

The Influence of Application of Community of Inquiry (CoI) in Blended Learning

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Abstract: The teaching and learning process must be able to foster student independence and activeness so that students do not depend on the teacher in understanding the material. The teacher center learning method is not able to foster the active role of students in learning so that the method must shift to become student-centered. The student center learning method supported by blended learning facilitates students to explore their knowledge actively and independently. Community of Inquiry (CoI) can be applied to blended learning to create more interactive and innovative learning. This study intends to ascertain the influence of implementing Community of Inquiry (CoI) on Blended Learning. This research is a literature study. Data collection was carried out by reviewing and digging up several journals, articles, data sources and also various information related to research. Data analysis was carried out by analyzing and comparing library sources to obtain theoretical data. The study's findings suggest that the application of Community of Inquiry (CoI) has an influence on: 1) increasing student motivation, 2) improving student learning outcomes, 3) problem solving ability, and 4) increasing student understanding. Therefore, it can be said that the application of Community of Inquiry (CoI) on blended learning is a framework designed to offer independent, active, and collaborative learning methods.

Keywords: Influence, Community of Inquiry (CoI), blended learning

INTRODUCTION

For increasing the qualities of graduates, many universities are gradually shifting to student-centered learning. Apart from increasing the qualities of graduates, student-centered learning is carried out to create graduates who are innovative, adaptable to change, and capable of lifelong learning. Teacher-centered approach is considered not to meet stakeholder demands because the approach only places the teacher as the only one source of knowledge without providing opportunities for students to learn independently and actively. Student-centered approach offers students to be responsible for their learning, decide decision for their learning, and be accountable for mistakes made. In student-centered approach, students are encouraged to think collaboratively. They learn to assess or solve problems from different perspectives. They are aware of their responsibility to learn so that they are more active in creating new ideas in the learning process [1].

Blended learning enables the student-centered approach. Learning that incorporates both online and offline components is known as blended learning. Students have the opportunity to create community building, brainstorming, decision making and group formation in offline classes. On the other hand, students also

have the opportunity to learn independently by accessing wider approaches in online classes [2]. Emotional engagement and cognitive engagement are the most crucial components to build students' interaction [3]. Unfortunately, some students still think that online class is only complement class so they are not optimal in participating in online learning [4]. As a potential blended learning interaction, Garrison and Vaughan describe the Community of Inquiry (CoI) paradigm as it allows students to collaborate better understanding about the course by balancing social, cognitive, and instruction [5].

The Community of Inquiry (CoI) framework allows students to understand learning by supporting each other to achieve learning goals. Students are challenged to accept different perceptions from other students through trusting interactions and open discussion. Community and Inquiry (CoI) also encourages students to think critically in problem solving. Furthermore, the application of Community of Inquiry (CoI) in blended learning provides many opportunities to build community [6]. Online class offers a positive environment for students to share their opinion [7]. Moreover, online classes require maximum support and guidance from teachers to ensure all students actively participate in the learning process [8]. Online classes also requires a synergy between media and learning models to stimulate the active role of students in the learning process [9]. On the other hand, offline classes encourage community formation and establish intimacy among fellow members.

To evaluate the blended learning approach and provide instructional staff with research-based online teaching techniques, the Community of Inquiry (CoI) was established. Dewey devised the CoI paradigm in 1938 to support instructors in providing students with a relevant learning experience. For the application of the education context, Garrison [10] divided the task into three elements - social, cognitive, and teaching presence. Social presence describes a student's capacity to identify oneself inside a part and engage in meaningful communication to strengthen relationships and class cohesion throughout educational events [11]. Cognitive Presence is knowledge that involves critical and creative thinking skills. Social Presence encourages collegial relationship. Teaching Presence is an instructional role in the environment study.

The CoI paradigm allows students to learn in a group and they learn in mixing environment [12]. Inquiry, according to Dewey, was a social activity that was central to the educational process [11]. The CoI paradigm provides a learning experience by combining the interests of individuals and groups through collaboration so that students will be responsible for actively constructing and confirming meaning. By fusing the interests of people and groups through cooperation, the CoI paradigm offers an education experience that puts students in charge of actively creating and verifying meaning. Such a group of people is engaged in an empirical or conceptual investigation into a problematic situation. The CoI paradigm, developed by [10] involves of three primary components: cognitive presence, social presence, and teaching presence. Cognitive presence is the most important element to assess the success of learning in the CoI framework. Cognitive processes and cognitive outcomes are the focus of CoI, while social and teaching presence are facilitators of the learning process to support cognitive presence [13].

An individual's capacity to take in new information and achieve a better level of comprehension is referred to as cognitive presence [10]. The concept is formulated on John Dewey's practical inquiry paradigm, which highlighted questioning and contemplation in the pursuit of knowledge and is supported by problem-building, problem-solving, and problem-finding. A cyclical pattern of inquiry that results in experiential learning characterizes cognitive presence, which can be seen as a learner-based competency. Garrison recognized four of these studying phases [12]: investigation, creation, resolution, and confirmation of knowledge

The ability of individuals to talk meaningfully in a secure environment, identify with the community (such as their course of study), and forge interpersonal connections by projecting their unique personalities is known as social presence [12]. Social presence is defined as a phenomenon that occurs in a group with emotive, reciprocal, and compatible characteristics in an online context. [14]. It can be described as the degree of communication openness and group cohesion that promote interpersonal contact [5]. From a methodological perspective, the idea is initiated through the use of the three components of social presence (open communication, group cohesion, and personal/affective projection [15]).

Lastly, teaching presence is an important element to make the previous two elements productive. Teaching presence has three categories of teaching-centric capabilities. These abilities contain the capacity to direct and prepare resources, subjects, approaches, and delivery techniques so that the learning process can take place, as well as the ability to promote discourse to stimulate student involvement and interaction [12]. Each of them is related to the fusion of social and cognitive processes in terms of the deliberate component of the learning experience.

There has been widespread use of the CoI framework to the learning process to foster student independence. Many studies have examined the Community of Inquiry (Co), blended learning and the combination of the application of CoI paradigm in the knowledge process, both online and blended learning. A study by Chan Chang-Tik which examined the relationship between learning style and community of inquiry in a blended learning environment found that there was a significant positive relationship between kinesthetic learning style and each of three presences [1]. Farani's research that examined student interaction and the application of the CoI paradigm in blended learning found that building interactions in online learning was still a challenge in blended learning. Farani advised teachers to remain more socially active throughout online instruction to make sure that the community was still on the right learning path [16]. Another study was conducted by Harel and Wendt. They examined the CoI paradigm in blended learning in secondary schools. The findings demonstrated that high school students learning in a blended environment could use the CoI paradigm [17]. In addition, Wicks, Craft, Mason, Gritter, and Bolding investigated the Community of Inquiry on blended learning in faculty learning communities. According to the findings of their experiment, it may be possible to distinguish between different student experiences with blended learning based on how students perceive CoI. They also stated that the study's findings provided valuable recommendations on promising practice and peer encouragement when faced with problems in their blended course [18].

By knowing the many implementation of the CoI paradigm in various student education, especially in blended learning, it is important for researchers to know the influence of the application of the CoI paradigm on blended learning. As a result, the goal of this study is to examine how the Community of Inquiry (CoI) framework affects blended learning. The goal of this study is to determine how the CoI framework affects blended learning.

METHOD

This study is conducted in a library, and information is gathered by reading a variety of publications. Along with books, other types of literature are also used, including periodicals, journals, newspapers, and documentation materials. The importance of library research is placed on finding diverse theories, laws, assertions, principles, opinions, ideas, and so forth that can be used to examine and resolve the issues being studied [19]. The following steps are taken throughout the data collection process: 1) editing, which involves going over the collected data again to make sure it is comprehensive, clear, and harmonious in its meaning; 2) organizing, which comprises arranging the facts gathered into the required framework; 3) discovering,

which requires conducting extra analysis on the data such that deductions are made as a result of the formulation of the problem's solutions [19].

RESULTS AND DISCUSSION

The blended learning method is widely used in educational institutions ranging from elementary to higher education. In an e-learning context, the use of many media and tools is what is referred to as blended learning. This term could apply to a completely online course without direct instruction in person. A variety of technologies, such as email and internet telephone, can be used to communicate between the learner and the e-tutor [20]. Blended learning gives teachers additional time to work with students in small groups or even individually while also giving students access to an active learning environment with flexible resource allocation. The key benefit of using blended education is to overcome the inadequacies of online training and to utilize diverse instructional processes and delivery systems in order to maximize learner satisfaction while also improving learning results [21]. Moreover, blended learning provides the efficiency and flexibility that cannot be ensured in a traditional classroom setting while face-to-face instruction offers the social connection required for learning, blended learning offers the efficiency and flexibility that cannot be ensured in a traditional classroom setting. As a result, the advantages of both learning platforms are maintained by integrating these two learning environments into a mixed format. Owston et al., who were quoted by Tayebnik [21], claim that three arguments exist in favor of blended learning: 1) meeting the demands of the student and stimulating critical thinking abilities; 2) the flexibility of blended learning because it takes place both online and face-to-face; and 3) its cost effectiveness.

The use of blended learning combined with Community of Inquiry (CoI) is an alternative for educators to encourage students to be aware of their responsibilities in learning as well as to foster a spirit of independence. The application of Community of Inquiry in blended learning has been found not only in other countries in the world but also in Indonesia. In US, the combination of CoI paradigm and blended learning applied in public charter high school. In the research conducted by Harrel and Wendt [17], some students took English courses using the blended learning method and some students took online courses. In online course, learning is carried out asynchronously through a learning management system (LMS) called eSchoolware™ and Adobe Connect™. Students are required to attend a synchronous meeting once a week and are asked to watch the learning materials provided in video form if they are not present at the synchronous meeting. In contrast, in blended learning, students learn online through eSchoolware™ as well as face-to-face meetings with teachers directly in class. Both online and blended classes, students have the same tasks and activities. The main difference of them is the learning environment. Online students learn and do all work online without any direct interaction between students while blended class, apart from online learning they also learn in class with teacher guidance and direct interaction. The results of the study stated that the CoI paradigm was able to offer insight into understanding the nuances of blended and online learning so as to increase open communication and emotional expression which in turn was successful in raising the standard of blended and online education. [17].

Then, Martin, Tong Wu, Liyong Wan, and Kui Xie conducted an examination of the CoI paradigm and educational performance in online and mixed learning. Between 2000 and 2019, they examined a number of journal papers and PhD dissertations from various universities. The journals released in 2000 were picked since that year served as the foundation for the CoI framework's creation. Complete Academic Search, Communication & Mass Media Completeness, Educational Research Completeness, ERIC, Library, Science and Technology Abstracts with Full Text, and PsycINFO were the six databases that the search was conduct-

ed electronically in in November 2019 [22]. Data were analyzed by grouping by year of publication, publication source, descriptive information for primary studies, elements of presences, Effect Size for actual learning, effect sizes for perceived learning, and effect size for satisfaction. The results show that the three features of CoI are important to be applied to online learning and blended learning. In detail, the results showed that actual learning was little affected by cognitive presence, but perceived learning and satisfaction were greatly affected. Actual learning was hardly impacted by social presence, but perceived learning and pleasure were somewhat impacted. The final factor, teacher presence, had a significant impact on satisfaction and a moderate impact on both real and perceived learning. Thus, it can be said that the three CoI components have a positive impact on learning and student satisfaction with the learning process [22].

Another research on Community of Inquiry and blended learning was conducted by Siah Chiew-Jiat et al. Siah Chiew-Jiat et al. examined the Community of Inquiry (CoI) framework's usefulness as a teaching tool for clinical skill-based modules in blended learning. In their research, Siah Chiew-Jiat et al. employed a pretest-posttest approach, and the findings were published in accordance with TREND's (Transparent Reporting of Evaluations with Nonrandomized designs) principles. The questionnaire consists of several questions containing three Community of Inquiry (CoI) elements, cognitive presence with 12 questions, social presence with 9 questions, and teaching presence with 13 questions. Then, the data was analyzed using the Social Sciences Statistics Package version 25. The results obtained from this study are the application of CoI in blended learning enhances instructor knowledge about student attendance from each attendance experienced by students through a blended learning strategy. Teachers that engage in online learning and are always receptive to student feedback can foster active communication on online platforms and arrange classroom activities to stimulate student participation. Therefore, students would be happier as a result of these measures [23].

Furthermore, the implementation of Community of Inquiry was also investigated by Rachman et al in Philippines high school. Rachman et al. examined the application of Community of Inquiry in English language learning. The researcher interviewed participants during the implementation of CoI in English classes and gathered data via field notes, videos, and documentation.. There were five main questions related to the research topic. Interviews were conducted with a closed-ended question and an open-ended question. The researcher also observed English learning activities using CoI where CoI was applied to classroom activities during learning practices and also when the teacher taught. In the learning process, the class was divided into groups or collaborative learning activities in accordance with the CoI approach. The researchers conveyed the results of their research that by forming an activity group, speaking proficiency will be trained well. The application of CoI encouraged students' cognitive intelligence and students' social intelligence which was very important in language learning. The researcher also added that the CoI approach was able to foster student independence so that it could be said that the CoI approach was very effective in being used in English language learning [24].

Research on CoI and blended learning has been carried out by several researchers in Indonesia. The impact of a blended learning paradigm built on a Community of Inquiry (CoI) on students' learning outcomes was investigated by Kinanti and Refelita. They collected data through tests, observations, and documentation. The existing data were analyzed and the research results showed that blended learning with a community of inquiry has an impact on students' learning results [25].

Puspitasari et al. analyze the impact of implementing the CoI model using online media on high school students. In collecting data, Puspitasari et al. distributed tests both preparation and evaluation test and conducted interviews. The results of the preparation and evaluation test are scored using the answer key and

the existing assessment rubric as well as statistical tests. The research resulted in new findings that the application of the CoI model had an effect on increasing students' ability to solve problems. This ability was supported by the three components of CoI which created a meaningful learning experience. In addition, the researchers stated that in the problem solving process, students went through five stages consisting of recognizing the problem, formulating alternative solutions, determining alternative solutions, solving problems and reflecting on success. The steps for solving these problems were in the CoI approach, namely the triggering event and exploration syntax, the stage of finding alternative solutions is in the exploration syntax, and finally the stage of determining alternative solutions and solving problems and reflection is in the integration and resolution syntax. Therefore, the researchers concluded that the application CoI in education encourages students to grow students' ability to solve problems [26].

In a different place, Asala, Maria, and Hannesto for three years, looked at how the Community of Inquiry (CoI) paradigm affected online learning.. The research was carried out in detail; in the first year, designed a learning material model that supports teaching presence from the CoI framework. The second year designed models for intercommunication techniques and teaching methods based on the CoI paradigm that promote social presence and teaching presence. Then in the last year, verified the research results. In collecting data, researchers used several methods: literature study, interviews, observations, and questionnaires. The results of the study stated that the CoI framework helps lecturers and students in making materials. Lecturers can focus more on the material given and explore the topic of the material through discussion with students. On the other hand, students can better understand the material because of the process of cutting the material (chunking) so that it was easier and maintained the focus of the material being studied. Overall, it might be said that applying the CoI framework in online learning can improve students' understanding in learning the material [27].

In blended learning, the three Community of Inquiry (CoI) elements reflect indicators commonly used in learning. The three elements of CoI are a single unit that influence each other. Therefore, it is important to understand that the three elements of CoI are interdependent. Teaching methods greatly affect the level of understanding of students and social relations between students in the classroom also affect students in achieving learning objectives [27]. In social presence, the main things that must be maintained in blended learning is a good and sustainable relationship as an open communication between students so that mutual trust arises. Forms of good relations and communication as a manifestation of social presence in the CoI framework between teachers and students can be realized by a conducive learning situation, positive feedback, personal relationships and affective communication. Students need enough time to feel comfortable and trust to class members so that emotional attachments and friendships emerge that encourage the creation of good social relationships and educational communities [27].

In cognitive presence, learning media affects transformation activities in the classroom; the transformation of knowledge, abilities, and attitudes. The process of asking (inquiry) by students requires great attention from the teacher where the teacher must be able to stimulate critical and probing questions so that students lead to conclusions. The process of asking questions or discussions carried out by students must remain in the realm of the material and not widen so as to make it easier to achieve learning objectives, both meeting goals and general goals. Cognitive presence allows students to carry out an iterative process starting from exchanging information, developing ideas, creating concepts, and making conclusions [27].

Lastly, in teaching presence, appropriate learning methods affect student understanding. Teaching presence is an important element whose existence supports the previous two elements so that learning can be productive. Teachers must be competent to plan, facilitate, and oversee learning activities for both in-person

and online learning in blended learning. In addition, the teacher must also be able to prepare material, determine learning methods, prepare activities, and also prepare tasks related to the material. Creating quality materials for both in-person and online instruction is a big challenge for teachers. Teachers must use sources that are able to stimulate students to think critically during discussions. In addition, the manifestation of teaching presence is the leadership spirit of a teacher who is able to lead and direct students to the goals and understanding of the material [27].

Based on the preceding overview of numerous studies on Community of Inquiry (CoI) and blended learning conducted by researchers, it can be said that the CoI framework is an appropriate approach to blended learning. The use of CoI in blended learning allows for open communication between teachers and students so as to create high-quality learning. High-quality learning is marked by the active participation of students in the learning process. This activity is created because students understand what is being discussed so that students feel happy during the learning process and are able to solve problems. If all of these factors are met, students will almost likely get good learning outcomes that are in line with learning objectives.

CONCLUSION

Many schools and universities have implemented a combination of CoI with blended learning. The elements of the CoI framework are always present in classroom setting or online learning. The application of CoI paradigm in blended learning encourages students and teachers to interact actively in learning. The selection of appropriate learning methods as described in teaching presence is able to motivate students to be active in discussions. The existence of a community as a manifestation of the CoI framework encourages students to be able to solve problems so that students are able to understand the material well, this is a form of cognitive presence. By having a good understanding, it encourages students to get good learning outcomes as well. Therefore, it can be said that the application of the CoI framework in blended learning encourages students' learning motivation, fosters problem solving skills, increases students' understanding of learning materials, and improves learning outcomes. Furthermore, future researchers are expected to focus on the application of Community of Inquiry (CoI) and blended learning on one subject so that they will get novelty in science.

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