

Collaborative Learning: Promising Learning Model For Excelent Student Final Project

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Preliminary

Polemics about the quality of university graduates, have been growing in such a way that its final on the conditions that do not meet labor market demands. According to a survey conducted by the ACM Curriculum Task Force Systems (2001) a gap between the competence of graduates to the needs manpower capabilities in the business world. In college students conducting practicum, content mastery, systemic know-mastery, reference tools needed, and the portfolio, whereas in business or industry capability skills needed to perform communication skills, team building, systemic thinking, profesionalism, quality, role of enterprise.

World of work which is a collection of people with a background of scientific disciplines and different cultures (multicultural) needs to be addressed with good communication skills and professionalism to form a strong working team in producing an excellent product. The conditions of the world of work should be adopted in the learning process so that students will be more prepared by cultural and competence in entering the world of work.

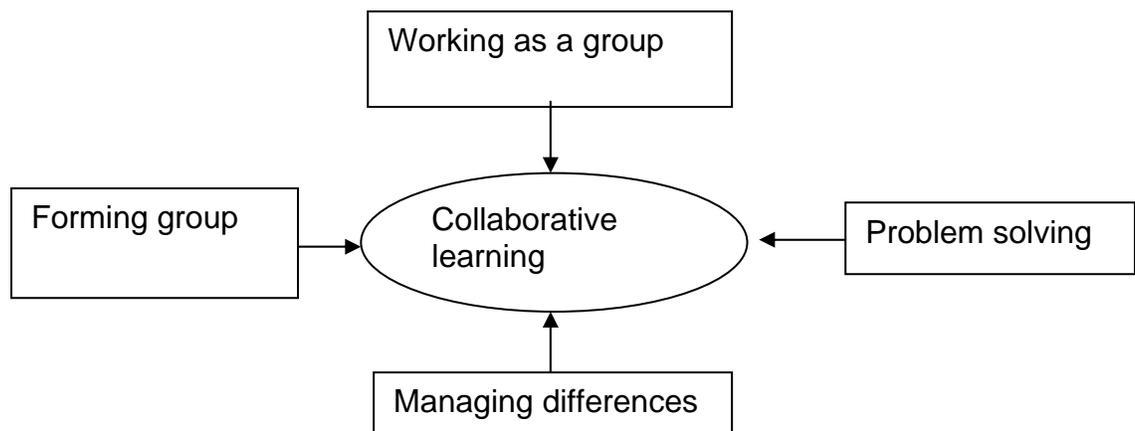
Collaborative learning

Gokhale (2004) defines "Collaborative learning refers to an instruction method in the which learners various performance levels at work are responsible for helping one another to be successful. Smith and Mac Gregor (2004) defines a "collaborative learning is an educational approach to teaching and learning That involves working group of learners togerher to solve a problem, complete a task, or create a product. Two of the definitions abouve emphasizes the

characteristics that must exist in the collaborative learning that is, the work in a group with a member difference, help each other to cooperate in solving a problem, doing a complicated job, and produce a product.

There are three theories that support collaborative learning, there are cognitive theory, social constructivism theory, and motivation theory (Smith, BL, and Mac Gregor, 2004). Cognitive theory regarding the exchange of concepts between members of the group so that the transformation of science will occur on every member. On the theory of social constructivism seen any social interaction between members which will foster individual and enhance mutual respect the opinion of all members of the group. Motivation theories applied in the structure of collaborative learning, because learning will provide a conducive environment for people to learn, adding the courage to give an opinion, and create a situation requiring mutual on all members of the group.

Susan Hill and Tim Hill (1996) explains that the skills needed by the participants of collaborative learning in illustrated in Figure 1 below:



Figurer 1 Collaborative Skills in Cohesive Classroom

Skills in group formation, generally makes it easier to do on a close friend, however, other configurations can also be done. In other situations mixed

group of students will give students the opportunity to learn to understand the various differences such as gender, culture and capability within the group.

In the skills to work in groups, students are expected to know the principles of leadership and division of labor within the group so it can work effectively. Skills to work in groups is needed in making observations, recording data, a summary, divide tasks, preparing work schedules and so on.

Problem-solving skills, these skills are indispensable in defining problems, clarifying ideas, confirmation, do the elaboration of ideas, set consequences that arise, critical of the information received, collate information and find solutions.

Differences in processing skills (managing differences) is the ability to see issues from a different perception, learning to negotiate and mediate when conflicts occur in groups, and create a consensus.

Reid (2004) asserts that there are five stages in the learning collaborative. There are Engagement, Exploration, Transformation, Presentation and Reflection.

In the engagement phase (agreements), lecturer made a deal with the students in organizing classroom activities that are collaborative. In forming groups of students on free to choose their own members in the group and the number of members in the group, however the most important group is the division of tasks resulting interdependence between members within the group.

In the exploration phase students are given the opportunity to work together without any direction from the lecturer. Lecturers only serves as a facilitator is to help students in making observations. In this phase, students had the opportunity to make predictions and hypotheses, try alternatives and discuss them with their group, record observations and ideas and make decisions. In this phase the lecture is always motivating to happen interdependence and keep the activity within the group to harmonize the interests of democratic individual and group goals.

The third phase relates to the transformation of knowledge, where students in study groups to explore the information, collate information, clarify, and elaborate, as well as learn synthesis concepts. This learning phase is very important so that the tasks to be done require discussion and contribution from all group members. At this phase is usually the most vocal members would take more of a role in the clarification and elaboration on the concept. Learning activities in this phase be sufficiently complex so as to create opportunities to transform the knowledge of fellow members in the group. In this phase, all students are expected to take part in the grouping of information, giving examples to support opinions, and there was discussion of the results of exploration. In the presentation phase of the student group is given the opportunity to present their findings to the class. In this presentation it is possible the existence of material differences in each group, for example, each group presents the parts of a plan, so that when dirangkaian will materialize a complete project plan.

The last phase in the learning activities is a reflection group. In this phase, students conducted an analysis of the findings that they have acquired in the field and inputs from the presentations. In this phase, students also identify the strengths and weaknesses of the learning process they have done, and offer each other constructive ideas of how they learn to become more effective. Reflection students can be done individually or collaboratively. Thus, five steps above should have appeared in collaborative learning.

Final Project Student FT UNY

Project final assignment is a compulsory course for students graduating Technical Faculty of Yogyakarta State University. In the course students are expected to produce a product or planning individual or group. Research conducted by Subiyono et al (2006) showed that only 20% of the final projects of students majoring in Mechanical Engineering education that can be utilized, with a design that is less attractive. However, there are 50% of the final

student projects in collaboration with the mechanical engineering and electronics department student that can be utilized with a pretty good design. Collaboration produces products machining is quite interesting, namely the variation of the controls, digital automation systems, can even produce machines with computer control (CNC). This case proves the collaboration between students majoring in mechanical engineering with electronics capable of generating machines or equipment quality and marketable.

New problems arise to calculate the cost of production and materials so that they can get a decent price, and how to market it. The problems will be easily resolved if there is also collaboration with students majoring in marketing economics, and so if the collaboration carried out also with the Educational Technology students will produce educational media equipment, educational software and other things that have value and at the same time student familiarize to synergize and produce an excellent product. Under conditions of this collaboration students are able to do interdisciplinary interaction and mutual understanding and learn to manage the differences between them to produce a quality product and needed by society.

Anuradha A. Gokhale (2004) with experiments in the study entitled Collaborative Learning Enhances Critical Thinking found that students who follow the teaching of critical thinking skills collaborative have a higher rate than students who studied individually. This is in accordance with the opinion of Vygotsky (1978) which says that the intellectual students will be formed higher in collaborative situations than the individual situation. Laure Jantii (2003) in the observation found that when students work together in a fairly complex task, they help each other, resulting in a focused dialogue, can solve a difficult problem, which can not be done individually.

Research conducted by Laurie Ann (2003) found that collaborative working groups in completing the work takes 15% longer compared to working individually, however the resulting product has a collaborative group of higher quality levels than compared to individual work. These findings indicate the

development of mutual respect and responsibility in the application of collaborative learning. The division of tasks performed in a collaborative learning makes the members of the group is more responsible for their tasks.

Conclusion

World of work is a collection of people with a multicultural background that the state needs to adopt in the learning process. Collaborative learning is very promising students to work in various disciplines to create a quality product.

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