EXPLORING COMMUNITY OF INQUIRY IN VIRTUAL LEARNING ENVIRONMENTS

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ABSTRACT

The Community of Inquiry (COI) framework theory, developed by Garrison et al. (1999), is an established theoretical framework in distant and online learning. The purpose of this study is to discover more about how university students view instructors' presence and how it affects their motivation and learning outcomes. Data were gathered using the Community of Inquiry Survey Instrument (Arbaugh et al., 2008), which was distributed to students at Hassan II University in Casablanca. Of the 340 questionnaires that were distributed, 300 were gathered, checked, and validated. With the aid of SPSS and SmartPls 3.2.9, the data were examined and statistically analyzed using reliability analysis, which includes composite reliability, convergent validity, and principal components approach (PCA). Cronbach's alpha was equal to 0.96, demonstrating a very significant correlation between the three COI framework components of teaching presence, social presence, and cognitive presence. The teacher plays a crucial role in the learning of online students, both through their comprehension of presence in online teaching and in the initial planning of well-aligned learning experiences. They also support the learning processes through continuous communication to achieve coherence of the COI theoretical framework.

Keywords: *Community of Inquiry, teaching presence, social presence, cognitive presence*

INTRODUCTION

The COVID-19 pandemic affected many facets of life around the world in addition to the immediate health dangers. Education is one of the sectors that has been tremendously affected by the pandemic. Massive closure of schools and a sudden shift to alternatives modes of study other than face-to-face instruction have triggered questions about the challenges educational systems faced both and after COVID19.

Weeks after the spread of the global pandemic, several documents (Education International, 2020; UNESCO, 2020); were released to respond to the crisis and provide guidance on how to cope with its challenges. Despite the wide range of advanced recommendations, there seems to be a consensus on the fact that educational systems will never be the same again and it is necessary to rethink education and accelerate constructive change in teaching and learning.

The unexpected COVID-19 epidemic and university closures put traditional higher education institutions on the forefront of several challenges (Florjančič, 2022). To ensure learning continuity, Morocco, like many countries around the globe, shifted to remote learning and launched a series of distance education initiatives such as opening online platforms and engaging television channels to broadcast courses to rural areas where the network capacity is lower (Draissi & ZhanYong, 2020). A real achievement for Morocco, according to Habibi et al. (2021), was moving from being a 1.0 country (using paperwork and Web 1.0) to a 4.0 country (using technology and Web 4.0) and gaining several years of progress in terms of incorporating educational technology.

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Yet, apart from the digital divide and the multiple technological challenges that have emerged due to the forced, accelerated shift to virtual education, concerns about the pedagogical implications of such a change have garnered considerable attention. One of the most obvious effects is the expectation, if not the requirement, that instructors continue to teach using the virtual modality in Morocco and abroad (IESALC, 2020), the most immediate result of the pandemic was Emergency Remote Teaching practices or *Coronateaching*, a term used to describe converting classroom instruction into online instruction without altering the curriculum or methodology (Pérez, 2020).

Therefore, education needs to go beyond any reactive measures implemented to cope with the pandemic-related disruptions and rethink and redesign an educational model that cultivates best practices and takes advantages of technological abundance, especially because online platforms for high-quality teaching are here to stay (Zhang et al., 2020). Online education, which had long been positioned at the periphery, now has moved to a central position within university administrations (Forsyth et al., 2010), which became more evident and was accelerated with the outbreak of COVID-19 (El-Soussi, 2022).

The challenge for higher education might be double as universities are expected not only to drive away from simply "surviving" or "winning" over the pandemic, but to reflect on how to build a sustainable system of teaching, doing research and engaging with society. They will need a new and robust system in which online and physical presence is well balanced, efficiently articulated and scientifically backed up (Gomez Recio & Colella, 2020, p. 31).

Since many of the interactional affordances typically found in a traditional classroom have been supplanted by new technologies or made impractical by geographic and temporal distances, the emergent roles of the online instructor as defined by the computer-mediated interaction between teacher and learner are central to the adoption of virtual education (Lynch, 2016). Determining the additional tasks and responsibilities faculty should take on to foster an active learning community requires reconsidering physical presence and formal space in higher education. Understanding how faculty perceive and develop their teaching presence in the online or blended courses they teach, as well as the types of facilitation strategies they apply in their asynchronous or synchronous forms of instruction, is clearly necessary.

Following this introduction, the remainder of this paper is structured as follows. First, we provide a statement of the problem and our research questions. Next, we review the literature on distance learning theories and present the community of inquiry model with the concept of teaching presence. This is followed by the details of the method we used in the empirical research, followed by a presentation of the data analysis and measurement model. Finally, we discuss our findings and make our conclusion while outlining the main limitations of the study.

PROBLEM STATEMENT AND RESEARCH QUESTIONS

Distance education has become an essential topic of study in education and training over the past two decades (Addimando, 2022). To react to the shifting circumstances brought upon by the COVID-19, the institutions of higher education in Morocco have been trying to maintain educational continuity by resorting to a widespread use of digital tools that is called Emergency Remote Teaching. Because the current crisis will increase the tendency to implement online or blended modes of instruction, higher education institutions need to adopt a coherent strategy that insists on best practices for education quality. At the heart of best practices for online teaching is the notion of teaching presence, which is "broadly characterized as the virtual 'visibility' of an instructor in an online learning environment" (Lynch, 2016, p. 2).

The ability to establish and manage dynamic learning groups is another benefit of distant learning. Instructors' readiness to teach in an online or hybrid learning environment has a significant impact on the effectiveness of their instruction and the successful implementation of remote learning. In the age of digital education, it is crucial to evaluate instructors' readiness to teach in online or blended contexts and how they perceive and interpret teaching presence and the importance of developing it in virtual learning.

The purpose of this study was to discover how university students view the instructors' teaching

presence and how it affects their motivation and learning outcomes. The following research questions are the focus of this study:

1. What importance do instructors give to the concept of teaching presence?
2. How do students perceive the teacher's presence in an online learning environment?
3. How do the students perceive the teaching presence to be affecting their learning?

LITERATURE REVIEW

Learning Theories for Distance Learning:

The move to online education has been a very popular trend in education over the past few decades. Therefore, it is now more crucial than ever for educators in general, and those working in higher education in particular, to investigate the exciting possibilities that new technologies provide for organizations, educators, and students (Allen & Seaman, 2015). As a result, a variety of issues have surfaced that raise questions about what it means to study and teach in a nontraditional learning environment, what the caliber of online instruction is, and the roles that the instructor ought to play in facilitating the learning process. As a result, many theories have been developed, most of which have their roots in active learning, connectivism, and social constructivism. They outline the best practices in environments that integrated online and blended learning and account for how learning occurs as well as what facilitating roles the online facilitator should play.

To start, George Siemens (2005), the principal proponent of connectivism, admitted significant changes in the way knowledge and information flows, develops, and changes as a result of huge data communications networks. Siemens (2005) asserted that seeing learning and knowledge as network phenomena significantly modifies how we have historically experienced knowledge.

Connectivism, as Downes (2007) put it,

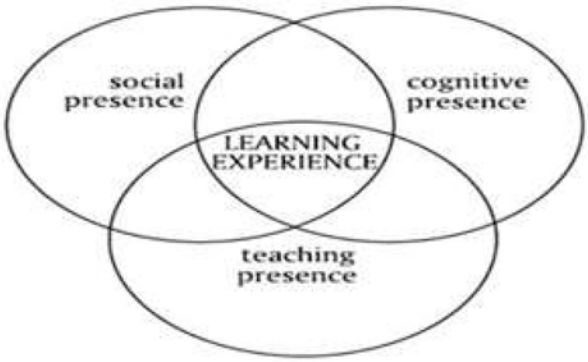
> implies a pedagogy that (a) seeks to describe "successful" networks (as identified by their properties, which I have characterized as diversity, autonomy, openness, and connectivity) and (b) seeks to describe the practices that lead to such networks, both in the individual and in society (which I have characterized as modeling and demonstration (on the part of a teacher) and practice and reflection (on the part of a learner) (p. 2).

Another theory developed by Linda Harasim (2012) consists of Online Collaborative Learning (OCL), which she defines as

> a model of learning in which students are encouraged and supported to work together to create knowledge: to invent, to explore ways to innovate, and, by so doing, to seek the conceptual knowledge needed to solve problems rather than recite what they think is the right answer. While OCL theory does encourage the learner to be active and engaged, this is not considered to be sufficient for learning or knowledge construction…. In the OCL theory, the teacher plays a key role not as a fellow-learner, but as the link to the knowledge community, or state of the art in that discipline (Harasim, 2012, p. 90).

The Community of Inquiry (COI) framework theory, developed by Garrison et al. (1999), is an established theoretical framework in distance and online learning. In addition to the online conferencing environment where it first appeared, it has grown in popularity as a framework for promoting research and course creation as new technologies have been developed (Anderson, 2017).

Figure 1.
The Community of Inquiry (COI) developed by Garrison et al. (1999)



The CoI, which will be the framework of this study (see Figure 1), is a process model of online learning that assumes that effective online learning, especially higher order learning, requires the development of community, and that such development is not a trivial challenge in the online environment (Swan et al., 2009). The Community of Inquiry

(CoI) framework is "a widely adopted pedagogical model that outlines the critical dimensions that shape a students' online learning experience" (Kovanović et al., 2018, p. 45). This framework can assist educators to create and develop effective online dialogues that encourage a community where students can freely exchange ideas and apply critical thinking in gathering knowledge under the direction of experts (Garrison & Arbaugh, 2007, as cited in deNoyelles et al., 2014)

According to this paradigm, the learning experience is the outcome of the interactions of three interconnected presences that collectively make up the community of inquiry: social presence, cognitive presence, and teaching presence. Although these can be thought of as distinct entities, they are actually connected (Garrison et al., 2010).

Garrison (2009) defined social presence as "the ability of participants to identify with the community, communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (p. 352).

According to Micsky and Foels (2019) and LaMendola (2019), social presence is no longer constrained by a teacher's physical attendance. Establishing a presence in online education is therefore seen as a difficult task, and creating social presence outside of the traditional classroom is very different because interactions are delayed in time, lack nonverbal indications like body language, and can be influenced by how one reads the text alone (Fox, 2013, as cited in Micsky & Foels, 2019).

Cognitive presence refers to "the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse" (Garrison et al., 2001, p. 11) because learning in virtual environments, as Berge (2008) sees it, is "driven by a move toward informal, collaborative, reflective learning, with user-generated content" (p. 412). According to Garrison and Kanuka (2004), the investigation, building, resolution, and confirmation of understanding through cooperation and reflection in a community of inquiry constitutes cognitive presence.

The third kind of presence, known as a teaching presence, unites the first two and promotes engagement and teamwork in online learning communities. In actuality, it describes the evolving duties and tasks of online teachers and facilitators within the learning community.

Teaching Presence and the Community of Inquiry Model

The CoI framework is generally regarded as the most influential learning process model available to support a constructivist orientation in computer-mediated distance learning environments in higher education (Van der Merwe, 2014). According to Garrison et al. (1999), teaching presence is crucial for balancing cognitive and social concerns with desired educational objectives. It also serves as the unifying factor in developing a community of inquiry for achieving educational objectives.

The COI model Anderson et al. (2001) defined teaching presence as "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (p. 5). A learning community can be developed by using a "guide on the side" type of facilitation, as described by Collison et al. (2000) in her description of the various roles that online facilitators can perform.

In a thorough review of the literature, Garrison et al. (1999) conceptualized teaching presence as having three dimensions: instructional design and organization, discussion facilitation, and direct instruction. Teaching presence is what drives the online facilitation process (Micsky & Foels, 2019).

The design and organization of the learning experience, which is the first function of the online facilitator, happens both before and during the management of the learning community. Second, creating and putting into practice activities that promote dialogue among students and between the teacher and students, and between specific students, groups of students, and content resources, are all part of the teaching process (Anderson, 2002). Third, when the instructor provides subject matter expertise through a range of direct instruction methods, the teaching function goes beyond just moderating the learning experiences (Anderson, 2008).

The term *teaching presence* has been preferred over *teacher presence* since Anderson et al. (2001) stated that everyone in online courses can contribute to the teaching presence. Teaching presence begins before the course starts and lasts

for the duration of the course (Anderson et al., 2001). The contacts between the teacher and the students do not have to be synchronous, according to Bernard (2004); in fact, research indicates that online courses using an effective asynchronous approach frequently provide higher student success than those requiring regular synchronous interactions.

Florjančič (2020) pointed out that the online learning environment, where different information and communication technologies are used, offers many possibilities limited only by the teachers' creativity and skills. The instructor has a crucial and diverse role in any learning environment, whether it is synchronous or asynchronous. Depending on the situation, the teacher may serve as a direct instructor, a facilitator, or a sage. Other times, they may combine these roles and act as an active moderator. Each of these positions calls for a teaching presence with an emphasis on education (Barzegar & Taghizadeh, 2013).

METHODOLOGY

I utilized a quantitative case study to produce in-depth insights into how university students perceive and experience teaching presence and how teachers in higher education institutions in Morocco perceive and establish teaching presence. Online course observation and the CoI questionnaire survey, designed by Arbaugh et al. (2008), were used to acquire a clear understanding of the study issues. Online learning research has made extensive use of the CoI framework and CoI survey in general (Stewart, 2019).

The Community of Inquiry Survey Instrument (draft v14; https://www.thecommunityofinquiry.org/CoISurveyDraft14b1.pdf) was used to collect the data. It was made available to students at the University Hassan II in Casablanca between March and June 2022. Out of the 340 questionnaires, 300 were collected that were successfully completed by online survey participants. Data analysis was done using SPSS and SmartPls 3.2. All of the students who took part in the online poll were from the management and economics disciplines, of which were 138 (46%) were men and 162 (54%) women.

Sampling and Data Analysis

The study focused on participants from different higher education institutions in Morocco to explore teaching presence in online courses using the indicators of the COI framework. Purposeful sampling was used because, though it might not be statistically representative, it can be "representative of the general experience of the issue under investigation" (Ellis, 2020, p. 83). Robinson (2014) argued that the rationale for using a purposive strategy is that the researcher presupposes, based on their a priori theoretical understanding of the topic being studied, that specific categories of people may have a special, distinctive, or significant perspective on the phenomenon in question. Therefore, the study focused on academic staff who lead online courses using an LMS because this enabled teaching presence to be tracked, which supported the research objectives.

Finally, a 34-item questionnaire with three parts—teaching presence (Questions 1–13), social presence (Questions 14–22), and cognitive presence (Questions 23–34)—was created. A 5-point Likert scale (from *strongly disagree* to *strongly agree*, as shown in Table 1) was used to evaluate each item.

Measurement Model

A statistical analysis was conducted to determine the validity and reliability of the study. The composite reliability (CR) and average variance extracted (AVE) were used to assess the analysis's convergent validity.

The reliability analysis, which also considers composite reliability, is the measurement model's initial part. According to Ringle et al. (2018), 0.70 is the recommended cutoff value for the composite reliability. This study's Composite Reliability (CR), which ranges from 0.920 to 0.954, demonstrated a significant correlation between the three elements. The second alpha measurement model indicator is convergent validity. The average variance extracted (AVE), which has a cutoff of 0.50 (Ringle et al., 2018), is a measure of convergent validity. (Table 2).

According to the teaching, social, and cognitive presence Cronbach's alphas of 0.948, 0.902, and 0.919, respectively, there is a very strong correlation between the items in the study. To determine the discriminant validity of the constructs, the Heterotrait Monotrait (HTMT) Ratio approach was applied. The most conservative threshold values of the HTMT ratio to assess the discriminant validity, according to Dijkstra and Henseler (2015), are

Table 1.
Community of Inquiry Survey Instrument (Arbaugh et al, 2008).

Construct	Subconstruct	Code	Question
TEACHING PRESENCE	Design & Organization	TP DO1	The instructor clearly communicated important course topics.
		TP DO2	The instructor clearly communicated important course goals.
		TP DO3	The instructor provided clear instructions on how to participate in course learning activities.
		TP DO4	The instructor clearly communicated important due dates/time frames for learning activities.
	Facilitation	TP FAC1	The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.
		TP FAC2	The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.
		TP FAC3	The instructor helped to keep course participants engaged and participating in productive dialogue.
		TP FAC4	The instructor helped keep the course participants on task in a way that helped me to learn.
		TP FAC5	The instructor encouraged course participants to explore new concepts in this course.
		TP FAC6	Instructor actions reinforced the development of a sense of community among course participants.
	Direct Instruction	TP DI1	The instructor helped to focus discussion on relevant issues in a way that helped me to learn.
		TP DI2	The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.
		TP DI3	The instructor provided feedback in a timely fashion.
SOCIAL PRESENCE	Affective Expression	SP AE 1	Getting to know other course participants gave me a sense of belonging in the course.
		SP AE 2	I was able to form distinct impressions of some course participants.
		SP AE 3	Online or web-based communication is an excellent medium for social interaction.
	Open Communication	SP OC1	I felt comfortable conversing through the online medium.
		SP OC2	I felt comfortable participating in the course discussions.
		SP OC3	I felt comfortable interacting with other course participants.
	Group Cohesion	SP GC1	I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.
		SP GC2	I felt that my point of view was acknowledged by other course participants.
		SP GC3	Online discussions help me to develop a sense of collaboration.
COGNITIVE PRESENCE	Triggering Event	CP TE1	Problems posed increased my interest in course issues.
		CP TE2	Course activities piqued my curiosity.
		CP TE3	I felt motivated to explore content related questions.
	Exploration	CP EXP1	I utilized a variety of information sources to explore problems posed in this course.
		CP EXP2	Brainstorming and finding relevant information helped me resolve content related questions.
		CP EXP3	Online discussions were valuable in helping me appreciate different perspectives.
	Integration	CP INT1	Combining new information helped me answer questions raised in course activities.
		CP INT2	Learning activities helped me construct explanations/solutions.
		CP INT3	Reflection on course content and discussions helped me understand fundamental concepts in this class.
	Resolution	CP RES1	I can describe ways to test and apply the knowledge created in this course.
		CP RES2	I have developed solutions to course problems that can be applied in practice.
		CP RES3	I can apply the knowledge created in this course to my work or other nonclass related activities.

Table 2.
Construct Reliability and Validity

	Cronbach's	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Cognitive Presence	0.919	0.923	0.931	0.530
Social Presence	0.902	0.903	0.920	0.564
Teaching Presence	0.948	0.954	0.954	0.615

less than or equal to 0.90. The HTMT levels used in this study are all less than 0,90. As a result, discriminant validity was attained (Table 3).

Table 3.
Discriminant Validity HTMT ratio

	Cognitive Presence	Social Presence	Teaching Presence
Cognitive Presence			
Social Presence	0.744		
Teaching Presence	0.670	0.661	

The Formell and Larcker Ratio approach can be used to assess the discriminant validity of the constructs. In this study, none of the Formell and Larcker values for teaching, social, or cognitive presence were higher than 0.90. (Table 4).

Table 4.
Discriminant Validity Formell and Larcker Ratio

	Cognitive Presence	Social Presence	Teaching Presence
Cognitive Presence	0.728		
Social Presence	0.696	0.751	
Teaching Presence	0.649	0.641	0.784

To evaluate the survey instrument's dependability, Cronbach's Alpha was employed. The overall alpha coefficient should be high (above 0.60) and the higher it is, the stronger the validity. For this study, the Cronbach's alpha coefficient was equal to 0.961 (Table 5). This demonstrates a very strong relationship between the component parts of the analysis, particularly the three COI framework elements—teaching presence, social presence, and cognitive presence.

Table 5.
Reliability Statistics

Cronbach's alpha	Cronbach's alpha bases on standardized items	Number of items
.960	.961	34

The Kaiser-Meyer-Olkin test "is a generalized measure of the partial correlation between the variables in the study. This measure is based on the average of the correlation coefficients that lie in the diagonal of the anti-image matrix" (Stafford & Bodson, 2006, p. 84). Given that the KMO test result is as follows, the KMO index of 0.904 can be characterized as being of very high validity. Extremely high validity is defined as 0.90 and above, high validity as 0.89 to 0.80, medium validity as 0.79 to 0.70, moderate validity as 0.69 to 0.60, borderline validity as 0.59 to 50, and invalidity as 0.49 and below. The average quality of the correlations between the items is shown by reading the KMO test. In addition, the Bartlett sphericity test, a hypothesis test, revealed a correlation between the variables ($x2 = 8351.662$; $p = 0.000–0.001$), the result being significant, allowing the principal components approach (PCA) for data analysis to proceed (see Table 6).

Table 6.
KMO Index and Bartlett's Test

Kaiser-Meyer-Olkin index for measuring sampling quality		.904
Bartlett sphericity test	Chi-square approx.	8351.662
	ddl	561
	Signification	.000

The following table provides an overview of the mean and standard deviation for each of the 34 items in the questionnaire. According to Table 7, the average score for all things assessed on a five-point scale was near 124. This shows that, on average, the 300 participants agreed with the propositions put out by the COI theoretical framework, and this is corroborated by the statistically significant correlation between the 34 items in our study.

Table 7.
Scale Statistics

Mean	Variance	Standard deviation	Number of items
123.97	487.788	22.086	34

RESULTS

The Community of Inquiry model states that teaching presence, cognitive presence, and social presence all greatly enhance students' experiences of presence in virtual learning environments, particularly in Moroccan higher education. The impact of teacher presence on the development of learning communities in online learning environments has been the subject of a large number of studies. These have examined the impact of teaching presence in online learning, such as course design, facilitation, and direct instruction, and consistently reported a significant positive relationship between COI teaching presence indicators and student perceptions of learning, motivation, and satisfaction (Lynch, 2016).

According to Shea and Bidjerano (2009) and Swan et al. (2009), teaching presence is positively connected with students' perceptions of belonging to a learning community and can explain a sizable variation in student retention. Similar to this, Shea and Bidjerano (2009) examined the relationship between instructional presence and cognitive presence and discovered that there was a substantial direct and overall relationship. In two studies of online classrooms, Pawan et al. (2003) and Pawan et al. (2008), investigated teaching presence. Both studies supported the claim made by Garrison et al. (2001) that "often students will be more comfortable remaining in a continuous exploration mode; therefore teaching presence is essential in moving the process to more-advanced stages of critical thinking and cognitive development" (p. 10). The integration phase, in particular, "requires active teaching presence to diagnose misconceptions, to provide probing questions, comments, and additional information in an effort to ensure continuing development, and to model the critical thinking process," (Garrison et al. 2001, P10) During this phase, students attempt to integrate the viewpoints of others and use them as a foundation to further develop their ideas.

According to Ghaemi (2021), "the Community of Inquiry model (Garrison, 2011) gives a system for considering the central angles of compelling online learning that can offer assistance demystifying what it implies to instruct online" (p. 19). Online learning research has made extensive use of the CoI framework and CoI survey in general. Zilka et al. (2018) discovered that for students for whom feedback strengthens the learning process and who feel helpless without feedback, the teacher's presence is significant. According to Arend (2009), students occasionally think of their instructors as being less involved and want the discussion to take place in a more instructor-led environment.

Table 8.

Reliability test using Cronbach's Alpha

Construct	Cronbach's Alpha	Subconstruct	Number of items	Cronbach's Alpha
TEACHING PRESENCE	0.948	Design & Organization Facilitation Direct Instruction	4 6 3	0,888 0,912 0,842
SOCIAL PRESENCE	0.902	Affective Expression Open Communication Group Cohesion	3 3 3	0.710 0.887 0.770
COGNITIVE PRESENCE	0.919	Triggering Event Exploration Integration Resolution	3 3 3 3	0.747 0.806 0.839 0.778
			34	0.960

Table 8 shows that the reliability of the overall model of the COI theoretical framework is 0.960, which is regarded as a measure of the correlation between the research items. The reliability of each subconstruct, as determined by Cronbach's Alpha, ranged from 0.710 to 0.912, with the reliability for each construct being 0.902–0.947. These findings satisfied me, despite the fact that all of the subconstructs had reliability coefficients above 0.7. (Table 8). This confirms that gaining higher degrees of cognitive presence, social presence, and teaching presence is positively impacted by distance learning with significant instructor involvement. The findings of my study show that teachers must function as facilitators in addition to managing the student community (Cronbach's alpha for Facilitation = 0.912). In the same context, Phoong et al. (2020) stipulated that the instructor needs to find the key to integrating smart classrooms in a fun and flexible learning environment, which will maximize the impact of the learning outcomes.

Table 9.
Path coefficients

	Sample Original (O)	Mean Sample (M)	Standard Deviation (SD)	Statistics T (SD/O)	Values P
Teaching Presence Cognitive Presence	0.649	0.652	0.036	18.164	0.000
Teaching Presence Social Presence	0.641	0.643	0.036	17.961	0.000

The relationship between the concepts in the study model is depicted in Table 9. According to the findings, teaching presence significantly affects cognitive presence (Path coefficient = 0.649, t = 18.154, $p < 0.0001$) and it also significantly affects social presence (Path coefficient = 0.641, t = 17.961, $p < 0.0001$).

DISCUSSION

This study investigates how university students' perceptions of learning and sense of community are impacted by the Community of Inquiry Model in online learning. The goal was to comprehend how the presence of instructors in online courses affected the perception of learning and sense of community among university students. The goal of this study was to quantify how prevalent these presences are in online courses during the COVID-19 pandemic. The purpose of this study was to deepen the comprehension of online pedagogical methods to raise the caliber of instruction and learning in a sizable asynchronous learning environment during the COVID-19 pandemic. One of the conclusions from this study on teaching presence is that the teacher is crucial to the learning of online students, through both their understanding of the significance of the concept of presence in online teaching and the initial planning of well-aligned learning experiences. By supporting learning processes through continuous communication, the goal of coherence of the COI theoretical framework was achieved.

The results indicate that effective student integration (Cronbach's alpha = 0.839) and group cohesion (Cronbach's alpha = 0.770) are required for students to achieve success in an online learning environment, and it is crucial for the instructor to manage this interaction (the reliability of the COI framework was greater than 0.902).

The results of my study indicate a very strong correlation between the elements of the analysis, specifically between the three components of the COI framework: teaching presence, social presence, and cognitive presence. Perceived instructor presence has a significant impact on students' levels of learning. When university students indicated that their instructors showed greater teaching presence behaviors, they reported higher levels of learning and community, which was particularly evidewnt among Master's students (who had small class sizes) compared to undergraduate students (who had extremely large class sizes).

One conclusion is that the exploration of learning is the crucial component for cognitive presence, that discourse facilitation is the key element for teaching presence, and that open communication is most important for students in terms of fostering social presence. The social and cognitive presence in the virtual environment is facilitated by the teaching presence.

CONCLUSION

A well-known theoretical framework for online and distance learning is the Community of Inquiry (COI) framework theory, which was created by Garrison et al. (1999). It has established itself as a popular paradigm for research and curriculum creation, both within the framework of online conferencing, where it originated, and with new technologies as they have emerged (Anderson, 2017). The purpose of this study is to find out how students' views of the teacher's presence affect their motivation and academic performance. In the study, Cronbach's alpha was equal to 0.96, demonstrating a very significant correlation between the many components of the analysis, notably the three COI framework components of teaching presence, social presence, and cognitive presence. One limitation is that the research was based on

data gathered at a university in Morocco, thus, the sample size and research design restricted generalization of the results.

Despite these findings, the COI framework requires the incorporation of a pedagogical dimension that allows a balance between instructors and learners to achieve the goals set out in the COI framework using the three components of teaching presence, social presence, and cognitive presence. According to Verduijn and Berglund (2020), such a pedagogical mode encourages students and teachers to develop a critical awareness and to develop their curiosity. Further, the introduction of the concept of critical pedagogy can help develop the theoretical framework of distance learning and also move away from conventional methods of instruction that allow the teacher to be dominant in terms of knowledge and management of the class and students. As they pointed out, this means that it is equally important for the teacher to listen to the students' words and try to avoid imposing ready-made concepts that "correct" the students, but instead find ways to build a map of words together with students.

One of the conclusions of our study on teaching presence is that the teacher plays a critical role in the learning of online students, both through their comprehension of the importance of teaching presence in online teaching and of planning well-aligned learning experiences that support the learning processes through continuous communication, thus achieving the goal of coherence of the COI theoretical framework. According to the results of this study, universities should implement the COI theoretical framework to improve student learning because the three COI components are expanding and strongly correlating in diverse ways in an elearning environment. Therefore, even with a small sample size, there are practical implications for this study. I aim to undertake further study on instructors' perspectives and ideas about teaching and learning, as well as their teaching practices in the elearning environment, in order to get beyond the constraints of this current work.

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