

Supporting Preservice Special Education Teachers: Fostering Community in Online Learning Environments

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ABSTRACT

The increase in online courses in preservice special education has reshaped the landscape of teacher preparation, presenting both opportunities and challenges. Research underscores the importance of creating a culture of belonging in both face-to-face and online spaces, as it has been shown to enhance student engagement, motivation, and academic achievement. However, challenges related to physical distance, limited synchronous interactions, and feelings of isolation can hinder students' sense of connection and community in online learning environments. Instructors play a pivotal role in cultivating learning and a sense of belonging in online spaces by intentionally designing online courses that actively foster inclusion and interpersonal connections. This article explores the Community of Inquiry (CoI) framework as a tool for intentionally supporting learning and creating a culture of belonging in online preservice special education programs. We provide practical strategies for four critical instructional areas: collaborative small group activities, asynchronous discussion boards, required readings, and online lectures. For each area, we offer evidence-based approaches and illustrative examples for enhancing the cognitive, social, and teaching presence dimensions of the CoI framework. By implementing these targeted approaches, instructors can mitigate barriers in online courses and create more supportive and connected learning experiences for preservice special education teachers.

KEYWORDS

Assigned readings, Community of Inquiry, discussion posts, lectures online instruction, small group activities

Dr. Jane Hartley, a faculty member in a preservice special education teacher preparation program, was recently asked to teach online courses for the first time. Having never taught courses in this modality, Dr. Hartley is concerned about her ability to effectively engage students, particularly given her own negative experiences as a student in online courses. Specifically, during her time as an online learner, she struggled to feel connected to both her instructors and peers, often feeling isolated and disconnected from the course content and community. Further, she found it difficult to develop a sense of belonging, and the lack of face-to-face interaction made it challenging to feel visible and valued in her learning environment. These past struggles have left her apprehensive about her ability to foster a supportive, collaborative, and inclusive online space. Dr. Hartley is also aware that her students bring a wide range of linguistic backgrounds and educational experiences to the virtual classroom, and that these may compound feelings of disconnection in online learning environments. Specifically, she recognizes that English is a second language for some of her students and that some of her students have had limited experiences with collaborative learning and self-directed engagement in online formats.

Recent years have seen an increase in online courses in preservice preparation programs and offering online courses has been identified as a strategy for addressing teacher shortages and expanding pathways for career development (e.g., Oluk, 2023; Naranjo, 2022). Although online learning platforms offer flexibility and increased accessibility, the transition to online instruction requires careful consideration of course design and implementation to ensure effectiveness (Arrington, 2021). Included among the issues to consider are ways to create a culture of belonging that is designed to enhance student engagement, motivation, and academic achievement. This article aims to explore the Community of Inquiry (CoI) framework as a tool for supporting learning and creating a culture of belonging in online preservice special education programs. It offers practical strategies for instructors to enhance preservice special education students' learning experience and outcomes in virtual settings. The Community of Inquiry (CoI) is a framework that can be helpful to instructors as they design and implement online courses (Garrison, 2016). The CoI identifies three key categories of presence to support learning in online courses. The three categories are cognitive presence, social presence, and teaching presence. Cognitive presence involves motivating students to cognitively engage with course content, social presence emphasizes communication and interaction with the instructor and peers in the class, while teaching presence includes elements of instructional design such as the organization of the course, facilitating discussion, and instruction to support student understanding (Garrison, 2016). These elements, when effectively integrated, can create a supportive learning community that enhances student learning,

engagement, and satisfaction (Lambert & Fisher, 2013).

Jackson and Yang (2024) discussed how to use the CoI framework in online preservice special education courses and provided specific examples and activities that can be embedded into the different functions of online learning management systems (such as Canvas) to support each of these presences. Included among the many examples provided by the authors were supporting a cognitive presence when using the discussion post function by providing scaffolding to support critical thinking; supporting a teaching presence when using the announcement function by frequently posting announcements that provide explicit information about assignments and expectations; and supporting a social presence through collaborative platforms that create opportunities to develop a community structure that recognizes and builds upon the unique experiences and interests of individual students.

Dr. Hartley reviewed the literature related to the CoI framework and, as she developed her new online courses, she was mindful of the three categories of presence (cognitive, teaching, and social). She referred frequently to the examples provided by Jackson & Yang (2024) as she developed and started providing instruction her courses. As a result of her efforts, Dr. Hartley felt better prepared to foster a supportive, collaborative, and inclusive online space for her preservice teachers and noted that the students were more actively engaging with her, with the course content, and with peers. Despite these positive outcomes, Dr. Hartley still feels that relative to her experiences as an instructor of face-to-face courses, students in her online courses are less engaged and connected; particularly in the context of collaborative small group activities,

asynchronous online discussions, engagement with required readings, and when she is providing lectures. This leaves her wanting to explore additional ways that she can use the CoI framework in the design and implementation of these specific activities.

Dr. Hartley's experience is not unique. Despite efforts to utilize the CoI framework in the design and implementation of online courses, challenges persist with regarding to fully supporting students. The following sections expand upon the work of Jackson & Lang (2024) by summarizing strategies and providing specific examples of ways to use the CoI framework in the design and implementation of four different types of activities that are frequently embedded into online courses in preservice special education preparation programs. Specifically, strategies and examples for using the CoI framework in the design and implementation of activities are provided for collaborative small group activities, asynchronous online discussions, required readings, and lectures.

COLLABORATIVE SMALL GROUP ACTIVITIES

Small group collaborative and cooperative learning activities in college courses are often used to foster deeper engagement with course material, enhance critical thinking, and promote the development of interpersonal skills (Svinicki et al., 2014). Small group activities encourage students to actively participate in discussions, share diverse perspectives, and work together to solve problems, which can lead to a more comprehensive understanding of the subject matter as well as a more interactive and dynamic learning experience (e.g., O'Donnell, 2006). Additionally, small group activities cultivate a collaborative mindset that

students can carry forward into their work as special educators.

When considered in the context of the CoI framework, research suggests that virtual small group activities can (a) foster the social presence through peer relationships and community building, (b) enhance the teaching presence via structured facilitation and guidance, (c) support the cognitive presence through collaborative problem-solving and knowledge construction, and (d) promote student well-being and academic success by cultivating connection and belonging (Bliss et al., 2021). There are a wide range of small group activities that can be used in the context of in-person or online courses, including:

- case studies or real-world problems that students discuss in small groups and come up with a solution, plan, or strategy (e.g., Fixen, 2024),
- debates where students are divided into teams and assigned opposing sides of topic (and after a preparation period in their breakout rooms, each team presents their arguments; Brown & Wilson, 2016),
- jigsaw methods where each group is responsible for a different piece of information, and then they come together to share and combine what they learned into a full picture (Baken et al., 2020).
- role-play simulations where students take on specific roles and work together to solve a problem or engage in a discussion as those characters (Barrera et al., 2020),
- peer reviews where students work in groups to provide feedback on each other's work, whether it's an essay, project, or presentation (e.g., Shaw et al., 2023),
- motor synchrony activities where students work together to perform a series of physical movements or tasks in time with one another

(e.g., implementing steps of a prompt hierarchy, demonstrating knowledge of the components of a complex motor skill, etc.; Dickman, 2023).

- virtual scavenger hunts where students work together to find specific items or information online based on a set of clues or challenges (e.g., Spence, 2021), and
- escape rooms that involve a scenario with multiple challenges that students need to solve to “escape” or complete the task (using websites and technological tools such as [roomscapemaker.com](https://www.roomscapemaker.com), [escapely.com](https://www.escapely.com), or a combination of Google Slides and Forms; Bilbao-Quintana, 2021; Manzano-Leon et al., 2021).

Although well-poised to support all three presences of the CoI framework, challenges may emerge when implementing small group activities in online learning environments. For example, when establishing a teaching presence, instructors may struggle to monitor and provide timely support to students when they are distributed across multiple breakout rooms. Further, the communication presence may be strained, as the absence of face-to-face interaction limits non-verbal cues like body language and eye contact, which are crucial for fostering connection and trust for students as well as instructors. Additionally, cognitive presence may suffer when instructors struggle to encourage critical thinking in an environment where it's harder to gauge student engagement and comprehension. Thus, supporting all three presences in small group activities in online courses requires careful planning, structured interactions, and appropriate support (e.g., Kalaian, 2021). Figure 1 provides a planning form that summarizes issues to consider when designing and implementing small group activities in online environ-

ments to address these challenges. As noted by Figure 1, when designing and implementing small group activities in online environments, instructors should consider the desired outcomes and format of the activity, as well as specific strategies for supporting the cognitive, teaching, and social presence within the activity.

Dr. Hartley is excited about the new information that she learns in terms of designing and implementing small group activities in online courses in a manner that supports the three categories of the CoI Framework. Dr. Hartley uses her new knowledge to create an online small group activity to support preservice special education teachers as they learn to write Functional Behavioral Assessment summaries. Using the planning form (see Figure 1), Dr. Hartley specifies the learning objectives (e.g. writing objective behavior descriptions, analyzing data, etc.) and decides to use an escape room format in the design and implementation of her activity. Dr. Hartley makes decisions about how many clues will be provided and the icons/photos that will be used to represent each clue. For example, clues about referral information will be linked to the image of a filing cabinet, and information about the direct observation data and the function of the behavior will be linked to the image of the student. Then, based on her learning objectives, Dr. Hartley creates a document and short video that provides background information/instructions (e.g., the context for the case, expectations for students, etc.), as well as a set of Google forms that groups must complete as they work through the clues within the escape room. Once these steps are completed, Dr. Hartley creates a google slide with the background photo of the environment (e.g., a classroom) and inserts the icons/photos representing the

FIGURE 1: Planning Form: Recommended Practices for Supporting the Col Framework in Small Group Activities in Online Environments

Planning Form	
Using the Col Framework and Recommended Practices for Small Group Activities in Online Environments	
Desired Preservice Teacher Outcomes:	
<i>(What should the preservice teacher learn or be able to do because of this small group activity? Are all outcomes observable and measurable?)</i>	
Small Group Activity Format:	
<input type="checkbox"/>	Case study or Real-world problem
<input type="checkbox"/>	Debate
<input type="checkbox"/>	Jigsaw
<input type="checkbox"/>	Role-play Simulation
<input type="checkbox"/>	Collaborative Data Analysis
<input type="checkbox"/>	Peer Review
<input type="checkbox"/>	Motor Synchrony
<input type="checkbox"/>	Virtual Scavenger Hunt
<input type="checkbox"/>	Escape Room
Task Analysis:	
<i>(Clearly identify each step in the activity.)</i>	
Strategies to Support the Cognitive, Social, and Teaching Presence:	
<i>(Refer to the desired outcomes and task analysis to select strategies that align with the desired outcomes and support the three presences of the Col framework. Select all that apply.)</i>	
Technology Tools:	
<input type="checkbox"/>	Shared documents (e.g., Microsoft Office 365, GoogleDocs, etc) that allow multiple students to work simultaneously on the same document.
<input type="checkbox"/>	Collaboration and Virtual Whiteboarding Tools (e.g., Miro, Jamboard, Padlet) where groups can collaborate visually. Students can brainstorm, share ideas, and draw diagrams in real-time.
<input type="checkbox"/>	Asynchronous Discussion and Chat Tools (e.g., Slack, Google Chat, Discord) that allows students to engage in both asynchronous and real-time communication.
<input type="checkbox"/>	Project Management Tools (e.g., Trello, Asana, etc.) that help groups organize tasks, set deadlines, and track progress.
<input type="checkbox"/>	Other: _____
<input type="checkbox"/>	Other: _____
Characteristics of the Online Environment:	
<input type="checkbox"/>	Small number of students (3-4) per group
<input type="checkbox"/>	Require all cameras on
<input type="checkbox"/>	Limit breakout sessions to under 20 minutes
<input type="checkbox"/>	Assign and regularly rotate roles (notetaker, timekeeper, facilitator, reporter) within each small group to keep everyone engaged and ensure responsibilities are shared.
<input type="checkbox"/>	Other: _____
<input type="checkbox"/>	Other: _____
Instructor Feedback and Support:	
<input type="checkbox"/>	Post written instructions in a shared document (Google Docs, Canvas, etc.) to ensure that students know what they need to accomplish, any deliverables, and how they can get assistance.
<input type="checkbox"/>	Record a short video or provide an audio explanation or “walk-through” of the task, which can be accessed anytime during the activity.
<input type="checkbox"/>	Monitor the breakout rooms to provide support as needed, ensuring no group gets stuck or strays off task.
<input type="checkbox"/>	Set clear time limits and reminders using timers in Zoom or set deadlines for collaborative projects to keep groups on track.
<input type="checkbox"/>	Provide a set of questions or topics for discussion to guide the group’s conversation and help them stay focused.
<input type="checkbox"/>	Create scaffolded questions to support critical thinking and simultaneously broadcast the messages to all breakout rooms throughout the activity
<input type="checkbox"/>	Bring students back together in the main meeting room and allow each group to present their findings, ideas, or results. Consider using a shared Google Slide or Padlet where each group can add their contribution.
<input type="checkbox"/>	Promote accountability and help students to recognize their contributions by using peer evaluations (e.g., Google Forms) to let students assess each other’s participation and collaboration after activities.
<input type="checkbox"/>	Other: _____
Other: _____	

different clues, with hyperlinks to the corresponding google forms, onto the background photo. Dr. Hartley also inserts a clock (using a YouTube timer) so that students can track how much time they have left to complete the activity. Once complete, Dr. Hartley publishes her escape room activity to the web for student access. In addition to teaching technical skills related to functional behavioral assessment, this activity models the collaborative problem-solving approach special educators will need when working with multidisciplinary teams to address complex behavioral challenges in their future classrooms and mirrors the real-world documentation and analysis process that special educators must master for IEP development and behavior intervention planning. Interested readers can access Dr. Hartley's activity [here](#).

ONLINE DISCUSSIONS POSTS

Discussions are a frequently used pedagogical tool in online courses because they foster critical thinking, facilitate the application of theoretical knowledge to practical scenarios, and promote collaborative learning (Koebler et al., 2021). Further, research reveals a positive correlation between online discussion board engagement and higher grades (Walker et al. 2013). Discussion activities in online courses can be used to encourage preservice special education teachers to engage deeply with course content, reflect on diverse perspectives, and construct their understanding of complex issues related to special education. Additionally, discussion-based learning environments support preservice educators to develop empathy and work collaboratively with peers, which are essential for effective teaching in diverse and inclusive classrooms.

When framed within the Community of Inquiry (CoI) framework, discussions serve as a powerful means to cultivate an integrated learning environment that enhances the social, teaching, and cognitive presences. For example, social presence is supported through discussions by encouraging students to express their personal perspectives and creating an inclusive atmosphere where diverse viewpoints are valued. Further, teaching presence is supported through the instructor's guidance in structuring meaningful discussion prompts, providing feedback, and facilitating interactions that deepen understanding. Finally cognitive presence is advanced through discussion activities that challenge students to analyze complex issues, problem-solve, and build on the ideas of others.

Although certainly possible, designing and implementing discussion board activities in online classes that effectively support the Community of Inquiry (CoI) framework may present several challenges. Specifically, in fostering the social presence, the lack of synchronous face-to-face interactions can limit opportunities for students to form authentic connections, express themselves, and engage in meaningful interpersonal exchanges. Further, supporting the teaching presence can be challenging in an online format, as instructors must carefully craft discussion prompts that stimulate critical thinking and scaffold engagement in a manner that is not only effective for students but also recognizes potential limitations regarding the amount of time available for the instructor (Mazolini & Maddison, 2007).

DeNoyelles et al (2014) summarized evidence-based strategies to address several of these challenges within the CoI framework. Strategies to support the social presence include instructor

modelling of behaviors that help build a collaborative and trusting learning community (e.g., addressing a person by name, sharing personal or professional experiences), and requiring discussion assignments (e.g., by assigning points to the activities) to provide extrinsic motivation for students to interact and to engage in productive discussions. Strategies to support the cognitive presence include creating discussion prompts that guide students through four phases: (a) the identification of an issue, (b) an exchange of ideas or information about the issue (exploration), (c) the connection or integration of ideas, and (d) the application of the new ideas to other contexts. Finally, strategies to support the teaching presence included; ensuring that instructor feedback is timely but limited so that it encourages student involvement while also being feasible with instructor workload; supporting peer facilitation in discussion groups where members of the group are assigned specific roles (e.g., one student presents an idea, another student provides evidence to support or connect the idea to the literature, etc.); establishing well-defined goals, roles, rules and deadlines for interactions; and providing instructor feedback through multiple modes (audio, video, text). Figure 2 provides a planning form that includes these recommended practices and additional issues to consider when designing and implementing online discussions.

Included in Figure 2 are technology tools that instructors may consider using in the context of online discussion boards. These tools have the potential to enhance the quality of discussions, increase student motivation, and increase instructor efficiency. For example, Padlet is a free web-based application that allows teachers to create free-flowing discussions. In addition

FIGURE 2: Planning Form: Recommended Practices for Supporting the Col Framework in Discussion Boards in Online Environments

Planning Form	
Using the Col Framework and Recommended Practices for Discussion Boards in Online Environments	
Discussion Topic:	
Desired Preservice Teacher Outcomes: <i>(What should the preservice teacher learn or be able to as a result of engaging in the online discussion board? Are all outcomes observable and measurable?)</i>	
Discussion Prompt Format:	
<input type="checkbox"/> Problem-based prompt that focuses on a problem that is related to the course content and asks students to work together to formulate solutions.	
<input type="checkbox"/> Project-based prompts that create concrete products or artifacts that engage them in solving a problem	
<input type="checkbox"/> Debate prompts where students argue for or against a position, with the intention of persuading others to assume the same position.	
<input type="checkbox"/> Other: _____	
Strategies to Support the Cognitive, Social, and Teaching Presence: <i>(Based upon the desired outcomes listed above, select strategies that align with the desired outcomes and support the three presences of the Col framework. Select all that apply.)</i>	
Discussion Post Guidelines:	
<input type="checkbox"/> Establish clear expectations for discussions (e.g., frequency of posts, definition of a “meaningful post”, etc.)	
<input type="checkbox"/> Create a rubric to clarify grading criteria for posts (e.g., depth of analysis, critical thinking, and peer interaction).	
<input type="checkbox"/> Limit the time window for initial posts and responses to create a sense of urgency and encourage consistent involvement.	
Instructor Facilitation:	
<input type="checkbox"/> Ask questions and provide feedback that is designed to help students to: <ul style="list-style-type: none"> <input type="checkbox"/> identify the problem or articulate an issue <input type="checkbox"/> exchange ideas or information about the issue <input type="checkbox"/> connect or integrate of ideas <input type="checkbox"/> apply new ideas to other contexts <input type="checkbox"/> clarify thinking <input type="checkbox"/> challenge assumptions <input type="checkbox"/> provide evidence to support an argument <input type="checkbox"/> to provide opposing evidence or alternative viewpoints 	
<input type="checkbox"/> Model behaviors that help build a collaborative and trusting learning community (e.g., addressing a person by name, sharing personal or professional experiences)	
<input type="checkbox"/> Respond regularly to student posts to model active engagement and guide the conversation	
<input type="checkbox"/> Provide minimal levels of feedback to encourage students to take ownership of the discussion	
<input type="checkbox"/> Begin with lower-level prompts that encourage simple reflection and gradually increase the complexity of discussion topics.	
<input type="checkbox"/> Other: _____	
Technological Tools and Supports	
<input type="checkbox"/> Use (and encourage students to use) a variety of media, such as videos, podcasts, or infographics, to supplement discussion prompts and responses	
<input type="checkbox"/> Occasionally hold live, synchronous sessions (e.g., Q&A session, brief lectures) that complement the discussion board and reinforce concepts.	
<input type="checkbox"/> Conduct periodic online surveys or polls to gauge student engagement levels and identify barriers to participation.	
<input type="checkbox"/> Use software that supports free-flowing discussions (e.g, Padlet)	
<input type="checkbox"/> Use AI tools (e.g., ChatGPT) as a “teaching assistant” to support instructors to generate draft responses to student posts	
<input type="checkbox"/> Other: _____	
Other: _____	

to text, students can leave likes, votes, stars, and comments to other student's posts. Discussion boards created in Padlet can be embedded into learning management systems such as Canvas, and Padlet now includes an option to use AI to assist instructors to generate discussion prompts. Another technological support that instructors may consider is the use of AI text generators (e.g., ChatGPT) as a "teaching assistant" to generate draft responses to student posts. For example, in the context of course content related to the use of prompt hierarchies to support learning for students with disabilities, an instructor may ask students to think critically about when to use a most-to-least vs. least-to-most prompt hierarchy. The instructor could use an AI text generator to draft responses to student posts. The instructor can then revise the draft responses as needed to more clearly connect with course content. Using the AI text generator in this manner may save the instructor time, allow for more engaging interactions with students, and provide a model for high-level analysis that students can learn from. In addition to using an AI text generator to draft responses to individual students, instructors could also use an AI text generator to provide a draft of a bullet-pointed summary of all ideas presented by students. This summary could then be used by the instructor to expand upon or highlight themes across student responses. It is important to note that instructors who use AI in this manner should be transparent with students. This could be accomplished by adding a statement to relevant discussion posts such as, "As part of my commitment to providing timely, constructive feedback on discussion posts, I'm utilizing AI tools like ChatGPT to help me draft responses more efficiently. I will personalize and revise all AI-generated drafts based on your posts and course content to ensure they reflect the depth of discussion we're aiming for in this course. If you ever have any questions about my responses, feel free to ask—I'm happy to discuss them further!"

erated drafts based on your posts and course content to ensure they reflect the depth of discussion we're aiming for in this course. If you ever have any questions about my responses, feel free to ask—I'm happy to discuss them further!"

Dr. Hartley's experiences (as a student as well as an instructor) with online discussion boards were not very positive. As a student, she felt like required online discussions lacked depth. As an instructor, Dr. Hartley struggled to find the time to support discussions in a way that truly advanced student learning and engagement. However, after reviewing recent research on online discussions, she was confident that well-structured discussion boards could play a key role in overcoming these challenges. Drawing from the Community of Inquiry (CoI) framework, and using the Planning Form provided in Figure 2, Dr. Hartley crafted a discussion activity centered around a specific content area of the course (i.e., creating opportunities for students with complex communication needs to engage in meaningful interactions with peers). She knew this was a complicated issue, and she needed a way to encourage her students to engage with it deeply. To support the discussion, Dr. Hartley designed a series of discussion prompts that she delivered sequentially to support students in identifying an issue, exploring the issue, connecting and integrating ideas, and applying new ideas. To build social presence, Dr. Hartley started the discussion with a video post where she shared a brief personal story about her experiences in supporting students with complex communication needs. She also addressed students by name in her responses to discussion posts to create a more personalized atmosphere. Recognizing that students might feel

isolated in an online environment, she encouraged them to share their own experiences and perspectives, making it clear that all viewpoints were valuable. Understanding the importance of teaching presence, Dr. Hartley carefully structured the discussion to guide students' engagement. Each discussion board post was worth points, and she provided timely feedback that included a mix of text, audio, and video to create a more dynamic presence. To facilitate deeper cognitive engagement and save time, Dr. Hartley also used AI as a tool to draft responses to students' posts. After reviewing the draft, Dr. Hartley personalized it by integrating specific elements from the student's post, ensuring that the response was relevant and reflective of the student's unique perspective.

REQUIRED READINGS

Despite university instructors believing that reading outside of scheduled class time is essential for learning, students often view the completion of required readings as optional and time-consuming (Hollander et al., 2022). Although not specific to online courses in preservice special education programs, research indicates that only 20-30% of students complete required readings. Cited reasons for why students do not complete readings include 1) unpreparedness, 2) lack of motivation, 3) time constraints, and 4) an underestimation of reading importance (Kerr & Frese, 2017).

The literature provides a range of strategies for supporting students in completing required readings, and the CoI Framework can be used to provide a structured approach for conceptualizing and organizing those strategies. Specifically, to foster the cognitive and teaching presence, instructors might consider strategies such as; providing direct guidance and support in how

to read and critically analyze academic reading, developing a checklist to guide students in the analysis of different components of a research article, creating opportunities in online synchronous sessions for instructor modelling of how to approach the reading process, administering quizzes that count towards the final grade to motivate students to read, and carefully selecting the content that will be accessed via readings and considering if students can access other content via other modes of communication (e.g., videos or podcasts), and providing access to text-to-speech tools (e.g., Speechify) which allows students to have websites, documents, and images read to them (e.g., Brown et al., 2016; Dixon, 2010; Horning, 2013; Rangachari & Mierson, 1995). When considering providing content through a podcast, instructors can utilize digital tools like NotebookLM—an AI-powered tool from Google—to generate podcasts based on assigned readings to support learning (Hew, 2009). Because the podcast is generated via AI, it will be important for instructors to review for accuracy and create supporting materials to clarify content as needed. See Supplemental Materials for a task analysis to convert reading materials into a podcast using NotebookLM.

Fostering a social presence in reading assignments may not often be considered given that required readings are often seen as activities that are completed in isolation. However, instructors can enhance social presence by integrating required readings into broader activities, such as small group discussions and real-world application exercises, fostering deeper engagement and meaningful connections (Martin & Bolliger, 2018). Further, instructors can consider using online tools (e.g., Perusall, Hypothesis) that support students in working

collaboratively to annotate text and increase individual and group engagement with required class readings (Mitsaki, 2024).

Dr. Hartley recently published a book chapter that summarized evidence-based strategies for supporting communication and social interaction for students with complex communication needs in general education classrooms. The content embedded within the book chapter was a cornerstone for one of her class sessions and the chapter was an assigned reading. Using the CoI framework, Dr. Hartley considered ways to make the content in the book chapter more engaging and accessible. She decided to use NotebookLM to transform the chapter into a dynamic podcast. The podcast, which was both informative and conversational, featured an explanation of the core concepts in an easy-to-understand yet academically rigorous format. Because the podcast was generated via AI, Dr. Hartley noticed that there were a few points that weren't emphasized as much as she wished and/or needed to be clarified for accuracy. Therefore, Dr. Hartley created a document to accompany the podcast. This document was designed to further explain content and posed several questions designed to foster critical thinking and help students apply what they learned to real-world scenarios. Students responded to the questions posed in the document as part of an assignment that Dr. Hartley used to assess learning. This use of multimedia learning tools (e.g., a podcast plus an accompanying document) helped Dr. Hartley's students not only understand the content but also feel empowered to apply it practically. The podcast format was also helpful in that it allowed students with different reading proficiencies, including English language learners, to access

complex material through auditory means. Further, the conversational tone of the podcast made the content feel more approachable, particularly for students who were less familiar with academic jargon.

LECTURES

The purpose of lectures in college courses is to efficiently deliver fundamental information related to course content to students (Sandhu et al., 2012). However, instructor lectures (regardless of whether they are in person or online) are often ineffective for knowledge retention and deeper learning and result in passive learning with limited student engagement (Sandhu et al., 2012; Thwin & Lwin, 2017). Instructors can address these challenges using mini-lectures (sometimes referred to as micro-learning) that are interspersed with active learning opportunities such as small group activities and discussions to improve outcomes (Thwin & Lwin, 2017). Studies have reported improved student learning outcomes, increased satisfaction, and higher retention rates when incorporating mini-lectures into online courses (Carter & Youssef-Morgan, 2022; Hsin & Cigas, 2013). In online courses, mini-lectures may be delivered live (e.g., via ZOOM) or may be recorded and then uploaded into a learning management system, such as Canvas, for students to view asynchronously. Zakrajsek & Nilson (2023) discuss that mini-lectures are particularly well-suited for situations when; (a) students need to acquire foundational information quickly, (b) instructors want to model discipline-based thinking and demonstrate how the instructor, as an expert, thinks about a topic, (c) providing information about an assignment or activity will be executed, and (d) students already possess foundational knowledge

TABLE 1: Digital tools to Support Gamification in Online Courses

TOOL	WEBSITE	DESCRIPTION
Brainscape	https://www.brainscape.com	Online app that helps students to learn using flashcards with features designed to support active recall, retention, and metacognition
Kahoot	https://kahoot.com	A game-based platform that allows instructors to create multiple-choice quiz-style games
OpenBadges	https://openbadges.org	A system that allows instructors to create, issue, and manage badges that can be awarded in response to achievements in learning
Blooket	https://www.blooket.com/	A game platform that allows instructors to create quizzes and games

and have high interest in a topic.

Mini-lectures can be a valuable tool for supporting the Community of Inquiry (CoI) framework in online courses. Specifically, mini-lectures can be useful in supporting the teaching presence of the CoI by providing a way for instructors to deliver focused, structured content in a manner that guides students through key concepts and demonstrates their expertise. Further, mini-lectures can be useful in supporting the cognitive presence providing foundational knowledge base that allows students to actively engage in deeper critical thinking and meaningful discussion. Finally, mini-lectures can support the social presence by providing a structured way for instructors to share personal insights and establish a connection with students.

Although mini-lectures can be useful in supporting a social presence between the instructor and the students, it's also important to incorporate strategies to facilitate peer-to-peer interaction and further strengthen the sense of community. Gamification may be a useful concept to consider for facilitating peer-to-peer interaction. Gamification incorporates game-like

elements (e.g., points, badges, leaderboards, levels, and challenges) into an online learning platform to increase student engagement and motivation (Urh et al., 2015). Key elements of gamification include rule-based systems, clear goals, immediate feedback, positive reinforcement systems, and measurable progress. In addition to supporting the social presence, gamification can also support the cognitive presence through opportunities to engage with course content in gamified format. Although the specific features of a game will vary based upon the population of students and the course objectives (Werbach & Hunter, 2012), there are a wide range of digital tools to support the implementation of gamification. Table 1 provides examples of digital tools that are free (or have free options) that instructors may use to support gamification in their courses.

Dr. Hartley aimed to enhance student learning and engagement in her online course sessions through mini-lectures and gamification. She focused her initial efforts on an online synchronous session via ZOOM about systematic instructional strategies. She prepared three 12-minute mini-lectures and used Blooket to create 10-item

quizzes that corresponded with each mini-lecture. These quizzes automatically awarded points based on correct answers. At the start of the Zoom session, Dr. Hartley explained the class session would include a competition. Students were divided into four teams, with the incentive of waiving an upcoming low-stakes assignment for teams that earned at least 28 points. Teams earned points by answering quiz questions correctly. After each mini-lecture, students worked together in breakout rooms to complete the quizzes while Dr. Hartley visited each room to monitor engagement. Dr. Hartley repeated the mini-lecture and quiz cycle two more times. At the end of the third quiz, three teams earned the prize by earning at least 28 points, while the fourth team did not. Dr. Hartley dismissed members of the first three teams but stayed online with the fourth team, helping them understand missed content so they could also earn the prize. Reflecting on the session, Dr. Hartley noted that the gamified approach to learning systematic instruction techniques not only supported learning of essential content but also modeled how special educators can break down complex skills

into manageable steps with built-in reinforcement, an important practice for teaching students with disabilities. Further, Dr. Hartley recognized that the interactive format provided multiple entry points for engagement, enabling students with varied learning experiences or language proficiency to access the material in ways that felt meaningful and manageable. Through group collaboration, students had opportunities to draw on diverse perspectives and support one another in interpreting key concepts.

CONCLUSION

As online courses continue to play a significant role in preservice special education teacher preparation, it is essential that instructors carefully consider how their course design and instructional strategies promote student engagement, learning, and a sense of belonging. The purpose of this article was to explore the Community of Inquiry (CoI) framework as a tool for achieving these goals in virtual learning environments. By intentionally embedding strategies to support the cognitive, teaching, and social presence of the COI framework, instructors can mitigate some of the common challenges associated with online learning in the context of small group activities, discussion posts, required readings, and lectures. When implemented with intentionality, these strategies can help foster a more connected, inclusive, and supportive online learning environment. As a result, preservice special education students are more likely to experience meaningful engagement, improved academic outcomes, and a stronger sense of community.

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