Exploring Community of Inquiry from the Social Cognitive Theory

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Abstract
Community of Inquiry (CoI) framework is a well-known approach in designing learning experience for online environment. It produces learning experience through the development of three interdependent elements - social, cognitive, and teaching presence. This study draws upon the CoI framework to explore language learners' learning experiences from the Social Cognitive Theory (SCT) in a public university in Malaysia. It investigates the influence of situational factors, behavioural factors and cognitive factors on online learning through teaching presence, social presence and cognitive presence respectively. This quantitative research used a 5-point Likert scale as instrument. The survey was divided into four sections. Section A has items on the demographic profile. Section B has 13 items on teaching presence, Section C has 9 items on social presence, Section D has 12 items on cognitive presence. 101 respondents were purposely selected for the study. Data analysis was done using SPSS version 26. The findings show the positive impact of SCT to enhance students' learning experience which depends on teaching, social, and cognitive presence, as stated by the CoI framework. The CoI framework creates effective communication in a virtual environment and can therefore be used to encourage collaborative learning in a virtual learning environment.
Keywords: Community of Inquiry, Social Cognitive Theory, Online Learning, Learning Experiences, Language Learning

Introduction
Background of Study
The use of technology is becoming increasingly common in education. A core issue associated with technology and education is online teaching and learning activities (Annamalai, 2017). To encourage an online teaching and learning environment, many approaches have been introduced. One of the approaches that has been extensively explored is the Community of Inquiry (CoI) framework proposed by (Garrison & Arbaugh, 2007). CoI is well-known in designing learning experience for online environment. It means a process of producing a deep

and meaningful (collaborative-constructivist) learning experience through the development of three interdependent elements - social, cognitive, and teaching presence.

In 2020, Covid-19 became a high-profile global epidemic and affected the global education industry, including Malaysia. The country began to implement an embargo or Movement Control Order (MCO) on 18 March 2020, following which higher education was forced to shift from traditional face-to-face classroom instruction to online courses. The pandemic has stimulated higher education institution to rethink their teaching and learning approaches to meet the changing demographics and employer demands. In order to face future pandemic crises, these institutions need to shift their traditional programmes or course offerings into flexible learning pathways (Chan et al., 2022). More and more online teaching tools were introduced to enhance the learning experience of students.

This study draws upon the CoI framework to explore language learners' learning experiences from the Social Cognitive Theory (SCT) in a public university in Malaysia. SCT started as the Social Learning Theory (SLT) in the 1960s by Albert Bandura. It developed into the SCT in 1986 and proposes that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behaviour (Bandura, 1986). This study will examine the effect of situational factors, behavioural factors and cognitive factors on the online language learning, and their underlying mechanisms – the mediating roles of teaching presence, social presence and cognitive presence.

Statement of Problem
Many studies have used the Community of Inquiry (CoI) framework that proposed by Garrison et al. (2000) to investigate the development of online learning communities. The outrage of pandemic Covid 19 hit the world in 2020 has changed the education mode from classroom to remote learning. As such, CoI theoretical framework that provides collaborative-constructivist perspective and methodology for exploring students' online learning experiences through three main presences, namely teaching presence, social presence and cognitive presence (Garrison et al., 2010) has been adopted and adapted by many researchers. The three presences of CoI attributed to the success of the online learning environment. Wulandari (2022) stated that social presence is able to encourage collaborative learning and cognitive presence is important to improve the knowledge and the ability to think critically and creatively. Moreover, cognitive presence plays a pivotal role to generate the learning confidence, social presence provides a supportive learning environment and teaching presence attributed the learning outcomes in online learning context (Chen, 2022).

There are challenges confronted by learners in an online learning environment. Zboun (2021) revealed that less motivation, less participation and less understanding are the most challenges of online learning. Similarly, Ghazali et al (2021) highlighted that behaviour factors (social presence), cognitive factors and situational factors (teaching presence) influence online presence. Yamada (2014) revealed that perceived social presence is crucial in enhancing perceived cognitive presence, which directly or indirectly increases social interaction and deeper discussion. However, the elements that support the social and cognitive presence were not clear.

Hence, this study is done to investigate how the CoI factors from social theory influence online learning. This investigation is done to answer the following questions:

- How does situational factors influence online learning? (teaching presence)
- How does behavioural factors influence online learning? (social presence)
- How does cognitive factors influence online learning? (cognitive presence)

Literature Review
Theory of Online Learning
Learners expect to be included in the online classes just like they would in face-to-face classes. According to Rahmat et al (2021), a good online class needs to have engagement and connection. Learners expect to communicate via online classes. They expect engagement with the instructor, with their peers and also engagement with the contents of the lesson. (Moore, 1989). Moving from engagement, good online classes need to have connection. The concept of connection is understood from the theory of connectivism by (Siemen, 2005). There are four key principles for learning and they are autonomy, connectedness, diversity and openness. Learners need to feel they are in charge of their learning to gain autonomy. Next, they need to experience different types of engagement to feel the connectedness. They need to be given choices on how they want to gain the knowledge to gain diversity and finally, they need to get the freedom to give feedback to feel openness.

Challenges of Online Learning
According to Gillett-Swan (2017), barriers to participation in online teaching and learning were particularly evident in group activities. This is supported by Sim et al (2021); Rahmat (2020), who agree that conflict in group discussions occurs when team members are unable to talk about different ideas or even to listen to different opinions. In addition, the online environment poses challenges for many teachers who increasingly require a higher level of technical competence as learners rely on the presence of the teacher to make sense of the lesson (Wei, 2021). From the learner's perspective, Pelucio et al. (2022) 's study showed that the majority of learners reported emotional impact in online learning, followed by learning impact, financial impact, social impact and technological impact. In addition, younger learners were more anxious than older learners. It is therefore important that learners have more experience in the online classroom environment to access most of the content being taught (Sim & Rahmat, 2022).

Past Studies
Past Studies of Advantages of Online Learning
Many studies have been done to investigate the advantages of online learning related to CoI. Liu & Deris (2022) had conducted a mixed-method study to examine effective teaching practices that can promote students' active participation in online discussions based on the CoI in the blended EFL (English as a Foreign Language) course. Responses to the CoI and Engagement surveys and focus group interview transcripts were collected as data from 97 undergraduate students at a Chinese university. Data were analysed quantitatively through descriptive statistics and simple/multiple linear regression, and qualitatively through thematic analysis. Results showed that students' perceptions of the teaching presence, social presence, and cognitive presence in the CoI had a statistically important impact on students' engagement in online discussions. The findings reveal how teachers of blended EFL courses should improve students' language use in online discussions. The study of Li & Lefevre (2020)

identified potential advantages of using holographic videoconferencing to deliver seminars within higher education. Holographic videoconferencing offers the opportunity to enhance the teleseminar experience for attendees but has not been extensively studied. Data was collected from 127 attendees who participated in one of three workshops, each featuring a combination of actual presenters and remote presenters participating via holographic videoconferencing. Data collection comprised a questionnaire delivered to attendees and semi-structured interviews with presenters. In this study, the holographic representations were three-dimensional and life-size. The monitors and holograms were calibrated in such a way that the remote presenters were able to point and make eye contact with the audience. The results show that the use of holographic video conferencing enhances the remote presenter's teaching presence, the engagement between participants and the enjoyment of the workshop by the participants. Baloyi (2014) investigated learner support in the Department of Adult Basic Education and Training (ABET) at the University of South Africa (Unisa), the largest, dedicated Online Distance Learning institution in South Africa. The CoI model was used as a conceptual framework for this quantitative research. The researcher drew a random sample of 400 students (n = 400) from a total number of 1 808 students enrolled for the Higher Diploma in Adult Basic Education and Training. The study focused on the social presence aspect of the CoI model. The findings show the clear advantages of e-learning environments as a means of providing support for CoI to facilitate higher-order learning.

Past Studies of Challenges of Online Learning
Several studies have been done to investigate the challenges of online learning. Harsch et al (2021) investigate the mechanisms and challenges of online language learning. The study employed a mix method to collect data from 35 teachers and 898 students at the Languages Centre of the Universities in Bremen. The quantitative and qualitative data were collected via two online questionnaires (teachers and students) that included closed and opened questions. The study reported that one of the main challenges in online learning is creating a conducive interaction learning environment. The challenges in online learning are due to unexpected new roles of teachers and students, insufficient social presence and inappropriate communication channels and settings. Nevertheless, the study highlighted the potential of a collaborative effort between teachers and students in fostering social presence. Barrot et al (2021) adopted a mix method approach to examine students' online learning challenges during the pandemic and how the students cope with the challenges. 200 students from a private higher education institution in the Philippines participated in the study. The data were conducted online via Google form survey and MS team focus group discussion. The findings revealed that the greatest challenge of online learning was linked to students' learning environment at home, and the least challenge was technological literacy and competency. In addition, the study also found that the COVID-19 pandemic had the greatest impact on the quality of the learning experience and students' mental health, finances, interaction, and mobility. Students frequently used resource management and utilization, help-seeking, technical aptitude enhancement, time management, and learning environment control to cope with the challenges.
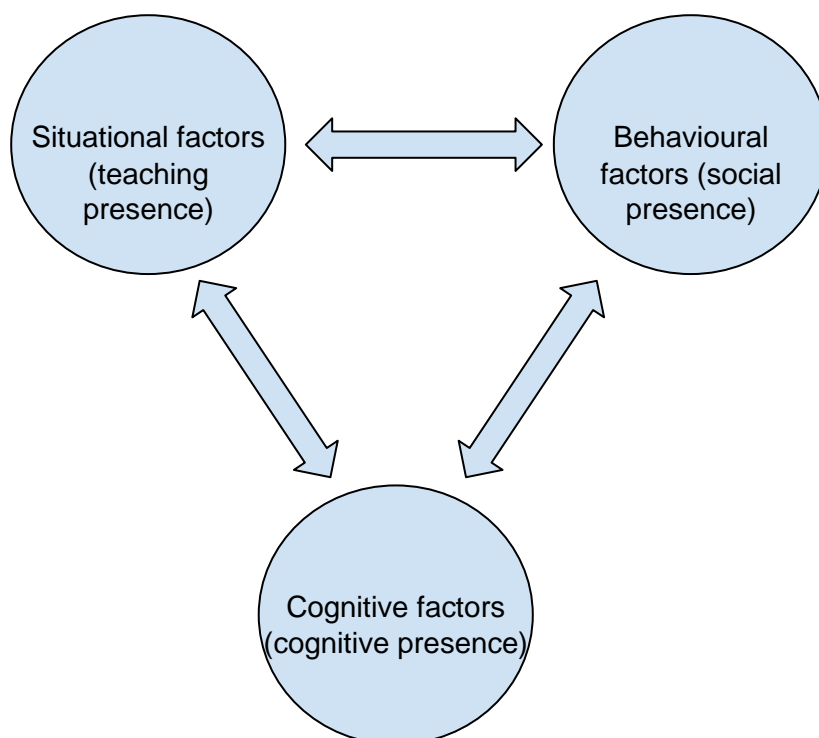
Conceptual Framework

Figure 1: Conceptual Framework- *Exploring Community of Inquiry from the Social Cognitive Theory*

Figure 1 presents the conceptual framework of the study. Bandura's (1986) social cognitive theory is used to scaffold the Community of Inquiry from (Garrison, 2007).

Situational factors (achieved from teaching presence)
Teaching Presence is defined as "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educational worthwhile learning outcomes" (Garrison et al., 2001). It consists of three categories of activities, including design and organisation, facilitating discourse and direct instruction. The first includes planning and setting the course topic and course goals, organising the learning activities and time frames for learning activities.
Facilitation consists of guiding the class towards understanding course topic, focusing the students' engagement, identifying areas of agreement and disagreement, and reinforcing the development of a sense of community among course participants. Direct instruction includes presenting questions and providing constructive feedback.

Behavioural factors (achieved from social presence)
Social presence marks the ability of the online learners to engage socially. This is usually done through communicating with the peers in the online class. Social presence is important as learners need to feel the presence of their classmates even if they are not physically present in the class.

Cognitive factors (achieved from cognitive presence)
Cognitive presence is described as the extent to which learners are able to create meaning through the online interactions. This is done by integrating existing learning with new learning requires knowledge, reflection, discussion and confirming of meaning.

Methodology
This quantitative study is done to investigate 101 participants who were purposely chosen from a public university in Malaysia. The instrument (refer to table 1) used is a survey adapted from (Arbaugh et al., 2008). Apart from the demographic profile in Section A, there are 3 other sections. Section B has 13 items on teaching presence, section C has 9 items on social presence and section D has 12 items on cognitive presence.

Table 1
Distribution of Items in Survey

SECTION	FACTORS	NO OF ITEMS
B	Teaching Presence	13
C	Social Presence	9
D	Cognitive Presence	12
	TOTAL NO OF ITEMS	34

Table 2
Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.980	34

Data is collected via google form and analysed using SPSS version 26. With reference to table 2, the SPSS analysis revealed a Cronbach analysis of .980, thus showing high internal reliability for the instrument. Data is presented in terms of percentage for the demographic profile and mean scores to answer the research questions.

Findings
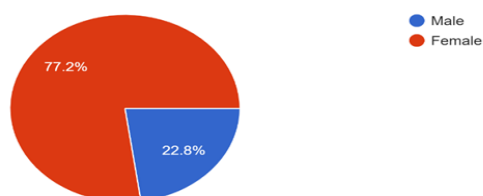Findings for Demographic Profile

Figure 2- Percentage for Gender

The results of the gender and age group analysis are presented in figure 2 and figure 3 respectively. It was found that from the total of 101 respondents, 22.8% are male and 77.2% are female.
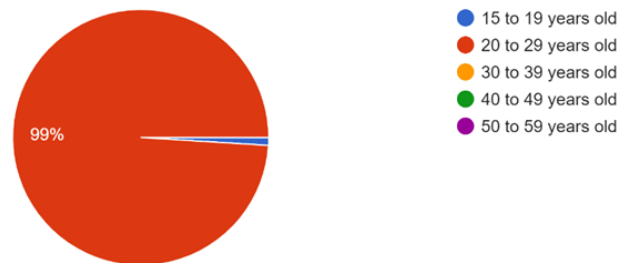

Figure 3- Percentage for Age Group

99% of the respondents are from the age group of 20 to 29 years old, and only 1% of the respondents are from the age group of 15 to 19 years old. The results show that most of the respondents are female, and majority of the respondents are from the age group of 20 to 29 years old.
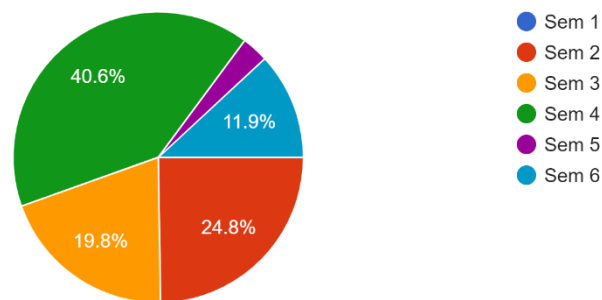

Figure 4-Current Semester

Next, figure 4 shows the semesters in which students are enrolled.40.6 % of the respondents are from semester 4, 24.8% are from semester 2, 19.8% are from semester 3, 11.9% are from semester 6, and 2.9% are from semester 5.

Findings for Situational Factors
This section presents data to answer research question 1: RQ1- How does situational factors influence online learning? In the context of this study, teaching presence has an influence on the situational factors.
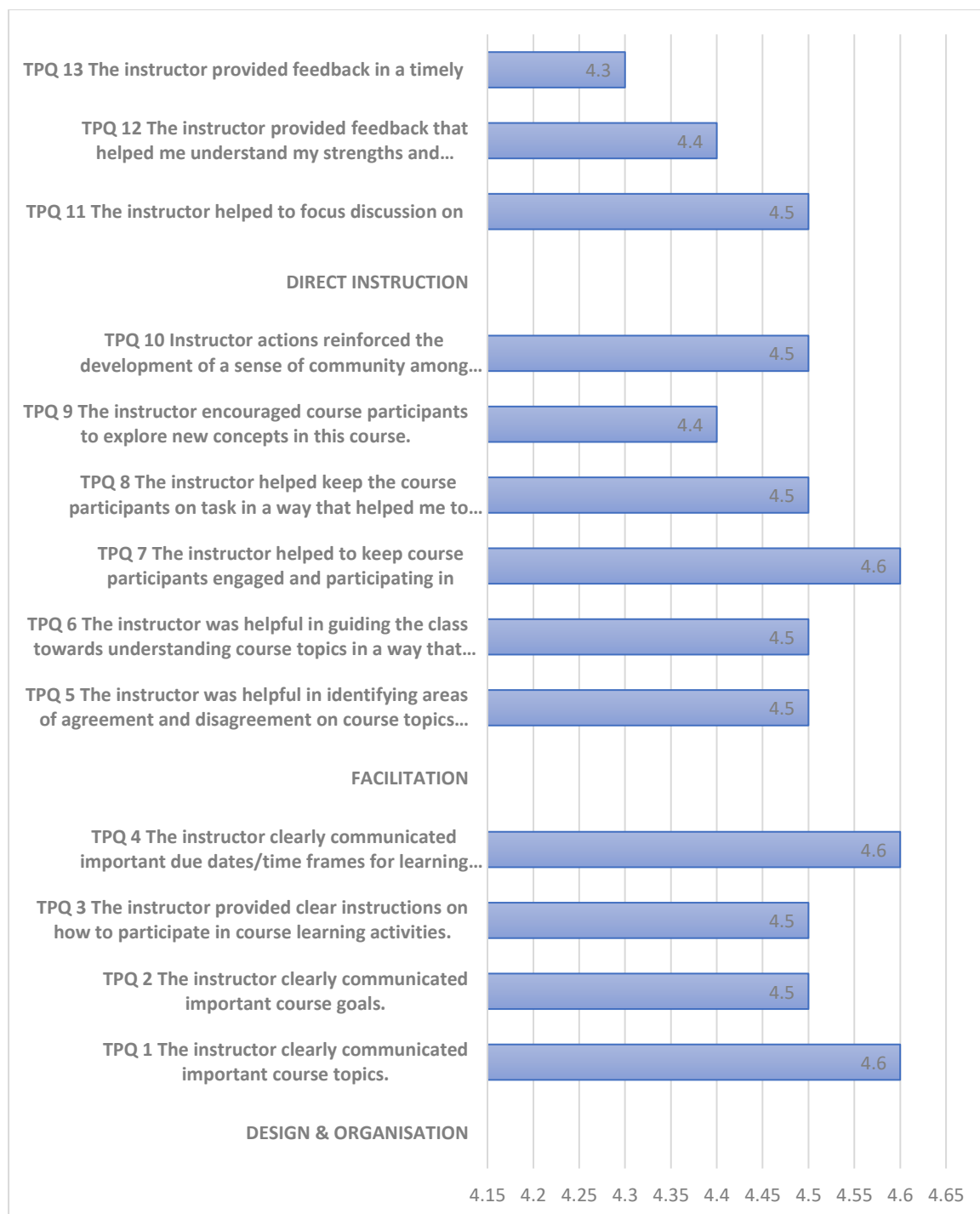
Figure 5- Mean for Situational factors

Figure 5 shows the mean for situational factors. In the context of this study, situational factors refer to design & organisation, facilitation, and direct instruction. Three items share the same highest mean of 4.6 and they are "The instructor clearly communicated important course topics.", "The instructor clearly communicated important due dates/time frames for learning activities.", and "The instructor helped to keep course participants engaged and participating in productive dialogue". Next, seven items have the same mean of 4.5. They are "The instructor clearly communicated important course goals", " The instructor provided clear instructions on how to participate in course learning activities", "The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to

learn.", "The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.", "The instructor helped keep the course participants on task in a way that helped me to learn", "Instructor actions reinforced the development of a sense of community among course participants", "The instructor helped to focus discussion on relevant issues in a way that helped me to learn."

Findings for Behavioural factors
This section presents data to answer research question 2-RQ2- How does behavioural factors influence online learning? In the context of this study, social presence has an impact on behavioural factors.
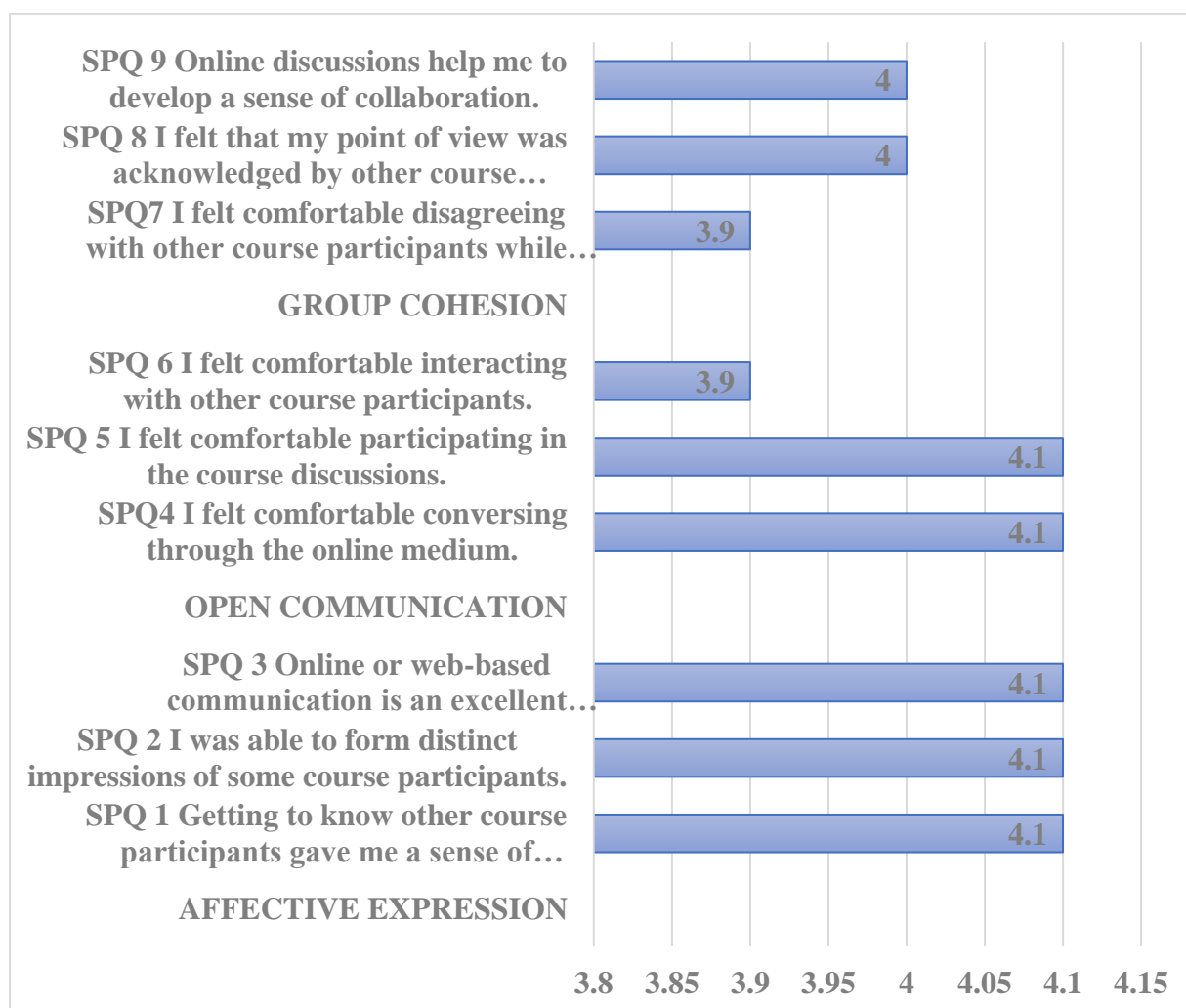

Figure 6- Mean for Behavioural factors

Figure 6 presents the mean score for Behavioural factors. The highest mean is 4.1 for 5 items. The items are "Getting to know other course participants gave me a sense of belonging in the course", "I was able to form distinct impressions of some course participants", "Online or web-based communication is an excellent medium for social interaction", "I felt comfortable conversing through the online medium", and also "I felt comfortable participating in the course discussions". Next at mean score of 4 are "I felt that my point of view was acknowledged by other course participants" and "Online discussions help me to develop a sense of collaboration".

Findings for Cognitive Factors
This section presents data to answer research question 3-RQ3- How does cognitive factors influence online learning? This is achieved through cognitive presence from 4 aspects: triggering events; exploration; integration and resolution. Figure 7 illustrates the mean score for each statement of the 4 aspects of cognitive factors that influence online learning.
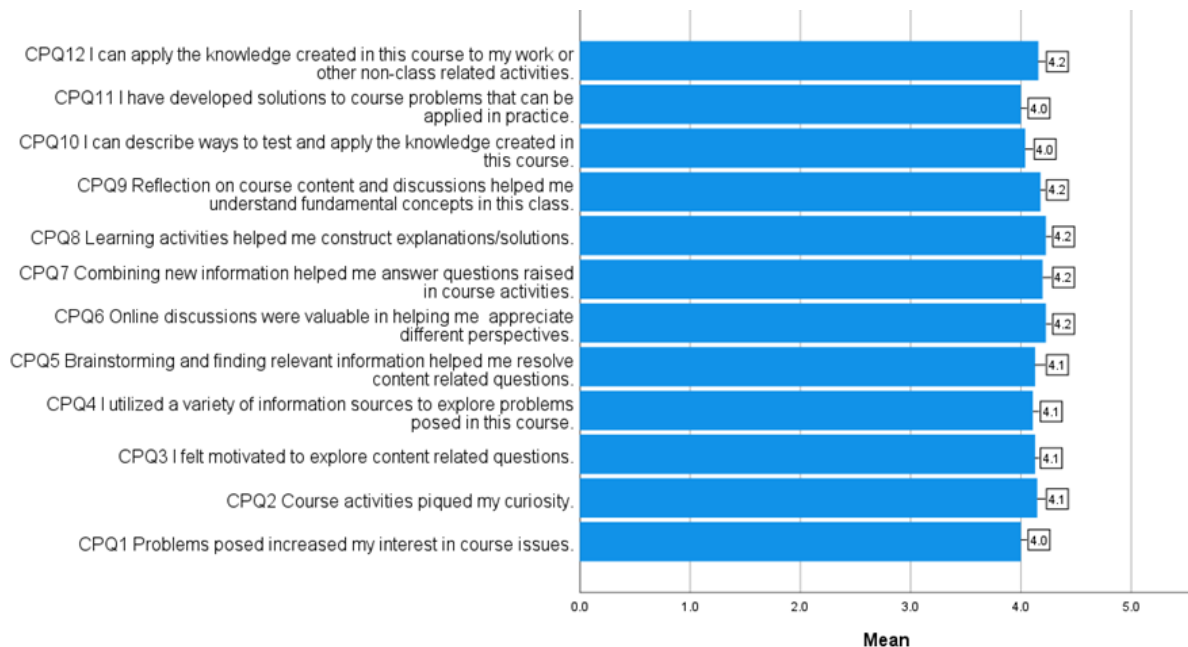

Figure 7-Mean for Cognitive Factors

Based on all 3 items under triggering events in figure 7, it can be seen that both item CPQ2 which states that "Course activities piqued my curiosity" and item CPQ3 which states that "I felt motivated to explore content related questions" scored the highest mean value (4.1) as compared to the mean value (4.0) of item CPQ1 "Problems posed increased my interest in course issues". Item CPQ 6 "Online discussions were valuable in helping me appreciate different perspectives" rated the highest mean score (4.2) under exploration factor. Mean value for both items CPQ 4 "I utilized a variety of information sources to explore problems posed in this course" and CPQ5 "Brainstorming and finding relevant information helped me resolve content related questions" are 4.1. Under integration factor in figure 7, it can be seen that all 3 items, which are CPQ7 "Combining new information helped me answer questions raised in course activities", CPQ8 "Learning activities helped me construct explanations/solutions" and CPQ9 "Reflection on course content and discussions helped me understand fundamental concepts in this class" rated the same mean value (4.2) and the mean value 4.2 is the highest mean score for cognitive factors. The highest mean value under resolution factor is CPQ12 which states that "I can apply the knowledge created in this course to my work or other non-class related activities". On the other hand, CPQ10 "I can describe ways to test and apply the knowledge created in this course" and CPQ11 "I have developed solutions to course problems that can be applied in practice" rated the lowest mean value (4.0). Overall, the mean score value for all 12 items in 4 cognitive factors are ranged from 4.0 to 4.2. The findings indicated that on average, the cognitive factors have a positive effect on online learning.

Conclusion

Summary of Findings and Discussion

The findings show the positive impact of SCT to enhance students' learning experience which depends on teaching, social, and cognitive presence, as stated by the CoI framework. Through social presence, teaching presence supports cognitive presence, the basis for online learning success was achieved. Students felt engaged with the instructor, their peers, and the course content, which met their expectations of communication through online courses as suggested through Moore (1989); Rahmat et al (2021), who emphasised the need for engagement and connection in good online courses.

In this study, students' perception of teaching presence, their engagement with social presence and their own enjoyment were consistent with Li & Lefevre's (2020) findings. Students' perceptions of teaching presence had direct and indirect effects on their engagement; timely teacher responses and feedback, as well as teacher guidance in meaningful discussions, were highly valued teaching practices that facilitated students' online discussions, and therefore students could actively participate in online discussions, as Liu & Deris (2022) agreed. As a result, a useful online learning environment is created which supports CoI to facilitate higher-order learning as proposed by (Baloyi, 2014). Finally, it overcomes the problem mentioned by Harsch et al (2021) who mentions that one of the main challenges of online learning is to create a conducive and interactive learning environment.

Pedagogical Implications and Suggestions for Future Research

The CoI framework creates effective communication in a virtual environment and can therefore be used to encourage collaborative learning in a virtual learning environment. As a result, more in-depth research from this perspective will be recommended to researchers in the future. Besides, the current study did not explore the relative impact on learning gain, this may require more controlled experiments in future studies.

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