ENGAGING FACULTY IN ACTIVE/COOPERATIVE LEARNING

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Abstract - The Foundation Coalition has been providing leadership in improving engineering teaching and learning in a variety of ways, but especially in Active and Cooperative Learning (ACL). Over 1000 copies of a one-page overview of ACL have been distributed, and it seems to help faculty members get over the activation energy barrier and get started. A CD-ROM and web site (http://clte.asu.edu/active) have been created to help provide further guidance. The site offers advice from engineering faculty on preparing students for teamwork, planning lessons and activities, and managing and assessing cooperative work. It also contains content-specific lessons and activities. This paper describes a process of deepening the development of materials to help faculty engage students in active and cooperative learning. We describe the initial framing around the five essential elements of a well-structured cooperative learning activity, the negotiation process to come up with topics for further development, the back-and-forth between individual and joint work, and the use of eProject for joint work. We will present the five works-in-progress and engage the audience in reflection and discussion about our approach and ideas for reaching more faculty members.

Index Terms – Active/cooperative learning, faculty development, Foundation Coalition

INTRODUCTION

Although active/cooperative learning (ACL) has been established as an alternative pedagogy to lecture with improved results in terms of retention and learning, adoption by engineering faculty members is not widespread. Since ACL is one of the core competencies of the Foundation Coalition (FC), one of the engineering education coalitions sponsored by the National Science Foundation, FC faculty members have been creating resources that are intended to facilitate adoption of ACL.

The first resource that was created is the one-page introduction to ACL. The one-page introduction defines active learning and cooperative learning, provides brief snapshots of the research that demonstrates improved student outcomes in courses where ACL was used, and gives short guidelines for practicing ACL. It can be read in about 15-20 minutes. Over 1000 copies of the one-page introduction have been distributed in either paper or electronic form. An electronic copy may be obtained at http://www.foundationcoalition.org/publications/brochures/AQL_One_Page_Introduction_v18.pdf

The next resource that has been created is a web site (http://clte.asu.edu/active) and CD-ROM. The site and CD-ROM offer advice from engineering faculty on preparing students for teamwork, planning lessons and activities, and managing and assessing cooperative work. It also contains content-specific lessons and activities. The site and CD-ROM are intended for faculty willing and able to invest several hours in scanning, reading, and using the resources.

Resources that bridged the gap between the one-page introduction and the web site/CD-ROM seemed to be a natural next step. The five authors volunteered to construct these resources. Initially, they thought to construct five mini-documents, each focused on one of the five elements of cooperative learning: positive interdependence, individual accountability, promotive interaction, teamwork and social skills, and group processing. However, when the group met face-to-face for a full day and considered the possibilities, they decided on a very different approach. The new approach was to develop materials at different places in the transition to more active and cooperative learning. They decided to work on the following five mini-documents:

- Interactive lectures: how to get a teacher started, advance organizer, attention span, good questions, encouraging participation, CAT, sample structures
- Roles of positive interdependence, individual accountability, and promotive interaction
- Building team skills: skills for effective teamwork, getting a team off to a good start and then improving, high performance team/synergy; group processing; social/teamwork skills
- Teams in virtual environments
- Problem-based cooperative learning

Sharing five documents all in different states of progress among five different authors seemed daunting. So the team agreed to collaboratively work on the documents using the resources provided by eproject.com, a web site that provides support for collaborative interaction.

In this session we will provide the current drafts of the five mini-documents for review and comment. We will also summarize the process we are using for producing these documents, and invite the participants to suggest the next generation of Active/Cooperative learning materials.

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