

Learners' perception of intellectual conflict in CSCL environment

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Abstract

The purpose of this research is to find out the learners' perception of intellectual conflict in CSCL environment. The research interviewed nine participants in CSCL course to learn how they think about intellectual conflict. Whether the participants really had intellectual conflict during discussion has been found first. Some students really encountered intellectual conflict, and others didn't. In the case of the students who faced intellectual conflict, some accepted they had intellectual conflict and said it was helpful to have. On the other hand, other said they didn't have intellectual conflict and seemed perceive intellectual conflict as something should not happen. In the case of students who didn't have intellectual conflict, some of them felt they had intellectual conflict in their discussion and perceived it negatively. On the other hand, others didn't encounter intellectual conflict and felt it is a good case of collaboration.

1. Introduction

1.1 statement of Problem

After relationship with peers is important to construct knowledge, collaborative learning has been researched in a lot of contexts in a lot of different ways. According to Gokhale (1995) Collaborative learning is refers to an instruction method in which students at various performance levels work together in small groups toward a common goal. Also, collaborative learning involves the instructional use of small groups in that students work together to maximize their own and each other's learning (Johnson and Johnson, 1996)

As technology is developed, instructional environment encounters change. Collaborative learning environment is also changing. Currently, researches about technology-supported Collaborative learning are studied lively. One of the fields is Computer Supported Collaborative Learning (CSCL). CSCL has been studied continuously and meticulously after it was first presented by O'Malley and Scanlon in 1989. Researchers studied various aspect of CSCL such as theoretical frameworks and constructs and transdisciplinary field or inquiry (Resta & Laferrière, 2007). CSCL is a technology based collaborative learning environment. In CSCL environment, the basic collaboration method is language through synchronous and asynchronous communication tools. Through these tools, learners exchange their ideas in order to accomplish mutual goal. During the process of idea exchange, learners do not always agree with each other but have disagreement toward others' opinions. That is, learners experience the intellectual conflict during collaboration.

Intellectual conflict is defined as a perception of disagreements among group members about the content of their decisions and these disagreements involve differences in viewpoints, ideas, and opinions (De Dreu & Weingart, 2003). Interestingly, these differences, intellectual conflict, lend group members to collaborate positively in diverse ways. Groups that experience task conflict tend to make better decisions than those that do not encourages greater cognitive understanding of the issue being discussed (Simons & Peterson, 2000). Intellectual conflict ensures group members have affective acceptance of group decisions. A number of researchers have found that intellectual conflict can lead to increased satisfaction with group decisions and a desire to stay in the group (Amason, 1996;

Korsgaard, Schweiger, & Sapienza, 1995). Also, according to Kirschner and Bruggen (2004), students encounter the perception that they are in conflict partially, and such intellectual conflict stimulates knowledge negotiation.

Intellectual conflict, however, has been misunderstood by scholars, students and common people as well. It would probably be because of the word “conflict.” However, intellectual conflict is a state among members, which is the moment members have different ideas and opinion about the topic. It is not a negative and dangerous situation but something should be resolved and managed well. How the team members perceive intellectual conflict and the situation would be effective for the collaboration. Therefore, the perception of participants in collaborative learning environment on intellectual conflict should be identified.

Additionally, Research about intellectual conflict is an important factor in promoting better collaborative learning. However, there is just little research which identifies intellectual conflict in a CSCL environment. As CSCL is one form of collaborative learning, it is inferred that intellectual conflict would affect the collaboration in the CSCL environment positively.

1.2 Purpose of study

The purpose of this study is to identify how the learners perceive intellectual conflict in CSCL environment.

1.3 Research Question

The research question is following

- How do students perceive intellectual conflict in CSCL?

2. Review of Literature

2.1 Computer Supported Collaborative Learning

CSCL was first presented by O'Malley and Scanlon in 1989. Kirschner and Bruggen (2004) presented the meaning of CSCL in following statement. To collaborate is to work mutually with team members especially in an intellectual endeavor. So, the work to be carried out is learning, and it is done by working with others. The ultimate modifier of CSCL, computer-supported, means that the computer enables something to occur and/or keeps something going. The “Thing” that the computer supports is collaborative learning. CSCL is an interdisciplinary field based on the convergence education, psychology and computer science (Wasson, 1998).

CSCL researches have focused on how technology can facilitate the sharing and creation of knowledge and expertise through peer interaction and group learning processes (Resta & Laferrière, 2007). According to the research of Dewiyanti et al (2007), CSCL environment is described as a context where the computer facilitates interactions among learners for acquisition of knowledge skills and attitudes. As a constructive environment for learning knowledge, skills and collaboration, CSCL has shown successful result to enhance learning achievement (Dewiyanti et al. 2007). Harasim (1989) described the social, affective and cognitive benefits of collaborative group work for learners participated in distance learning. Hiltz (1995) reported that learners in collaborative learning had more constructive learning processes and attained higher grades than students in other conditions. Also, other researches informed of CSCL benefits as facilitate task-oriented and reflective activity (Choen &

Scardamalia, 1998; Hakkarainen et al. 1999, Wegerif, 2004, Gillies, 2004), encourage complex reasoning and deeper levels of argumentation (Hoadley & Linn 2000), support mathematical problem solving (Enyedy et al. 1997, Nason & Woodruff 2003), improve the use of conceptual models (Bell, 1997, Wegerif 2004) and increase students' cognitive and metacognitive understanding (Brown, et al. 1998, Cohen & Scardamalia 1998, Shellens & Valcke, 2005).

As CSCL is one of the collaborative learning environments, intellectual conflict among participants would occur during collaboration. In this setting, however, research about intellectual conflict has not been conducted flourishingly. To support better collaboration in CSCL environment it is necessary to identify how to manage intellectual conflict in the very setting.

2.2 Intellectual Conflict

Conflict is natural happening in team work and collaboration (Ivarie, 1995.; Jordan, 1996; Ragin, 2000). Conflict is classified into cognitive conflict (intellectual conflict) and affective conflict (relationship conflict): conflict that positively affects for teams and conflict that affects negatively. Intellectual conflict concentrates on valuable issues, which are related with differences of opinion, and allows individuals to present their beliefs and understandings of a particular topic. It occurs as team members examine, compare, and reconcile their differences. On the contrary, the relationship conflict cause and feeds animosity toward and among team members. Also, it lowers team effectiveness by arousing hostility, distrust, cynicism, and apathy in team members (Jordan, 1996, Simons & Peterson, 2000). Consequently, effective groups manage conflicts to intellectual conflict and minimizing relationship conflict.

Intellectual conflict has several names; task conflict and cognitive conflict. Task conflict is defined as a perception of disagreements among group members about the content of their decisions and involves differences in viewpoints, ideas, and opinions (Simons & Peterson, 2000). De Dreu & Weingart, (2003) defined task conflict is as a perception of disagreements among group members about the content of their decisions and involves differences in viewpoints, ideas, and opinions. Cognitive conflict is defined as the disagreement among group members that is bound to occur in order to make the group an important source of learning (Johnson & Johnson, 1979; Tocalli-Beller, (2003). In previous research (cite), those three words are compatible with each other. Consequently, intellectual conflict, cognitive conflict or task conflict is disagreement of team members' divergent opinion, ideas and thought about task, content and topic.

2.2.1. Benefits of intellectual conflict

Intellectual conflict positively affects group work. Researchers found that intellectual conflict forces team members to look at underlying assumption, facilitates frank discussion and offers alternatives (Jordan, 1996). Moreover, it supports groups in making better decisions (Jordan, 1996; Simons & Peterson, 2000), ensures group members have affective acceptance of group decisions (Amason, 1996; Korsgaard, Schweiger, & Sapienza, 1995), and stimulates knowledge negotiation and at last can be a bridge to knowledge building among group members (Kirschner and Bruggen, 2004).

3. Methodology

3.1 Overall Approach and Rationale

To investigate how students perceive intellectual conflict in a CSCL environment, qualitative research methodology is used for several reasons. First, this study is exploratory in nature as the relationships among the elements related to students' perception of intellectual conflict in online courses

are not well known. Qualitative methods allow researchers to study the phenomenon of interest in depth and get insights into the phenomenon without being constrained by predetermined categories or dimensions of analysis. A qualitative approach typically uses inductive logic, which begins with specific observations and builds toward general patterns. The inductive analysis allows important dimensions to emerge from patterns found in the settings under study without presupposing in advance what the important dimensions will be (Patton, 1990). Second, it is inferred that the intellectual conflict is significantly influenced by the setting in which they occurred. Therefore, the phenomenon of interest in this study needs to be studied as it occurred naturally. Moreover, the online learning setting is complex and has its unique characteristics, and thus the data gathered in the setting are very dependent on the context. Researchers using qualitative methods attempt to understand a phenomenon as a whole because they assume that a phenomenon cannot be understood in isolation from the context. Therefore, the researcher gathered data on multiple aspects of the setting under study in order to assemble a comprehensive and complete picture of the phenomenon (Lincoln & Guba, 1985; Patton, 1990).

Among the qualitative research approaches, this study mainly used the techniques and procedures of the case study.

3.2 Setting Description

The setting for the study is a CSCL course in 2006 fall semester at the graduate level in a public university in the Southwestern United States. The objectives of the course are to provide comprehensive and intensive experiences in on-line collaborative learning. Learners' activities in this course are conducting collaborative learning through online communications, and the two primary communication systems: the course website and a web conferencing system whose name is *teachnet*. The course website, as an instruction delivery system, provides participants with the course content and the instructions for the assignments. The web conferencing system, the *teachnet*, provides a virtual environment for students to communicate through email, synchronous chatting system, asynchronous discussion board, and collaborative writing tool. There are four learning modules which is divided into two main activities, individual and group tasks. For every module, participants should produce a reflective journal about their learning experiences and conduct peer/self assessments, and create an individual portfolio.

3.3 Participants

The participants of the research were comprised of students in the 2006 CSCL course. Twenty four participants from the course were subjects for the study. Among twenty four students, nine students accepted to participate in the interview.

3.4 Research Procedure

To search for the process of collaboration in CSCL environment, three researchers conducted interview with the CSCL students who took the class in the fall, 2006. The total participants in the class were twenty three, and the researchers interviewed nine students. The other students refused to participate in the interview.

First, interview with nine people were conducted. Usually, individual researcher took a responsibility for specific interviewees. The interviews took thirty minutes averagely and were recorded with digital recorder.

Second, the researchers transcribed the recorded interviews. Individual researcher took 4 interview records. After the transcription was over, all document files were piled together and put line

number for each lines.

Third, from the interview contents, how the participants perceive intellectual conflict was analyzed. This step was conducted only by single researcher, the author.

3.5 Data Collection

The primary data of this research was from interviews with nine participants. Face-to-face interviews were audio-taped with participants' consent and then transcribed.

3.6. Data Analysis

Data gathered were immediately analyzed using coding procedures: open coding, axial coding, and selective coding (Strauss & Corbin, 1998). As a result of open coding, the researchers developed several categories on intellectual conflict phenomenon from the data. Also as a result of axial coding, the researchers identified a variety of conditions, actions, and perception related to intellectual conflict phenomenon. Lastly, selective coding was conducted to facilitate the process of integrating and refining categories. In integration, categories were organized around a central explanatory concept that could represent the main theme of the research. From this coding, the relationships among intellectual conflict and students' perception were clarified.

3.7 Trust Worthiness

Lincoln and Guba (1985) proposed four trustworthiness criteria for naturalistic studies (credibility, transferability, dependability, and confirmability), and suggested a variety of strategies to establish trustworthiness. To assure the trustworthiness of the study, the research used the following strategies: a) triangulation, b) peer debriefing, and c) audit trail.

4. Result

The result shows that the students who participated in the research showed two different perceptions on the intellectual conflict. Students' perception on intellectual conflict was distinguished in two ways; first group of students perceived on intellectual conflict as natural phenomenon in collaboration; and the second group of students expressed their negative idea about intellectual conflict.

Some students accepted the phenomenon of intellectual conflict naturally. Those students understood the intellectual conflict phenomenon without sense of rejection.

Intellectual conflict Occurrence	Students' Perception of IC [*] Occurrence	Quoting from data
O	O	“The only thing that I can say is that there was difference between opinions for sure. Just idea conflicts. I think people can have intellectual conflict without hurtful emotional involvement up to certain point.”
	X	“I think the team members in my group were very friendly and they were very open to accept other opinions. They tend to talk that the members accept others’ opinion before they have intellectual conflict. Even it was opposite to their thinking. They were very open-minded. Typically, our group accepted the other people’s different opinion.”
X	O	“I gave an idea, but I got no answer.”
	X	“I can’t remember may conflict. So I think it is a good sample.”

Table 1. The occurrence of Intellectual Conflict and students’ perception

IC: Intellectual Conflict

The quoting from the interview is following. “The only thing that I can say is that there was difference between opinions for sure. Just idea conflicts. I think people can have intellectual conflict without hurtful emotional involvement up to certain point.”

These participants admitted that they had intellectual conflicts during collaboration. As they accepted the phenomenon, however, students were willing to solve the intellectual conflicts. The quoting from the interview is following. “We didn’t like each other’s ideas until B1 (participant) brought up his idea, and then we started to vote who like this title. Then other tried to bring up another title. And we negotiate why we like this idea. There was the difference that we had the people that had apposing view so really explained themselves.” This group accepted the occurrence of intellectual conflict in their collaboration, but they couldn’t perceive it as something they should have to achieve more academically meaningful collaboration.

The students who showed second reaction seemed that they think a group shouldn’t have any intellectual conflict during collaboration. They were proud of not having intellectual conflict. The quote of students’ idea is following. “I can’t remember may conflict. So I think it is a good sample.”

They analyzed that the reason they didn’t have conflict is the traits of team members. The quote is following. “I think the team members in my group were very friendly and they were very open to accept other opinions. They tend to talk that the members accept others’ opinion before they have intellectual conflict. Even it was opposite to their thinking. They were very open-minded. Typically, our group accepted the other people’s different opinion.” Here, we could see that students have sense of rejection toward intellectual conflict similar with any other conflict. They perceived

intellectual conflict as something problematic that they shouldn't have during collaboration.

Some of the participants showed that intellectual conflict is something they can resolve and manage, but they didn't show any positive reaction that the intellectual conflict is essential for their collaboration to have better result for the project. The others perceived intellectual conflict negatively. It is inferred that the reason the students perceive intellectual conflict as something they should not have is the conventional environment in education field.

5. Conclusion

In this paper, how the students in CSCL environment perceive intellectual conflict was discussed. Intellectual conflict is natural phenomenon in any relationship. Especially in the setting that need a lot of divergent ideas and making better decision in a group, intellectual conflict would happen frequently. CSCL is a special environment that ideas are discussed through computer-supported communication system. Even in this system, intellectual conflict would be occurred as it is discussion environment.

However, students didn't accept that the intellectual conflict is important in collaboration, in the controversy. One group of students could accept that they had intellectual conflict and had will to resolve it, but they couldn't think the necessity of intellectual conflict. The other group was happy for not having intellectual conflict.

Intellectual conflict is a critical factor that students should have in their collaboration to achieve better result. Students need the time to swift their consciousness. Intellectual conflict is an important factor in academic field where create and build new knowledge. It is expected that after the students perceive the necessity of intellectual conflict then they would have better academic discussion to have more meaningful result.

Based on this research further researches should be conducted. Intellectual conflict needs to be managed effectively. Usually conflicts are resolved with specific management strategies. It is necessary to find supportive researches that were conducted with CSCL course and need to collect CSCL course participants' idea and their experience to resolve and manage intellectual conflict. Through these researches, it is possible to identify how the students in CSCL environment manage intellectual conflict.

Moreover, the research about the relationship between intellectual conflict and the level of the product would show whether students could build new knowledge through resolving intellectual conflict. In other perspective, how the intellectual conflict management affects sense of community in collaboration would be another research.

6. Discussion

Through and after the research process, several important aspects which are related with the research and the topic have revealed. In this part those considerable ideas would be shared and discussed.

First is the pointing out of the very intellectual conflict in discussion. Johnson and Johnson explained that intellectual conflict exists when one student's ideas, information, conclusions, theories, and opinions are incompatible with those of another, and the two seek to reach an agreement (Johnson & Johnson, 1997.) What are the amount, standard and limitation to analyze intellectual conflict from students' discussion or interaction? In the future, a research which gives specific standard and guideline to find intellectual conflict in among discussion is necessary.

Second, based on the standards, it is important to find evidence of intellectual conflict in CSCL environment which make future researches possible. Current research was conducted based on the

interview with the participants. To support this research stronger, it is critically necessary to suggest evidence of intellectual conflict from students' discussion.

Third, it is important that to figure out whether students satisfied their learning from intellectual conflict in CSCL. Previous literature introduced that students showed better performance with intellectual conflict in their discussion and activities. I wonder would this positive relationship between intellectual conflict and performance naturally be connected to students' satisfaction of learning, especially in CSCL environment.

Fourth, following research about the relationship between intellectual conflict and knowledge building is necessary. Intellectual conflict occurs when students seek higher and better idea among team members. It is easily inferred that students could seek constructive knowledge building through intellectual conflict. CSCL pursue constructive knowledge building as one of the purpose of the development of the very environment. If intellectual conflict helps students building new knowledge, intellectual conflict should be considered seriously to be used as an important strategy for knowledge building.

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