This article offers several examples of research based active learning methods for use in face to face classes. According to the author, lecture remains the most common approach to instruction in higher education, despite the fact that it creates a passive learning environment in which students are often disengaged. While lecture has some advantages in that it is efficient and gives the instructor a sense of control over the class, research has shown repeatedly that it produces lower levels of learning than does active learning.

In order to effectively implement active learning, Millis suggests that it is helpful to define the approach. A large number of definitions have been presented in the literature, but almost all of these include certain key terms. Most prominently, the research characterizes active learning as learning in which students are “doing” and “reflecting.” The research also suggests that there are four common elements to active learning approaches: critical thinking; individual responsibility for learning; involvement in open-ended activities; organization of learning activities by the instructor.

After offering a definition for active learning developed from a review of the literature, Millis discusses its advantages and offers some suggestions for implementing this approach in the classroom. Rather than just assume that students will gladly accept and engage in active learning, Millis cautions that instructors need to explain the rationale behind and advantages of active learning. This “transparent teaching” should also include a broader discussion of the instructors teaching philosophy and the “motives and methods for specific activities and assignments.” Additionally, effective active learning requires that the instructor create an intellectual, social, cultural, and physical environment conducive to student interaction and engagement.

In the remainder of the article Millis provides six examples of collaborative active learning techniques. The first, Think Aloud Pair Problem Solve (TAPPS), pairs students together and designates one the explainer and the other questioner. At the start of the exercise, the explainer offers his or her explanation or solution to a problem or views on a question, while the questioner asks any questions that come to mind. After a designated period of time has elapsed, the students in the pair switch roles and repeat the process.
The second activity is what Millis refers to as a Three Step Interview. In this exercise the instructor poses an open-ended question based on the content being covered that day. In the first step of the interview process one of the students interviews the other in order to attain his or her views on or answer to the question. In the second step the students in the pair switch roles. In the final step of the process, two pairs join together and each pair takes turns introducing their ideas to the students from the other pair.

The next two techniques discussed by Millis are fairly common: Think-Pair-Share and Visible Quiz. Think-Pair Share requires little description, as most instructors are familiar with it, but ultimately it involves a process by which a question or problem is considered by students sequentially individually, in pairs, and then as a whole class. The Visible Quiz technique essentially amounts to a group form of class voting. Students are put into groups, given a question or problem to solve, and then asked to raise a color-coded index card based on their selection of a multiple choice set of answers when the professors instruct them to do so. The process facilitates collaborative problem solving and allows the instructor to do immediate assessment and feedback in a low to no-stakes context.

Millis refers to the fifth example of active learning techniques as a Value Line. The Value Line allows instructors to assess students’ opinions on a questions or problem in a “quick and visible” manner, and has the added benefit of getting students up and moving. The process begins with the professor asking a question and then, after allowing time for students to form an opinion based on a 5 point Likert scale, asks the students to physically arrange themselves in a line organized by numerical value of their responses. Once the students have arranged themselves, the instructor forms heterogeneous groups (from students with differing numerical responses) to discuss the question.

The final technique preview by Millis is what she refers to as Send/Pass a Problem. At the start of the technique the instructor divides the class into groups and assigns or lets them choose (she isn’t clear on this part) a problem or question to consider. After an allotted amount of time, each group writes its response to the question, places the response in an envelope, and passes the envelope to another group. Each group then discusses the question considered by the group that passed them the envelope without examining the response contained in the envelope. After the second group has written its response to the new question that it received, it passes the envelope, now with the responses of two groups, to a third group of students. In the final step of the process, the student groups read the responses in the envelope that it has and synthesizes the ideas contained therein. Alternatively, the final group review could be tasked with selecting what it deems to be the best response presented by the preceding two groups.
Applications

The bulk of this article offers readily applicable active learning techniques for deployment in the class. While some of the techniques discussed by Millis, such Think-Pair-Share, may not be new to faculty, or particularly innovative, they are all nonetheless active, collaborative, and easy to apply. It is also worth noting that Millis did not describe several of the techniques particularly clearly. Especially true in this regard were the Value Line and Send/Pass a Problem techniques. As such, instructors who find these techniques interesting may want to further research them.

Citations of Interest


