The Lure of Lectures Vs. The Call of Cooperative Learning In College Classrooms

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Abstract

Cooperative learning, once common on college campuses, lost favor with that population, and gained favor with K-12 educators. However, the academic achievement benefits remain and the focus on cooperation rather than competition appeals to adults. This manuscript argues that cooperative learning strategies are viable alternatives to the traditional lecture format that is worth considering. Whether the strategies occur throughout the entire class period or interspersed with a traditional format, the students benefit. The author explains how she uses cooperative strategies, interspersed with traditional format in a post-secondary setting.

Introduction

For centuries, students listened to lectures consisting of long organized orations designed to flow logically from point to point. Learners of old, generally accustomed to hearing, rather than reading, new information, were perhaps more orientated toward auditory learning. However, after the invention of the movable type printing press in the 1400s, textual materials slowly began to supplement traditional auditory instructional delivery styles. By gradually infusing printed materials into the hands of the masses, learners began using textual sources rather than relying exclusively on the spoken word. Thus students gradually oriented to a mix of visual and auditory learning, rather than strictly auditory instruction. Modern-day television and computer presentations brought sight and sound together in ways unimagined by pre-20th century teachers.

Today's typical college student expects to have courses delivered primarily in a lecture format. However, students in large classes rarely ask questions about lecture material, or stop the instructor to ask for clarification, and seldom see or manipulate materials. Lectures are slower-paced, due to the mechanics of note taking. Because lectures are primarily auditory, learners whose primary learning style is auditory learn very well, but those learners who learn best by visual or kinesthetic means must struggle.

Today's college professors might assume that all students can learn via auditory means. Gardner, (1993) points out the inaccurately of this assumption. College lectures are based on erroneous information and poor androgogy saying that all students are alike and that all need the same thing (Johnson, Johnson, & Smith, 1991). Students watching and listening but not interacting with the material, learn less effectively, nevertheless, the lecture remains the staple of postsecondary education (Ediger, 2001; Murry & Murry, 1992). Faculty in schools and colleges of education instruct aspiring K-12 educators in teaching styles that address the needs of visual, kinesthetic, and auditory learners. The same principles apply to college teaching.

The Lecture as an Information Delivery Style

Lectures consist primarily of oral presentations, note taking, and later recitations by students. They 1) consist of material to which the student may or may not have access, 2) allow an instructor to transmit a large amount of factual knowledge in a short time, 3) are rarely interactive, 4) often occur as monologues covering abstract material, 5) give an overview of an upcoming topic, and/or 6) demonstrate a process of thinking, but not offer or change an attitude. College lectures occur frequently in larger classes where the configuration of space makes small group work difficult or in introductory courses where substantial numbers of students enroll to gain necessary credits before advancing to upper-division coursework (Johnson, et. al, 1991).

A problem with lectures is that students' initial interest level is high, but within ten minutes it begins to drop, therefore, note taking and retention of the material suffer. This is especially true if the lecturer speaks in a monotonous manner, or the material is complex. Lectures used in conjunction with other media, interspersed with student-to-student interactions, or lasting only ten to fifteen minutes maintain student attention longer (Johnson, et. al 1991).

Few college professors have any training in lecture methodology (Brinkley, Dessants, Flamm, Fleming, Forcey, & Rothchild, 1999). Professors walk into the college classroom, dispense information, test students, and assign grades. Too often graduate teaching assistants must support undergraduate students by conducting small group study sessions. Instructors often teach as *their* college teachers taught because humans tend to teach as our most recent role models taught, thus perpetuating the lecture methodology, and marginalizing kinesthetic and visual learners.

Alternatives

Professors accustomed to depositing, or pouring in, the facts and then extracting information from the students through written papers or tests, may be reluctant to give up control of their students' learning. A switch from a teacher centered, or banking model (Freire, 1985), such as a traditional lecture, to a constructivist or student centered approach is hard for professors accustomed to lecturing.

This manuscript offers two alternatives to the traditional lecture format: 1) cooperative learning strategies and 2) an interactive lecture presentation. Both are easy to accomplish, require students' active participation, and offer a change of pace for the instructor and the students. Neither strategy need be employed continuously especially when the instructor begins to experiment.

Cooperative learning

University instructors unsure of cooperative learning's definition or utility with college students need only look to research completed during the past 90 years to study its usefulness in terms of academic achievement and the acquisition of social skills. Work involving cooperation and competition by psychologists Morton Deutsch and Kurt Lewin laid the foundation upon which the early studies built (Johnson, Johnson, & Smith 1998). Later work by Slavin (1993), Sharan and Sharan (1994), Kagan (1995), Cohen (1994) Johnson, Johnson, and Smith (1998), to name just a few, added to the wealth of available research.

Johnson, Johnson, and Smith (1998) assert that cooperative learning is suitable for college students. They found that students must learn to cooperate because today's students traditionally come from a background where cooperation within the family unit is not as important for survival as it once was (i.e., in an agrarian society). The corporate world values cooperation, hence cooperative learning is a valuable learning structure.

Some students view cooperative learning, sometimes confused with traditional group work or informal study groups created by students, with a dose of skepticism. This is often from higher-achieving college students or those with type-A personalities who express discomfort with group work if they remember bad experiences with such activities in a P-12 classroom. A general trend among this particular group of adults is to do all of the work for which they receive a grade, alone, and are reluctant to trust someone else with their scores.

A common misconception held by students and instructors implies that group work wastes valuable class time (Ediger, 2001). According to a metaanalysis of nearly 400 studies over the past 90 years conducted by Johnson, Johnson, and Holubec (1994), cooperative learning increases student achievement and retention.

According to Johnson, et. al (1994), cooperative learning has a number of attributes that distinguish it from traditional group work. Cooperative learning activities might be loosely structured and teachers can add more as they become comfortable. They make the following distinctions about cooperative learning.

1. *Positive interdependence*. They see this as specific, unique responsibilities assigned to each member of the team. Members of cooperative learning groups assume interdependent roles vital to the success of the particular group. The cooperative activity is greater than the sum of the parts and each part is necessary for the whole.

2. *Individual accountability*. This vital step holds students individually responsible for material learned during the cooperative learning event eliminates the "free rides" (Joyce, 1999) associated with the assessment aspect of traditional group projects. The accountability can extend to individual grades rather than group grades, which tend to be unfair (Kagan, 1995).

3. *Heterogeneous group membership*. Left alone, humans tend to group themselves according to gender, race, ethnicity, or other perceived qualities. This may not be the most appropriate grouping for the instructor's intended purpose, therefore multicultural groups based upon a number of descriptors could be created.

4. *Shared leadership.* Some leaders learn to lead earlier and more effectively than others. Cooperative learning encourages members to develop these skills.

5. *Group members are responsible for each other.* Students promote the successes of each other by encouraging words and use culturally responsive communication techniques. Group members scaffold and encourage each other, and the finished product depends upon the contributions of all members. Students who hold each other accountable, generally do not want to disappoint their teammates; consequently, peer communication and acceptance improve during cooperative meetings.

6. *Directly taught social skills*. This might more appropriate for a K-12 setting than a university campus, but nonetheless, an attribute. Adults generally understand the conventions of a debate, discussion, and sharing materials, though some clarification may be necessary.

7. *Monitoring and direct intervention of the teacher*. The instructor monitors the groups and offers suggestion or redirects the students as needed. Instructors might circulate around the room as students work or be available via internet or office hours during times students work.

8. *Group processing*. An oral or written debriefing (Johnson, et. al, 1994), at the end of the cooperative learning event completes the cooperative activity. Students *confidentially* indicate to the instructor the successes or failure of other group members. Many college students are unlikely to want another student influencing their grades – especially if they experienced traditional group projects where group grades are the norm. Group processing allows the groups to indicate to the professor, confidentially, if someone did not participate fully or did not contribute a fair share.

<u>A cooperative project gone bad</u>

This author used a cooperative strategy with a particular project that took undergraduate students several weeks to complete. On the morning the assignment was due, several students called to explain about a group member who did not complete his assigned part for the group's project. The author assured each caller that *that* student's lack of effort would not reflect badly on the caller's grade. The student who did not contribute part of the project failed the assignment, but the other three students in that group received grades indicative of their work. Rubrics help judge each student fairly and individually based on his or her contribution to the group. The group processing component allows the teacher to get feedback from group members about each group member's participation especially when students must work in locations outside the classroom. Thus reminded, each caller expressed relief.

<u>Cooperative learning with college students</u>

An old Chinese proverb says, "I hear and I forget, I see and I remember, I do and I understand." Cooperative learning, grounded in constructivist principles, represents a method of teaching that encourages students' active and engaged participation in their education. Constructivists such as Dewey and Vygotsky helped us understand the need for hands-on construction of knowledge for learners of all ages. Such a change in focus from the instructor to the student encourages peer-led discussions whereby students begin to create their knowledge based on previous experiences and knowledge (Perkins, 1999). Constructivism challenges students to use prior knowledge in new ways to generate cognition and understanding.

Potthast (1999) used a series of four cooperative learning strategies in a college level statistics course and found a greater atmosphere of cooperation, rather than competition, among his students and better communication with the instructor. Lindquist (1997) introduced cooperative learning to fellow professors in hopes that his colleagues would become familiar with, and be open to using, cooperative learning with their students.

This author thinks group processing is the key to cooperative learning in the college classroom. At the end of the formal cooperative learning projects, the author asks each student to submit several paragraphs stating who was responsible for what part(s) of the project, how well the group worked together, and what each thought of the cooperative learning activity. Sometimes additional questions are included, but these are the basics. By incorporating cooperative strategies into courses, this author hopes that preservice teachers will internalize cooperative learning and use it in their future classrooms. This author spends time each semester teaching graduate and undergraduate students about cooperative learning by using cooperative learning as the teaching technique. Through modeling and lively class discussions, students delineate and accentuate cooperative learning theory and practice.

These strategies can be adapted to any content area, but this author happens to be a generalist who teaches foundational coursework to preservice teachers. Teacher education students must know and understand what teaching strategies work in a P-12 classroom. In this author's experience, some teacher educators demonstrate and explain various teaching techniques and assign students to write lesson plans corresponding to the particular technique discussed, as a way to encourage students to learn the strategy. In other words, they lecture. It is this author's opinion that efforts to internalize cooperative learning strategies in the minds of preservice teachers in such a way are doomed to fail. This author thinks that in order for preservice teachers to learn to use cooperative learning strategies effectively, they must experience them often and personally.

It is important to highlight the differences between traditional group work and cooperative learning, and between formal and informal cooperative learning strategies. Formal strategies are those that last from one class period to several weeks. Informal cooperative learning activities are short periods of activity interspersed within lectures that provide a means for students to process information. Informal cooperative learning structures are those that last only a few minutes and may not contain the components of interdependence, accountability, and group processing (Johnson, Johnson, & Holubec, 1994).

Formal cooperative learning strategies.

Kagan (1985) created a formal structure, called Co Op-Co Op, for the college classroom. Groups of students become experts in a particular topic or a specific aspect of a topic, research it, and then teach the information to their classmates. The professor retains the right to include additional material or clarify any aspect after the students' instruction. All students in the class can be accountable for material from each presentation.

Jigsaw (Slavin, 1983) invites students to investigate the uses of cooperative learning with specific content areas. Using this strategy the instructor forms base groups (i.e., four groups with members labeled ABCD, ABCD, ABCD, and ABCD). Base groups initially separate to form four expert groups (in this example, four groups: AAAA, BBBB, CCCC, and DDDD) where all team members study their assigned aspect of the topic and decide what points covered in the material that they will teach their respective base group members. Base groups reassemble and each person teaches his or her teammates the information learned in their respective expert groups.

An abbreviated example of this strategy occurs in my graduate and undergraduate courses. While this procedure could last a week in a traditional public school classroom or perhaps longer in a university setting, I accelerate the process by providing the materials and with abbreviated timeframes and assignments so they can see this process in about 90-120 minutes. The unabridged version fits easily into a university setting.

First, I create four questions for students to answer (Table 1). In this instance, all questions pertain to the use of cooperative learning in a variety of academic contexts and issues concerning its use, thus letting one activity serve two objectives. I share textual resources from my personal collection relative to the four questions. Students read the selected material and take notes. The students do not retain the physical copies, but may note the sources and access the information electronically or purchase the texts on their own. Alternatively, students could research the assigned topic at a public or campus library if given appropriate time.

Table 1

Individual Accountability

Provide a short written answer to each of the following.

1. List and describe the essential components of cooperative learning.
2. What is important to know about using cooperative learning with specific populations?
3. How and why do P-12 teachers use cooperative learning?
4. Discuss issues surrounding grading.

Next, I assign students into their base groups. This step provides an opportunity to discuss and help teacher candidates to distinguish between random and purposeful grouping strategies. Next, students move to their expert groups to read and discuss information about their assigned aspect(s) of cooperative learning. While in their expert groups, students select three to five points to later share with their base groups.

When the students return to their base groups, each student, in turn, discusses newfound information and insights with the other members. Discussions in each base group reflect points made in the respective expert groups. Students then answer the four questions – one pertaining to each of the four discussions. Theoretically, each student must be able to write the *four answers* although they read information pertaining to *only one* with their expert groups. The other information comes from peers, thus displaying the components of individual accountability and positive interdependence.

As a way of group processing, I instruct my students to write several paragraphs articulating who discussed which question in their base group, how well their group worked together, what they thought about the exercise, and what they learned about cooperative learning (Table 2). Group processing could also be a chart that group members complete indicating the same to the teacher. A formal chart would likely be more useful in a K-6 classroom. I choose to ask the students to write several paragraphs because this seems more appealing to university students and would likely appeal to middle and high school students, as well. In any case, the communication is confidential and between the student and teacher.

Table 2

Sample questions asked of students as a way of group processing. When you are finished and before leaving this room, privately write several paragraphs telling your instructor: 1. Who in your group was responsible for which questions? 2. Did everyone share useful information? This is very important and no one, except your instructor, will see this information. Since your individual grade depends in part on everyone working together and some folks (no one in this group) like to slack off, it is not fair to penalize those who completed their part of the activity as instructed. 3. How well did your group worked together? Were there any problems? 4. What did you think of this cooperative learning activity?

The following paraphrased comments taken from undergraduate and graduate students' (initial certification program) group processing paragraphs in reference to the last three questions in Table 2.

"Now I understand cooperative learning."

"Our group worked well together."

"I want to use this strategy with my future classes."

"Each member seemed to know what they were talking about."

"We displayed teamwork."

"We worked together pretty well. There were no major conflicts."

"We learned to value the diversity in our classroom."

"We respected each other enough to disagree"

"At first it seemed confusing, but once we started, it went smoothly."

"It successfully pulled our [cooperative learning] chapter together."

"Everyone took their responsibilities seriously."

Later, students create their own lesson plans using any cooperative learning strategy that we discuss in class or that they read about and I see noticeable improvements over lesson plans created by previous students who did not experience cooperative learning first hand.

Interactive lectures

The second alternative offered by this manuscript is that of an interactive lecture. An interactive lecture is one in which the instructional focus continually shifts between the instructor and the students at fairly regular intervals. Interactive lectures stimulate thinking and involve students who might discuss their understanding of, or personal experiences with, the material at hand. Interactive segments might include questioning at all levels of Bloom's Taxonomy, focused discussions, or informal cooperative learning activities.

The alternating focus of interactive lectures allow the professor to provide information via a short lecture, and then encourages the students to process the new information using hands on, discussion, writing, or other interactive techniques before moving to the next segment. During this brief processing period, students might answer specific questions or complete a specific task. Writing reflective notes at the end of the activity adds another layer of thought processing to the students' learning. This pattern continues through the class period until the end, at which time the professor closes with a short class discussion that reiterates the covered material (Johnson, et. al, 1991). Cooperative learning strategies used in conjunction with interactive lectures provide an environment designed to keep students focused, attentive, and learning.

<u>Informal strategies to use with interactive lectures.</u>

Think-Pair-Share (Kagan, 1989) has a place in university courses as an informal cooperative learning strategy in which the instructor asks a question of the whole class. Each student thinks of an answer and shares it with a partner. The partners, in turn, share their answers with another pair. This process creates discussion, a break from lecture, and allows for information processing. Then, the four discuss their collaborative ideas and create a response that is a consensus of the four. The instructor calls on random groups to respond, theoretically, hearing from all students. This procedure takes fewer than fifteen minutes, but provides a diversion for students and refocuses the attention of those whose minds have begun to wander. The alternating focus of this arrangement allows the professor to provide information, and then encourages the students to process the new information before moving on.

When discussing teachers as reflective practitioners, this author asks teacher education students to individually create a definition for the term "reflective practitioner." Each student shares his or her definition with a partner. The partners share their definitions with another pair. Then the group of four creates a definition based on the ideas discussed within each group. The group-created definitions grew wordier as participants debate the terms and word choices to incorporate thoughts from each of the four students. Finally, groups share their combined definitions with the whole class. Each person had a chance to have his or her voice heard as the discussions continued.

Academic controversy (Johnson, Johnson, & Smith, 1996) teaches students how to disagree without becoming disagreeable. It forces students to 1) take an issue, 2) research a particular viewpoint, 3) debate the viewpoint within a small group, 4) debate the opposing viewpoint with the same people, and 5) reach consensus within the group based on all data presented. I abbreviate the activity by using a topic about which adults would typically have knowledge, thus eliminating the need for library or Internet research time. I do not allow any of the steps to last beyond a few minutes so students can get the feel of the procedure while continuing to learn *about* cooperative learning and about several strategies.

I consciously point out when I use cooperative strategies and how the teacher candidates might use them in their future classrooms. I highlight the components and emphasize how each contributes to the current activity in hopes that the teacher candidates internalize cooperative learning methodology. My hope is that they connect the theory and practice.

Closing

Cooperative Learning is beneficial to students of all ages. Lindquist (1997) suggests that professors who become familiar with cooperative learning gain confidence and are more likely to integrate cooperative techniques in their courses.

This author posits that the same is true for preservice teachers. Evidence is in the following paraphrased student comments.

"It helps to experience a lesson before teaching it to a class."

"I can turn any lesson into a cooperative learning lesson now."

"I want to use this technique with my students."

The strategies shared above are but a drop in the proverbial bucket, but perhaps others might follow this lead and incorporate student-centered strategies in place of or in conjunction with the traditional lecture format.

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