

## **Cognitive, Social, and Teaching Presences among Postgraduate Students on the Mobile Instant Messaging Platform**

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### **Abstract**

This study examines the portrayal of cognitive, social, and teaching presence among postgraduate students using mobile instant messaging in a fully online learning environment. Understanding the portrayal of these presences can help researchers to gain insights into the specific dynamics of these presences and develop strategies to optimize the learning experience among postgraduate students. However, a lack of evidence on how cognitive, social, and teaching presence is portrayed in this platform makes it difficult to identify possible gaps where postgraduates may need more assistance. This study conducted a qualitative content analysis of 2074 messages from four groups on WhatsApp's mobile instant messaging application. From the research, 68% of the messages demonstrated social presence, 25% teaching presence, and 7% indicated cognitive presence. The cognitive presence on WhatsApp was the least demonstrated, as students preferred rich mediums like video conferencing to engage in discussions that require higher-order thinking skills. Future research can consider analyzing how students show presences using multiple mediums and explore how cognitive, social, and teaching presences are dynamically interplayed in different mediums using a qualitative approach.

*Keywords:* cognitive presence, the community of inquiry, Mobile Instant Messaging platform, postgraduate students, social presence, teaching presence

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## Introduction

Over the past decades, computer conferencing and technological tools have been known to facilitate learning and promote meaningful learning experiences. Integrating technology into students' learning experiences prepares them to participate actively in global societies (Azmuiddin & Mohd Radzuan, 2020). The current education focuses on developing 21st-century skills, which is paramount in preparing them for the challenges and opportunities in the modern world. In a developing country like Malaysia, adopting online learning is still in progress (Ali, 2022), and full adoption requires significant time. Nevertheless, the introduction of various platforms in response to the 2020 pandemic has been regarded as a fortuitous occurrence that has the potential to enhance the learning experience.

To have a meaningful learning experience, creating a collaborative community of inquiry is necessary (Akyol et al., 2009; Akyol & Garrison, 2008; Vaughn et al., 2013). Teachers and students are required to fulfill specific responsibilities in the classroom, and it should be a collaborative endeavor (Anderson et al., 2001). Three essential elements are interrelated to have a worthwhile learning experience: cognitive presence, social presence, and teaching presence. These three presences are the foundation of the Community of Inquiry (CoI) Framework by Garrison et al. (1999). The rationale for selecting this particular framework for this study is based on its comprehensive nature and practical application in various online learning contexts. The framework offers a solid foundation for analyzing the effectiveness of learning experiences, especially in online learning.

In addition, with the widespread use of mobile phones among students, Mobile Instant Messaging (henceforth, MIM) applications such as WhatsApp, WeChat, and Telegram are common. Leveraging mobile phones, particularly instant messaging, can create new opportunities for students to achieve effective and successful learning experiences (Sivabalan & Ali, 2019). Furthermore, when new learning approaches are assisted with current technology, it can encourage learning, improve comprehension, and foster student collaboration and engagement (Majid & Salam, 2021). The functions of instant messaging can potentially develop a community of inquiry among students. Furthermore, the pandemic that hit worldwide in 2020 has forced students and teachers to navigate a different educational experience from what they have been accustomed to (Alger & Eyckmans, 2022). However, postgraduate students who have previously entered professional employment before returning to their studies may face challenges in familiarising themselves with different technologies utilized in an educational environment. The knowledge and skills acquired during undergraduate studies may not adequately equip postgraduate students to navigate the technological advancements and innovative learning methods encountered at the postgraduate level.

As MIM becomes widespread, examining text conversations from a community of inquiry framework is essential. Past studies like those of Chen et al. (2017), Robinson et al. (2015), and Wang et al. (2016) have unraveled that MIM, such as WhatsApp, can be utilized to promote social presence. However, a lack of evidence regarding how cognitive, social, and teaching presence are portrayed on this platform makes it difficult to identify potential gaps where postgraduates may require more support. Before this, MIM was associated with a medium to relay social messages and fulfill social purposes. Thus, it is interesting to investigate how this medium is used in exhibiting cognitive, social, and teaching presence. Focusing only on one presence is inadequate to picture how presence manifests in MIM platforms. In addition, past studies like those of Chen (2018), Garrison et al. (1999), Lowenthal and Dunlap (2014), and Swan and Shih (2005) use

threaded discussion or forum discussion to identify either cognitive, social, or teaching presence in the text-based communication medium, which is different from the way MIM functions. Therefore, this study intends to address the following research questions:

- (1) How was cognitive presence represented in a mobile instant messaging platform?
- (2) How was social presence represented in a mobile instant messaging platform?
- (3) How was teaching presence represented in a mobile instant messaging platform?

### Literature Review

One of the crucial aspects of having a successful learning experience is that learning should occur within the Community of Inquiry through the interaction of three main elements: cognitive presence, social presence, and teaching presence (Garrison et al., 1999). Each presence contains categories and indicators of a community of inquiry that guides educators to facilitate educational transactions, especially in the mediated learning environment.

One of the critical indicators to assess the quality and success of online learning is the achievement of cognitive presence (Garrison, 2017; Sadaf et al., 2021; Sezgin, 2021). In the Community of Inquiry (CoI) model, cognitive presence is characterized as how learners engage in deep reflection and meaningful discussions within a critical community, ultimately leading to the construction of knowledge. (Garrison et al., 1999). In other words, cognitive presence is related to how learners demonstrate higher-order learning processes (e.g., application, synthesis, and evaluation) and the extent to which the medium encourages or inhibits communication in the discourse. To operationalize and assess the cognitive presence, a practical inquiry model defines the outcome of collaboration in online learning. Students should be metacognitively aware of the phases of the practical inquiry model to manage and monitor their learning in a community of inquiry (Garrison, 2022). There are four phases to develop a cognitive presence in a community of inquiry: triggering events, exploration, integration, and resolution (see Garrison et al., 2001). These phases occur cyclically and can move back and forth depending on the communication within the community.

Social presence is another critical element in online learning environments (Waddington & Porter, 2021; Whiteside et al., 2017). Social presence can be characterized as the extent to which an individual is perceived as authentic and real within mediated communication (Gunawardena, 1995). The perception of being 'present,' 'there,' or 'real' is vital to have an emotional, interpersonal connection, especially where there is a physical distance in time and location in mediated communication. This distance, however, may contribute to less satisfaction in the virtual learning environment (Gunawardena & Zittle, 1997). The lack of social cues when using computer-mediated communication affects the possible depth of connection and leads to less communication, therefore, a less satisfying relationship between the individuals (Favotto et al., 2017; Turp, 2020). The inability to hear the tone of the voice and the facial expressions people are open to misinterpretation, which later harms the social relationship. Thus, in creating CoI, teachers must consider the medium that suits students to communicate openly and express emotions and collaboration. Without a trusting, stress-free, and friendly environment for educational exchanges, communication could be unstimulating (Wang et al., 2016), hence hampering learning.

The most important element in the community of inquiry framework is teaching presence (Garrison et al., 2010). Teaching presence refers to the deliberate planning, facilitation, and guidance of cognitive and social activities to achieve meaningful and valuable learning outcomes (Anderson et al., 2001). Teaching presence comprises the design and organization of the course,

facilitating discourse and direct instruction. To establish a teaching presence, a teacher must be the subject matter expert, an educational designer, a facilitator, and a teacher. These roles become complex, especially in a collaborative e-learning environment. Despite the lack of non-verbal cues, a community of inquiry can be created and sustained in computer-conferencing environments (Çakiroğlu, 2019; Garrison et al., 1999; Swan, 2021). However, teaching presence does not mean 'teacher presence,' where the teacher must be involved in every stage of the student interaction. There should be a balance between the “sage of the stage” and the “guide on the side” approach (Vaughn et al., 2013, p. 124). By striking a balance, instructors may efficiently impart knowledge and support learning while also enabling students to actively participate in their own learning.

In facilitating the development of these presences in an online learning environment, the teacher is responsible for designing a course that can develop cognitive, social, and teaching presence. When designing the course, teachers must consider a supportive environment that permits students to communicate and contribute comfortably to the learning environment (Anderson & Elloumi, 2008). When the environment is supportive and safe, communication can be sustained in the CoI. One of the ways to maintain CoI is by tailoring communication mediums suitable to the unique needs of a cohort, and the educators need to learn and familiarise themselves with the platforms (Hayes & Tucker, 2021). This means that teachers must prioritize the students' preferred medium and invest time in adapting MIM to facilitate discussions effectively. Although MIM, such as Whatsapp, may provide a supportive environment, some teachers raised concerns about students' need for scaffolding and their ability to learn autonomously (Naghdipour & Manca, 2023). As higher education students, they should slowly learn to be independent in their learning but at the same time can reach out to teachers when needed. Hence, the teacher plays a vital role in designing a course that promotes students' autonomy and ensures they can ask for assistance whenever needed.

With the proliferation of mobile devices, communicating via instant messaging platforms is essential. The capacity to transmit and receive messages in real-time and maintain constant connectivity holds considerable importance for students (Hassan et al., 2018). Students are not restricted to communicating in specific places and times. The affordances like an instantaneous response (Klein et al., 2018; Tang & Hew, 2017), multimodal code (Robinson et al., 2015), and multi-medium enhances the messages conveyed and support the development of social presence. MIM has the potential to facilitate and encourage the development of a social presence in the classroom (Cronjé & van Zyl, 2022; Klein et al., 2018; Wang et al., 2016) since the application itself is a social messaging application. By leveraging the social nature of MIM and the affordances that MIM have, students can connect with their peers, have sustained communication, and build a supportive learning environment that can lead to more meaningful online learning experiences.

Furthermore, MIM also provides a risk-free environment with interactive features such as audio, video, emoticons, and stickers (Wang et al., 2016). Also, using multimedia elements is more convenient and effortless by showing effective responses with just one click/touch (Robinson et al., 2015). These features are less formal and can liven up text chats in a friendly manner. The students felt they had a more personal connection with their teachers through Whatsapp (Klein et al., 2018). It can also alleviate students' stress and encourage greater participation among teachers and students (Sun et al., 2017). MIM has the potential to create a comfortable, safe, and risk-free environment for students since it is private, simple, user-friendly, has many interactive features, and students already use them daily.

As WhatsApp is one of the most popular messaging platforms, it is a valuable tool for teaching and learning because it can encourage positive attitudes toward self-learning (Yusoff et al., 2021) and small group collaboration (Qiao et al., 2017; Nuuyoma et al., 2020). However, despite the positive effects of MIM, Tang and Hew (2017) highlighted some challenges: messaging platforms designed for personal communication may not have the specific features and functionalities required for effective educational interactions. The students may also be unaware of particular features, and teachers must introduce and guide students to leverage them for academic purposes. Therefore, teachers play a critical role in making students aware of how to leverage the medium for effective learning.

### Method

This study aimed to examine the portrayal of cognitive, social, and teaching presence among postgraduate students using MIM in a fully online learning environment. To answer these research questions, a qualitative content analysis approach was used. It is valuable insight to understand how the students portray these presences online, especially when using MIM, and how they utilize this medium to relay their messages.

### Participants

In mid-October 2020, 23 students enrolled in this course at one university in Malaysia. However, only fifteen students were considered in this study, as depicted in Table One. Most postgraduates in this course worked as teachers and had either a Bachelor's or Diploma of Education. Computer-Assisted Language Learning (CALL) was an elective in a postgraduate course, and students usually selected it because of their interests. This subject lasted 14 weeks and an additional four weeks to submit the last assignment. Thus, the conversation via the MIM platform took place around 18 weeks. Students must complete all five assessments to pass the course. Generally, this course aimed to expose students to applications, theoretical perspectives, and approaches involving research and teaching of CALL.

Table 1. *Background information*

Group	Students per group	Gender	Relationship history
A	3	Three females	Two members were friends since undergraduates (~5 years), and two students were coworkers (~2 years). So, one member has a shared relationship with two members.
B	4	Four females	Two members have been friends since postgraduate (~1.5 years), and two students were new.
C	4	One male, three females	All of them just knew each other during the course.
D	4	Two males and two females	They have been friends since their postgraduate (~1.5 years).

### Research Instruments

A coding scheme of presence indicators was developed for the data collection instrument. In this study, the underlying framework of this study element was based on the Community of Inquiry framework by Garrison et al. (1999). The dimensions and categories were taken from the framework, but the indicators were adapted from a few previous works (Garrison et al., 1999; Kilis, 2016; Rourke et al., 1999). These indicators served as the coding scheme to analyze the

occurrences of WhatsApp transcripts. To analyze the source of data, qualitative content analysis was applied. Qualitative content analysis is useful to illustrate the depiction of presences in this study. This process condenses raw data into categories based on valid inference and interpretation (Zhang & Wildemuth, 2009). Before analyzing the data, a set of indicators of presence was developed. Next, the messages from the instant messaging were transcribed, and thorough readings of the interactions were conducted. After reading the transcripts, indicators were revised, and final indicators were achieved after deliberating discussions on the initial coding process. The coding scheme is presented in Appendix A.

### ***Research Procedures***

At the beginning of the semester, the students were required to establish a group of three or four members and sustain the group until the end of the semester. As this was entirely online, they were required to create a private WhatsApp group that included their group members and the instructor. WhatsApp was selected because of the Global Web Index's 2020 Social Media User Trends Report. About 92% of Malaysians use WhatsApp as their preferred social media platform. The instructor's role was as a "guide on the side," and students could ask questions directly to the instructor anytime in the group. In this study, researchers could only obtain the chat history from week four until week 16, a total of 13 weeks of conversation. This is because the first two weeks were unstable, where some students may register or deregister from the course, and the number could be finalized by the end of week two. Next, the researchers requested the students' consent via Google Forms to become an observer in their group chat. The students may request to opt out of participating in this research at any time. The chat history was downloaded in a text file in early February 2021.

The transcript dataset consists of thirteen weeks of teacher and students' chat messages, including text, images, stickers, emojis, hyperlinks, and screenshots of the document attached. All messages were kept as a reference to provide necessary context. If there were any messages that the students were unwilling to share with the researchers, they could be deleted through the WhatsApp delete feature by choosing "delete for everyone" after the message was sent, or they could reach out to the researchers to delete a particular conversation. The text's deleted messages were signified as "This message was deleted" in the transcript.

### ***Data Analysis***

After downloading the transcripts, data analysis was conducted. The first analysis started when the first author and a research assistant familiarised themselves with the instances and communications in the platform. Then, by referring to existing literature, the researchers adapted from previous studies (Garrison et al., 1999; Kilis, 2016; Rourke et al., 1999) to code each message to specific dimensions and categories. The messages in the instant messaging platform varied from one utterance (including either one word, image, emoji, or document) to multiple sentences. The message here refers to "one message bubble" in WhatsApp. There were a few instances where one participant may type many sentences in one message. Thus, for this type of message, the researcher decided to code this message according to the most prominent code. Some messages contained more than one indicator, especially the expression of emotion using emoji at the end of the sentence. For this type of message, the indicator tagged to this message was focused on the text message, not the emoji. Overall, most messages communicated one utterance in one message.

Next, there were four sessions of coding for this study. In the first session, the researcher and research assistant familiarised the data obtained, coded 100 messages together, and refined the coding scheme. In the second session, 100 messages from the transcripts were coded independently. Inter-rater reliability analysis was conducted for this session, and the Kappa score obtained was 0.40, which was fair agreement. We revisited the coding scheme and discussed the discrepancies in the coding. For the third session, the Kappa score increased to 0.61, a moderate level, and the final session was 0.70. If there was any disagreement about the codes, the researcher conducted a negotiated coding process where we discussed thoroughly to gain agreement on the coded message. If no agreement was achieved, the researcher discussed the codes with the second author until an agreement was achieved. After all, messages were coded, the number of occurrences was calculated and tabulated in tables.

## Results

Overall, there were 2074 text messages that students produced for 13 weeks. The frequencies according to the three presences are presented in Table Two. Based on Table Two, group A had 315 messages, Group B had 265 messages, group C had 687 messages, and Group D had 807 messages. Generally, Group A and B had fewer text interactions than Group C and Group D. Generally; social presence was the most prominent element observed in MIM platforms, followed by teaching and cognitive presence.

The distribution of cognitive, social, and teaching presences was not evenly distributed as expected in the instant messaging platform. Social presence was the highest presence demonstrated in 1397 instances, similar to a study by Qiao et al. (2018) and Tang and Hew (2017), followed by teaching presence in 525 instances and cognitive presence in 152 instances. The result showed that 67.4% of the messages demonstrated social presence, while teaching presence was about 25.3% of all messages, and cognitive presence was least displayed, 7.3%. Cognitive presence was also the least observed in other studies (Qiao et al., 2018; Tolu, 2010).

Table 2. *Frequencies according to three presences*

Elements	Group A	Group B	Group C	Group D	TOTAL
Cognitive Presence	8	0	0	144	152
Social Presence	231	197	504	465	1397
Teaching Presence	76	68	183	198	525
TOTAL	315	265	687	807	2074

Table Three presents the frequencies according to categories for each presence. Each presence was categorized according to several categories that indicate each element. In terms of the way each group demonstrated presence, all groups did display social presence as the most demonstrated presence, which Interactive Responses (IV), such as disclosing personal thoughts and feelings (self-disclosure), asking questions, showing agreement, and showing appreciation were the highest indicators as shown in Table Three. Then, it was followed by teaching presence, and the most frequent indicator was Direct Instruction (DI). The students mainly displayed this indicator.

Nevertheless, there were interesting results on cognitive presence. Group A, B, and C did not display cognitive presence as much as Group D in the instant messaging. Group A displayed eight instances, none from groups B and C, but about 144 instances (18%) of the total message

depicted cognitive presence. The integration phase was the most prominent indicator observed in the MIM platform under this element. This result is interesting because other groups did not portray as much cognitive presence on this platform.

Because of these differences, groups A, B, and C displayed about 73-74% of the total interactions to establish a social presence; the remaining was a teaching presence. Unlike group D, 58% of the interactions were related to social presence, 18% were cognitive, and 24% to teaching presence. If we look closely at the categories in Table Three, most social presences indicated by these students were interactive responses, which led to open communication among group members. However, it was noteworthy for group D to observe that they portrayed cognitive presence more than other groups in instant messaging, where the integration phase was the most dominant. For groups A, B, and C, it does not mean they did not exhibit any cognitive presence. In personal communication with the group members, they prefer to use Google Meet to discuss rather than using MIM.

Table 3. *Frequencies according to categories for each presence*

Element	Categories	Group A	Group B	Group C	Group D	TOTAL
<b>Cognitive Presence</b>	Triggering Event (TE)	5	0	1	10	16
	Exploration (EX)	3	0	0	38	41
	Integration (IT)	0	0	0	93	93
	Resolution (RE)	0	0	0	3	3
<b>Social Presence</b>	Affective Responses (AF)	43	19	134	90	286
	Interactive Responses (IV)	112	124	250	244	730
	Cohesive Responses (CO)	75	54	120	127	376
<b>Teaching Presence</b>	Design and Organisation (DO)	0	0	0	0	0
	Facilitating Discourse (FD)	25	20	54	53	152
	Direct Instruction (DI)	52	48	128	149	377
<b>TOTAL</b>		315	265	687	807	2074

In summary, social presence was the most prominent presence, followed by teaching presence and cognitive presence. The distribution of these presences was not evenly distributed in the MIM platform. Social presence was the highest, observed in 1397 instances, followed by teaching presence in 525 instances and cognitive presence in 152 instances. Notably, cognitive presence was the least displayed, representing only 7.3% of the instances. Group D exhibited a higher level of cognitive presence than other groups. In the following section, we will discuss the findings in relation to other studies.



## Discussion

To answer the first research question, how cognitive presence was represented in the MIM platform, categories of cognitive presence were not observed much in the study. In this study, students who just knew their group members during the semester did not portray cognitive presence much in MIM but rather to those with a prior history of working as a group. For group members that had a history previously (for example, group D), they tend to move to cognitive presence much quicker, and the process of critical thinking was observed in the MIM. They were also able to sustain communication much longer than those who did not have prior working experiences together. This study indicated that the result is consistent with Qiao et al. (2018) research, which suggests that students prefer to use MIM for social purposes rather than academic purposes. This is because of the social nature of MIM platforms that encourage students to engage in non-academic conversations more than academic interaction. A specific learning management system tailored to educational purposes is a better choice as it separates personal and academic contexts. However, if students have limited time in the community, for example, just one week, they would manifest cognitive presence more in MIM (see Cronje & van Zyl, 2022) since they must achieve specific course outcomes within the stipulated time and cognitive presence was the priority.

For the second research question on how students demonstrate social presence using MIM platforms in fully online learning environments, social presence is expected to be the most demonstrated presence. Many studies, like those of Klein et al. (2018), Qiao et al. (2018), and Tang and Hew (2020), suggest that MIM contributes to the manifestation of social presence rather than other presences. MIM provides a better user experience and more significant social influence due to the medium's affordances. Many MIM affordances support social presence, for example, instantaneous response (Klein et al., 2018; Tang & Hew, 2017), multimodal code systems that include text, audio, video, and document (Robinson et al., 2015), and multi-medium, where it can be used either in smartphones, tablet, or desktop computer. Such versatility and flexibility of a communication medium can enhance the messages conveyed, thus improving satisfaction in communication in a mediated environment. Many scholars like Gunawardena and Zittle (1997), Richardson and Swan (2003), and Tu (2000) suggest that students with higher social presence feel more satisfied in their learning, and learning retention is better. Hence, students should have adequate time to develop their social presence.

Furthermore, interactive responses in MIM were more prominent among the three social presence categories. Because of the distance where they could not meet each other, the students were willing to be more accommodative, responsive, and appreciative towards their friends. This study agrees with Klein et al. (2018), where the students felt that the relationship between students and teachers on the WhatsApp platform was much closer. Feelings of isolation and loneliness can contribute to stress and mental health issues when learning online (Stewart & Lowenthal, 2022), so using Whatsapp can alleviate this stress. Gestures such as saying 'thank you' or demonstrating simple actions such as sharing links or documents and reacting to messages by showing emojis or stickers can help students lessen the stress of using mediated communication. Sun et al. (2017) emphasized that MIM can alleviate students' stress and increase engagement among lecturers and students. It promotes healthy and closer relationships among group members and instructors who have just known each other and have not met physically.

For the third research question on how students demonstrate teaching presence using MIM platforms in fully online learning environments, only two teaching presences were observed: facilitating discourse and direct instruction. In this study, the students were primarily the ones who demonstrated the teaching presence. Despite some educators' concerns about students' dependence on teachers' scaffolding and capacity for independent learning (Naghdi-pour & Manca, 2023), in this study, students took control in facilitating discussions and giving direction. However, active student participation depended upon the teacher's way of designing and organizing the course. Course information and materials, such as the platform of delivery, mode of delivery, lesson activity sequence, assessment mode, and integration of scaffolding principles, were clear and accessible to all students at the beginning of the semester. These materials serve as additional means of support, extending beyond mere interactions, and play a role in guiding the learning process in an online environment.

The instructor should consider offering a platform that resonates with students to enhance interactions and engagements in an online setting. The use of Whatsapp as the chosen MIM platform was appropriate because it is the most used MIM application in the world (Kemp, 2021). Based on this study, the scaffolding process in an online environment is effective when the instructor provides one platform to provide resources and task-related information and one platform, preferably synchronous, for communication. In MIM, students can communicate with their peers freely, and the instructor can facilitate them personally according to their needs. Thus, it will give more worthwhile learning experiences for the students.

This study highlights the importance of establishing a supportive and interactive learning environment within MIM platforms by recognizing the prevalence of social presence and the significance of teaching presence. The observation of cognitive presence being the least displayed raises awareness about the need to address the imbalance and foster deeper cognitive engagement among postgraduate students. The implications of these findings are relevant for educators and instructional designers who are involved in developing interventions that foster critical thinking, reflection, and active participation within MIM platforms.

## Conclusion

This study investigates the representation of cognitive, social, and teaching presence among postgraduate students utilizing MIM in a fully online learning environment. The aim was to answer first how cognitive presence was represented in the MIM platform. Second, how was social presence represented in the MIM platform? Third, how was teaching presence represented in the MIM platform? In summary, social presence emerged as the most prominent, followed by teaching and cognitive presence. However, these presences were not evenly distributed within the MIM platform. Social presence was the highest, observed in 1397 instances, teaching presence in 525 instances, and cognitive presence in 152 instances, representing only 7.3%. Although the initial purpose of creating groups in MIM is to develop a sense of knowledge inquiry (i.e., cognitive presence), it was not present much in this MIM platform. Unless the group members had a previous history of working together, cognitive presence was observed in MIM. Moreover, students also demonstrated their teaching presence by facilitating the discourse and giving direct instruction to their group members. For postgraduate students, the opportunity to demonstrate teaching presence is essential to familiarise them with becoming scholars in their field. The instructor's role as a "guide on the side" should be complemented with adequate resources and guidance.

However, this study has limitations because it only focuses on one platform, MIM, and only descriptive analysis is used to analyze the presence. Future research could investigate a combination of platforms (e.g., MIM and video conference) regarding how students choose which platform to demonstrate which presence. Investigating students' experiences and perceptions of using MIM as a medium of communication in a fully online learning environment can add more depth to this study.

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## Appendices

## Appendix A : Coding scheme for cognitive, social, and teaching presence

Elements	Categories	Indicators
Cognitive Presence	Triggering Event (TE)	Recognizing problem
	Exploration (EX)	Divergence of idea
		Exchanging Ideas
	Integration (IT)	Suggestion for consideration
		Convergence among group members
		Connecting ideas, inference, synthesis
		Creating solutions
Resolution (RE)	Application to real world	
Social Presence	Affective Responses (AF)	Expression of emotion
		Use of Humor
	Interactive Responses (IV)	Self-disclosure
		Apology
		Referring explicitly to other's messages
		Asking questions
		Expressing appreciation
		Expressing agreement
		Expressing disagreement
	Cohesive Responses (CO)	Inviting, suggesting
		Vocatives - addressing peers by name, title, honorific, endearment
		Addressing the group as we, us, our, group
		Communicating solely for social function (greeting, opening, and closing) or Phatic expression (maintaining social relationships than imparting information)
Teaching Presence	Design and Organization (DO)	Communication of course goals, methods, or topics
		Establishing time parameters
	Facilitating Discourse (FD)	Identifying areas of agreement/disagreement
		Seeking to reach a consensus/understanding
		Encouraging, acknowledging, or reinforcing student contribution
		Drawing in participants, prompting discussions
		Assessing the efficacy of the process
	Direct Instruction (DI)	Present content/questions
		Focus the discussion on specific issues and task
		Summarise discussions
		Responding to technical concerns