Teaching Methods

Formed "teams" or "discussion groups" to facilitate learning

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Why this Teaching Method Matters

Learning is enhanced when the material to be learned is thought about deeply and also when related material is retrieved from memory and associated with the new material. When students have an opportunity to work together to learn course content, particularly when applying that material to a new challenge, both deep thinking and retrieval of associated materials are realized. Active and collaborative learning are regularly discussed in the literature, and when done well few debate their value in terms of impact on student learning (1, 2). Although some students resist anything that even resembles group work, most students understand the value of working in teams or in discussion groups. Responses from students indicate that they learn when they "reflect, dialogue, question, write, summarize, and create their own knowledge" (3).

Nelson (4) argues that courses taught by the traditional lecture are actually biased against those students who come to our classes without strong preparatory training. Even those with strong preparatory training frequently benefit from working in teams or groups. For example, one study incorporating structured peer group/team work resulted in a reduction of D or F grades for African American students from 60% to 4%. Following the incorporation of teams, not only were there fewer grades of D and F, but students from ethnic groups who had previously struggled also had exam scores similar to other students (5). It is important to keep in mind that the failure to require students to work in teams or groups may result in a loss of educational opportunities, particularly for students in underrepresented groups.

Overall, scholarly work consistently shows that working in groups and teams is a benefit to all students because this pedagogical approach emphasizes sound principles of learning and memory. Angelo and Cross (6) discuss a case of a calculus instructor who began to require students to discuss their homework problem-solving strategies with classmates. In addition to improved student grades and an increase in his own enthusiasm for the subject, the instructor reported passing every single student for the first time in 30 years.

IDEA Item #5 correlates most strongly with IDEA items #14 (involved students in hands-on projects such as research, case studies, or real-life activities), #16 (asked students to share ideas and experiences with others whose backgrounds and viewpoints differ from their own), and #18 (asked students to help each other understand ideas or concepts). As expected, this item correlates very strongly with IDEA learning objective #25 (acquiring skills in working with others)..

Applying this Teaching Method in the Classroom

There are many ways to incorporate discussion groups or teams into the course, including think-pair-share, team-learning, problem-based learning, case-based learning, jigsaw method, simulations, gaming, and service-learning (7, 8). These techniques differ from one another, but all are valuable in promoting good learning opportunities. The primary consideration in choosing a specific approach is the learning objective you are pursuing. For example, the think-pair-share process is a very effective technique for increasing communication among students and for having students learn concepts from one another. The jigsaw method increases both cooperation and an appreciation for the value of interdependence. Problem-based learning requires students to work through real-life applications and demonstrates that many problems have multiple solutions. Ser-

vice-learning shows how specific content within a course may be applied to directly benefit society. A benefit to all these methods is the instilling of cooperation and loyalty among team members.

The following hints provide a foundation for the effective use of discussions or teamwork.

Present good scenarios; ask good questions. To ask students to work together to discuss relatively easy knowledge-based questions will typically result in a simple division of labor without any meaningful discussion. The issue or problem should challenge the groups and demonstrate that there are no easy answers within the area of study.

Be clear about expectations. Some group tasks are ill-defined; others have a more specific structure. Regardless of process, the concept of the task and the expected outcome should be understood by all before beginning.

Monitor progress as appropriate. In some cases this will mean remaining in the room and listening in on groups as they work. For other assignments, monitoring progress might mean checking in periodically to ensure the group is on schedule and also to address any challenges they are facing. Be prepared for confusion at times and assist with clarifying procedural points.

Be willing to adjust. Group and team work introduces additional uncertainty into the course, which is very good at times, but may also take the group in unproductive ways that will greatly hurt the final product. Therefore, be ready to get groups back on task if they stray from the essence of the task at hand.

Monitor input from yourself carefully. Ask questions of the groups as they proceed, but be careful NOT to be drawn into the discussion. The "effortful" part of group work is their work to do.

Make the groups accountable for their results. They may hand in a summary of the problem or "report out" to the entire class, depending on the size of your class and the amount of time you have available. You could certainly also have one or two groups report out and all turn in a summary. The point is they must document work accomplished. Without accountability groups quickly learn they can get by without doing the work.

Applying this Teaching Method Online

With the increase in the use of course management systems such as Blackboard and Sakai, keep in mind there are several methods by which an instructor can set up on-line discussion groups and team projects. Those have the added benefit of allowing students to work together from their own homes.

Building community in a course cohort is a foundational principle in learning. Creating a community of inquiry is a fundamental aspect of building trust and open sharing among students. Contrary to the expectations of many traditional faculty members, scholarly work is demonstrating that communities are often stronger in online courses than in face-to-face courses (9).

There is a great deal of information readily available regarding how to incorporate group work into an online course (10). As with face-to-face courses, it is important to explain to the students the value of group work. It is also important to structure the group assignment well. The "divide and conquer" approach to group work, which rarely serves student learning well, is often very easy to implement in online contexts, so be sure your assignments require deeper levels of engagement. And online group work, perhaps even more so than group work in face-to-face classrooms, benefits from having clear deliverables by students.

In using groups in an online course it is particularly important to keep the following in mind:

1. Will the infrastructure support the online group work? Talk to colleagues and IT professionals about what you have in mind to be sure the campus networking system will do what you want to do. Many course management systems make group work surprisingly simple; others make it surprisingly difficult. You may need to consider using Web tools other than your local course management system, and these tools may require more support from IT professionals. Ask before you assign.
2. What type of group communication will be expected? Groups can "meet" in real time or asynchronously. They might communicate in writing through text chat or discussion boards or notes attached to collaboratively authored documents. Students might interact with each other through audio or video chat. Of course, you may advocate for a combination of these methods for your groups.
3. What is the output and how will it be shared? Will you ask for text documents, presentations, portfolios, videos, or some other product? Many online docu-

ment creation tools allow for multiple authors and editors, facilitating the use of these kinds of group deliverables. (See (11) for an example.) Will student work be shared only with you, with other students in the course, or on the open Web? Overall, how will your groups share what they have accomplished?

Given the three considerations noted above, when using groups or teams in an online course there are a few things you can do to help increase the probability of success. First, assist the students in building a framework for the material to be used in the groups. An online discussion of key concepts is one way to put everyone in a similar cognitive frame. As with all online activities, it is often helpful to review net etiquette and even have a chat about how best to establish roles for each member of the group and also strategies for working as an online team. Finally, make it clear how the project will be assessed. Working online brings about brand new ways of thinking about how group work will be completed and also what form the final product may take. As a result, it is a good idea to check in with groups to see how things are progressing. This will not only help the groups to stay on track, but also assist you with knowing what form final products will take and therefore be ready to assess the projects.

Assessing this Teaching Method

There are many ways to document the value of using the team or discussion group approach. One is to simply ask students to describe their learning. A second is to compare the level of work completed by individual students following discussion or teamwork compared to previous semesters when material was presented primarily by lecture. If you have multiple sections of a course, you could also teach one using the traditional lecture methods, teach a second by some form of discussion, and then compare outcomes. Finally, there are a number of assessment methods such as the memory matrix, muddiest point, concept maps, and directed paraphrasing outlined by Angelo and Cross (6) that would be appropriate to assess group learning.

There is a growing body of research demonstrating the value of teamwork and discussion groups in class. Collecting evidence of the value of this approach will allow you to fine-tune your teaching strategies, demonstrate to your students that you care about their learning, and document that what you are doing in the classroom is leading to meaningful student learning.

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