2019). *K-12 Community of Inquiry: A case study of K-12 online social studies teacher practice in a virtual school.* (Doctoral Dissertation). Retrieved from http://search.ebscohost.com.proxy.kennesaw.edu/login.aspx?direct=true&db=ir00139a&AN=ksu.instruceddoc.etd.1007&site=eds-live&scope=site

Swan, K., & Shih, L. F. (2005). On the nature and development of social presence in online course discussions. *Journal of Asynchronous Learning Networks, 9*(3), 115–136.

Weiner, C. (2003). Key ingredients to online learning: Adolescent students study in cyberspace—the nature of the study. *International Journal on E-Learning, 2*(3), 44–50.

Zweig, J. & Stafford, E. (2018). Researcher-practitioner partnerships for online learning. In R.E. Ferdig & K. Kennedy (Eds). *Handbook of research on K-12 online and blended learning: 2nd edition.* (697-700). Pittsburgh, PA: ETC Press.

## APPENDIX

The following questions served as a guide for the pre-observation interviews but researchers also employed probing and follow-up questioning.

1. What are the pedagogical practices you use to teach social studies virtual school courses?

2. Why are you using these practices?

3. Drawing from your experience teaching different courses within your content area, do the pedagogical practices you use change based on the virtual school courses and the focus on the content included within it (e.g. history, economics, geography, etc.)?

4. If so, how do these practices differ, and why do you use different ones?

5. How do you use different technologies within the virtual school courses to support your pedagogical practice?

6. How do you use technologies not built into your online course environment (such as web based tools & resources) to support your pedagogical practices?

7. Why do you use these technologies?

In a similar manner to the pre-observation interviews, post-observation interviews also used a semi-structured format that included probing and follow-up questions. The post-observation interview questions included:

1. Describe your role in the online classroom.
2. Describe the roles an online teacher is expected to fulfill in the online social studies classroom.
3. Describe the strategies you used today in your classroom.
4. Are there any strategies you typically implement that I was not able to observe today?
5. Why did you use the strategies I observed today?
6. Is there anything else you'd like to tell me about online strategies for social studies teaching and learning?