

## Enhancing Teaching through Collaborative Learning (Poster)

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### **Abstract**

This work presents an approach to enhancing teaching through creation and use of a collaborative learning model. The first objective was to develop a collaborative learning groups (CLG) model, which creates an environment for facilitation of knowledge transfer among the students. The second objective was to integrate the model with the teaching process. It was done by formulating conditions for formation of groups stimulating collaborative knowledge building; determining model parameters; elaboration of the teaching process integrated with the proposed model. The teaching process is represented by example.

According to the proposed model CLG are formed in order to create a situation of mutual supplementation of knowledge among the students in the same or different collaborative groups. The situation causes intra-group interactions and interactions among the students from different learning groups. As a result, transfer of knowledge among students is facilitated.

CLG have to be formed in a way satisfying the following conditions:

- A. Maximal quantity of group knowledge (aggregate quantity of personal knowledge components of students in the group) in each collaborative group
- B. Maximal mutual supplementation of knowledge of students inside collaborative groups
- C. Possibility of collaboration among collaborative learning groups. Such collaboration is caused by lack of group knowledge.

The collaborative learning model is characterized by the following parameters:

- Personal knowledge of students before collaboration and after collaboration
- Size and composition of collaborative groups
- Scheme of intra-group interactions. The scheme represents transfer of necessary knowledge components among students in the group
- Scheme of inter-group interactions. The scheme represents transfer of necessary knowledge components between collaborative groups.

The collaborative learning groups model provides for facilitation of knowledge transfer, by creating an environment for maximal mutual intra-group supplementation of knowledge among students and opportunity for inter-group collaboration. The model also provides for management of intra- and inter-group collaboration and increases effectiveness of teaching and learning.

Advantages and drawbacks of the model are shown. The work suggests a simple method for measuring and evaluating outcomes of collaborative learning as well as quality and efficiency of learning a subject by each

student. The approach presents an opportunity for development of an intelligent computer tool for dynamic formation of collaborative groups and also an opportunity for detailed design of computer-supported teaching and learning technology.

**Keywords:** enhancing teaching, collaborative groups model, collaborative knowledge-building.

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