

## **IMPROVING STUDENTS' COGNITIVE ASPECT THROUGH INTERACTION IN COOPERATIVE LEARNING**

**Toto Sugiarto**<sup>1</sup>

<sup>1</sup>The Teacher of SMA Al- Huda Bumiayu, Brebes

E-mail: [totosu69@yahoo.com](mailto:totosu69@yahoo.com)

Phone: 089654622827

### **Abstract**

This article converses an interaction in cooperative learning to improve students' cognitive aspect. Cooperative learning uses small groups that consist of students who are pent up to work together and improve their studying each other. Therefore, it cannot be separated from the interaction. Jean Piaget, clarifies that when students work together, the conflict of socio – cognitive will appear and produce a cognitive disequilibrium. The cognitive disequilibrium will be able to improve students' ability to think logically and speak. In addition, the teacher should organize the five essential components of cooperative learning explicitly to make it run well, such as positive independence, Face-to-Face Promotive Interaction, individual accountability, interpersonal and small group skills, and group process. Finally, the students can feel enjoyable learning in a group which influences their cognitive aspect. They also celebrate their success together.

**Keywords:** Cognitive Aspect, Interaction, Cooperative Learning

## **A. Introduction**

It is stated in Oxford Dictionary (2011: 441), “Student is a person who is studying at a college or person studying at secondary school or any person interested in a particular subject”. All students have a hope in getting a good academic achievement in the world. It will be achieved if they have good cognitive aspect. Cognitive aspect is an intellectual ability of thinking, knowing, and solving a problem which is related to student’s comprehension in mastering the material. The teacher’s responsibility is to help his/her students to master it. How does the teacher help his/her students? There are many ways to help them. One of the ways is that the teacher should use the best teaching learning method to build students’ good cognitive aspect. The teacher should apply an effective method to help or improve students’ intellectual ability or cognitive aspect since it is necessary for the students to achieve their academic achievement.

We know that students are not the object of teaching and learning process, but they are the subject of education. It means that the students must be active in learning process. Consequently, so the teacher must conduct and facilitate his/her students to be active in the learning process. The teacher should apply the effective method that is cooperative learning. Some experts of education define cooperative learning. Artz and Newman (1990: 32) define cooperative learning, as a small group of learners working together as a team to solve a problem, complete a task, or accomplish a common goal. Roger (1992: 29) defines cooperative learning, in this manner:

“Cooperative learning as a group of learning activity organized in such a way that learning is based on the social structured change of information between learners in group in which each learner is held accountable

for his or her own learning and is motivated to increase the learning of others.”

Parker (1994: 29) explains cooperative learning as a learning situation in which students interact each other in a small group to accomplish a common goal. Besides, Johnson and Johnson (1998: 31) deliver a brief definition that cooperative learning is working together to accomplish shared goals.

From the above definitions, cooperative learning is the method of learning where students work and help each other in a small group to accomplish a common goal. Learning by grouping can not be separated from interaction among students in discussing a material. From the discussion, interaction among students will be well-held. The interaction can improve students' cognitive aspect as long as they can process the information mentally then motivationally. This article examines the interaction among students in group of cooperative learning which can improve their cognitive aspects.

## **B. Discussion**

The discussion is started with the comparison of three learning models (competitive, individualistic, and cooperative), continued by essential components of cooperative learning, and ended with how to improve students' cognitive aspect through interaction in cooperative learning.

### **1. Comparison of Three Learning Models: Competitive, Individualistic, and Cooperative**

Commonly, there are three types of students' interaction of learning in a group. Firstly, they work competitively to show who the best is. Secondly, they work individually to achieve each goal without care

about their friends. Finally, they work cooperatively and open hand each other to achieve a common goal. Johnson, Johnson, and Smith (1998) recapitulate the conceptual of the three learning models, like the table below:

**Comparison of Three Learning Models  
(Competitive, Individualistic, and Cooperative)**

<p><b>Competitive</b></p> <p>“I swim, you sink; I sink, you swim”</p>
<p>Every individual works to defeat other individual to achieve individual achievement only.</p> <p>Work alone.</p> <p>Try to be the better than other.</p> <p>Something useful for self is useless for other students.</p> <p>Celebrate individual success and other’s failure.</p> <p>Reward is limited.</p> <p>The ranking from the best to the worst.</p>
<p><b>Individualistic</b></p> <p>“We are each in this alone”</p>
<p>Every individual works alone to achieve learning goals that disconnect to other’s individual achievement.</p> <p>Work alone.</p> <p>Try to get individual success only.</p> <p>Something useful for self does not effect to other</p>

students.  
 Celebrate the success alone.  
 Reward is viewed as unlimited something.  
 Evaluated by comparing one performance to other performance.

**Cooperative**  
 “We sink and swim together”

Each individual works together to achieve the common goals. They maximally study with their friends.  
 Work in heterogenic small group.  
 The priority is the goals of group.  
 Something useful for self must useful for other.  
 Celebrate the success together.  
 Reward is viewed as unlimited something.  
 Evaluated by comparing one performance to other performance.

From the three types above, the competitive learning is the most dominant in most of schools in the world. Many researchers say that most of schools in the world including Indonesia still view the education as a vehicle of competition where the students try to be the best. Meanwhile, students’ cooperation in which the students support each other to get the success, work together to over come the academic task, and respect among students are ignored.

Competitive learning is a bad motivator for the most of low academic achievement students. The

students' success is relative in competitive learning. Low ability students are always in low grade of class although they have studied more. It is different from high ability students which are always in high grade of class although they study as low ability students do. There is no togetherness in competitive learning to support each other to get success.

The teacher's role is helping his/her students to improve their cognitive aspect to achieve the academic achievement. The success teacher is not a smart teacher who gets big salary, but the success teacher is someone who can make all of his/her students successful students commonly. The teacher must treat his/her students fairly because they have the same right to be successful.

The most of teachers ignore the educative interactions. Those are teacher to students, students to teacher and interaction among students. Thus, cooperation can produce the interaction, and it is an important need to perpetuate human's life. There is no individual, family, organization, and school without interaction. One of the key of students' success is interaction within cooperative learning.

Cooperative learning uses small groups that consist of students who are put up to work together and improve their studying each other and other students' studying. It means that cooperative learning is different from competitive learning, because students in cooperative learning work together and help each other in doing the task to accomplish a common goal. On the other way, students in competitive learning work to defeat each other to achieve academic achievement individually.

## **2. The Essential Components of Cooperative Learning**

Cooperative learning will run well if the teacher arranges the essential components of cooperative learning explicitly. There are several essential components of it according to David W. Johnson, Roger T. Johnson, and Edythe Johnson Holubec (1991), as follows:

### **a. Positive Interdependence**

“Students perceive that they need each other in order to complete the group's task ("sink or swim together"). Teachers may structure positive interdependence by establishing mutual goals (learn and make sure all other group members learn), joint rewards (if all group members achieve above the criteria, each will receive bonus points), shared resources (one paper for each group or each member receives part of the required information), and assigned roles (summarizer, encourager of participation, elaborator).”

Caring to other students' achievement will make them share, help, and support each other to learn. They must be aware that the effort from every member will be useful not only for individual but for all of the members of the group.

### **b. Face-to-Face Promoted Interaction**

“Students promote each other's learning by helping, sharing, and encouraging efforts to learn. Students explain, discuss, and teach what they know to classmates. Teachers structure the groups so that students sit knee-to-knee and talk through each aspect of the assignment.”

**c. Individual Accountability**

“Each student's performance is frequently assessed and the results are given to the group and the individual. Teachers may structure individual accountability by giving an individual test to each student or randomly selecting one group member to give the answer.”

**d. Interpersonal and Small Group Skills**

“Groups cannot function effectively if students do not have and use the needed social skills. Teachers teach these skills as purposefully and precisely as academic skills. Collaborative skills include leadership, decision-making, trust-building, communication, and conflict-management skills.”

**e. Group Processing**

“Groups need specific time to discuss how well they are achieving their goals and maintaining effective working relationship among members. Teachers structure group processing by assigning such tasks as list at least three member actions that helped the group be successful and list one action that could be added to make the group even more successful tomorrow. Teachers also monitor the groups and give feedback on how well the groups are working together to the groups and the class as a whole.”

**3. How to Improve Students' Cognitive Aspect through Interaction in Cooperative Learning**

As social creature, we absolutely need someone else in our life including students. In teaching learning process, they need some helps of other students to over come their problem such as academic



problem. Every student has a will to get a good academic achievement. Absolutely, it can be achieved if they have good cognitive aspects. They can improve their cognitive aspects through interaction in learning of cooperative group because it can not be separated from interaction. Cooperative learning is a team work. Students discuss and interact each other in cooperative group which can make their cognitive aspects improved. Therefore, a good interaction in a group is necessary for them.

The expert of cognitive developmental theory, Jean Piaget, clarifies that when students work together, the conflict of socio-cognitive will appear and produce a cognitive disequilibrium. The cognitive disequilibrium will be able to improve students' ability to think logically and speak. The theory of cognitive gives emphasis to the effect of the cooperation (the group works to get a common goal or not). The cognitive development described by Piaget is a process of intellectual adaptation which conducts scheme, assimilation, accommodation, and equilibration. Scheme is a process of integrating new information into cognitive structure which has been owned by assimilation individual. Accommodation is a process of cognitive structure adaptation into new situation. Equilibration is self – arrangement mechanically to control the balance of assimilation and accommodation process.

There are some differences of the cognitive theory divided into main categories, such as development theory and cognitive elaboration theory.

#### **a. Development Theory**

The basic assumption of development is the interaction among students which relates to their tasks properly to improve their control of critical

concept (Damon, 1984; Murray, 1982). Piaget (1926) says that the knowledge of social – language instrument, values, regulation, and system of symbols (such as reading and math) can be learned in interaction with other people.

Related to Piaget's statement above, his followers (Damon, 1984; Murray, 1982; Wadsworth, 1984) proclaim to improve the use of cooperative activities in all of schools. The reason is interaction among students in learning activities will be well – held naturally to improve their academic achievement. The students will learn each other because they discuss about material content, cognitive conflict, and unreason opinion. Moreover, understanding of higher quality of something will appear.

#### **a. Cognitive Elaboration Theory**

The Cognitive Elaboration theory is different from elaboration in the point of view of development. One of the ways of effective elaboration is students explain the material to other students in a group. The research of peer learning has found some benefits of achievement received by teacher and also students. Recently, Donald Darsereau and friends have found some benefits of cooperation that the students who work cooperatively are better than students who work individually in understanding the materials.

On the other way, Lev Vygotsky has difference opinion of both actual development and development potential in students. Actual development is students without adult people. Meanwhile, in potential development, students can do something, and solve the problem with adult people's help or peer tutoring. He says that

learning happens if the students work or study in the zone of proximal development. It is a gap between actual development and potential development where the students can do something without some helps from someone else (adult people or peer) or they need them to solve their problems.

Zone of proximal development emphasizes on social interaction, the social interaction can make students' development easier, when the students do their task at school by their self, and their development perhaps will run slowly. For the maximum development, the students should work together (peer tutoring) in solving the complex problem to improve their cognitive aspects. It is the teachers' task to create good learning situations through cooperative group (cooperative learning) to help their students getting good academic achievements.

## **C. Conclusion**

All students have a will in getting good academic achievements. The teacher should facilitate them by applying the best learning teaching method to build their good cognitive aspect to get the academic achievement. Cooperative learning is one of the methods where students work together and help each other in a small group to accomplish a common goal. Through good interaction, the students can improve their cognitive aspect through interaction in cooperative learning.

## Bibliography

Gunawan, Bakti. 2012. *Penerapan Teori Belajar Vygotsky dalam Interaksi Belajar Mengajar*. <http://edukasi.kompasiana.com/2012/01/31/penerapan-teori-belajar-vygotsky-dalam-interaksi-belajar-mengajar> accessed on March 3<sup>rd</sup> 2013

<http://edukasi.kompasiana.com/2011/03/12/teori-perkembangan-kognitif-jean-piaget-dan-implementasinya-dalam-pendidikan-346946.html> accessed on March 3<sup>rd</sup> 2013

Huda, Miftahul. 2012. *Cooperative Learning*. Yogyakarta: Pustaka Pelajar

Johnson, W. David, Roger T. Johnson, Edythe Johnson Holubec. *Basic Elements of Cooperative Learning*. <http://www.csudh.edu/dearhabermas/cooplrn.html> accessed on March 3<sup>rd</sup> 2013

Oxford Learners' Pocket Dictionary (fourth edition). 2011. Oxford: University Press

Pramudyawardhani, S. R. 2010. *Developing Language Skills\_Listening, Speaking, Reading, and Writing\_ through Songs*. Bumiayu: STKIP Islam Bumiayu

Suprijono, Agus. 2010. *Cooperative Learning (Teori and Aplikasi PAIKEM)*. Yogyakarta: Pustaka Belajar

Tanggoro, Urip. 2010. *The Speech Act of Requesting on Upin and Ipin Cartoon Movie*. Bumiayu: STKIP Islam Bumiayu

Winarto, Joko. 2011. *Teori Perkembangan Kognitif Jean Piaget dan Implementasinya dalam Pendidikan*.

Yusron, Nurlita. 2004. *Colaborative Learning*. Bandung: Nusa Media

Yusron, Nurlita. 2005. *Cooperative Learning (Teori, Riset, dan Praktek)*. Bandung: Nusa media