Active Learning - Engagement through Practice

Imagine...

After administering a brief survey to one of her classes, a faculty member sits reading through various comments written by the students. One student wrote, “The only thing we ever do is take notes and sit in lecture. This class is boring!” A second student commented, “The topics are interesting, but how do they apply to the real world?” Finally a third student commented, “Use more visual aids.” Upon going through each evaluation and weighing all the comments, the instructor decides it’s time for a change in her approach. She decides to add an in-class project that will involve the students running several panel discussions on relevant topics along with another project that has groups create poster presentations on randomly assigned topics.

This faculty member has decided to include active learning in her teaching repertoire. She has realized that her students were craving meaningful experiences that will provide them with knowledge they can use in the real world. The following is a brief description of what active learning is and how some have applied it in their classrooms.

So what is active learning?

Active learning for the purposes of the National Case Study on Learner Centered Teaching was defined as “well designed (classroom) activities that engage students to think at higher levels.” These activities often involve cooperative and collaborative learning that leads to discussion and the processing of content at higher levels of thinking. Many times these tasks include analysis, synthesis, and evaluation. The main goal of active learning is to increase the involvement and activity level of the student while providing them with a purposeful experience.

The following are examples of active learning from the project which fit into the above definition. All of these techniques come from exemplary professors who participated the National Case Study on Learner Centered Teaching, and strive to create experiences that are meaningful. Each professor has their own variations on active learning methods, yet has managed to come up with activities that yield positive results.

Dr. Richard Alldredge, a professor teaching Introductory Statistics at the University of Washington, uses lab projects and cooperative learning to incorporate active learning into his curriculum. The following are a few examples of how he does this: A three part project where the students collect, analyze, summarize, and present statistical data in reports;
collaboration between his students and researchers to provide real world examples of data collection and analysis; use of video clips and in-class group exercises to illustrate various applications of statistics.

In her Water Quality Engineering course, Dr. Ann Kenimer uses active learning in the form of problem based activities. She has her students determine factors related to equations in the curriculum and then uses to those factors to highlight the process used to solve the equation. Along with this, Dr. Kenimer uses group and individual activities to encourage the use of brainstorming and trouble shooting for the synthesis of information. At times, she utilizes strategies that allow students to collaborate by sharing information so that they can generate conclusions.

Dr. Nancy Markee of the University of Nevada- Reno has multiple active learning techniques to motivate her students and give depth to their learning experience. Often, she uses spreadsheets and written works to bring relevant topics about the environment of Nevada into the forefront of her students’ minds. Dr. Markee assigns group projects to make students evaluate the environmental platforms of the political parties in the United States and to have them prepare for one side of a formal debate on an assigned environmental issue.

For his Experiential Learning in Agriculture course, Dr. Gary Moore of North Carolina State University creates a learning experience based on the story of a fictitious high school student’s Supervised Agricultural Experience program. The students work in groups to solve SAE record keeping problems, role playing scenarios that can arise with such a project, and identifying curtail portions of SAE observations. Furthermore, Dr. Moore uses a three-stage exam format in his course. Each multiple choice item is worth six points and the students gain the total point for each question spread out over the various stages. In the first stage, students gain points as individuals. In the second stage they, can work in a group to earn a couple more points per question. Finally, they complete the exam as a class and gain a final point per item. Dr. Moore also uses an electronic hand-held responder system to create an atmosphere of competition and give an added edge to the experience.

Idea from the Field: A Technique Summary

- Projects where the students collect, analyze, summarize, and present data
- Collaboration between students and researchers
- Use of video clips
- In-class group exercises to illustrate various applications
- Problem based activities
- Group and individual activities to encourage brainstorming and trouble shooting
- Use of spreadsheets and written works to bring up relevant topics
- Formal debates
- Role playing scenarios
- Exam formats that not only allow for individual effort, but also group collaboration
- An electronic hand-held responder system used to create an atmosphere of competition
A common characteristic all these techniques have is that they promote student activity and involvement in learning. Also, the activities and projects listed attempt to engage students in experiences relevant to the course topic and real life experiences. The above professors worked to develop activities that utilized active learning to create this type of meaningful experience for their students. The professors felt their methods used in the classroom needed to go beyond the normal lecture format and so they came up with innovative and practical ways to actively engage students in their courses.