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Students' Perception of the CoI-based Online Flipped Approach: Learning Mandarin as a Foreign Language

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Abstract

The Community of Inquiry (CoI) framework and the online flipped learning approach have both been extensively investigated as effective instructional designs in online courses; however, there has been little discussion on CoI-based online flipped-Mandarin as a foreign language learning. In this study students' perception of the CoI-based online flipped MFL learning was examined together with the relationship among teaching presence, cognitive presence, and social presence in online flipped MFL learning. In this study a non-experimental research design and convenience sampling were employed. Data were collected using the CoI questionnaire, which was distributed to 103 full-time undergraduate students enrolled in elementary MFL courses. Descriptive results revealed that design and organization in the teaching presence featured the most; meanwhile, group cohesion in the social presence featured the least. Pearson's correlation test results showed that a significant relationship existed among the three variables (teaching, cognitive, and social presence), with a particularly strong and positive correlation between the cognitive and social presence. These findings could help shape a new pedagogical design and improve online teaching practices.

Keywords: *CoI-based, online, flipped-Mandarin, foreign language, students' perception*

Introduction

The Covid-19 outbreak forced higher education institutions to change face-to-face courses to online courses. Due to the unpredictable changes, a variety of instructional designs have been introduced and one of the instructional designs is the Community of Inquiry (CoI)-based online flipped learning (Jia et al., 2021; Ma, 2020; Özüdoğru, 2022; Wang et al., 2022; Wang & Zhu, 2019). Some skill-based and knowledge-based online courses have been conducted using a CoI-based online flipped learning approach to ease the delivery of the course. For instance, Jia et al. (2021) implemented the CoI-based online flipped learning approach to design the course "Engaging adult learners" in the Faculty of Education; Özüdoğru (2022) introduced the approach to teacher education classes; Ma (2020) employed the approach in the comprehensive English reading (CER) course whereas Wang and Zhu (2019) applied the approach in the Chemistry program of university courses.

In the context of this study—an elementary-level Mandarin as a foreign language course (MFL)—the CoI-based online flipped learning approach was implemented as a response to several learning issues. Some students had limited internet access, which made it difficult to go online for long hours of synchronous classes. The approach enabled the instructor to prepare course materials in advance so students could go through them before the synchronous classes. This greatly reduces the time spent synchronously. The approach also allowed students to personalize their learning and they could revisit the concept at their own pace. Furthermore, the instructor could spend more instructional time, which included real-time or instant interaction, with the students.

While there have been studies regarding the CoI-based online flipped learning approach, our understanding of it remains at the preliminary stages. In particular, there is a lack of studies on students' perceptions regarding the presence of teachers and their cognition in their online courses, or concerning their interaction with teachers and coursemates, especially in the context of foreign language learning. With these considerations, in the present study students' perception of the CoI-based online flipped MFL learning was examined and also the relationship between teaching presence (TP), cognitive presence (CP), and social presence (SP) in online flipped MFL learning at a Malaysian public university. Two research questions were addressed:

1. In terms of TP, CP, and SP, what kind of presence do students perceive the most in the CoI-based online flipped MFL classrooms?
2. Is there a relationship between TP, SP, and CP in the CoI-based online flipped MFL learning?

Literature Review

The Community of Inquiry (CoI) framework

Garrison et al. (1999) introduced the Community of Inquiry (CoI) framework for online learning, which consists of three interrelated elements that are supposed to create a constructive online learning experience: TP, which refers to the design of learning and the development of understanding among participants; CP, which is the amount of cognitively engaged individuals through collaboration and reflection in a community of inquiry; and SP, which is an individual's ability to portray themselves socially and emotionally through the medium of communication. Of these elements, TP is vital as it is the precursor for developing and sustaining social and cognitive presence (Garrison et al., 2010). These researchers mentioned that perceptions of SP also predict perceptions of CP. Several studies have indicated that the CoI framework has positive effects, such as improving learners' self-management, the construction of deep-level cognition, learning effect, and autonomy (Zhang et al.,2020), enhancing student engagement in online undergraduate business courses (Jinhee et al., 2020), and developing learning success and satisfaction in Korean as a foreign language delivered online (Song, 2021). In the study by Saadatmand et al. (2017), which used the problem-based learning approach and the CoI framework in an open online course titled "Open Networked Learning," it was found that participants had high perceptions of the three presences in the course (SP, CP, and TP) and there were positive relationships between TP and CP, as well as SP and CP.

The Online Flipped Learning Approach

To date, various studies have been completed to investigate the efficacy and suitability of the online flipped learning approach (Ahmad & Arifin, 2021; Hew et al., 2020; Latorre-Cosculluela et al., 2021; Tseng et al., 2018). Online flipped learning has a substantial influence on academic assessment as it encourages student engagement and interactive learning and has a positive influence on the development of 21st-century skills that are essential for students' personal and professional futures (Latorre-Cosculluela et al., 2021). A few researchers introduced the online flipped language learning approach in language classrooms and the students were satisfied with the approach (Ahmad & Arifin, 2021; Tseng et al., 2018). In a recent study by Hew et al. (2020), the findings indicated that participants' performance in online flipped classes was just as good as in conventional ones.

The CoI-Based Online Flipped Approach

Along with this growth in the CoI framework and online flipped learning approach, there is also increasing concern over the adoption of a combination of the CoI framework and the online flipped learning approach in different courses. Wang et al. (2022) combined the online flipped learning approach with the revised CoI framework in a Massive Open Online Course (MOOC), where they investigated students' perception of MOOC-based flipped learning and the various types of scaffolding for distinct phases. Özüdoğru (2022) discovered that an ideal CoI-based online flipped learning design promoted TP, with perceived TP having the highest mean and perceived SP having the lowest mean. Marshall and Kostka (2020) introduced the online flipped learning approach as a Synchronous Online Flipped Learning Approach in an English class. Their findings suggested that by adopting this approach and the CoI framework, teachers may retain a strong and visible presence while assisting students in remaining motivated and interested in the online learning environment.

The implementation of the CoI-based online flipped learning approach has both advantages and challenges (Jia et al., 2021; Ma, 2020; Özüdoğru, 2022; Wang et al., 2022). The CoI-based online flipped learning approach promoted active, flexible, autonomous, interactive, and engaging learning as well as increased student engagement (Jia et al., 2021; Ma, 2020; Özüdoğru, 2022). Concurrently, some challenges in adopting the approach were recognized, such as interruptions and an absence of

sustained attention from students in synchronous online learning sessions (Ma, 2020). There were also concerns with the approach's instructional design in terms of group cohesiveness, student preparation, triggering events, and other relevant aspects (Wang et al., 2022).

As mentioned, little research has been undertaken to examine students' perception of CoI-based online flipped MFL learning, as well as the relationship between TP, CP, and SP in online flipped MFL learning.

Methodology

Instructional Design

The online flipped MFL course was designed based on the CoI framework that was interrelated with TP, SP and CP. The course was offered as a university elective course and conducted for one academic semester (14 weeks). The course was taught by the same instructor and reinforced by an asynchronous platform (a learning management system), a synchronous platform (video conferencing), and an instant messaging tool. The instructional design details for the CoI-based online flipped MFL are included in the Appendix.

Research Design and Participants

The present study employed a non-experimental quantitative research design and convenience sampling. All the full-time undergraduate students enrolled in the elementary MFL classes in one academic semester. A total of 158 students were involved, all of whom were invited to participate in the study.

The CoI questionnaire of Saadatmand et al. (2017) was adapted to analyse learners' experience in an online flipped MFL learning context. The questionnaire was prepared in Google Forms and the link was distributed to all elementary MFL students through the instant messaging tool (Whatsapp platform). The consent forms were acknowledged as students submited the questionnaires through Google Forms. Participants were provided with basic information about the study and the questionnaire's objectives. The questionnaire used a 5-point Likert scale that ranges from 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree* to 5 = *strongly agree*. One hundred and three students responded to the questionnaire.

Data Collection Procedures

A pilot test was undertaken before revising and distributing the CoI questionnaire by Saadatmand et al. (2017). The pilot test was given to a representative sample of twenty elementary MFL students. The internal consistency of the questionnaire was assessed using Cronbach's alpha coefficient and yielded reliability values that ranged from .933 (SP), .943 (CP) to .988 (TP) assessed reliably.

The reliability of the instrument used after the pilot was also assessed. This involved the one hundred and three students who completed the study. As shown in Table 1, results indicated (a) the internal consistency of the SP is $\alpha = .928$, (b) the internal consistency of the CP is $\alpha = .958$, and (c) the internal consistency of the TP is $\alpha = .983$.

Table 1 *Reliability Values for the Main Study*

Variable (Presence)	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
Social	.928	.929	9
Cognitive	.958	.960	11
Teaching	.983	.984	14

Results

The data in Table 2 indicate that design and organization in the TP of CoI were appreciated by the students (*M* = 4.77; *SD* = 0.54). Most of the students favoured item 4 "Course facilitators clearly communicated important due dates and time frames for learning activities." (*M* = 4.82; *SD* = 0.54). However, there was less SP presented in the online flipped CoI classroom. It occurred particularly in terms of group cohesion elements (*M* = 4.03; *SD* = 0.82), which was reflected in item 7: "I felt comfortable disagreeing with other course participants while still maintaining a sense of trust" (*M* = 3.77; *SD* = 0.98). The standard deviation for each item revealed a prominent level of consistency in the CP and SP, ranging from 0.60 (Integration in CP) to 0.82 (Group Cohesion in SP). Nonetheless, there was a low level of consistency in TP, ranging from 0.54 (Design & Organization) to 0.56 (Facilitation).

Table 2 *Mean and Standard Deviation for Teaching Presence, Cognitive Presence, and Social Presence*

Variable	Mean	Std. Dev.
Teaching Presence (TP)		
Design & Organization	***4.77***	***0.54***
1. Course facilitators clearly communicated the course goals.	4.79	0.56
2. Course facilitators clearly communicated the important course topics and content.	4.80	0.57
3. Course facilitators provided clear instructions on how to participate in the course learning activities.	4.75	0.57
4. Course facilitators clearly communicated important due dates and time frames for learning activities.	4.82	0.54
5. Course online environment and tools supported my learning.	4.73	0.60
Facilitation	***4.73***	***0.56***
6.Course facilitators were helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	4.74	0.59
7. Course facilitators were helpful in guiding participants towards understanding course topics in a way that helped me clarify my thinking.	4.77	0.60
8. Course facilitators helped keep course participants engaged and participating in productive dialogue.	4.74	0.59
9. Course facilitators helped keep the course participants on task in a way that helped me to learn.	4.75	0.59
10. Course facilitators encouraged participants to explore new concepts in the course.	4.76	0.59
11. Course facilitators reinforced the development of a sense of community among participants.	4.65	0.68
Direct Instruction	***4.76***	***0.54***
12. Course facilitators helped focus discussion on relevant issues in a way that helped me to learn.	4.70	0.624
13. Course facilitators provided feedback that helped me understand my strengths and weaknesses.	4.78	0.58
14. Course facilitators provided guidance and feedback in a timely fashion.	4.80	0.55
Cognitive Presence (CP)		
Triggering Event	***4.37***	***0.61***
1. Problems (scenarios) posed increased my interest in course issues.	4.17	0.78
2. Course activities stimulated my curiosity.	4.47	0.62
3. I felt motivated to explore content related questions.	4.49	0.69
Exploration	***4.30***	***0.68***
4. I utilized a variety of information sources to explore problems posed in the course.	4.29	0.74
5. Online discussions were valuable in helping me appreciate different perspectives.	4.31	0.73

Table 2 *Mean and Std Dev for Teaching Presence, Cognitive Presence, and Social Presence (Cont'd)*

Variable	Mean	Std. Dev.
Integration	***4.43***	***0.60***
6. Combining new information helped me answer questions raised in course activities.	4.42	0.63
7. Learning activities helped me construct explanations/solutions.	4.44	0.64
8. Reflection on course content and discussions helped me understand main concepts in the course.	4.43	0.68
Resolution	*4.27*	*0.65*
9. I can describe ways to test and apply the knowledge created in this course.	4.30	0.71
10. I have developed solutions to course problems (scenarios) that can be applied in practice.	4.25	0.68
11. I can apply the knowledge created in this course to my work or professional related activities.	4.24	0.72
Social Presence (SP)		
Affective Expression	*4.19*	*0.65*
1. Getting to know other course participants gave me a sense of belonging in the course.	4.22	0.75
2. I was able to express my emotions/opinions to other course participants.	4.15	0.79
3. Online tools and web-based communication enhance social interactions.	4.21	0.82
Open Communication	*4.30*	*0.71*
4. I felt comfortable conversing through online tools and communities.	4.35	0.79
5. I felt comfortable participating in the course discussions.	4.35	0.76
6. I felt comfortable interacting with other course participants.	4.21	0.80
Group Cohesion	*4.03*	*0.82*
7. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.	3.77	0.98
8. I felt that my point of view was acknowledged by other course participants.	4.05	0.94
9. Online discussions helped me develop a sense of collaboration.	4.27	0.85

The Pearson correlation test analysis was conducted to examine the relationship between the variables used within the present study. The relationship between two variables is considered strong when their *r* value is larger than .7 and $p < .05$ (Hazra & Gogtay, 2016). Based on Table 3, the correlation coefficient indicated a strong and positive relationship between SP and CP, r (103) = .769, $p < .05$; a moderate and positive correlation relationship between TP and CP, r (103) = .691, $p < .05$; and a moderate and positive correlation relationship between TP and SP, r (103) = .653, $p < .05$.

Table 3 *Pearson Correlation Test*

		TP	SP	CP
TP	Pearson Correlation	1	.653**	.691**
	Sig. (2-tailed)		.000	.000
	N	103	103	103
SP	Pearson Correlation	.653**	1	.769**
	Sig. (2-tailed)	.000		.000
	N	103	103	103
CP	Pearson Correlation	.691**	.769**	1
	Sig. (2-tailed)	.000	.000	
	N	103	103	103

** Correlation is significant at the .01 level (2-tailed).

Discussion

Several investigators have examined the TP, SP, and SP in different types of online courses; however, there remains minimal literature regarding CoI-based online flipped MFL learning. The present study was designed to examine students' perception of the CoI-based online flipped MFL learning and the relationship between TP, SP, and SP in CoI-based online flipped MFL learning.

To answer the first research question, TP was featured the most, followed by CP and SP. These findings are in line with prior research where an effective CoI-based online flipped learning design would increase TP but render SP as being the least significant (Özüdoğru, 2022). This result can be linked to the efforts of the instructor in the design and organization, facilitation, and direct instruction in the element of instructional design in TP. In terms of design and organization, the instructor provided clear course goals, content, due dates, and period for all the learning activities. In terms of facilitation, the instructor always guided the students, kept them on task, and encouraged them to explore. In terms of direct instruction, the students responded that they highly appreciated the instructor's guidance and feedback which were provided in a timely fashion that was helpful for them to understand their strength and weakness.

The MFL students perceived the level of CP as the second highest element in the CoI-based online flipped learning. Cognitive presence is a process of learning experience based on four inquiry processes of CP—triggering events, exploration, integration, and resolution to enable students to construct new forms of knowledge (Assalahi, 2020). The MFL course is a popular elective course at the study location (Lam & Hoe, 2013). Learning MFL is not an easy task, since the course needs students to complete their assessments and assignments in Chinese characters (see Lam et al., 2018). However, the students had a strong motivation or "interest" in learning MFL. This was observed in the study by Lam et al. (2020), where students' interest prompted them to engage in critical thinking and enrichment for their student's learning experience.

Social presence had the lowest level of presence in the CoI-based online flipped MFL learning, especially in terms of group cohesion. This finding was observed in other studies, such as that by Wang et al. (2022), where it was mentioned that there is a need to increase more activities for group cohesion in the CoI-based online flipped learning in-class learning designs. As a response to this, problem-solving activities, small group discussions and projects that facilitate the development of community building could be included in the learning context to foster group cohesion (Fiock, 2020; Richardson et al., 2010).

To answer the second research question, the present study results confirmed that there was a positive correlation involving the three variables: TP, SP, and CP. It was observed that there was a significant positive correlation between SP and CP. This result shows that higher levels of SP (learner interaction) can generate higher levels of CP (perceived learning). Since SP was featured to a lesser extent in the present study, there is a crucial need to further enhance SP to increase CP in the CoI-based online flipped MFL learning. Instructors may develop SP by demonstrating interaction and fostering an environment that encourages students to interact. As an example, organizing online forums have been found to assist learners in becoming more comfortable since they have the time to interact and express themselves in a relaxed manner (Costley, 2019).

The correlation between TP and SP was positive, albeit moderate. This finding is in contrast to some studies, such as that by Saadatmand et al. (2017), where they found no significant relationship between TP and SP. On the other hand, for TP and CP, it can be observed that there is also a moderate and positive correlation relationship, which is similarly observed by Saadatmand et al. (2017). These results mirror those of the previous studies that have examined TP, which appears to be essential for developing and sustaining both social presence and cognitive presence (Garrison et al., 2010).

Since increased TP was associated with increased SP and CP, the instructional design, primarily for TP in terms of design and organization, facilitation and direct instruction in the CoI-based online flipped MFL could be promoted to further improve SP and CP in the same context. Other suggestions are to limit class size and provide an adequate sense of community for in-group and cross-group

interaction that supports learning experiences, as recommended by Fiock (2020). This may further consolidate the TP in online flipped MFL learning.

Conclusion

In the present study it was found that most of the students agreed that there were TP, CP, and SP featured in the CoI-based online flipped MFL classroom and there is a positive relationship among these three variables.

The findings of the present study are limited in their generalizability. First, the results of this study were concentrated on a specific group of undergraduate students chosen through convenient sampling in the elementary MFL course. The study could be replicated with a larger sample size from various educational backgrounds or subject areas. Second, I was the instructor and researcher for the present study. It might somehow affect the trustworthiness of the findings.

Notwithstanding these limitations, the present study results highlight the significance of incorporating appropriate elements into the instructional design of an online flipped course to enhance TP, SP, and CP. They also allow suggestions to be made on how improvements might be introduced in online teaching practises in the CoI-based online flipped MFL learning context. Since SP is less prominent in the CoI-based online flipped MFL learning, future research could focus on improving SP elements. More research on experimental research designs using CoI-based online flipped MFL learning is also needed because it could provide a greater depth understanding of the learning process.

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Appendix. *Instructional Design for the CoI-based Online Flipped MFL*

Elements	Categories	Activities
Teaching Presence	Design & Organization	• Students were asked to watch pre-recorded videos and listen to audio files in an asynchronous class (learning management system) before attending synchronous class (video conferencing). • During the synchronous class, active learning activities such as discussion and quizzes were introduced to students. After synchronous class, students were asked to do assignments or quizzes related to the teaching content to further empower them in regards to what they had learned during the synchronous class. • Provide a design learning environment that addresses different learning preferences, such as providing audio files (for audio learners), video files (for visual learners), and so on.
	Facilitation	• List down and spell out what is needed for the class. For synchronous class, students must prepare a microphone (a must-have for every live class), camera (especially for assessments) and textbook. • List down the important dates and periods for assessments, holidays, and the nature of the assessments. • Standard operating procedure (SOP) in Mandarin class: Watch the pre-recorded video, listen to audio files, attend a live class, focus, and participate in all live class activities and need to complete the assigned tasks after the live class. • Provide individual and group tasks. • Identify and understand the students who with limited internet access, therefore, always remind students in advance before any activities or assessments that require a good internet setting. Students can go to find a place where their internet access is more stable. • Invite students to set their learning goals at the beginning of the course and write down their reflections at the end of the course. • Have a sense of humour during the facilitation process.
	Direct Instruction	• Provide timely feedback in asynchronous class and synchronous classes. • Use phone calls, email, a learning management system, video conferencing and an instant messaging tool as a platform to provide communication with students. • Provide course schedule, clear grading guidelines and relevant information.
Social Presence	Affective Expression	• Always ask if a student can follow the teaching progress during the lecture class via video conferencing. • If not convenient to switch on the microphone or camera, can click emoji or send a message in a video conferencing chat box for real-time/instant interaction. • Share my feeling with students. Appreciate that they make effort to attend the class. • Make use of the emoji button in video conferencing. • Address students by name.
	Open Communication	• Share life experiences with students. • Encourage students to share their stories. • Give some motivational talks to students. • Use an instant messaging tool to allow instant communication • Provide timely personalized feedback to students through email, phone calls, or an instant messaging tool.

	Group Cohesion	• Design collaborative activities, such as small group discussions. • Use the "choice" function in the learning management system to let students select their group members for their group tasks. • Before group tasks, provide some activities to get to know each other so that the students get to know each other before they work in a group. For example, provide some tasks using shared Google documents, divide the students into a group and they can work together in the breakout room via video conferencing.
Cognitive Presence	Triggering Event	• Provide activities and exercises which are related to students' real life. • Activities and exercises are given after each lesson. • All the activities and exercises provided are to scaffold students' knowledge building. • Identify key information, skills, and expectations that students should learn and provide more course activities focused on their assessment.
	Exploration	• breakout room activities (e.g, write a dialogue)
	Integration	• Use different online learning resources for students to connect ideas • Provide a group learning formative assessment method that supports student learning and instructor guidance. • Include reflection activities, such as goal setting at the beginning of the semester and invite students to reflect on their accomplishments at the end of the course.
	Resolution	• Ask students to apply what they have learned through assessments, Padlet activities, and Google shared document activities.