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## The Community of Inquiry Framework in Practice: A Case of Chinese Online Education Context

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**Abstract:** This study describes how online courses were designed and delivered based on the Community of Inquiry (CoI) framework and how this influenced the online interaction in a Sino-American university in Wenzhou, China during the pandemic. The courses were English composition and Academic oral discourse, and Canvas was used as the learning management system for both synchronous and asynchronous modes. The first phase of the study was to create the online instructional design following the CoI principles to enhance interaction and applying the courses. The second phase was to examine the aspects of interaction related to the CoI framework at the end of the courses. The CoI Scale was used to measure the dimensions of the framework among the students who took the courses at the end of the 2022 fall semester. Descriptive analyses indicated that teaching, cognitive, and social presence constructs all had high scores. There was no significant difference between any of the constructs. The findings were discussed in relation to effective online instructional design and online education.

**Keywords:** The Community of Inquiry Framework, distance education, online language learning, LMS, online instructional design

### Highlights

What is already known about this topic:

- CoI framework is a theoretical model that describes the online learning experience as a function of the relationship between social presence, teaching presence, and cognitive presences.
- CoI provides a comprehensive and practical guide for designing, delivering, and evaluating online courses that foster a high quality and depth of online learning.
- The framework helps to identify the strengths and weaknesses of online courses.

What this paper contributes:

- This paper contributes to the literature by providing empirical evidence of the effectiveness of the CoI framework and online instructional design principles for enhancing online interaction in a Sino-American university during the pandemic.
- The paper also adds to the cross-cultural understanding of online learning experiences and preferences in different contexts and settings.

Implications for theory, practice and/or policy:

- The paper offers insights and implications for online instructors and course designers who want to create and deliver high quality online courses that foster a CoI among the learners.
- The paper offers implications for use of educational technology to provide diverse and authentic learning activities that stimulate curiosity, inquiry, and reflection among the learners.



## Introduction

The Community of Inquiry (Col) framework was developed by Garrison et al. (2000) and aroused attention among academics and practitioners in the field (Garrison, 2007). It is a structured theoretical framework for the requirements in online learning. Garrison et al. (2000), offers a thorough description of the fundamental components necessary for successful and meaningful online learning experiences. The Col framework's central claim is that three interconnected components—cognitive presence, social presence, and teaching presence—must all be present for online learning to be successful. The concept of cognitive presence describes how students participate in knowledge building, critical thought, and meaning-making. The fostering of a sense of community, trust, and cooperation among learners is included in social presence. Last but not least, teaching presence involves the instructor planning, facilitating, and leading the online learning process (Garrison et al., 2000). These three elements work together to create a coherent framework that directs educators and students in their pursuit of excellent online learning experiences.

The Col paradigm places a strong emphasis on reflection, which aids students in developing their cognitive presence. According to Redmond (2014), learners identify their expanded subject-area knowledge and abilities when they reflect on the learning process's objectives and results. Given the growing popularity of online learning, it is crucial to comprehend and apply the Col framework to ensure the effectiveness and success of virtual learning environments (Shea et al., 2005). According to the literature, interaction between students in online contexts is crucial for student performance (Fiock, 2020; Richardson et al., 2017). The strategy might be useful for making effective use of online learning environments, which was comparably more important due to the COVID-19 pandemic process.

China is known to have followed strict policies during COVID-19 pandemic, one of which was zero COVID case policy. Among many measures against the spread of the pandemic was remote teaching practices. Due to COVID cases among professors, some courses at the universities were held online temporarily. This paper focuses on how Col framework was put into practice in online courses and how that type of instructional design affected the interaction in the courses during the pandemic in a Sino-American university in Wenzhou, China. During the outbreak, English composition and academic oral discourse classes were offered online using the learning management system Canvas in both synchronous and asynchronous modes. As the first phase of the study, the online instructional design was created according to the principles of Col to boost interaction. As the second phase, the aspects of interaction in relation to Col framework at the end of these courses were analyzed. The Col Scale, created by Arbaugh et al. (2008) and verified by Swan et al. (2008), was used to assess the framework's dimensions among the students enrolled in the classes at the end of the 2022 fall semester. The results showed that teaching, cognitive, and social presence all received high scores. The findings were discussed in relation to effective online instructional design and online education.

## Literature

The Col framework's ability to promote rich and fulfilling learning experiences is one of the main reasons it is so important in online learning environments (Arbough, 2008; Arnold & Ducate, 2006; Garrison et al., 2000, Meyer, 2004). A Col is described as a group of individuals who collaboratively engage in purposeful critical discourse and reflection to construct personal meaning and confirm mutual understanding (Fiock, 2020; Richardson et al., 2012). The first component of the framework, cognitive presence, emphasizes knowledge construction and critical thinking. Instructors can help students develop higher-order thinking skills and encourage active learning by including them in insightful discussions, difficult tasks, and reflective exercises (Garrison et al., 2000). Cognitive presence is perhaps the hardest to generate in online courses out of the three types of presence described in the Col framework (Garrison & Cleveland-Innes, 2005; Moore & Marra, 2005). Through the Col paradigm,

teachers may get over the constraints sometimes associated with asynchronous online learning and encourage strong intellectual engagement, which improves subject comprehension and retention.

The Col approach also acknowledges the critical position that social presence plays in online learning (Garrison, 2007). To build a setting that is conducive to learning, participants must foster social contact and a sense of community. Having a supportive social presence in online situations when there is no physical proximity helps fight emotions of loneliness and detachment. Learners can form connections, develop trust, and participate in shared learning experiences through promoting meaningful interactions, teamwork, and peer-to-peer feedback. In addition to improving the learning environment overall, social presence fosters the motivation, engagement, and sense of community that are crucial for online course success and pleasure for students.

Additionally, the Col framework underscores the significance of teaching presence in online learning environments. Teaching presence involves the design and facilitation of online learning experiences by instructors (Anderson et al., 2001). Through clear instructional design, effective organization, and active facilitation, educators can guide learners through the learning process, provide meaningful feedback, and promote a supportive learning environment. Teaching presence also involves the selection and implementation of appropriate technologies and tools to enhance the learning experience. By assuming an active role in online discussions, modeling critical thinking, and providing timely feedback, instructors can shape and enrich the learning experience for their students.

The Col framework has been used to assess how well online learning environments foster cooperation, discussion, and critical thinking among students and teachers (Anderson, 2017; Mohsen Saadatmand et al., 2017). The application of the Col framework in online learning settings has been the subject of recent studies. Through the lens of the updated (Col) framework, Wang et al. (2022) investigated how students interacted with MOOC-based flipped learning. The findings showed that the four categories of presences listed in the updated Col paradigm were all accessible to students through MOOC-based flipped learning. Students noted that the MOOC-based flipped course enhanced direct instruction and assessment during both online and in-person sessions, resulting in greater learning presence in the form of monitoring and strategy, greater cognitive presence through integration, more social presence through affective expression and open communication, and increased teaching presence overall. In another study Wang (2022) focused on teaching presence and conducted an online survey of college students in China. According to research, the teaching presence was found to be closely related to behavioral engagement, cognitive engagement, and emotional engagement. Also, favorable relationships with cognitive engagement were seen in design and organization, evaluation, and technology support. Emotional involvement was positively correlated with direct education and technical help. The findings showed that various aspects of a teacher's presence have various impacts on how well students were learning. The Col framework has, in general, shown to be a valuable tool for assessing and enhancing online learning environments.

To foster successful online learning experiences, teachers can create and implement online courses that encourage in-depth learning, establish a feeling of community, and offer valuable teacher support by taking the interaction of cognitive presence, social presence, and instructional presence into consideration. Adopting the Col paradigm is essential to provide excellent and interesting educational experiences in virtual spaces as online learning continues to gain popularity. Applying this approach to instructional design incorporates a number of components to encourage learners' active participation, teamwork, and critical thinking. For example, discussion forums might be designed around challenging topics or challenging problem-solving scenarios to increase cognitive presence. To encourage students to use higher order thinking, the teacher might set explicit goals, standards, and participation requirements. The questions may be created to promote conceptual application, information synthesis, and critical analysis, encouraging cognitive engagement. The instructor can help create a welcoming and encouraging online community to improve social presence. This can be done by creating a friendly,

courteous environment where students feel free to express their ideas and opinions. The instructor might encourage peer-to-peer interactions, set an example of active engagement, and give prompt, constructive criticism. Incorporating collaborative activities to foster a sense of shared learning and community among students, such as group talks or project work, is another option. When it comes to teaching presence, the teacher is quite important in directing and facilitating the online discussion forum. They can establish the tone for the discussion, give clear directions and guidelines for participation, and scaffold learning by asking insightful questions or offering extra resources. To make sure the learning objectives are achieved, the teacher should actively monitor and participate in the discussion, providing direction, summarizing important points, and redirecting the discourse as needed. They help students in their cognitive and social engagement by participating actively in the forum, which shows their dedication to the learning process.

The instructional design encourages cognitive presence through critical thinking and knowledge construction, social presence through community building and collaboration, and teaching presence through guidance and facilitation by implementing various design aspects. In the context of distance learning in online environments, following principles of Col framework might offer a dynamic and engaging learning environment that encourages meaningful participation, in-depth study, and a sense of community among students.

### **Context of the Study**

The study was conducted in a Sino-American university where English medium of instruction is applied for all majors in Wenzhou, China. The institution is a Chinese-American jointly established higher education institution, which was cooperatively run by Wenzhou University and Kean University USA. All courses are taught in English. The study focuses on two courses, i.e. English composition, and academic oral discourse. These two courses were held online synchronously and asynchronously on Canvas LMS during 2022 fall semester due to the pandemic restrictions. The instructor and the students met two times for two hours per week for eight weeks on Zoom and BigBlueButton synchronously. The course also required asynchronous participation apart from the online synchronous classes. As the first phase of the study, the instructor designed the courses according to the following online instructional principles on Canvas.

**Learning Objectives:** The online course's general structure and activities were directed by well-defined, explicit learning objectives that were included in the instructional design on Canvas. The detailed syllabus, weekly course requirements, objectives and self, peer, group, and teacher evaluation components were displayed on Canvas throughout the course.

**Multimedia:** Various multimedia elements, such as movies, interactive simulations, multimedia presentations, and interactive practice games and tests were integrated to promote cognitive presence. These multimedia elements were aimed to grab students' attention, encourage active participation, and aid in the visualization of difficult concepts.

**Collaborative Activities:** Including collaborative activities promotes social presence. Pair / group projects, peer reviews, and online debates, individual discussion boards were integrated into the design. Students had chances to connect with one another, exchange ideas, offer criticism, and participate in the building of common knowledge both synchronously and asynchronously. Collaboration exercises aimed to foster a sense of belonging and to create encouraging learning environment.

**Evaluation:** Designing exams that go beyond mere knowledge recall and support cognitive presence is crucial. To show off their critical thinking abilities and in-depth knowledge of the subject matter, learners were required to analyze, synthesize, and apply their knowledge in assessments. Online rubrics, evaluation checklist, peer review checklists, self-practice quizzes, modal feedback to sample papers

were presented to the students on Canvas. Evaluation criteria for every single assignment were explained through instructional videos and by the instructor during live sessions.

**Timely and Constructive Feedback:** Giving timely and constructive feedback is crucial for improving teaching presence. Feedback from instructors should be precise, useful, and concentrated on both good and bad areas. Feedback is known to promote reflective thinking, directs learners' development, and shows the instructor is actively engaged in the learning process. The courses integrated different kinds of feedback from different sources. Timely written, audio and video feedback from the instructor, instant automated writing feedback by AI-based technologies, and peer feedback by online conversations and offline checklists were integrated into the course design.

**Interactive Learning Activities:** By giving students the chance to apply theoretical ideas in real-world situations, interactive learning activities like simulations, case studies, or virtual labs can improve cognitive presence. Active learning, problem-solving, and critical thinking are all encouraged by interactive activities.

**Instructor Presence:** Instructors should take an active role in the online course to show that they are there to instruct. The instructor started conversations, facilitated them, offered assistance, and clarified things by using different communication channels like Canvas instant messaging, WeChat (a mobile app for instant messaging) course groups, e-mail, and video-conferencing tools. Regular communication, such as announcements or weekly updates were made to promote a helpful learning environment and help maintain a sense of instructor presence.

## **Methodology**

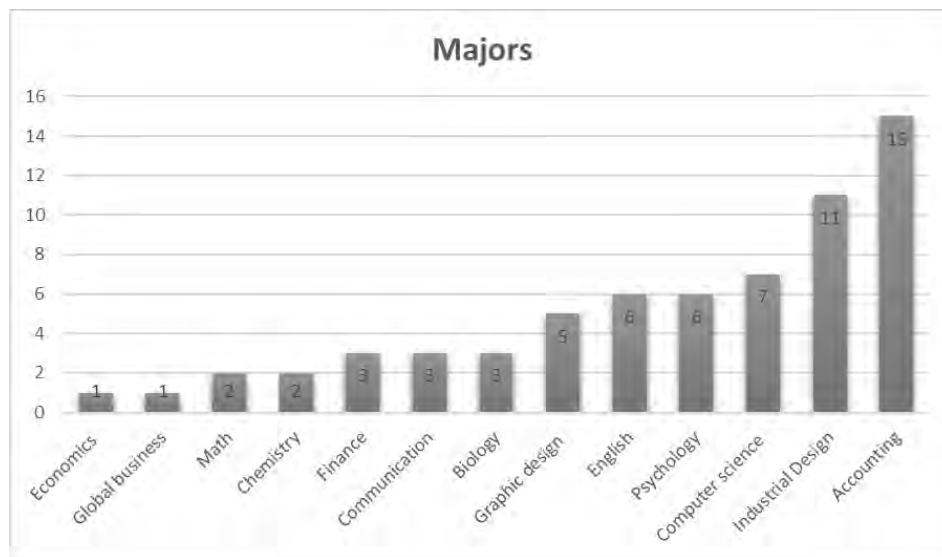
### **Research Model**

This quantitative study employs survey research approach (Creswell, 2012). Survey research enables researchers to collect information about participants' experiences, opinions, or views in a systematic and quantitative way through the distribution of scales or questionnaires. It is an effective way to efficiently obtain a lot of data while conducting research on subjective factors. Typically, participants are requested to complete the survey on their own and to base their answers on their unique experiences or viewpoints. Survey approach enables uniform data collecting and makes participant or group comparisons easier (Check & Schutt, 2012; Kelly et al., 2003; Ponto, 2015).

### **Sampling**

Participation in the study was on voluntary basis. The researcher sent an online invitation to the students according to purposive sampling. The participants were all those who accepted the invitation and who participated in those two courses. Among 72 students 65 of them volunteered to participate in the survey. Their ages ranged from 17-20. They were from various majors. Top three majors were Accounting, Industrial design and Computer Science. The distribution of the participants according to their majors can be seen in Figure 1 below.

Figure 1. Participants' distribution according to their majors



### Data Collecting Tools

In order to determine the dimensions of the framework, the Col Scale, developed by Arbaugh et al. (2008) and validated by Swan et al. (2008), was applied to the students attending the classes at the end of the fall semester in 2022. The Col scale consists of 34 items, with 13 items measuring teaching presence, nine items measuring social presence and social presence, and 12 items measuring cognitive presence. Participants rate their agreement with each item using a 5-point Likert scale, indicating the extent to which they perceive the presence of these elements in their online learning experience. Validity and reliability measures of the scale were made by Swan et al. (2008). Their measurements yielded highly reliable scores. The values of Cronbach's Alpha in this data set were 0.94 for teaching presence, 0.91 for social presence, and 0.95 for cognitive presence, all of which indicate high intercorrelations and internal consistencies. The tool used in their study gives a valid indication of whether a Col exists in online learning environments.

Examples for some statements from the scale are: For teaching presence: "The instructor clearly communicated important course topics", "The instructor provided clear instructions on how to participate in course learning activities", "The instructor clearly communicated important due dates/time frames for learning activities", "The instructor helped to keep course participants engaged and participating in productive dialogue". For Cognitive Presence: "I felt motivated to explore content related questions", "Brainstorming and finding relevant information helped me resolve content related questions", "Online discussions were valuable in helping me appreciate different perspectives". For Social presence: "Online or web-based communication is an excellent medium for social interaction", "I felt comfortable conversing through the online medium", "I felt comfortable interacting with other course participants".

### Data Analysis

The data gathered from the Col Scale was summarized and interpreted in descriptive statistics. To summarize the total scores and variety of participants' responses for each aspect of teaching presence, cognitive presence, and social presence, measures like mean, standard deviation, median, and range were computed. These statistics provided a snapshot of the participants' perceptions and the level of presence perceived in the online learning environment.



As the initial step for the analysis, the collected data was properly coded and organized by assigning numerical values to participants' responses on the Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Descriptive statistics included calculation of measures of central tendency to understand the central or average score for each dimension of teaching presence, cognitive presence, and social presence. Common measures included the mean (average), median (middle value), and mode (most frequent value). Measures of variability to assess the spread or dispersion of the data was also calculated. Common measures included the standard deviation, which shows how much the scores deviate from the mean, and the range, which indicates the difference between the highest and lowest scores. To visualize the frequency and pattern of scores for each dimension of presence distribution of participants' responses were examined and bar charts were created. Mean scores were calculated to identify which dimensions (teaching presence, cognitive presence, social presence) have higher or lower perceived presence. The mean scores then statistically analyzed by using ANOVA to find out if there is significant difference between the mean scores of each type of presence.

### **Research Procedures**

The courses were designed on Canvas LMS by the instructor before the fall semester began. During eight weeks, the students and the instructor met twice for two hours online on Zoom or BigBlueButton (a built-in videoconferencing platform on Canvas). Apart from videoconferencing, the students were required to follow the instructions and complete some tasks based on requirements asynchronously. At the end of the process, the students were invited to take part in the survey. Those who accepted were sent the online version of the Col scale via Google Forms. The participants had a week to answer the questions. After the data collection, the data was prepared for the analysis. The survey form included consent information explaining that the survey evaluates the online courses based on the Community of Inquiry Model, the purpose, confidentiality, and voluntariness of the survey, and thanks the students for their participation.

### **Limitations**

The study was limited to quantitative data gathered through online Col scale. The findings would have been discussed in more detailed if supported by qualitative data. As for another limitation, the study included a limited sample of participants from one institution only. Data gathered from participants from different institutions in China would have been more comprehensive about online learning environments and interaction levels of the students.

## **Findings and Discussions**

Descriptive analysis revealed that the participants scored high on all types of presence. Table 1 shows the mean scores and standard deviations of teaching presence, social presence, and cognitive presence. The mean score is the average value of all the responses given by the learners on the scale from 1 to 5, where 1 means strongly disagree and 5 means strongly agree. The standard deviation is a measure of how much variation there is among the responses. A low standard deviation means that most of the responses are close to the mean, while a high standard deviation means that there is more diversity among the responses.

The mean scores for teaching presence and cognitive presence are both 4.37 out of 5, which indicates that the learners strongly agree that they experienced a high level of teaching presence and cognitive presence in their online learning community. This suggests that they were satisfied with the design, facilitation, and direction of their learning activities, and that they were able to construct meaning through sustained communication with their peers and instructors. The mean score for social presence is 4.18 out of 5, which indicates that the learners agree that they experienced a high level of social presence in their online learning community. This suggests that they were able to project their personal

characteristics into the community of inquiry, and that they felt connected and supported by their peers and instructors.

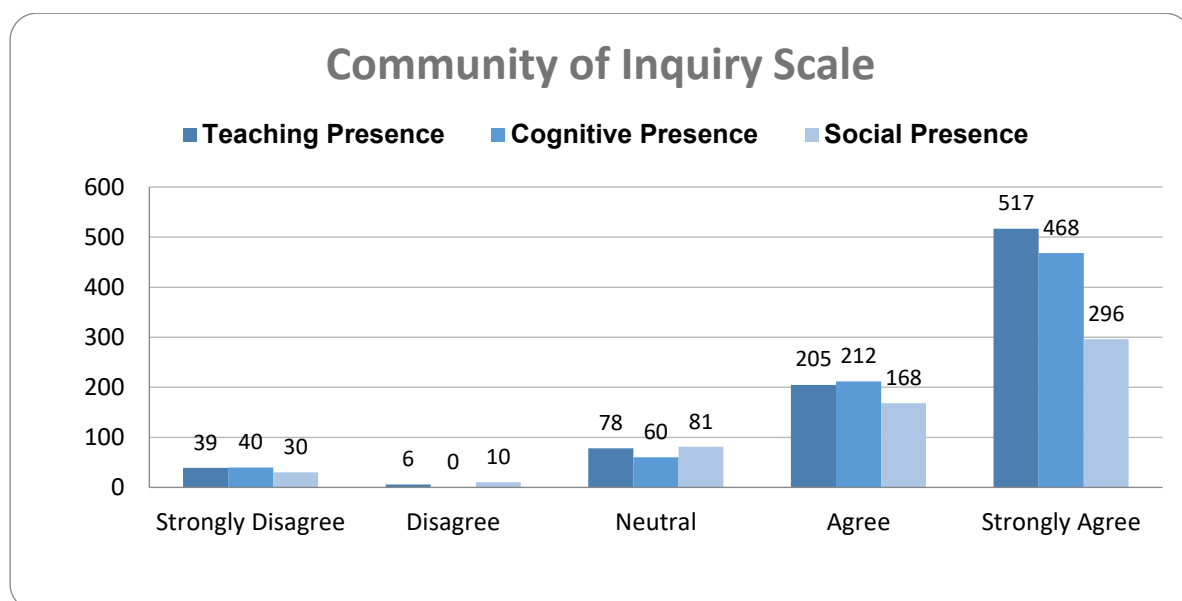
The standard deviations for all three elements are relatively low (1.0 or 1.1), which indicates that there is not much variation among the responses given by the learners. This suggests that most of the learners had similar perceptions and experiences of teaching presence, social presence, and cognitive presence in their online learning community.

Table 1. Descriptive statistics of Col survey

Dimensions	Std		Median	Mode	Std Dev	Sample Variance	Kurtosis	Skewness	Sum	Count	Conf Lev(95%)
	Mean	Error									
Teaching presence	<b>4,37</b>	0,13	5	5	1,0	1,0	3,8	-2,0	283,8	65,0	0,3
Social presence	<b>4,18</b>	0,13	4,5	5	1,1	1,2	2,0	-1,5	271,7	65,0	0,3
Cognitive presence	<b>4,37</b>	0,12	5	5	1,0	1,0	4,4	-2,1	284,0	65,0	0,2
Mean	4,31	0,13	4,85	5,00	1,03	1,07	3,42	-1,8	279,8	65,0	0,26

Figure 2 shows the total number of scores for each scale. When the total scores are examined, it should be noted that teaching presence construct has 13 items, cognitive presence construct has 12 items and social presence construct has nine items in the scale. Therefore, total number of scores vary mainly because of the different numbers of items. Nonetheless, the total scores for “strongly agree” and “Agree” outnumber the other choices for all presence constructs. The findings that show high scores of social, teaching, and cognitive presences in those online courses indicate that the courses were designed and implemented in a way that fostered a Col among the learners and instructors.

Figure 2. Total number of scores for each presence



When the participants of this study scored high for teaching presence, they claimed that they received enough guidance and support through the phases of inquiry. That is, they appreciated the course design, content, and materials. The findings of Nazar et al.'s (2018) study, which employed the Col survey to



look at blended learning, are similar to those of this study in that they demonstrated the significance of instructional design. According to the survey, the design and arrangement of the materials received the Col's highest ratings. The focus groups also recommended that there should be more facilitation and guidance given to the design of the learning environments. These results add to the mounting proof that the teaching presence construct is crucial for directing and forming group inquiry and dialogue. Teaching presence is related to the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educational worthwhile learning outcomes (Garrison, 2022). According to Anderson et al. (2001), there are some components of teaching presence. They include facilitating discourse (e.g., establishing course climate, recognizing or reinforcing student contributions, etc.); establishing curriculum; and providing direct instruction (e.g., summarizing the discussion, presenting content/questions) (Anderson et al., 2001). High scores of teaching presence in this study indicate satisfaction among the participants regarding the course climate, presentation of the course content, and online instruction. A recent study with a sizable Asian sample validated the validity of the teaching presence construct using statistical analysis (Nasir et al., 2018). The teaching presence construct has a wealth of research support. This result is important because it demonstrates that the teaching presence construct can be used to study other cultures, including Asian culture. Similarly, this study includes Asian participants who tended to appreciate teaching presence in their online courses. Nonetheless, teaching presence should not be considered as a factor influencing the effectiveness of learning process. As the Col approach has evolved through time, Anderson (2017) examines its current condition in relation to teaching and learning in the digital age. The main issue with the current Col model, according to Anderson (2017), is that while it aids in the construction and definition of an effective teaching model, it neglects to take into account the fact that the efficacy of teaching is equally dependent on the learners. Therefore, some adjustment recommendations for the Col framework have been suggested on the grounds that it might not include all crucial elements of effective online learning experiences (Anderson, 2016). It is critical to evaluate the quality of the proposed theoretical revisions for the Col framework given the prevalence of the Col framework in online education research and practice (Kozan & Richardson, 2014; Stenbom et al., 2016).

As for the high scores for social presence, the participants of this study claim that they were able to project their personal characteristics into the community of inquiry, thereby presenting themselves as 'real people' (Fiock, 2020). The participants' high scores for the statements related to social presence indicate that they had chances to develop interpersonal relationships, trust, and group cohesion, which are essential for effective collaboration and communication (Garrison, 2022). Similarly, the high scores indicate that the atmosphere of the online course helped learners to build trust between peers and the instructor, and they could get technical support when they needed. During the online courses the learners could send messages which can be seen just by the instructor or by whole class members on Canvas, and they could ask any questions through WeChat app to the class group or privately to the instructor. These communication channels seemed to promote the growth of social presence. As Richardson et al. (2017) highlights, online course designs should provide learners with different channels where they can incorporate feelings and personal experiences to support social presence (emotional affective) expressions, open communication, and group cohesion.

The findings revealed that the participants responded positively to the statements related to cognitive presence construct. High scores for cognitive presence suggest that the online course design provided diverse and authentic learning activities that stimulated curiosity, inquiry, and reflection among the learners. The participants think that their online courses were created in a way to promote a variety of viewpoints and sources of evidence to stimulate critical conversation among their classmates. High scores for cognitive presence imply that the online course design facilitated the learners' progress through the four phases of cognitive presence: triggering event, exploration, integration, and resolution (Moore & Miller, 2022). Moreover, high scores for cognitive presence demonstrate that the online course design was aligned with the learners' prior knowledge, learning goals, and expectations. According to Fiock (2020), cognitive presence is the capacity of members of a community of inquiry to create meaning throughout the course of continuous conversation. The degree of critical thinking and knowledge

production that takes place in the online learning environment is indicated by cognitive presence. In this context, high scores for cognitive presence of this study prove that the online course design was supported by effective teaching presence and social presence, which led and inspired the students throughout their learning process.

When the mean scores are calculated, there were slight differences across teaching, social and cognitive presence. Therefore, the mean scores then statistically analyzed by using ANOVA to find out if there was significant difference between presence constructs. Table 2 shows the ANOVA results. According to findings there was no statistically significant difference between the different type of presences ( $p= 3,9$ ). That is, the participants valued all types of presence almost equally.

Table 2. Comparison of mean scores for each construct

SUMMARY				
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Teaching presence	13	56,76	4,36	0,001
Social presence	9	37,61	4,17	0,006
Cognitive presence	12	52,43	4,36	0,002

#### ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>
Between Groups	0,23	2	0,11	38,5	<b>3,9</b>
Within Groups	0,09	31	0,00		
Total	0,32	33			

### Conclusion and Suggestions

This study examined how learners interacted in online courses that were created using the concepts of online instructional design to increase interaction according to CoI framework at an Asian higher education institution, The three components of online interaction—teaching presence, social presence, and cognitive presence—were measured using the CoI scale. High scores were obtained for each of the three dimensions, proving that the online courses promoted significant learning and high levels of collaborative inquiry in their students. The findings add to the field's body of knowledge by emphasizing the significance of a CoI in online learning environments and the value of effective online course design.

Evaluating the findings that show high scores of social, teaching and cognitive presences in online courses can help identify the strengths and weaknesses of the online course design and implementation, as well as provide insights for improvement. Findings of the study contribute to the relevant literature by highlighting that designing online courses with clear learning objectives, expectations, and guidelines that align with the CoI and the principle of effective online instructional design brings positive results (Fiock, 2020). Providing diverse and authentic learning activities that stimulate curiosity, inquiry, and reflection among the learners, and that are aligned with the four phases of cognitive presence: triggering event, exploration, integration, and resolution (Garrison, 2007; Parrish et al., 2021) is appreciated by the learners. Encouraging multiple perspectives and sources of evidence to support critical discourse among the learners and providing timely and relevant feedback either by the instructor or automated feedback tools and scaffolding to facilitate their progress. Fostering social interaction and community building through icebreakers, introductions, group work, pair work, individual discussion forums etc., and providing effective online communication channels via mobile applications or learning management

systems and modelling behaviors such as empathy, respect, openness help facilitate interaction in online learning environments.

This study intended to explore strengths and weaknesses of online course design in terms of social, teaching, and cognitive presence by using Col survey as a diagnostic tool. More in-dept studies focusing on individual experiences in details such as phenomenological approaches might bring more perspectives to the practice of Col framework in online learning environments.

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Ayse Taskiran: Conceptualization, Methodology, Data Curation, Formal Analysis, Writing -original draft, Writing -review & editing.

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### Ethics Statement

All the participants were given written consent forms with comprehensive information about the study's objectives, methods, and duration, as well as its potential risks and rewards, as well as its voluntary nature, the participants' right to decline the study and the researcher's contact information.

### Conflict of Interest

The author does not declare any conflict of interest.

### Data Availability Statement

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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