# Literature Review of Community of Inquiry Model in China and Abroad

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**Abstract.** Since the integration of computer and internet technology into education, the related theories of online learning and blended learning have always been the focus of researchers. As a theory that can be well applied to online learning and blended learning, which integrates modern information technology, the Community of Inquiry (COI)model has been deeply concerned by scholars since its birth. At present, there is relatively much research on the Community of Inquiry model, but all of them are concentrated in abroad, while the research in China is relatively few, and there are some differences between China and abroad. So this study systematically combines the research on the Community of Inquiry model in China and abroad in the form of a literature review, and investigates the research status of the Community of Inquiry model. The results show that the research on the Community of Inquiry model in China focuses on the construction of a blended learning system, the establishment of an online learning community, the relationship between COI model dimensions and sub-dimensions, and the analysis of influencing factors such as learning effect, satisfaction and input in online learning. Abroad research focuses on three aspects: the test of the learning effect, the stimulation of learning motivation and the evaluation of curriculum satisfaction.

**Keywords:** Community of Inquiry · Online learning · Blended learning · China · Abroad · Review

## 1 Introduction

The epidemic of COVID-19 in 2020 has pushed people's attention to online education to a new height. The educational circle also pays more attention to the theoretical research of online education. Among them, the Community of Inquiry model (COI) proposed by D.R. Garrison, Terry Anderson, and Walter Archer in 2000 is one of the most effective and influential educational theoretical frameworks for online teaching research.

The Community of Inquiry Model is recognized by scholars in the field of educational technology as one of the most influential theoretical frameworks in the fields of online teaching and blended learning. Since its invention, the Community of Inquiry Model has received widespread attention from international scholars. As of March 2023, there have been 245 relevant articles searching for the keyword "Community of Inquiry Model" on Science Direct database; In the core dataset of the Web of Science database, using the searching keywords "Community of Inquiry Model", there have been 2130

research papers on exploring the COI model. It can be found that there is relatively more research on the Community of Inquiry Model abroad, indicating that the Community of Inquiry Model is a hot topic in international research and is in the process of continuous development and exploration. At the same time, international research on blended learning and online learning mostly adopts the Community of Inquiry model, which to some extent indicates that researchers and others recognize the COI model and believe that it can indeed build effective learning practices and is an effective tool for measuring the effectiveness of blended learning and online learning.

The Community of Inquiry model is composed of three core elements: cognitive presence, social presence, and teaching presence. Through the development of the three kinds of presence, an effective theoretical and practical model of collaborative learning is constructed. The Community of Inquiry model argues that knowledge acquisition is not necessarily achieved through fixed reality, but is "shaped by purposeful, open and disciplined critical discourse and reflection", emphasizing the promotion of meaningful and deep learning through collaborative constructive learning and critical reflective dialogue [1]. Since the release of the Community of Inquiry model, it has deeply concerned foreign scholars. It is generally believed that it is effective for its use in online teaching. Bangert validates the effectiveness of COI, and the results confirm that COI can provide formative and summative feedback for the effectiveness of online courses, and it is an effective evaluation tool [2]. At the same time, COI is also used in different types of teaching situations to test the teaching effect. For example, it is used in K-12 courses [3], flipped classrooms [4], and social media-based teaching environments [5]. The Community of Inquiry model is also used to design online courses, through the establishment of online communities to enhance students' learning experiences and achieve better teaching results. Fiock uses COI as the framework to design online courses to encourage students' learning enthusiasm, promote meaningful learning experiences, and affirm the practicability of this teaching strategy [6]. Although some studies have critically evaluated the COI model, such as whether continuous and continuous two-way communication is necessary for meaningful learning, people still recognize the good adaptability of COI in online teaching and blended teaching and its good results in teaching practice [7]. During the epidemic of COVID-19, people have been exploring the framework suitable for online teaching, and the COI model happens to provide such an effective framework, so the COI model has been more widely practiced in the past two years. AKBULUT et.al used COI to test students' online learning experience during the COVID-19 pandemic and put forward practical suggestions for teachers' online teaching based on the relationship between the dimensions of the COI model [8]. Tan et al. used COI to build online courses in university electives to enable participation, initiative, and team learning during the epidemic [9].

China pays relatively little attention to exploring the COI model, but with the development of information technology and the support of policy documents, Chinese scholars also begin to pay attention to finding a way to get a better online teaching experience. As there is much research on exploring the COI model abroad, it shows that the COI model is a research hotspot in the process of continuous development and exploration. At the same time, the research on online learning abroad mostly uses the COI model, which to a certain extent shows that researchers agree with the COI model and think

that the COI model can indeed build effective learning practices. It is an effective tool to measure the effect of online learning. Therefore, the exploration of the COI model has also begun to get attention in China, and gradually get a certain degree of use and exploration. So far, China lacks a systematic review of the COI model in China and abroad. Therefore, this paper makes a systematic literature review of the research on the COI model in China and abroad, and summarizes the current research focus of the COI model in China and abroad. By comparison, this paper puts forward some suggestions for future online teaching theory research in China

## 2 Methodology

In the form of a literature review, this study systematically combines the research of the COI model in China and abroad and grasps the current research status and research progress. With reference to the results of this study, researchers can understand the current research situation of the COI model in China and abroad, compare their similarities and differences, and then put forward targeted suggestions for the improvement and improvement of online education practice in the future. Better promote the enrichment and development of online education theory.

### 2.1 Research Question

In order to clarify the focus of the research, this paper puts forward the following research questions:

Q1: What are the current researches on the COI model in China?

Q2: What are the current researches on the COI model in abroad?

### 2.2 Searching Strategy

In order to solve these questions, this paper uses the following keywords to search, as shown in Table 1. It includes exploring the different names of COI models in China and abroad, and comprehensively obtaining the research literature on COI models by comprehensively searching keywords. Literature retrieval is carried out in different databases, among which abroad literature retrieval mainly comes from ERIC. Chinese literature retrieval mainly comes from CNKI.

## 3 Results and Discussion

In the selection of literature, we select the categories of educational research, publicly available journal papers, conference papers, and degree papers. A total of 383 pieces of English literature and 116 pieces of Chinese literature were obtained. Respectively sort out and summarize the collected Chinese and English literature to answer the two questions raised above.

**Table 1.** Search keywords

| Chinese search keywords | English search keywords |
| --- | --- |
| 探究社区模型 | Community of Inquiry model |
| 探究社区理论 | Community of Inquiry framework |
| 探究社区 | COI |

### 3.1 What Are the Current Researches on the COI Model in China?

The first aspect is the construction and perfection of the "online + face-to-face' blended learning system. Li et.al after analyzing the current situation of the use of the course learning forum on the MOOC platform and its influence on the learning effect, choose the COI model as the theoretical basis [10]. The relevant countermeasures and measures of constructing the inquiry community in the MOOC community. Can Yang design the online and face-to-face curriculum system with the COI model, by using the COI model in blended learning, developing cognitive presence, social presence, and teaching presence to achieve the improvement of students' metacognitive awareness [11]? Ye et.al based on exploring the COI model, summed up a coding framework with cognitive presence, emotional presence, and derivative presence, analyzed the interactive text of MOOC forum, excavated the problems existing in MOOC forum, and put forward corresponding suggestions for improvement [12]. Feng et.al take the COI model as the theoretical guidance, starting from the three kinds of presence, put forward the design strategy for the activity design of the early, middle, and late stages of the blended curriculum, and list the typical activities in order to enhance the students' blended learning experience [13].

The second aspect is to establish an online learning community to guide course teaching. Yu in the course 'History of Chinese and Foreign Educational Management", based on the COI model, through the design of web-based course learning activities, set up a virtual learning discussion community, so as to adapt to different students' learning styles and improve students' cognitive presence, social presence, and teaching presence [14]. Dong and Feng take the COI model as the basis for the construction and development of the online learning community model and put forward strategies to promote online learning community learning from three aspects: cognitive presence, social presence, and teaching presence of COI [15].

The third aspect is to explore the relationship between the dimensions of the COI model. Many studies have proved that teaching presence and social presence can have an impact on cognitive presence under the role of an intermediary. Bai et.al found that teaching presence significantly predicted cognitive presence and social presence, and social presence significantly predicted cognitive presence, and social presence was the intermediary variable between teaching presence and cognitive presence [16]. The study of Jia and Li found that teaching activities have an impact on learning cognition through learning interaction and self-efficacy [17]. Wu pointed out that critical thinking, teaching presence and social presence have an impact on cognitive presence [18]. The research of Lan et.al found that both teaching presence and social presence can predict

and significantly affect cognitive presence, and self-efficacy plays a partial mediating effect [19]. In addition, the discussion of the relationship between the sub-dimensions is also the focus of COI model research in China. Bai and Gu Xiaoqing explored the influence mechanism and influence differences between the sub-dimensions of teaching and cognitive presence [20].

The fourth aspect is to analyze the influencing factors such as the learning effect, satisfaction, and investment in online learning. Huang and Wang studied the blended learning input of undergraduates during the COVID-19 epidemic. The study found that exploring the cognitive presence, social presence and teaching presence in the COI model can directly and significantly predict learning input [21]. Hu et.al analyzed the influencing factors of student-teacher interaction in blended teaching courses. The study found that student-teacher interaction with student-centered, teacher-centered, and knowledge-centered interaction strengthens cognitive presence, teaching presence, and social presence respectively, and then affects the quality of learning and teaching [22].

### 3.2   Which Aspects Are the Current Researches on the COI Model in Abroad?

The first aspect is to test the effectiveness of learning. Exploring the COI model and its three internal presences can be used to predict the effect of curriculum or learning to a certain extent. For example, when using the COI model in the learning and teaching of MBA courses, Arbaugh found that the COI model is a better tool for predicting the learning results of MBA courses [23]. Specifically, it is to explore whether cognitive presence, social presence, and teaching presence in the community have a certain predictive effect on curriculum scores. Rockinson-Szapkiw et al. pointed out that the higher the level of the three kinds of presence, the higher the course score [24]. In addition, of the three kinds of presence, cognitive presence has a greater impact on performance, while social presence and teaching presence indirectly impact performance. The study of Çakiroglu proves that there is a moderate positive correlation between the cognitive presence and academic achievement in the COI, and students with a strong sense of cognitive presence have a higher level of academic achievement [25]. Choy and Quek found that there is a direct positive relationship between cognitive presence and online learning performance, in which social presence and teaching presence indirectly predict learning performance and performance in the online learning process through cognitive presence [26]. Akyol and Garrison found that cognitive presence in the COI is related to actual learning outcomes [27]. The collaborative development of cognitive presence and students' perception of cognitive presence in online discussion learning are related to the actual learning results. Group cooperation or knowledge construction can potentially improve students' perceived learning and final performance. In addition to directly testing the learning effect, the COI model can also be used to test the effectiveness of the teaching platform. Ng et al. tested the effect of the online collaborative platform Miro Board on the interaction between teachers and students and found that the use of Miro Board can improve the sense of social presence and learning presence in COI [28].

The second aspect is to stimulate learning motivation and arouse interest in learning. Exploring the COI model can well stimulate students' learning motivation and attract students to actively participate in collaborative learning. Zhang found that the COI model can stimulate students' learning motivation in the implementation of activities and tasks

in the blended teaching of English for specific purposes (ESP) [29]. By comparing with the conventional online learning model, the study of OZKARA and Cakir pointed out that students who collaborate in the learning environment of the inquiry community have higher learning motivation than those who study alone in the normal network environment [30]. By using interactive and collaborative learning methods based on the COI model in the science general education curriculum, Cheung, Kiang, and Chan found that interactive and collaborative learning methods can attract students with different levels of knowledge and interests [31].

The third aspect is to measure the curriculum satisfaction of online or blended learning and analyze the specific influencing factors of curriculum satisfaction. Choy and Quek pointed out that there is a strong positive correlation between teaching, social and cognitive presence, and online course satisfaction [26]. The higher students' perception of teaching presence, social presence, and cognitive presence, the higher their satisfaction with online courses. Enightoola, Fraser, and Brunton found that various dimensions in the COI model indirectly affect learning and satisfaction by studying the e-learning system of the University of the West Indies and the University of St. Augustine [32]. In the case of rational use of the three presentations of the COI model, the e-learning system can become a successful auxiliary education tool and have a positive impact on students' learning and satisfaction

## 4   Conclusion

This study conducted a systematic literature review to investigate the community of inquiry model in China and abroad. To sum up, the research on the COI model in China focuses on the construction of a blended learning system, the establishment of an online learning community, the relationship between COI dimensions and sub-dimensions, and the analysis of influencing factors such as the learning effect, satisfaction and input in online learning. Abroad research focuses on three aspects: the test of the learning effect, the stimulation of learning motivation, and the evaluation of curriculum satisfaction. It can be found that the research on the COI model in China and abroad is all based on the special online education platform. And the COI model is used to test the effect of teaching and learning links of online learning, and there is little research on the effect of the online learning platform itself by using the COI model. Therefore, future research on the COI model can pay more attention to the online education platform. Through systematic carding, this study helps researchers understand the current research status of the COI model, in order to promote the in-depth development of the theory and better enhance the learning experience of online teaching and blended teaching. This paper also has some limitations, because the choice of literature retrieval websites is limited and the research results are only generated from a few selected keywords, so some articles may not be included.

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