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Investigating relationships between community of inquiry perceptions and attitudes towards reading circles in Chinese blended EFL learning

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Abstract

Little research has been conducted to investigate relationships between students' community of inquiry (CoI) perceptions and their attitudes towards reading circles (ARC). To bridge the gap this quantitative research reports a cohort of Chinese students' perceptions of CoI and its prediction for their attitudes towards reading circles (RC) in English as a Foreign Language learning. The researchers administered and collected 202 valid questionnaires. They analyzed the correlations between CoI and ARC dimensions, did regression analyses and came up with insightful findings. It's found that, concerning CoI, students have more positive perceptions of teaching and cognitive presences than of social presence. Meanwhile teaching presence, cognitive presence, social presence of CoI and usefulness, affect, and behavior of ARC are closely correlated. CoI teaching presence and cognitive presence are significant predictors for usefulness and behavior of ARC, while the combination of the three CoI presences predicts affect of ARC. Investigating the relationships between a longstanding CoI framework and a fledgling ARC scale provides great implications for Chinese blended EFL teaching, especially in reading courses.

Keywords: CoI perceptions, Blended EFL learning, Attitudes towards reading circles

Introduction

It's a shared goal for a host of researchers, educationists, and practitioners to establish effective, efficient, and robust communities of inquiry (CoI) in online or blended learning environments (Fiock, 2020; Szeto, 2015; Vaughan, 2010), where students are expected to be highly motivated, put in many efforts towards learning activities, observe timelines and share their voices through meaningful educational designs (Junus et al., 2021). Particularly in tertiary English as a Foreign Language (EFL) reading courses, critical thinking and communication ability (Karatay, 2017), affection to learning English are earnestly valued and sought, with good learning habits and positive learning effect, besides the aim of reading comprehension. Such objectives in this research are obtained by means of reading circles (RC) in a functioning community of inquiry (CoI).

Merits and challenges concerning community of inquiry (CoI) or reading circles (RC) are researched to varying degrees in the literature. CoI is well-established on both theoretical and practical bases. Tremendous efforts have been invested in exploring the reliability and validity within the framework, adopting or experimenting the CoI theory with considerable results harvested (Arbaugh et al., 2008; Szeto, 2015). Its three presences, namely teaching, cognitive and social presences, are observed as dynamic for students' learning and satisfaction (Akyol & Garrison, 2019). For blended learning, CoI is becoming more pervasive and visible due to the application of various educational technologies (Hilliard & Stewart, 2019; Popescu & Badea, 2020). The three presences have been employed to guide, facilitate, and verify the effectiveness of teaching or learning (Smadi et al., 2019; Zhang, 2020). For its development, researchers made some attempts to produce new presences to complement the overall framework (Kilis & Yıldırım, 2018; Kozan & Caskurlu, 2018). However, not many Chinese teachers and students in an EFL context are aware of the influence of CoI, or its effectiveness, or even its application. So, it's vital for researchers to assess students' perceptions of CoI and make reasonable and reliable reflections.

Reading circles (RC), as an instructional approach, has been employed in practical teaching and learning at different educational levels, such as primary school (Pearson, 2010), high school (Blum et al., 2002; Burns, 1998), vocational education (Widodo, 2015), but it is a relatively innovative and imported teaching method to EFL practitioners in tertiary education (Su et al., 2018; Xu, 2021). Its effectiveness needs experimenting and testing. Creatively researchers of this study adopt RC in their reading courses with ongoing reflections and modifications to achieve the above comprehensive objectives. They manage to administer an Attitudes towards Reading Circles (ARC) survey, trying to determine the effectiveness, merits, and drawbacks of RC.

By far, quite rare is the research in terms of relationships between CoI and ARC, especially in the discipline of EFL reading. Researchers in this study used to be uncertain either of students' CoI perceptions or their attitudes towards technology-supported RC activities in their EFL reading courses. More importantly, these teacher researchers want to see whether CoI dimensions are predictors for ARC components, gauging the interplay between the two fields in a blended EFL learning environment. Hence this paper draws attention to the under-researched correlations between students' perceptions of CoI and ARC, based on EFL practitioners' pedagogical experiences and experiments.

Literature review

Community of inquiry (CoI)

Since its conceptualization, CoI has drawn massive attention from the academia and the discipline of education (Garrison et al., 2000). There are three dimensions in the CoI framework: teaching presence (TP), social presence (SP), and cognitive presence (CP). The three presences are closely correlated and interact with each other and they contribute to the intactness of CoI. Researchers are passionate to explore, reflect and validate the three presences and their respective categories (Abbitt & Boone, 2021; Arbaugh et al., 2008). Initially CoI was applied to online learning. It came into being to explore the experiences of a community of learners in the advancement of communications

technology. Educators and practitioners spare no effort to adopt CoI in their practical teaching and research (Cheng, 2022; Popescu & Badea, 2020).

Generally, teaching presence (TP) provides an overall guideline for the instructors to design, facilitate and direct social and cognitive processes for the purpose of meaningful learning outcomes (Akyol & Garrison, 2011; Garrison et al., 2001). Specifically, TP constitutes three categories: design and organization, facilitation, and direct instruction. The first category is more challenging in a blended learning context, as teachers are supposed to design and organize their classes by integrating physical class activities and online learning and assignments. The second category of facilitation will assist students in having a clear idea of the course topics, goals, activities to distribute their time and efforts and accomplish the assignments or projects. The third category in blended learning is concerned with clarifying misunderstandings or deviation of discussions, and timely feedback either in the classroom or Learning Management System (LMS) platform. Furthermore, the role of the instructor as a facilitator, organizer and evaluator can help students become active, critical, and engaged learners.

Cognitive presence (CP) is defined by the practical inquiry model and consists of four phases—triggering event, exploration, integration, and resolution (Akyol & Garrison, 2019). Either in online or blended learning, there are the triggering event part involving questions and course activities initiating students' interest, curiosity, or motivation. Exploration involves utilization of a variety of information, learning strategies such as brainstorming and finding relevant information and reflections on course discussion. In the integration phase, students try to combine new information, thoughts, and reflections, and then come up with construction of meanings or solutions to problems. The last phase, resolution, emphasizes learners' application of knowledge and solutions to course problems. The four categories function as a dynamic and interdependent cycle to encourage students to engage in practical inquiry.

Social presence (SP) is defined as "the ability of participants to identify with the group or course of study, communicate purposefully in a trusting environment, and develop personal and affective relationships progressively by way of projecting their individual personalities" (Garrison, 2010a). The connotation, categories, along with the corresponding indicators of SP were identified by Garrison (Garrison et al., 2000) and refined by Rourke, Anderson, Garrison & Archer (Rourke et al., 2001). The categories are acknowledged as affective emotions, open communication, and group cohesion. In blended learning, compared to online learning, SP presumably is more apparent and will exert greater positive impact on learners (Harrell & Wendt, 2019). When learners go to a brick-and-mortal classroom, there will be authentic, free, and overt communication between group members. Hence, learners are supposed to have strong affective emotions after a certain amount of open communication. And group cohesion will be strengthened and more obviously perceived.

Technology-supported reading circles (RC)

Reading circles, also known as literature circles or book clubs (Daniels, 2002), are often used in English reading courses. The most adopted roles in RC activities are discussion leader, summarizer, word master, passage person, connector, and cultural collector etc. Role descriptions are shown in Fig. 1. To conform to the rationale of EFL reading

Role	Description
Discussion Leader	Prepare five general questions, start the discussion, guide it and keep it going.
Summarizer	Find the key points, retell the story, and talk about the summary.
Word Master	Choose five important words or phrases, explain the meanings, and tell the reasons why they are important.
Passage Person	Find important, interesting, or difficult passages, read them and ask relevant questions.
Connector	Look for connections between the story and the world outside, tell about the connections, and ask for comments.
Cultural Collector	Seek differences and similarities between one's own culture and the culture in the story, elaborate the cultural points, and ask further questions.

Fig. 1 The description of RC roles based on Bookworms Club by Oxford University Press

courses, the researchers tend to adopt the term reading circles since the texts that students read not only include fiction but also non-fiction. Reading circles are usually defined as "small peer-led discussion groups, involved in reading the same piece of literature, and who come together on a regular programmed basis to share interpretations of what they have read" (Shelton-Strong, 2011). EFL reading courses, mainly dominated by instructors, used to aim at drilling students' reading comprehension by lectures and discussions, question posing and answering with corresponding exercises. However, it is with the intention of "shifting from assimilating information to constructing meaning and confirming understanding in the community of inquiry" (Garrison & Kanuka, 2004), that the researchers pioneered RC activities in EFL reading courses in their university.

In a blended learning context, most assignments pertaining to RC roles are supposed to be completed by resort to (new mobile) educational technologies, which could affect learners' perceptions, outcomes and interactive behaviors in collaborative learning activities (Fu & Hwang, 2018). Firstly, technologies can serve as content carriers. Instructors would require students to use PowerPoint slides as a medium to lay out and present the content in a concise way. Secondly, technologies can facilitate interaction between teachers and students, recording presentations and delivering content. For instance, with limited class time, not all groups can share their presentations in class. Then, the instructors would ask some groups to submit recorded videos with their presentations of all group members. Students usually choose video capturing Apps such as Tencent Meeting to fulfill the assignment (see Fig. 2). Thirdly, technologies help students' information search and processing. In order to finish a group project, all group members must adhere to their roles, consulting the text, searching information online, sometimes processing the language by translation Apps and finally producing written reports. Fourthly, technologies are indispensable to the storage of learning materials and evaluation of students' work. Instructors usually request that all finished RC PowerPoint slides and recorded videos should be submitted to LMS, which also consists of instructor-chosen video lectures, online discussions and quizzes, academic articles, and group projects, along with attendance, class participation and homework, accounting for students'
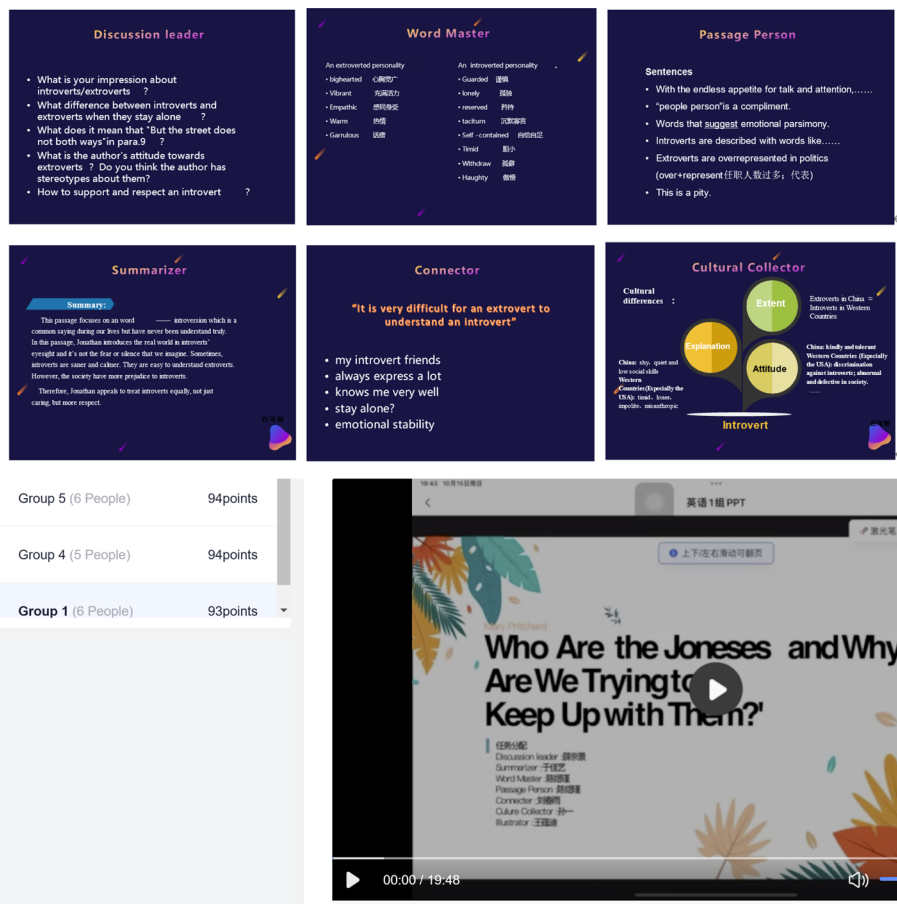
Fig. 2 Sample of RC PowerPoint slides by students with consent

daily performance. The main consideration of using LMS is to grade each group's work and give them feedback, and the secondary consideration is to use excellent works as models, teaching reflections, or further research data.

RC activities are carried out based on instructional designs to accommodate collaborative blended learning, thus face-to-face and online learning are organically incorporated. The merits of technology application have been validated in many researches. 37 studies were included to provide sufficient evidence that technology-supported pedagogy was favored (Grgurovic et al., 2013). And in this study, the advantages of technology in blended environment are apparent in that: students are encouraged to formulate what they have learned from the passage into written English so as to enhance their writing skills; the presentation in class or after class is clear-out and is supposed to convey the students' ideas, understanding and reflections; the submission of slides and captured videos can serve as assessment materials and course supplements as well. The submission date can also remind the students of the deadline, urging them to accomplish assignments on time.

The researchers have conducted several rounds of RC activities (see Fig. 3) with a view to CoI. However, they were uncertain of students' opinion of CoI. Also they were eager to know whether students' attitudes towards RC are positive or negative, which would

Fig. 3 Snapshots of RC in-classroom and Tencent Meeting presentations by students with consent

be very important in terms of pedagogical reflection and instructional improvement. In addition, they would also like to see whether students' CoI perceptions are predictors for ARC components. Hence, three research questions are posed as follows:

RQ1: How do students perceive CoI in blended EFL learning environment?

RQ2: What are students' attitudes towards RC?

RQ3: What are the relationships between CoI dimensions and ARC components?

Methods

Participants

Participants of the survey are a cohort of 208 undergraduates, age averaging around 20 years old, enrolling in EFL reading courses in the 2023 Spring semester in a university in Beijing, China. 202 of them gave valid responses to the CoI survey instrument and ARC questionnaire. Among them 34 are males and 168 are females, accounting for 16.8% and 83.2%, respectively; 131 are sophomores and 71 are juniors, accounting for 64.9% and 35.1%, respectively. All the respondents specialize in fields of Social Sciences such as Economics, Business Management, and Translational Studies, which partly explains why the proportion of female respondents is visibly higher. In terms of EFL teaching and learning factors, all of them have RC as the primary instructional method, with similar fundamental principles, teaching procedures and learning activities in essence despite minute differences in actual teaching arrangements.

Instruments

The researchers employed two questionnaires in the study. Both scales adopted Likert-type ranking (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The first is the CoI Survey Instrument of 34 items (Arbaugh et al., 2008) comprising teaching, social and cognitive presences. The original items are

retained since the questionnaire, with very good reliability and validity, has been verified by a multitude of researches and empirical studies (Garrison et al., 2000, 2010b; Heilporn & Lakhal, 2020; Shea et al., 2022). The authors adopted the well-recognized ten-category subdivision of the three CoI presences. Three categories constitute TP: design and organization (items TP1 to TP5), facilitation (TP6 to TP10), and direct instruction (TP11 to TP13). Another three categories underlie SP: affective expression (SP1 to SP3), open communication (SP4 to SP6), and group cohesion (SP7 to SP9). And four categories are seen in CP: triggering event (CP1 to CP3), exploration (CP4 to CP6), integration (CP7 to CP9), and resolution (CP10 to CP12).

The researchers adopted, revised, and verified the second questionnaire, ARC, from theoretical and practical perspectives. Theoretically, the researchers consulted relevant studies on reading circles (Li et al., 2021; Su et al., 2018). Meanwhile they referred to the indicators under the affective and behavioral dimensions of student engagement (Bond et al., 2020; Teng & Wang, 2021) and factors influencing students' perceived impact of learning in computer-supported collaborative learning (Aryadoust et al., 2015; Muñoz-Carril et al., 2021). Initially the researchers adopted four dimensions of ARC as observed by Su et al. (2018), namely, Usefulness, Self-efficacy, Affection and Behavior. In addition, they also consulted Bookworms Club by Oxford Press regarding RC role descriptions to formulate and revise the items (see Table 1).

Practically the finalization of the questionnaire went through several stages. In the first stage, they produced and revised relevant statements according to the present study aims, resulting in 28 items distributed to the forementioned four dimensions. In the second stage, the researchers invited two colleagues and five former students, who had an experience with RC activities, to review all the items to tell of their confusion concerning the questionnaire statements, and provide suggestions if any. After the review, reflection, and revision, the item pool came into existence ready for pilot survey. In the third stage, an electronic survey was administered to several classes who had EFL courses with RC method in the previous semester. 104 valid questionnaires were retrieved, processed, and analyzed by SPSS 23. However, the factor extraction of the pilot survey was not satisfactory, resulting in several problems, such as the miscategorization of two reverse items, usefulness and self-efficacy fusing into one, and some items concurrently crossing two dimensions. With consultation from an expert and discussions between the first two researchers, the questionnaire was finalized

Table 1 Constructs from past studies that relate to the three components of students' ARC

Components	Related constructs or factors
Usefulness	Perceived usefulness of literature circles (Su et al., 2018)
	Perceived benefits of computer-assisted language learning (Aryadoust et al., 2015)
	Perceived usefulness of collaborative learning (Muñoz-Carril et al., 2021)
Affect	Affective/emotional student engagement (Bond & Bedenlier, 2019; Teng & Wang, 2021)
	Affective factor (Aryadoust et al., 2015) Positive attitude towards collaborative learning, perceived enjoyment, satisfaction (Muñoz-Carril et al., 2021)
Behavior	Behavioral student engagement (Bond & Bedenlier, 2019; Bond et al., 2020)
	Active behavior in literature circles (Su et al., 2018)

with three dimensions: with self-efficacy deleted due to its confusion with usefulness as perceived by students.

Thus, 20 items were designed to be classified into three dimensions: usefulness, affect and behavior, constituting the ultimate ARC questionnaire. Usefulness refers to the effectiveness that learners perceive after conducting RC activities; affect refers to either active and conducive or negative emotions that learners derive from or render to the RC activities; and behavior means efforts, involvement or participation that learners perceive to have invested in the activities. The researchers adopt the term "affect" instead of "affection", because the former is one of the three distinct components of attitude and can vary from pleasurable to unpleasurable (Breckler, 1984), while the latter only tends to refer to positive feelings.

Data collection

"Code-switch" was done, for the questionnaires to be respondent-friendly, by means of English-Chinese translation. The two versions of ARC questionnaires were originally produced in English, but were to be administered in Chinese so that the respondents would have no barriers in language. This entailed the Chinese version being precise, reliable, and sound. In addition, the CoI survey instrument also needed translation since existing translated versions could neither completely convey the research aims of this study nor come in line with the RC instructional method. Thus, the second researcher managed to translate the two English surveys. An associate professor in the School of Foreign Studies, she is the first teacher to experiment with RC method in this university and has the experience of working as a full-time translator in the language service department of the Olympic Winter Games Beijing 2022 Organizing Committee from August 2021 to April 2022. Then all the translation was polished and revised several times by the first two authors with the goal of achieving meaning equivalence.

In the first week of 2023 Spring semester, each instructor informed students of the implementation of RC activities. Students (n=36–40) in each of the ten classes were divided into 6 or 7 groups of about 6 members, according to pre-stated basic rules and their own willingness. In the 16th week, the CoI and ARC questionnaires were printed on one piece of paper and administered to six classes of 208 students in paper-and-pen form with a hope of achieving formal, credible, and objective results. In each class, a researcher (being the English teacher) was present to read the instructions, explain the procedures, and hand out and collect the questionnaire sheets. Then all the statistics were put into the computer manually, processed and analyzed with SPSS 23.

Data analysis

In addition to basic indicators of test quality (reliability and validity), the researchers did factor analysis to judge CoI perceptions and ARC. They also conducted regression analyses based on correlational computations to see the interplay between CoI and ARC.

Reliability analysis of the CoI survey

To examine the internal consistency of the CoI survey instrument, the investigators conducted a reliability analysis. Results show that Cronbach's coefficient alpha of the scale is above 0.80 indicating good reliability. Specifically speaking, Cronbach's

coefficient alpha for TP, CP and SP is 0.930, 0.930 and 0.816, respectively. Cronbach's coefficient alpha for the entire scale is 0.947. Therefore, the reliability of the instrument is good. Before the factor analysis of the items, the data were tested for validity. Results show that the KMO value is 0.921 and the Bartlett's test of sphericity is 0.000, less than 0.001, which means the questions are suitable for factor analysis (see Table 2).

The researchers conducted a principal component factor analysis and extracted a total of three components with their initial eigenvalue greater than 1. As can be seen from Table 3, the percentage of variance of TP, CP and SP are 41.471%, 10.918% and 5.312%, respectively. And the cumulative variance interpretation rate of the three

Table 2 Rotated factor loadings and Cronbach's α values for the CoI survey instrument

	Factor 1	Factor 2	Factor 3
Factor 1: teaching presence (TP), α = 0.930, mean = 4.72, SD = 0.39			
TP 1	0.728		
TP 2	0.835		
TP 3	0.841		
TP 4	0.746		
TP 5	0.771		
TP 6	0.816		
TP 7	0.614		
TP 8	0.600		
TP 9	0.713		
TP 10	0.517		
TP 11	0.666		
TP 12	0.505		
TP 13	0.719		
Factor 2: cognitive presence (CP), α = 0.930, mean = 4.41, SD = 0.52			
CP 1		0.757	
CP 2		0.781	
CP 3		0.766	
CP 4		0.640	
CP 5		0.698	
CP 6		0.684	
CP 7		0.648	
CP 8		0.628	
CP 9		0.632	
CP 10		0.743	
CP 11		0.695	
CP 12		0.589	
Factor 3: social presence (SP), α = 0.816, mean = 4.21, SD = 0.58			
SP 1			0.581
SP 2			0.654
SP 3			0.609
SP 4			0.627
SP 5			0.627
SP 6			0.612

Overall reliability coefficient: 0.947; Total variance explained: 57.701%

Table 3 Total variance of CoI explained

Component	Initial Eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.856	41.471	41.471	12.856	41.471	41.471	7.222	23.296	23.296
2	3.385	10.918	52.388	3.385	10.918	52.388	7.004	22.593	45.889
3	1.647	5.312	57.701	1.647	5.312	57.701	3.662	11.812	57.701

Extraction method: principal component analysis. 1 = Teaching presence, 2 = Cognitive presence, 3 = Social presence

components is 57.701%, indicating that the extracted components can explain most of the questions, so the overall validity of the questionnaire is fairly good.

According to the component matrix after rotation, the first component, named teaching presence (TP), includes 13 questions; the second one, named cognitive presence (CP), consists of 12 questions; the third component, named social presence (SP), includes 6 questions. The factor loading of each question is over 0.40 showing no cross loading, which indicates good validity. According to previous studies and factor classification (Appendix A), item 21 (I felt that my point of view was acknowledged by my classmates) and Item 22 (Course activities helped me develop a sense of collaboration) are classified as related to social presence. However, the students of this study thought that these two items belonged to cognitive presence. And Item 20 (I felt comfortable disagreeing with my classmates while still maintaining a sense of trust) involves two dimensions, namely cognitive presence and social presence, but both factor loadings are less than 0.5. In the initial design of the questionnaire, the three items belonged to group cohesion, but the divergence of the outcome indicates that the participants did not quite recognize group cohesion. Therefore, items from No. 20 to No. 22 were deleted from the final version of the scale, with only 31 items left.

Reliability analysis of the ARC questionnaire

To examine the internal consistency of ARC questionnaire, the investigators conducted a reliability analysis. The results show that Cronbach's coefficient alpha of the scale is above 0.80, indicating good reliability of the questionnaire. Specifically speaking, Cronbach's coefficient alpha for usefulness, affect and behavior are 0.801, 0.876, and 0.821, respectively. Overall reliability of coefficient for the scale is 0.913. Therefore, the reliability of the questionnaire is good. Before the factor analysis of the items, the data were tested for validity. Results show that KMO value is 0.921 and Bartlett value is 0.000, less than 0.001, which means the questions are suitable for factor analysis (see Table 4).

Principal component factor analysis was conducted and results showed that a total of three components with their initial eigenvalue greater than 1 were extracted. As can be seen from Table 5, the percentage of variance of the first, the second and third component are 38.564%, 11.351% and 6.418%, respectively. And the cumulative variance interpretation rate of the three components is 56.333%, indicating that the extracted component can explain most of the questions, so the overall validity of the questionnaire is fairly acceptable.

Table 4 Rotated factor loadings and Cronbach's α values for ARC scale

	Factor 1	Factor 2	Factor 3
Factor 1: Usefulness, α = 0.801, mean = 4.18, SD = 0.55			
Usefulness 1	0.680		
Usefulness 2	0.613		
Usefulness 3	0.558		
Usefulness 4	0.754		
Usefulness 5	0.679		
Usefulness 6	0.538		
Factor 2: Affect, α = 0.876, mean = 4.12, SD = 0.61			
Affect 1		0.640	
Affect 2		0.598	
Affect 3		0.610	
Affect 4		0.602	
Affect 5		0.697	
Affect 6		0.684	
Affect 7		0.645	
Affect 8		0.560	
Factor 3: Behavior, α = 0.821, mean = 4.62, SD = 0.47			
Behavior 1			0.662
Behavior 2			0.813
Behavior 3			0.809
Behavior 4			0.861
Behavior 5			0.609
Behavior 6			0.459

Overall reliability coefficient: 0.913; Total variance explained: 56.333%

Table 5 Total variance of ARC explained

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.713	38.564	38.564	7.713	38.564	38.564	3.874	19.372	19.372
2	2.270	11.351	49.915	2.270	11.351	49.915	3.735	18.676	38.048
3	1.284	6.418	56.333	1.284	6.418	56.333	3.657	18.285	56.333

Extraction method: principal component analysis. 1 = Usefulness, 2 = Affect, 3 = Behavior

According to the component matrix after rotation, the first component, named usefulness, involves 6 questions; the second component, named affect, includes 8 questions; the third one, named behavior, consists of 6 questions. The factor loading of each question is over 0.40 showing no cross loading, which indicates good validity.

Results

Students' perceptions of CoI in blended EFL learning environment

The result of rotated component metrics of factor loadings of CoI (Table 2) indicates that the students have positive perceptions of the three presences. In particular they have the most positive assessment of teaching presence (mean = 4.72) and cognitive presence (mean = 4.41). In TP, Item 3 "The instructor clearly provided instructions on how

to participate in the course activities" (fl = 0.841), Item 2 "The instructor clearly stated the course topics" (fl = 0.835) and Item 5 "The instructor clearly stated the due time for tasks" (fl = 0.771) are most closely associated with the category of design and organization (Items 1–5, mean = 4.80), which indicates that instructors' good course design contributes most to students' successful learning experiences (Nagel & Kotzé, 2010). The result further proves that TP has the most significant impact on students' learning, and it can guide students as to where they put in efforts and how they perceive their learning effectiveness or outcome. In addition, the students also have positive perceptions or evaluations on facilitation (Items 6–10, mean = 4.67) and direct instruction (Items 11–13, mean = 4.67).

In cognitive presence (CP), the category of triggering events is the most closely related, with prominent items such as Item 2 "Course activities stimulated my curiosity" (fl = 0.781), Item 3 "I felt motivated to explore content related questions" (fl = 0.766), and Item 1 "Problems posed increased my interest in course topics" (fl = 0.757). It suggests that students' curiosity, motivation, and interest contribute most to their positive cognition concerning CoI. Besides, exploration and integration are two more salient categories than the other two, namely triggering event and resolution, with the means of 4.47 and 4.50 respectively. This demonstrates that students would employ a huge range of information sources and other effective strategies to explore the problems posed in the course, and they have also realized the benefits brought by their quest and integration.

Social presence (SP) emphasizes participants' identifying with the community, purposeful communication and interpersonal relationship (Arbaugh et al., 2008). Item 2 "I was able to form distinct impressions of some students" (fl = 0.609) and Item 4 "I felt comfortable communicating through the online platform" (fl = 0.627), and Item 5 "I felt comfortable participating in the course discussions" (fl = 0.627) are the most distinct items among SP. This indicates that all kinds of interaction, no matter what the medium is, are recognized by students, and they like communicating through online platform, and they are at ease when participating in the course discussions. Due to cancellation of group cohesion, there are only two categories in SP. The category of affective expression (mean = 4.27) is better perceived than open communication (mean = 4.14).

Students' attitudes towards RC

In ARC questionnaire, several items stand out due to their high factor loadings respectively in the three dimensions of usefulness, affect and behavior. Item 4 "Reading circles helped to improve my reading skills" of usefulness dimension is the most prominent statement (fl = 0.754). In the second dimension of affect, Item 5 "I feel positive towards my participation in the reading circles activities" (fl = 0.697) and Item 6 "I like the reading circles approach to reading" (fl = 0.684) pertain to the dimension most. This demonstrates that positive attitude and liking have the most significant effect on students' affect. Other items of the affect dimension represent positive interaction with peers, interest, sense of belonging, motivation, and positive attitude about learning (listening attentively). They are all apparent indicators of affect, especially supported by Bond in her affective student engagement indicators (Bond & Bedenlier, 2019). In the dimension of behavior, Items 2 to 4 (fls = 0.813, 0.809, 0.861 respectively) of accessing course

Table 6 Comparisons of ARC score in gender and grade

	Male (n = 34)		Female (n = 168)				Sophomores (n = 131)		Juniors (n = 71)			
	M	SD	M	SD	MD	t (200)	M	SD	M	SD	MD	t (200)
ARC	4.15	0.55	4.32	0.45	− 0.17	− 1.864	4.26	0.46	4.35	0.48	− 0.09	− 1.269

Table 7 Correlations between CoI dimensions and ARC

		TP	CP	SP	ARC
TP	Pearson correlation	1			
	Sig0. (2-tailed)				
CP	Pearson correlation	0.589**	1		
	Sig0. (2-tailed)	0.000			
SP	Pearson correlation	0.504**	0.653**	1	
	Sig0. (2-tailed)	0.000	0.000		
ARC	Pearson correlation	0.599**	0.704**	0.539**	1
	Sig0. (2-tailed)	0.000	0.000	0.000	

** Correlation is significant at the 0.01 level (2-tailed)

materials, time on task, and efforts to accomplish RC tasks are the most related to the dimension.

Among the three dimensions, behavior scores the highest with the mean of 4.62, which indicates that students acknowledge their positive behaviors in RC activities. Besides the most salient three items aforementioned, other indicators include participation, responsibility assumption and investment, which are also typical indicators of behavioral student engagement (Bond & Bedenlier, 2019). By these overt behaviors, students get engaged in RC activities actively.

The researchers did two independent samples T-test and analyzed gender differences and grade differences in ARC scores. They found that there was no significant difference in ARC scores ($p > 0.05$) in gender and there was neither significant difference in ARC scores across grades ($p > 0.05$) (see Table 6).

Relationships between CoI presences and ARC

To determine whether TP, CP and SP of CoI is correlated to ARC in general respectively, the researchers conducted a correlation analysis (Table 7). Results indicate a significant high positive relationship between CP and ARC ($r_{CP\text{-}ARC} = 0.704$, *p < 0.01*), and a significant medium positive relationship between TP and ARC, SP and ARC ($r_{TP\text{-}ARC} = 0.599$, *p < 0.01*; $r_{SP\text{-}ARC} = 0.539$, *p < 0.01*).

To determine whether TP, SP and CP of CoI is correlated to usefulness, affect, behavior of ARC, the researchers conducted a second correlation analysis (Table 8). Results indicate a significant medium positive relationship between the variables. Among the correlations, CP and affect, TP and behavior are the most significant ($r_{CP\text{-}Affect} = 0.677$, *p < 0.01*; $r_{TP\text{-}Behavior} = 0.609$, *p < 0.01*).

Multiple linear regression was conducted to determine the best linear combination of TP, CP and SP of CoI for predicting students' attitudes towards RC. Statistical

Table 8 Correlations between TP, SP, CP of CoI and ARC components

		TP	SP	CP	Usefulness	Affect	Behavior
TP	Pearson correlation	1					
	Sig. (2-tailed)						
SP	Pearson correlation	0.504[**]	1				
	Sig. (2-tailed)	0.000					
CP	Pearson correlation	0.589[**]	0.653[**]	1			
	Sig. (2-tailed)	0.000	0.000				
Usefulness	Pearson correlation	0.417[**]	0.369[**]	0.520[**]	1		
	Sig. (2-tailed)	0.000	0.000	0.000			
Affect	Pearson correlation	0.517[**]	0.548[**]	0.677[**]	0.666[**]	1	
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		
Behavior	Pearson correlation	0.609[**]	0.411[**]	0.560[**]	0.457[**]	0.556[**]	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	

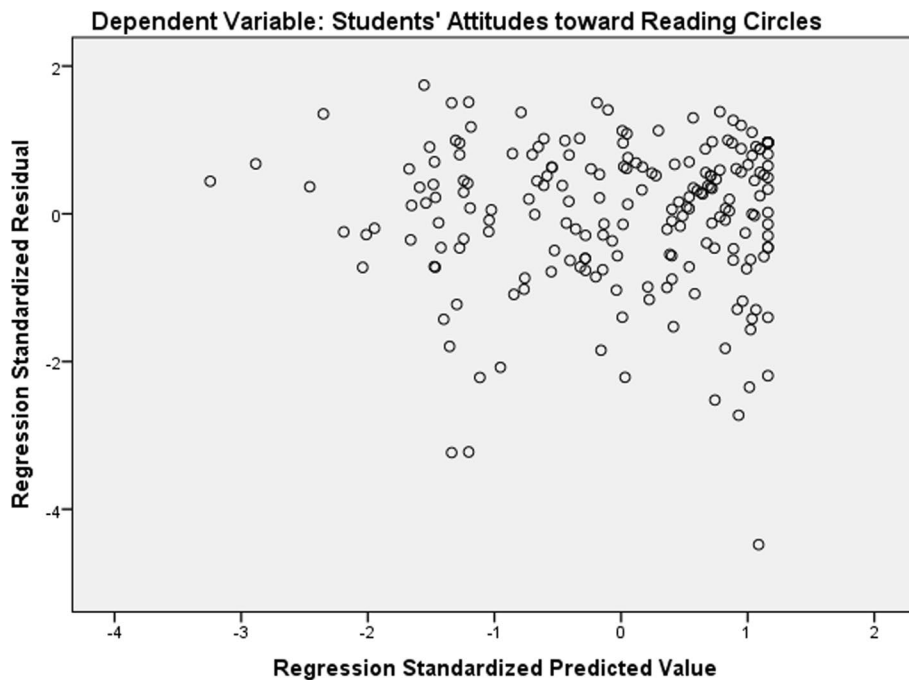[**] *Correlation is significant at the 0.01 level (2-tailed)*

Fig. 4 Multiple Linear Regression: Standardized Predicted Value and Residual

assumptions such as the normal distribution of residuals and non-linear correlation between predicted variables and residuals were all met in the analysis (Fig. 4). The results showed that with the model adjusted, R square value of the model was 54.4%, indicating that the explanatory variables explained 54.4% of variables, and the model is a good fit; the overall model is significant ($F = 81.001$, $p < 0.001$), as can be seen in the regression coefficient Table 9.

As indicated by the regression coefficient values, the regression coefficient for TP is 0.330 ($p = 0.000 < 0.05$), which means TP has a significantly positive effect on ARC. The regression coefficient for CP is 0.441 ($p = 0.000 < 0.05$), which means CP also

Table 9 Regression analysis results of CoI presences for predicting ARC and its three components

		R	R^2	Adjusted R^2	F (3198)	Beta	t (198)	Tolerance	VIF
DV	ARC	0.742[a]	.551	.544	81.001[***]				
IV	TP					0.267	4.436[***]	0.628	1.593
	SP					0.082	1.274	0.551	1.814
	CP					0.493	7.200[***]	0.483	2.072
DV	Usefulness	0.538	0.290	0.279	26.907[***]				
IV	TP					0.166	2.199[*]	0.628	1.593
	SP					0.016	0.196	0.551	1.814
	CP					0.412	4.780[***]	0.483	2.072
DV	Affect	0.702	0.492	0.485	64.048[***]				
IV	TP					0.152	2.382[*]	0.628	1.593
	SP					0.152	2.228[*]	0.551	1.814
	CP					0.488	6.701[***]	0.483	2.072
DV	Behavior	0.658	0.433	0.424	50.367[***]				
IV	TP					0.429	6.356[***]	0.628	1.593
	SP					− 0.010	− 0.138	0.551	1.814
	CP					0.313	4.068[***]	0.483	2.072

[*] $p < 0.05$

[**] $p < 0.01$

[***] $p < 0.001$

has a significantly positive effect on ARC. The regression coefficient for SP is 0.066 ($p = 0.204 > 0.05$), which reveals SP doesn't have a significantly positive effect on ARC. The beta which presented in Table 9 suggested that TP (Beta = 0.267) and CP (Beta = 0.493) contribute most to predicting students' attitudes towards RC. The standardized regression formulation is ARC = 0.267 * TP + 0.082 * SP + 0.493 * CP.

Further multiple linear regression was conducted to determine the best linear combination of TP, CP and SP for predicting ARC usefulness, affect, behavior. The correlation coefficients could be found in Table 9. The regression method of "enter" showed that the combination of the three independent variables significantly predict ARC affect, F (3198) = 64.048, $p < 0.001$, with all of them significantly contributing to the prediction. However, only TP and CP significantly predict ARC usefulness, F (3198) = 26.907, $p < 0.001$, and behavior, F (3198) = 50.367, $p < 0.001$. The beta in Table 9 suggests that CP contributes most to predicting usefulness and affect (Beta = 0.412, 0.488 respectively), while TP (Beta = 0.429) contributes most to predicting behavior. The standardized regression formulations are Usefulness = 0.166 * TP + 0.016 * SP + 0.412 * CP; Affect = 0.152 * TP + 0.152 * SP + 0.488 * CP; Behavior = 0.429 * TP − 0.010 * SP + 0.313 * CP.

Discussion

According to the CoI survey results, the respondents have the most positive perceptions of teaching presence (TP), with the category of design and organization scoring the highest. This indicates that students acknowledge the instructors' arrangement and structuring of the courses and class activities, highlighting the core role of TP as has been validated in previous studies (Garrison et al., 2010b; Shea et al., 2010). Then students scored CP the second highest, especially in categories of exploration and integration.

This tells of their efforts in trying to investigate into questions and incorporate what they have learned into a reasonable outcome. In contrast, students have the lowest perceptions on SP and, closely related but most surprisingly, their mis-classifying the scale of group cohesion into CP revealing a lack of their feeling for group cohesion while doing RC activities. Indeed, SP usually has direct and significant effect on students' attitudes towards collaborative reading, as confirmed by Akyol, where SP facilitated establishing a comfortable and relaxing atmosphere that allows learners to communicate openly and express their ideas without much hesitation (Akyol & Garrison, 2019). This unexpected mis-categorization of group cohesion reminds the instructors that they need to take action to boost group cohesion among students.

The divergence of students' perceptions on group cohesion in social presence (SP) may be explained by the Chinese "face culture" and Swan's cohesive indicators (2003) as well. Item 20 "I felt comfortable disagreeing with my classmates while still maintaining a sense of trust" is about maintaining trust when disagreement occurs, which primarily is a "Western" assumption. In the Oriental culture, though, most Chinese students have been cultivated to seldom disagree with others in public, or the instructors rarely encourage them to do so in class. Thus, they would like to avoid public criticism in most circumstances to avoid face-losing consequences. For when public disagreement or criticism appears, those concerned may feel quite embarrassed, resulting in difficulty in maintaining trust. This may explain why most participants held an ambiguous attitude on this item.

The mis-classification of group cohesion can be somehow illustrated by Swan's position that cohesive indicators declined in importance as the course progressed (Swan, 2003). Swan found that group reference such as "we", "our" or "us", the most frequently used cohesive indicators, became less necessary when a clear classroom community was formed. Then in the current study, each task group might just focus on completing their work, doing presentations and submitting their group projects. And they might pay little attention to in-depth communication among the group members or evaluating other groups' presentations or work. Their group cohesion might well remain loose and shallow. Later in real-time teaching, teachers still shall further encourage students to share and voice opinions on peer work (Su et al., 2018).

The dimension of behavior plays a significant role among the three components of ARC: behavior, affect and usefulness. Behavior is defined by efforts, involvement and participation, by which students can produce satisfactory presentation effect and assessment results. These are tangible forms of investment with which the students would recognize the effectiveness, facilitation, and positivity of RC activities. Among the indicators of behavior, involvement means the amount of physical and psychological effort that the student puts into the academic experience (Astin, 1999). The questionnaire results of the three salient behavior indicators score pretty high: accessing course materials, time on task, and efforts to accomplish RC tasks, which would serve the effect of RC activities and contribute to active, smooth and successful learning. Predictably it's more likely that students would give greater affective evaluation of the activities they take part in.

Actually students with active behavior express more positive affect to the learning activities in the process. In the initial stage they might feel pressures, challenges and

difficulties to conduct RC activities. But with the instructor's clarification of the requirements, constant encouragement and repeated instruction and practice, they become aware of what they should do. With the completion of the five steps of planning, implementation, presentation, evaluation and revision, students feel a sense of achievement and satisfaction. Moreover, they begin to demonstrate liking, interest and satisfaction pertaining to the activities. Their motivation is enhanced and strengthened; thus, a virtuous cycle of learning, inquiry and reflection is formed.

Usefulness indicates students' perceptions and recognition of the effectiveness of participating in the RC activities. The EFL reading courses aim at improving students' reading ability, critical thinking, and communication ability, and RC activities are prominently efficient in achieving this goal. As Item 4 indicates, students rate progress in reading ability with the greatest usefulness, and at the same time they reckon improvement in their vocabulary and grammar as items 1 and 5 suggested.

In summary, RC roles coincide with the four CoI categories of cognitive presence (CP) in particular: triggering event, exploration, integration, and resolution. To be specific, posing questions (usually the role of the discussion leader) related to the text is typical of triggering event, for which the students would generate a sense of inquiry. In order to answer questions, they are obliged to read the text thoroughly and try to explore the theme or author's viewpoints in depth. Similarly, several roles are intended to apply integration in order to complete their assignments. For example, those with the summarizer's role need to use analysis, generalization, and reflective thinking to produce an explicit passage. They are also supposed to incorporate all their language competence such as vocabulary, grammar, and writing to present their learning outcome. And RC roles such as the connector usually apply resolution when employing new ideas gained from the text with the perception of their own cultural observations, reflecting and making comments. When a student endeavors to answer the posed questions, he is committed to exploration and resolution.

Limitations

There are three limitations in this study. First, insufficient diversity of majors of the participants resulted in partial homogeneity of the survey respondents. Only a few instructors adopted RC as an innovative instructional method in the university, so no more than 10 classes in the current semester could be chosen for the questionnaire survey. In the pilot study, four classes majoring in Science and Engineering were chosen to respond to the questionnaires due to class arrangements. Then in the official survey, there were only six classes to be participants. Thus, neither are the fields of study inclusive nor the gender proportion ideally balanced. The results of the study is still quite satisfactory, though.

Another limitation is the incompleteness of the CoI categories in this study due to the students' low rates to the three items of group cohesion in SP. This reflects that students didn't feel strong group identification or very good collaboration or communication in the group, which shall be changed or improved from the infrastructure. It means design and organization from the instructors should be scrutinized and polished since teaching presence plays a significant role in affecting social and cognitive presence (Garrison et al., 2010b).

The third limitation involves the ARC questionnaire components and items. Since the current ARC questionnaire is still not strong enough to predict 70% of the overall attitudes of students, it would be possibly more powerful a survey if one more component were added in ARC to increase the variance explanation ability. The researchers initially assumed that involvement in an activity would be a salient indicator in the behavior dimension, however, statistical outcome proved that it was still not up to be so significant with the factor loading of Item 6 (fl = 0.459) showing not so closely related to behavior as other items (fls > 0.5). Thus, the researchers should consider other indicators such as identifying opportunities or challenges, supporting and encouraging peers (Bond & Bedenlier, 2019) in future work when they modify or complement the instrument.

Implications

The administration of the survey in the authors' university indicates that CoI promises enormous space for future research. For instance a lot of work could be done to establish a well-rounded community of inquiry in blended EFL learning contexts. Actually CoI has been verified by many researchers to be effective in measuring learning outcome, teachers' work and learners' social and cognitive perceptions of online or blended learning (Martin et al., 2022; Shea & Bidjerano, 2009; Vaughan, 2010). By adopting CoI the researchers assessed their teaching and students' learning from an iconic, comprehensive, and scientific perspective. They feel rewarded, inspired, and satisfied because their work was acknowledged as the statistical result of TP (mean = 4.72) indicated. They also came to a consensus that students were taking initiatives in their studies as they employed exploration, integration, and resolution to a deep extent, as the numerical outcome of cognitive presence (mean = 4.41) suggested.

More importantly, ARC questionnaire can serve as an instrument for other practitioners who adopt RC activities or similar activities in their reading courses. For one thing, they can employ the survey to design and organize meaningful educational activities. For another, they can use the survey scale as a criterion to assess their own work and students' learning.

Other implications involve challenges in using technologies in carrying out RC activities. First, since mere copy or plagiarism is strictly prohibited of information online and students are required to restructure, revise, or recreate after consulting relevant materials, the instructor is facing a great challenge to differentiate the two types of content: copied vs. revised. Second, in conducting RC activities, the instructors need to remind students that they could make the most of many technologies beneficial to their studies, but on the other hand, they should not rely on technologies unduly. Otherwise, an adverse effect would offset the gains that students harvest from the activities. For example, too much use of translation Apps will decrease the chances to improve a student's translation ability.

However, when teachers conduct teaching activities, they need to adhere to the principle of encouraging communication, interaction, and collaboration among students, so that learners could strengthen their sense of group and enhance cohesion. The main concern is that SP is not as remarkable as in other studies with students misclassifying acknowledgement of views and sense of collaboration (Items 21, 22) into CP, and maintaining trust within the group when there is disagreement (Item 20) was also underrated.

This demonstrates that regarding RC activities, instructors could encourage students to give more peer-initiated feedback to language choice, merits or weaknesses of other groups' tasks, which will contribute to their language acquisition (Shelton-Strong, 2011).

Furthermore, teachers could also create more effective methods to engage students in the reading courses. When group presentation is ongoing, for example, there could be adequate concrete requirements for students to appreciate different groups' presentations, or polish the language, or voice their opinion in grading other group peer projects or provide suggestions to other task groups. Teachers could provide students with more detailed instructions on how to give feedback or raise good questions. In addition, pre-recorded video presentations could be a wise choice, which lessens the pressure of on-spot public speaking. And its quality could be ensured by specific technical standards and clear instructions provided by the teacher.

To sum up, RC activities applied in blended EFL reading courses are in line with the principle of designing context-specific collaborative educational experiences (Garrison et al., 2010b), which are to be achieved more successfully when CoI is introduced as the guideline. Therefore, instructors are expected to design interactive, participatory, or evaluative procedures, create a competitive and motivating learning climate, and encourage risk-free expressions fostering open communication where students feel free to express their ideas and make critical comments (Kim, 2010). In order to encourage students to communicate bravely, freely, and openly especially represented in presentation part, all group members shall be involved. For some students, this may be the first time to do an English presentation, so they might feel nervous. However, a liberal climate can eliminate the students' worries and lead to more productive learning. Social identity is more important than personal identity (Garrison et al., 2010b; Heilporn & Lakhal, 2020; Shea et al., 2022) since each one's work contributes to the completion of their group project, where group assessment is based on their collaboration. Thus, social presence will play a more apparent role in the learning process of RC activities.

Conclusion

According to statistical results the participants have very positive perceptions of CoI particularly TP and CP. The top rating of the design and organization category reveals teachers' significant role fostering TP. In CP, exploration and integration are more prominent categories than the other two, namely triggering event and resolution. This shows that seeking and utilization of information as well as good strategies could facilitate effective exploration and integration. The perception of SP, with the category of group cohesion mis-categorized with CP, is not so ideal as expected. However, this points out the direction for future research. Teachers, when establishing and sustaining a more effective CoI, shall work at cultivating group cohesion among learners.

In ARC survey, the participants identify with the behavior dimension the most. Students give positive evaluation on most of the indicators such as accessing course materials, time on task, efforts, participation, and responsibility assumption. In the affect dimension, students express liking, interest, and satisfaction most evidently. In the usefulness dimension, students recognize progress in their reading ability, improvement in their vocabulary and grammar most dramatically. Two independent samples T tests show that there are no significant differences in ARC scores in gender or grade.

Two correlation analyses suggest that there's a significant high positive relationship between CP and ARC, a significant medium positive relationship between TP and ARC, SP and ARC. The researchers also find that there is a significant medium positive relationship between all the variables of three CoI presences (TP, SP and CP) and three dimensions of ARC (usefulness, affect and behavior). Multilinear regression analysis shows that TP and CP both have significant positive effects on ARC. However, SP doesn't have a significant positive effect. Other results reveal that the three presences significantly predict ARC affect, but CP itself significantly predicts ARC usefulness, affect and behavior. Meanwhile, TP predicts ARC behavior most significantly. In a nutshell, the present research has insightful findings on relationships between students' CoI perceptions and attitudes towards RC in Chinese blended EFL reading courses. And the researchers anticipate these findings and implications will guide future teaching and learning in this discipline.

Appendix A

Rotated component matrix of CoI factor loading (34 items, 10 categories)

Rotated Component Matrix[a]

	Component		
	1	2	3
1. The instructor clearly stated the learning objectives of the course.		0.732	
2. The instructor clearly stated the course topics.		0.833	
3. The instructor clearly provided instructions on how to participate in the course activities.		0.841	
4. The instructors clearly provided instructions on how to participate in the course tasks.		0.740	
5. The instructor clearly stated the due time for tasks.		0.766	
6. The instructor illustrates the learning topics that helped my understanding.		0.810	
7. The instructor kept students engaged in productive interaction.		0.625	
8. The instructor kept students on tasks in a way that helped my learning.		0.608	
9. The instructor encouraged students to explore new ideas in the course.		0.712	
10. The instructor reinforced the development of a sense of community among students.		0.516	0.411
11. The instructor helped students focus discussions on relevant issues in a way that helped me clarify my thinking.		0.662	
12. The instructor provided feedback that helped me understand my strengths and weaknesses relative to the learning objectives.		0.506	
13. The instructor provided feedback in a timely fashion.		0.719	
14. Getting to know other classmates gave me a sense of belonging to the course.			0.548
15. I was able to form distinct impressions of some students.			0.653
16. Online, Web-based or face-to-face communication is an excellent medium for interaction.			0.563
17. I felt comfortable communicating through the online platform.			0.584
18. I felt comfortable participating in the course discussions.	0.402		0.663
19. I felt comfortable communicating with my classmates.	0.442		0.663
20. I felt comfortable disagreeing with my classmates while still maintaining a sense of trust.	0.477		0.488
21. I felt that my point of view was acknowledged by my classmates.	0.638		
22. Course activities helped me develop a sense of collaboration.	0.533		
23. Problems posed increased my interest in course topics.	0.762		
24. Course activities stimulated my curiosity.	0.777		

Rotated Component Matrix[a]

	Component		
	1	**2**	**3**
25. I felt motivated to explore content related questions.	0.768		
26. I utilized a variety of information sources to explore problems posted in the course.	0.635		
27. Brainstorming and finding relevant information helped me resolve content related questions.	0.690		
28. Course discussions were valuable in helping me appreciate different perspectives.	0.679		
29. Combining new information helped me answer questions raised in course activities.	0.648		
30. Learning activities helped me construct explanations/solutions.	0.624		
31. Reflection on course content and discussions helped me understand fundamental concepts in the class.	0.627		
32. I can describe ways to test and apply the knowledge created in the course.	0.732		
33. I have developed solutions to course problems that can be applied in practice.	0.688		
34. I can apply the knowledge created in the course to my professional study.	0.581		

1 = cognitive presence; 2 = teaching presence; 3 = social presence

Appendix B

English-Chinese version of Attitudes towards Reading Circles questionnaire

Usefulness	有用性
1. Reading circles enriched my vocabulary.	1. 阅读圈让我的词汇更丰富。
2. Reading circles improved my communication ability.	2. 阅读圈提高了我的交流能力。
3. I learnt to take a multi-dimensional view to questions in reading circles discussions.	3. 我能够从不同角度考虑所讨论的问题。
4. Reading circles helped improve my reading skills.	4. 阅读圈提高了我的阅读能力。
5. Reading circles helped with my grammar.	5. 阅读圈对我的语法有帮助。
6. Reading circles enhanced my awareness of cultural differences and appropriacy.	6. 阅读圈增强了我对中西文化差异的意识。
Affect	情感
1. Reading circles encouraged my interactions with peers.	1. 阅读圈促进我和同学互动。
2. I believe reading circles an interesting way of learning.	2. 阅读圈这种学习方式, 我觉得有趣儿。
3. Reading circles increased my sense of belonging.	3. 阅读圈活动增加了我的 (团队) 归属感。
4. Reading circles motivated me to learn English.	4. 阅读圈提高了我学英语的动力。
5. I feel positive towards my participation in the reading circles activities.	5. 我对参与阅读圈持积极态度。
6. I like the reading circles approach to reading.	6. 我喜欢阅读圈这种学习方法。
7. Reading circles brought me a sense of satisfaction.	7. 阅读圈带给我满足感。
8. I listened attentively when other groups gave class presentations.	8. 其他小组进行阅读圈展示时, 我认真听讲。
Behavior	行为
1. I participated in classroom reading circles presentations.	1. 我参加了阅读圈的课堂展示。
2. I tried to find materials needed for reading circles activities.	2. 我会为阅读圈任务查找所需资料。
3. I could fulfill reading circles tasks fairly well on time.	3. 我能按时完成阅读圈相关任务。
4. I managed to fulfill reading circles tasks.	4. 我付出努力完成阅读圈任务。
5. I assumed certain responsibilities in reading circles activities.	5. 在阅读圈活动中我承担特定责任。
6. Compared with traditional ways of learning I invested plenty in reading circles.	6. 相比传统方法, 我在阅读圈活动中的投入更多。

Appendix C

English-Chinese version of community of inquiry survey instrument

Teaching presence	教学存在
Design and Organization	设计和组织
1. The instructor clearly stated the learning objectives of the course.	1.对课程学习目标, 老师有清楚的说明。
2. The instructor clearly stated the course topics.	2.对各单元主题, 老师做了清楚的介绍。
3. The instructor clearly provided instructions on how to participate in the course activities.	3.老师对如何参与学习活动做了清楚说明。
4. The instructors clearly provided instructions on how to participate in the course tasks.	4.老师对如何参与课程任务做了明确指导。
5. The instructor clearly stated the due time for tasks.	5.老师清楚传达了学习活动的时间安排。
Facilitation	促进
6. The instructor illustrates the learning topics that helped my understanding.	6.老师举例解读所学主题, 有助于我理解。
7. The instructor kept students engaged in productive interaction.	7.老师让学生进行互动, 富有成效。
8. The instructor kept students on tasks in a way that helped my learning.	8.老师以一种推动我学习的方式, 促使我完成任务。
9. The instructor encouraged students to explore new ideas in the course.	9.老师鼓励学生在课程中探索新的想法。
10. The instructor reinforced the development of a sense of community among students.	10.老师的教学加强了我对学习团队的意识。
Direct instruction	直接教学
11. The instructor helped students focus discussions on relevant issues in a way that helped me clarify my thinking.	11.老师鼓励学生关注和讨论课程相关话题, 使学生有更加清晰的想法。
12. The instructor provided feedback that helped me understand my strengths and weaknesses relative to the learning objectives.	12.老师提供的反馈帮助我了解我的优缺点。
13. The instructor provided feedback in a timely fashion.	13.老师及时提供了反馈。
Social presence	社会存在
Affective expression	情感表达
1. Getting to know other classmates gave me a sense of belonging to the course.	1.这门课使我对其他同学有了解, 也对课程有归属感。
2. I was able to form distinct impressions of some students.	2.课程中有些学生给我留下了鲜明的印象。
3. Online, Web-based or face-to-face communication is an excellent medium for interaction.	3.在线、基于网络或面对面的交流都是极好的沟通媒介。
Open communication	公开的交流
4. I felt comfortable communicating through the online platform.	4.通过在线平台交流, 我感觉很舒服。
5. I felt comfortable participating in the course discussions.	5.我觉得参加课程讨论很自在。
6. I felt comfortable communicating with my classmates.	6.我觉得和同学交流很自在。
Group cohesion	小组凝聚力
7. I felt comfortable disagreeing with my classmates while still maintaining a sense of trust.	7.跟其他同学意见不一致时, 仍能保持信任, 我感到很自在。
8. I felt that my point of view was acknowledged by my classmates.	8.我觉得我有些观点得到了同学们的认可。
9. Course activities helped me develop a sense of collaboration.	9.课程活动有助于我培养协作意识。

Cognitive presence	认知存在
Triggering event	触发事件
1. Problems posed increased my interest in course topics.	1.老师同学提出的问题增加了我对单元话题的兴趣。
2. Course activities stimulated my curiosity.	2.课程活动激发了我的好奇心。
3. I felt motivated to explore content related questions.	3.我觉得有动力去探索与课程内容相关的问题。
Exploration	探索
4. I utilized a variety of information sources to explore problems posted in the course.	4.我利用不同信息资源, 探讨课程相关问题。
5. Brainstorming and finding relevant information helped me resolve content related questions.	5.头脑风暴和查找信息帮助我解决与课程内容相关的问题。
6. Course discussions were valuable in helping me appreciate different perspectives.	6.课程讨论很有价值, 有助于我理解不同观点。
Integration	集成
7. Combining new information helped me answer questions raised in course activities.	7.融合新信息, 能够帮助我解答课程活动中提出的问题。
8. Learning activities helped me construct explanations / solutions.	8.学习活动有助于我找到解决问题的答案。
9. Reflection on course content and discussions helped me understand fundamental concepts in the class.	9.对课程内容的反思和讨论, 帮助我理解课程基本概念。
Resolution	解决
10. I can describe ways to test and apply the knowledge created in the course.	10.课程中学到的知识如何测试和应用, 我能说出一些想法。
11. I have developed solutions to course problems that can be applied in practice.	11.课程中遇到的问题, 我能找到解决方案且付诸实际。
12. I can apply the knowledge created in the course to my professional study.	12.课程中获得的新知, 可以用到我的专业学习中。

Availability of data and material
Not applicable.

Declarations

Competing interests
The authors declare that they have no competing interests.

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