# Cross-Cultural Differences in Collaborative Learning and Relevant Factors

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**ABSTRACT**

Collaborative learning is a widely used practical teaching method because its teaching potential in daily teaching has not been fully developed. Now more and more researchers began to pay attention to collaborative learning. Culture has a great influence on teaching and learning, among which the cultural dimensions of power distance, individualism, cooperation, competition, and openness have the greatest influence on education. Different dimensions between Eastern and Western cultures have different remarkable influences on teaching and learning. Hence, the cross-cultural differences in collaborative learning are also obvious. Compared to competitive learning and personalized learning, students in collaborative learning can participate in group activities and share their knowledge and ideas, most of which are student-centered. Teachers often act the same role, facilitators, and guides, although their cultural backgrounds are different. Thus, the classroom for collaborative learning is primarily student-led, but teachers also have a critical position that cannot be ignored. Teachers and students from different cultural backgrounds are bound to influence the style and effectiveness of collaborative learning. The studies indicated that the differences between teachers' and the students' roles are affected by a different culture in collaborative teaching. Indeed, other factors influence cross-cultural collaborative learning, such as self-regulation and ethnic, cultural backgrounds. Indeed, existing research is insufficient because it does not manipulate different factors to find their influence on the outcome, so future research could stand on a specific position to investigate.

***Keywords:*** *Collaborative learning, Cross-cultural differences, Eastern and Western cultures, Power distance*

## 1. INTRODUCTION

Collaborative learning is an educational method used in various areas, allowing learners to solve problems, complete tasks, and create products together. In this approach, learners of different performance levels should work together in groups to achieve common goals [1]. The five basic elements involved in collaborative learning include positive interdependence, individual and group responsibility, interpersonal relationships and group skills, face-to-face promotion of interaction, and group handling. However, collaborative learning and cooperative learning are two completely different theories. Cooperation is an interactive personal lifestyle concept, and collaboration is an interactive structure designed to promote the final product or goal through teamwork [2]. The basic premise of collaborative learning is to build consensus through the cooperation of team members, rather than individuals

competing in the team to outperform other team members [3]. Why collaborative teaching is widely used seems to be one of the concerns of researchers. They found four main categories of benefits in collaborative learning, including social, psychological, academic, and assessment benefits [4]. A significant benefit of collaborative learning is that when the team members get to know each other and learn collaboratively, they can extend these collaborative learning activities outside of class. Students will get help and solve the problems they encounter during the collaboration and exchange, encouraging them to continue solving problems in groups in the future [5]. Tinto demonstrated that collaborative learning could help to develop learning communities in classes and institutions, which may cultivate self-problem-solving skills [6]. Besides, some other researchers showed that after participating in collaborative learning and communicating with each other regularly, they could understand the differences between them and solve possible social problems [7]. In

addition, learners can learn how to resolve differences well and coordinate other people's opinions while expressing their own positions [4]. A large number of social psychology researchers have shown that both individual and collective competition can lead to conflicts, and cultivating collaboration skills can effectively promote individual positive responses when responding to problems [8]. Moreover, researchers found that collaborative learning might reduce the occurrence of conflicts in various environments and cultivate the learner's sense of responsibility [9]. Collaborative learning is very effective and is usually superior to individual learning in terms of academic performance and attitudes [10]. Collaborative learning in different cultures may be different, so understanding the differences in collaborative learning of different cultures can help students learn more effectively.

There is no doubt that the status of teachers in teaching is really critical in both student-centered and teacher-centered classrooms. The usage of specific teacher roles in the teaching process may promote or hinder students' knowledge acquisition and skills. Grasha investigated five teaching styles, which actually reflected the five different roles of teachers in the teaching process: experts, formal authority, personal role models, facilitators, and authorizers [11]. Although other factors impact collaborative learning, the role of teachers to students or the interaction between teachers and students in the teaching environment is a central issue. It will have one of the greatest direct impacts. In addition, although teachers often feel that they are not capable of successfully implementing collaborative learning in the classroom, the role of the teacher is usually inseparable from teaching and learning [12, 13]. Almost every teacher plays a different role to varying degrees. In different cultural contexts, teachers have common characteristics, but at the same time, they can also have different emphases or additional roles. The setting of teachers is also vital in collaborative learning, but in practice, it is found that teachers need to have five abilities to better organize collaborative learning [14]. The five teacher competencies are the ability to plan student interaction, monitor, support, and consolidate the interaction, and reflect on it, which makes teachers' roles different from the normal courses. After understanding cultural differences, teachers can design collaborative learning that is more suitable for students with different cultural backgrounds.

Culture is usually a system composed of beliefs, norms, assumptions, values, or a series of common practices [15]. Among them, the biggest influence on education may be power distance, individualism, collaboration, competition, and openness [16]. The power distance refers to the degree to which less powerful people accept power inequality [17]. In an environment with a high level of power distance, teachers embody authority and are greatly respected,

while students are required to do as teachers are told and tend to be passive [18]. In contrast, students and teachers are more equal, and two-way communication is encouraged in the environment with a low level of power distance environment. The dimension of individualism refers to the degree of action taken to benefit an individual [16]. In an individualistic culture, people are more inclined to speak out, question, or confrontation because of their high respect for individuality. In a collectivist culture, people tend to avoid conflicts because they usually express their respect for authority in this way [19]. For example, Flemish culture is located in a Western environment. It is more individualistic, while previous research has shown that as part of Confucian cultural heritage, Chinese culture is traditionally a representative of collectivist culture [20, 21]. Some studies indicated that collaboration and competition were culturally sensitive factors in teaching, and they are also different aspects of the cultural environment related to teaching and learning [22, 23]. Openness affects people's perception and application of innovation in teaching and how they respond to and adjust to new concepts and technologies [23].

Based on previous studies, power distance, individualism, collaboration, competition, and openness dimensions of culture affect education most. Different dimensions have different and significant influences on teaching and learning. Power distance determines the relationship and communication between teachers and students. Collaboration and competition are culturally sensitive factors in learning. Openness affects learners' and teachers' acceptance of new things and creation. Hence, culture background is very important for learning. Collaborative learning as a teaching approach emphasizes a student-led classroom to complete some tasks through teamwork to achieve learning goals. Efficient collaborative learning classrooms should mainly rely on students rather than teachers, and differences in the students' own backgrounds may impact collaborative learning. Culture as one of the background factors may also affect collaborative learning. However, it can be found that there was little research focus on the cross-culture factors in collaborative learning. This review aims to evaluate the cultural impact of collaborative learning and other relevant factors.

## 2. COLLABORATIVE LEARNING IN EASTERN AND WESTERN CULTURES

As mentioned above, studies have shown that culture has a non-negligible influence on learning and teaching. Collaborative learning as a teaching mode is likely to be influenced by culture, and researchers focus on collaborative learning in Eastern and Western cultures. In the study by Zhu, she investigated the

impact of cultural environment and school organizational cultural characteristics on the implementation of computer-supported collaborative learning [23]. The researchers gathered secondary students from different cultural backgrounds from China and Belgium. Computer-supported collaborative learning is a unique combination of technical, social, and educational backgrounds. Based on the scale of Hofstede and Zhu et al., this paper investigated the relationship between teachers and students in the Chinese and Belgian educational environment [16, 24]. In addition, this study also used the school culture scales and questionnaire to investigate the students' and teachers' views or implementation of computer-supported collaborative learning. There are significant differences between Belgian schools and Chinese schools. This study showed that the cultural dimension of the school environment had a significant impact on the implementation of computer-supported collaborative learning. Compared with the respondents from the two schools in Belgium, the respondents from the three Chinese schools have a high level of power distance and competition but a low level of individualism and openness. An open attitude to change and diversity is the most effective factor for computer-supported collaborative learning. Hence, Chinese students may be more suitable for competitive learning with competition between groups, while Belgian students may be more suitable for collaborative learning. Moreover, Chinese students may need more guidance during collaborative learning. Cross and Hitchcock found that most Asian students, compared with western students, tend to complete their work independently. When they cannot complete their work independently, they are more inclined to seek help from teachers rather than discuss problems with their classmates or peers [25]. Many researchers also indicated that individual background influences Asian students. Natural collaborative learning and brainstorming among them are less frequent, but they do not exclude collaborative learning strategies [26, 27]. Therefore, they have indicated the difference in the background might influence the effectiveness of collaborative learning. Combined with Zhu's study, it can be found that when secondary students under the Eastern and Western cultural backgrounds carry out collaborative learning, different cultural dimensions have a certain impact on collaborative learning.

The above study mainly focused on the impact of different cultures on middle school students in collaborative learning. College students are more independent than secondary students, which might have a high level of autonomy, and collaborative learning may influence differently by culture. Zhu conducted a study aimed to investigate the satisfaction and performance of online collaborative learning, which involved students from two different cultural backgrounds [19]. Participants in this study mainly came from university students in Flanders and Beijing. All students in both environments were randomly assigned to groups of six to eight students. During the research period, the same lecturer gave lectures in both cases. After each lecture, an online discussion task was submitted to the student group. All participants filled out a cultural environment survey adapted from questionnaires by Wang to analyze cultural factors in the online learning environment [28]. The study results indicated that students' preference for online collaborative learning might be related to cultural differences. The power distance between teachers and students seems to indicate a greater level power distance in the Chinese context, which is the same as secondary students. Chinese students are more competitive than Flemish students. At the same time, there was a significant difference in satisfaction between Chinese students and Flanders students in online collaborative learning, and students' perceptions of collaborative learning are positively correlated with their online performance in group work. In an innovative computer-supported learning environment, culture is an important factor affecting student satisfaction and academic performance. Although Chinese college students have a higher level of autonomy, they still need guidance from teachers, similar to middle school students. Belgian students at this stage seem to be more independent participants in collaborative learning. Thus, it indicated that collaborative in Western culture and Eastern cultures are really different.

## 3. RELEVANT FACTORS IN CROSS-CULTURAL COLLABORATIVE LEARNING

Students' different cultural backgrounds may indeed impact collaboration, and many relevant factors also affect cross-cultural collaborative learning. Differences in Eastern and Western cultures will make collaborative learning styles different and the teacher's views, which also seem to impact cross-cultural collaborative learning. More understanding of teachers' ideas can make collaborative learning more effective. Zhu et al. conducted a study aimed to understand teachers' views on their role in higher education and their views on adopting social constructivist teaching methods and integrating online collaborative learning in a blended learning environment [29]. Participants in the study included teachers working at Beijing Normal University, Capital Normal University, and Ghent University. This research used interviews whose questions focused on teachers' views on the use of computer-supported learning in higher education, the role of teachers, their views on teaching and learning related to the social constructivist paradigm, and their views on online collaborative learning. At the same time, a questionnaire was used to understand the cultural environment of

collaborative learning and teachers' teaching styles from different backgrounds. Research results indicated that the adoption of social constructivism, computer-supported learning, and online collaborative learning might be related to cultural differences. Chinese culture reflects a high level of power distance compared with other cultures, and the relationship between teachers and students was influenced. In both cultures, teachers see themselves as facilitators or principals. Chinese teachers are more likely to guide and lead, while Flemish teachers tend to supervise and support. They indicated that competition existed not only between students but also among teachers. No matter what role teachers play, competition is very great in Chinese education. It may also mean that highly competitive teachers may play multiple teacher roles or adopt different teaching methods. The current education system, institutional environment, and socio-economic impact should also be considered to determine possible differences that affect teaching and learning. Therefore, different cultures lead to different roles of teachers. However, teachers should still be more creative in collaborative learning or should be mainly auxiliary. Especially Chinese teachers should change their minds and roles to comply with the reform. Traditional cultural dimensions are not sufficient, so teachers might try to focus on the other dimensions. They might try to change their teaching design in a timely manner for students from different cultural backgrounds to fit.

In collaborative learning, the teacher's role is impacted according to the student's role. The study of Gu and colleagues explored the correlation between cultural factors and the roles of collaborative students in the two universities in China and the United States [30]. Participants were graduate students from American and Chinese universities in their respective courses to design and develop educational games for K12 students. Chinese students have software development skills, while American students had instructional design skills, which made them look forward to the collaboration. The experiment combined elements of collaboration between different roles and instructional design. They observed the roles played by students in the collaboration and used the computer-supported collaborative learning role-coding scheme to code these roles. The results of the research revealed that cultural differences do exist in collaborative learning, especially the different roles that students take on their own initiative. Chinese students tended to adopt the roles of disputer, questioner, and challenger, whereas American students actively played the role of supporter, initiator, and timer. The correlation between the roles of students in the collaborative learning process further confirmed that these cultural characteristics have an important relationship with the relevant roles in collaboration. Based on this article, it can be summarized that Chinese students do not seem to be really good at participating in

collaborative learning because they may have relatively competitive roles. Thus, there are more requirements for teachers. Unlike American teachers, Chinese teachers may need to give students some extra training to familiarize themselves with collaborative learning, or teachers can tell students what to do by playing different roles themselves.

The above studies focused on comparing the differences relatively in cross-culture areas, but with the globalization of the 21st century, more and more people work in a multicultural environment. Therefore, it is an important skill to communicate with multicultural people. In addition to understanding the influencing factors of cross-cultural differences in collaborative learning separately, people should also understand how cultural difference influences multicultural collaborative learning. Lei and Khan evaluated how the multicultural teaching and academic environment affected the learning process of international students and how these potential factors affected teaching strategies via questionnaires and semi-structured interviews [31]. In addition to the collection of demographic information, the questionnaire also focused on the views of cross-cultural groups on collaborative learning, the values and challenges involved in implementing collaborative learning, the positive and negative views of the collaborative learning experience, and the views on effective methods of implementing collaborative learning in several different dimensions. Asian students at a British university were asked. The survey results showed that international students from different cultural backgrounds, such as collaborative learning's teaching model, benefit from this new learning method. Some international students are affected by their own cultural, thinking, and speaking styles, making it difficult to engage in collaborative learning. For example, Chinese students' thinking and speaking styles may be more conceptual, so they are not used to specific ways of thinking. In addition, cultural differences and the expression of opinions may cause misunderstandings among team members. They indicated that Asian international students are hindered by language, which prevents some of them from expressing complex concepts and ideas in English. Although the differences in collaborative learning pose challenges for them, international students were trying to adapt to different methods of British university education. Collaborative learning had a great impact on the academic performance and social cognitive abilities of Asian international students. Students believed that implementing collaborative learning could help them learn faster and better, and discussing projects with others can enhance their understanding of the curriculum. Thus, multicultural teaching and academic environments should respect different cultural backgrounds and speaking style differences in language expression via equal communication. Teachers need to

prepare adequate collaborative learning activities and try to predict the positive and negative situations that may occur.

Learners' cultural background might be more diverse than the study assessed by Lei and Khan in the multicultural collaborative learning environment in daily life, so Kumi-Yeboah and colleagues conducted a study, which mainly investigated the opinions of different ethnic minorities graduate students on online collaborative learning activities [32]. The research recruited graduate students of different ethnic backgrounds, including African Americans, Hispanics, and international students from Africa. Compared with Lei and Khan's study, it involved different minorities background of students besides international students. Semi-structured interviews, focus group interviews, and observations were used together. The purpose of semi-structured interviews and focus group interviews was to know the views and understanding of participants from different cultural backgrounds on collaborative learning. The focus group interviews also asked participants to share their gains from collaborative learning and their challenges as multicultural students. In addition, through two semesters of observation, researchers also understand their views on computer-supported collaborative learning. They observed the interaction between participants and their classmates, the support they received from teachers, reading materials, teachers' feedback, students' reflections, and how they led discussions in online classrooms. Researchers found that participants were willing to share and learn in a multi-ethnic mixed environment to help them construct a more diverse knowledge structure. However, they prefer teamwork rather than whole-class activities. In addition, there was a clear lack of multicultural integration in current courses and collaborative learning. How to deal with cultural differences was a challenge for their collaborative learning. This shows that cultural background does have an obvious effect on collaborative learning, so instructors should consider the preferences and challenges of students from different cultural backgrounds when participating in collaborative learning. It can be found that the current collaborative learning is not sufficiently tolerant for students from different ethnic backgrounds. People seem to pay more attention to the differences between the Eastern and the Western or the cultural differences generated by the country. Therefore, teachers could consider ethnic minority factors and replace them with group activities instead of whole-class activities, which might become more effective when designing collaborative activities.

Self-regulation is formally defined as self-generated thoughts, feelings, and behaviors planned and adapted to achieve personal goals [33]. Three personal factors of self-regulation: covert cognition and process, behavioral performance, and environmental settings [34]. Social factors may influence individually self-regulating

behavior to regulate a person's learning to support the team's common learning goals or the individual goals of its members, involving the adoption of social orientation in self-regulated learning actions, not personal orientation [35]. Therefore, self-regulation is also one of the important factors in collaborative learning. Shi and colleagues investigated the self-regulated learning action of students from different cultural backgrounds during collaborative learning [36]. Participants are all adults from Canada and China. Participants learn through collaboration in pairs (two-person groups). A two-tuple consisting of a Canadian and a Chinese participant was randomly assigned as a pair, including the Canadian pairs, the Chinese pairs, and the Chinese-Canada mixed pairs. The result of this study showed that compared to socially-oriented self-regulated learning, Canadian pairs showed a preference for individually oriented self-regulated learning compared with Chinese. They indicated that Chinese participants are unlikely to express personally oriented behaviors with partners in a working and learning environment. The Chinese in the mixed group also have this tendency. The individual orientation behavior and social orientation behavior of Canadian-Chinese mixed groups are similar to Canadian pairs, and they are obviously larger than Chinese pairs. The cultural differences of individual and social orientation in the process of collaborative learning affect self-regulated learning actions. The researchers also investigated several self-regulated behavior types: motivation, monitoring, elaboration, clarification, and environmental construction. They found that Canadian pairs showed a higher proportion of individually oriented self-regulated learning behavior than Chinese, while Chinese pairs tended to socially-oriented behavior. Hence, the autonomy level of learners in the context of Eastern and Western cultures is different, so the requirements for collaborative learning will inevitably be different. Teachers could give more guidance and training if they are faced with students who are like Chinese students. By contrast, teachers could try to design more diverse collaborative learning activities when faced with students like Canadian students who are good at socially oriented self-regulated learning. Indeed, based on the study results, it was possible to assign students from different cultural backgrounds in a group, which might have a balance between individual and socially-oriented learning.

## 4. LIMITATION AND FUTURE DIRECTION

Based on existing studies, it can be found that cross-cultural study only points to the existence of cross-cultural differences in collaborative learning. Still, there is a lack of research on which factors have affected this difference. There may be a little more research on factors in multicultural researches than in cross-culture.

In addition, the study could also reveal that previous studies have only focus on the phenomena of cross-cultural collaborative learning and ignored interventions. What's more, most existing studies have focused less on the overall impact of a particular factor, which may influence independently and significantly. Most of the studies just focus on the specific cultural factors and ignore investigating the manipulation of those relevant factors in collaborative learning.

As a result, based on the limitation mentioned above, more research could be done in future studies focusing on the so that collaborative learning should be designed more appropriately for people with different cultural backgrounds. At the same time, future research can study more practical parts, such as how various collaborative learning methods affect the outcome. Moreover, future studies can also focus on manipulating factors besides the specific relevance factors. More research might evaluate guidance training, focus on the supplementary training associated with this factor, and subsequent research on how supplementary training will affect collaborative learning.

## 5. CONCLUSION

In general, different cultural dimensions have a certain influence on collaborative learning under the background of Eastern and Western cultures. Students' preferences for collaborative learning are also related to cultural differences. There may be cultural communications and balance in assigning students from different cultural backgrounds to a group. Different cultures lead to different roles and ideas of teachers in collaborative learning. Still, all of them should be more auxiliary to participate in collaborative learning and try to change their teaching design according to students with different cultural backgrounds. In collaborative learning, students in different cultures have different roles and ideas as well. Students at a high level of competition and power distances may tend to compete, so they always need more guidance and supplementary training in collaborative learning. What's more, students in multicultural teaching and academic environments should respect the different cultural backgrounds via equal communication. Meanwhile, teachers need to be well-prepared for collaborative learning activities and try to predict the positive and negative situations that may occur, considering minority factors. Additionally, in the context of Eastern and Western cultures, learners have different levels of autonomy, so their requirements for collaborative learning are necessarily different. Hence, self-regulation is also one of the important factors influencing collaborative learning. Socially oriented trend students seem to be more adapted to collaborative learning, and teachers can design more diverse collaborative learning activities for them. Conversely, students who preferred individually oriented self-regulation need more training during collaborative learning.

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