The following debate was completed as a collaborative activity between two teams of students participating in the course Designing Computer Support of Collaborative Learning. My team was assigned to defend the following position statement.

> Having students collaborate and cooperate are powerful ways of supporting learning. When students interact during the course of their assignments they learn with and from each other and the social nature of this way of learning provides natural mechanisms and supports for developing new ideas, integrating new concepts and building new competencies. Designers of CSCL should focus on making sure that students interact effectively and have a positive social experience during their lessons. The social nature of learning will prove to be a substantial asset in building new knowledge and competencies.

Our Position Statement

Having students collaborate and cooperate are powerful ways to support learning. Collaborating necessarily has two parts: how it operates and the psychological reasons why students benefit from it. Although social interactions are natural, they become much more productive and achieve thought on a deeper level when they are structured and organized by the guiding hand of an instructor.

Social learning is a highly efficient way of engaging students in the learning process. According to Gunawardena, Lowe, and Anderson (1997), in order for collaborative learning to be achieved, five sequential steps, must take place:

1. sharing/comparing information;
2. discovery and exploration of dissonance or inconsistency among ideas, concepts, or statements;
3. negotiation of meaning and/or co-construction of knowledge;
4. testing and modification of proposed synthesis or co-construction;
5. phrasing of agreement, statements, and applications of newly constructed meaning.

After analyzing 875 studies covering a period of 90 years, Johnson and Johnson (1989a) concluded that although these steps all lead to greater learning achievement than simple solitary study, they will not occur without the proper psychological stimuli for students. Johnson and Johnson tell us that there are five psychological elements that are needed for a collaborative environment to be built and sustained, as follows:

1. Clearly perceived positive interdependence;
2. Considerable promotive (face-to-face) interaction;

3. Clearly perceived individual accountability and personal responsibility to achieve the group's goals;
4. Frequent use of the relevant interpersonal and small-group skills;
5. Frequent and regular group processing of current functioning to improve the group's future effectiveness.

These five psychological elements are necessary because "trust is a basic prerequisite for knowledge to flourish...It is in carrying out risk-taking actions that one experiences the kind of unconditional commitment necessary for learning to take place" (Gerdes 2010, p. 352). Trust is the foundation for these five psychological elements to thrive so that learning is not only productive, but also important and authentic. Ultimately, our position is that designers of CSCL should focus on making sure that students interact effectively and have a positive social experience during their lessons because collaborative learning depends on an atmosphere of trust (teaching presence), which is a prerequisite for meaningful interaction (social presence), thus leading to the construction of new knowledge (cognitive presence).

References:

Gerdes, A. (2010). Revealing preconditions for trustful collaboration in CSCL. *International Journal of Computer-Supported Collaborative Learning*, 345-353.

Gunawardena, L., Lowe, C., & Anderson, T. (1997). Interaction analysis of a global on-line debate and the development of a constructivist interaction analysis model for computer conferencing. *Journal of Educational Computing Research*, 17(4), 395-429.

Johnson, Roger T. and David W. (1994). An overview of cooperative learning. *Creativity and Collaborative Learning*. Baltimore: Brookes Press.

Johnson, D.W., & Johnson, R. (1989a). *Cooperation and competition: Theory and research*. Edina, MN: Interaction Book Company.

Response from a separate team arguing the following statement:

> Having students collaborate and cooperate are ways of supporting learning, but the primary goal of instruction is to have students experience the subject matter at hand. When students interact during the course of their assignments they learn with and from each other but this social nature of learning is incidental to the primary tasks of examining and making sense of the subject matter. Designers of CSCL should focus on making sure that students interact effectively with the subject matter and use social interaction as a way to reinforce the direct learning that students do in the subject matter. The social nature of learning will prove to be an asset in building new knowledge and competencies, but the primary mechanisms of learning are the students' direct cognitive experience of the subject matter.

The opposing argument seems to strongly support the benefits for positive collaboration, which cannot be denied; however, the argument does not clearly support why positive collaborative experiences should be the chief aim of CSCL. Rather, the goal of CSCL is to increase the learning of the individual through collaborative experiences. Collaboration is a means to an end; it is the vehicle that drives the learning of the subject matter.

The opposing argument lists Gunawardena, Lowe, and Anderson's five sequential steps of collaboration. Although these steps help to shape a CSCL environment, it is difficult to grasp how this reference proves collaboration should be the focus of CSCL environments.

The argument states, "Although social interactions are natural, they become much more productive and achieve thought on a deeper level when they are structured and organized by the guiding hand of an instructor." The argument goes on to say that "Ultimately, our position is that designers of CSCL should focus on making sure that students interact effectively and have a positive social experience during their lessons…"

These statements confirm our point that collaboration is a strategy used to foster increased understanding of the subject matter. The whole reason for the instructor intervention is for individual students to find meaning in not only the subject matter but also the instructor requested collaboration. The individual must find the material to be meaningful before any group meaning can be established.
"Wherever meaningful symbols, representations and artifacts may be found, they are only meaningful for individual minds. Interpretation is necessary, and that is necessarily carried out by individuals within the horizons of their personal perspectives (Gadamer, 1960/1988)." (Stahl 2002, p. 3.)

Johnson and Johnson tell us that positive interdependence must exist if a cooperative lesson is to be effective. "Within cooperative learning situations, students have two responsibilities: 1) learn the assigned material, and 2) ensure that all members of the group learn the assigned material." While we agree with the opposing argument that trust and positive experiences are necessary for effective collaborative learning, we maintain that this is not the chief end of CSCL. Collaboration is a means to the end of increased learning. This is mediated by group and individual perspectives, available resources and collaboration. However, the primary goal of CSCL is to have the students experience the subject matter at hand and to build knowledge.

References:

Gunawardena, L., Lowe, C., & Anderson, T. (1997). Interaction analysis of a global on-line debate and the development of a constructivist interaction analysis model for computer conferencing. *Journal of Educational Computing Research*, 17(4), 395-429.

Holistic Education Network. (2004). *Metacognition - Thinking about thinking - Learning to learn*. http://www.hent.org/world/rss/files/metacognition.htm

Johnson, D.W., & Johnson, R. (1989a). *Cooperation and competition: Theory and research*. Edina, MN: Interaction Book Company.

Kreijn, K., Kirschner, P. A, & Jochems, W. (2002). *The Sociability of Computer-Supported Collaborative Learning Environments*. Educational Technology & Society.

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Our Rebuttal and Final Argument

We disagree with Team Four's critique regarding the following points:

1) We disagree that "the individual must find the material to be meaningful before any group meaning can be established." As Stahl demonstrated when he observed a group of students at Pratt Middle School who tried to understand the structure of a rocket simulation, "A detailed analysis of this transcript would make visible the knowledge building process that took place, in which the students displayed for each other verbally and non-verbally their shifting understandings and interactively achieved the creation of shared meaning" (p. 7). This example underscores how Gunawardena, Lowe, and Anderson's (1997) five steps for collaborative learning support our argument. Specifically, none of them can occur only in the mind of an individual student. At a minimum, they require a dialogue, thus demonstrating the primacy of collaboration for meaningful learning. Clearly one does not collaborate *because* they know the material, they collaborate so that they can master the material.

Further, Team Four says it accepts Gunawardena, Lowe, and Anderson's five sequential steps of collaboration as good practice but says it is difficult to understand how that leads to the conclusion that positive interaction ought to be the focus of collaborative structures. The best way to answer that is to look closely at what those five steps are: sharing/comparing information; discovery and exploration of dissonance or inconsistency among ideas, concepts, or statements; negotiation of meaning and/or co-construction of knowledge; testing and modification of proposed synthesis or co-construction; and, phrasing of agreement, statements, and applications of newly constructed meaning. Each one is a collaborative, social interaction. The first step is not omniscient about the material at hand, but individually knowledgeable about the material at hand. Students begin the knowledge building process by "sharing/comparing" - an inherently social experience. Later they negotiate and co-construct knowledge and evaluations (tests) of that knowledge, and eventually they phrase their arguments. These are all social activities and it is the instructor's first priority to make sure that these actions function smoothly and positively.

2) We agree with Team Four when they say that “collaboration is a means to an end, it is the vehicle that drives the learning of the subject matter.” However, scaffolding, resources, instructional planning, and content do not drive learning. It is specifically the positive social interaction in collaboration that drives learning. Furthermore, when Team Four attempts to use our statement, “Ultimately, our position is that designers of CSCL should focus on making sure that students interact effectively and have a positive social experience during their lessons…” to weaken our argument by claiming that collaboration is merely a way to present subject matter, they are claiming to see something that is not there. This statement clearly explains the responsibility that instructors have to facilitate positive interaction and social experience while students learn in a collaborative structure. The preceding statement they quote, explaining that social interactions “. . . become much more productive and achieve thought on a deeper level when they are structured and organized by the guiding hand of an instructor” is also misused. We are not arguing that “collaboration is a strategy used to foster increased understanding of the subject

matter." That is an established fact in both our arguments. Rather, our argument states that positive social interaction is necessary before collaborative learning of any subject matter can take place; both statements illustrate this point well and do not place knowledge of the subject matter as a superior element of learning when compared to positive social experiences. Instead, they support the opposite.

We agree with the quote by Johnson and Johnson used by Team Four stating that, "Within cooperative learning situations, students have two responsibilities: 1) learn the assigned material, and 2) ensure that all members of the group learn the assigned material." Again, this is an established fact of both of our arguments, but Team Four has neglected the prerequisite factor of social interaction for these two responsibilities. Each group member can have excellent prior knowledge of the subject matter, but until students are willing to collaborate with classmates, rather than compete with them, they will not begin to "learn the assigned material" or "ensure that all members of the group learn the assigned material." This second responsibility, especially, requires a group of students who can interact positively to ensure that everyone is allowed to fully participate. When group members trust each other enough to share and communicate knowledge, they will become involved in constructing knowledge as a collaborative unit, rather than as individuals within a group. Gerdes explains this concept by saying, "Trust is a basic prerequisite for knowledge to flourish. In virtual learning environments, self-surrender might fail, due to a setting that affords strategic communication and impression management, which again hampers involvement in a given topic or task. It is in carrying out risk-taking actions that one experiences the kind of unconditional commitment necessary for learning to take place" (Gerdes 2010, p. 352).

Even under the best instructional guidance, lack of basic social skills will sabotage any positive collaborative progress. It is not enough to present great articles, books, or online forums. Students must have the skills to construct knowledge using these tools and resources within a social group. The best scaffold and resources will be useless to a dysfunctional group that cannot move past the initial negotiations necessary to utilize the tools and activities prepared by the instructor. By trying to avoid the social networking that is necessary to ensure success, instructors limit the ability of their students to collaborate. When boundaries and clear guidelines for interaction are set and modeled by the instructor, then group activity can be positively focused through productive social interaction with the task or subject at hand. It is only under these circumstances that students will benefit from a scaffold prepared by the instructor.

3) We agree with Team Four that "collaboration is a means to the end of increased learning", but we disagree that "the primary goal of CSCL is to have the students experience the subject matter at hand and to build knowledge." Rather, we maintain that designers of CSCL should focus on making sure that students interact effectively and have a positive social experience during their lessons. What is important about our differing positions is that that deeper learning is only achieved because of the social elements of collaborative learning. There is a causal relationship in which the social activities cause the students to learn more. In other words, the most substantial asset in the building of new knowledge and competencies is the social interaction necessary for collaboration. This stance is supported by Johnson & Johnson (1994), who stated, "Being able to perform technical skills, such as reading, speaking, listening, writing, computing, and problem solving, are valuable but of little use if the person cannot apply those skills in cooperative interaction with other people in career, family, and community environments. The most logical way to emphasize the use of students' knowledge and skills within a cooperative framework, such as they will meet as members of society, is to spend much of the time learning those skills in cooperative relationships with each other" (p. 10).

In conclusion, for all of the reasons that we have stated, designers of CSCL should focus on making sure that students interact effectively and have a positive social experience during their lessons. The most logical way to emphasize the use of students' knowledge and skills within a cooperative framework, such as they will meet as members of society, is to spend much of the time learning those skills in cooperative relationships with each other" (p. 10).

In conclusion, for all of the reasons that we have stated, designers of CSCL should focus on making sure that students interact effectively and have a positive social experience during their lessons.