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ABSTRACT
        Noting that literature on higher education instruction is
sparse on the topic of class and course endings, this paper provides advice
on how to successfully end individual classes and semester-long courses in
ways that maximize learning and minimize discomfort. Based on this literature
and a discussion the authors initiated through online computer mailing lists
and in "The Teaching Professor," the paper assembles a large number of ideas
for ending classes and courses. Considered first are the solutions to the
poor social dynamics between instructors and students that usually occur at
the end of class. The paper suggests student-centered activities for the end
of class such as one-minute papers, think-pair-share, KWL, and metacognition.
Second, the paper looks at ways to improve student-student interaction at the
end of class, an issue studied most by those who use cooperative learning but
one that is also relevant in traditional lecture-oriented classrooms. The
paper also considers problems at the end of a course for which there are
creative solutions that also have not been well-publicized, such as having
the students write a letter at least three months after the course or telling
the instructor "one thing they learned (in the course) which they have used."
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End on a High Note: Better Endings for Classes and Courses

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Many teachers carefully craft the beginning of a course and the start of each class session. However, often these same classes and courses end on a disappointing note. Typically, at the end of class students shuffle papers while the instructor rushes to summarize the day's work. Similar discord occurs at the end of the course when students slink out of the room after a final exam, often deliberately avoiding any farewell exchange with the instructor.

The literature on higher education instruction is surprisingly sparse on the topic of class and course endings. The sources of advice include Cross and Angelo (1988), Duffy and Jones (1995), Wagenheim and Gemmill (1994), cooperative learning advocates, Johnson, Johnson and Smith (1991) and the field of group dynamics, including Corey and Corey (1987) and Schmuck and Schmuck (1975). Based on this literature and a discussion we initiated through on-line computer mailing lists and in The Teaching Professor (1995a, 1995b), we have assembled a large number of ideas for ending classes and courses. Considered first are the solutions to the poor social dynamics between instructors and students at the end of class. Second, the paper looks at ways to improve student-student interaction at the end of class, an issue studied most by those who use cooperative learning, but also relevant in traditional lecture-oriented classrooms. Finally, the paper considers problems at the end of a course for which there are creative solutions that also have not been well-publicized.

1. Ending class--students and instructors

When instructors hint that class will end with comments such as "In conclusion," or "To wrap things up", students often start to pack up their belongings and most likely they are no longer receptive to learning. How should we respond to this unnerving experience? We might begin by being straightforward, explaining our discomfort. Are we concerned about our inability to cover content? Do we want to provide a summary at the end of class? Or, are we interested in other features of closure such as assessment of group process? Students may not be aware of what we expect at the end of class. We might ask students directly how to handle the last five minutes. Students may be reassured by a commitment from the instructor to end on time. Ira Shor suggests the simple end-of-class technique of giving students "the last word". (Shor 1992) By doing so, we reassure students that their remarks will bring the class to an end. Ted Panitz (1995) ends class by asking students to close their books in unison with a big thump, drama that allows him to make the point that if student start closing their books early, they will distract others from learning. Students may wish to convey the message that we have introduced enough new material for one session. However tempting it may be to complete a unit, rushing through

material at the end of class is counter-productive. Repeated studies suggest that students benefit when instructors cover less, focussing instead on deeper understanding. (Duffy and Jones 1995:203) As an alternative, there are a number of student-centered activities for the end of class.

One minute papers--The most well known activity is the one minute paper, popularized by Cross and Angelo in Classroom Assessment Techniques: A Handbook for Faculty. One minute papers ask students to respond to questions such as: "What was the most important thing you learned in today's class?" or "What question or questions from today's class remain unanswered?" These papers are collected by the instructor and used to assess student learning. Many instructors report eye-opening revelations about what students take away from their lectures, insights that can be used to plan the next class and for revising teaching techniques. (Barr and Tagg 1995).

Think-pair-share--The cooperative learning literature recommends the simple, yet powerful technique of think-pair-share. It is used most often in lecture classes as an opportunity for students to test their knowledge with another student. (Johnson et al 1988 and Kagan 1992) First,mstudents are asked to think individually about a question posed by the instructor. For example, the instructor might ask: "What was surprising in today's class?" Then, the instructor helps students to form teams of two in which students take turns expressing their thoughts to their partner. Next, in the share segment, pairs report their discussion to others, perhaps to other pairs, or to the whole class. Often team members report their partner's answers rather their own, a technique that promotes listening skills and avoids student fears of appearing boastful.

KWL--Another variation of short papers to end class derives from KWL, a tripartite set of questions for students: what do I know and what do I want to learn, asked at the beginning of class, and what did I learn, asked at the end of class. (Ogle 1994) Margaret E. McIntosh expands the end of class question to: "here are some things I learned in class today; here are some questions I have about the topic after today's lecture; and here are some things I don't even understand well enough to ask about." In addition to informing the instructor about how students have learned, KWL helps students to be aware of their own progress during a class,

Metacognition--The classroom assessment and cooperative learning literature both recommend that students spend time on metacognition, that is explicit attention by students to how they learned. For example, Johnson et al (1991:4-15) pose the challenge that "students do not learn from experiences that they do not reflect on." In other words, if our goal is to help students become better learners, then we need to help them process how they do so. Cross and Angelo (1988:112-4) describe a technique for metacognition during a lecture called "Punctuated lectures: Listen, Stop, Reflect, Write and Give Feedback." After a portion of the lecture, "students reflect on what they were doing during the presentation and how their behavior while listening may have helped or hindered their understanding of that information. They then write down any insights they have gained and 'feed them back' to the teacher in the form of written notes or spoken comments." Cross and Angelo report that the technique promotes active listening and self-reflective skills.

2. Ending class--student to student

A second problem identified by instructors at the end of classes is poor interaction between students. For those using collaborative learning techniques, attention to closure is important in order to maintain good working relationships within groups. Students sometimes need the instructor's permission in order to practice basic social skills such as saying good-bye and thank-you. After a few repetitions, we find that students spontaneously thank one another, suggesting that politeness is their more common habit, but one that fell out of use in the classroom social environment. Of course, instructors also may want to thank students for their cooperation, or for providing an intellectually stimulating class. A second goal of closure is to help students assess how they have worked with others. Johnson et al (1991, p.4-15) point out that "a common teaching error is to provide too brief a time for students to process the quality of their cooperation." Despite agreement in the literature that closure is critical to small group work, there are relative few techniques available, especially compared to the large number of creative ideas for helping groups to get started. Particularly effective is a 'ticket out the door,' a form that groups must complete answering questions such as: "What are the most important things we learned today? What do we still have questions about?" or process questions such as "What are three things we did to help each other learn and one thing we could do even better tomorrow?" (Johnson et al; Ledlow)

3. End of the course

In the frenzy of final examination period, the end of a course often is frustrating. (Lowman 1984:40-44) Instructors and students alike are aware primarily about what has not been learned. It is the infrequent student who turns in the final examination with a feeling of pride, and it is usually the instructor's role to explain deficiencies in the final product in order to justify a grade. More effective endings to a course will help students avoid a sense of inadequacy and to realize how much has been accomplished. There are several ways in which we can be creative with final examinations so that students document explicitly how they have changed their thinking since the beginning of the course:

1. Duffy and Jones (1995:204-5) recommend the use of portfolios to document student progress during a course, a process that helps students to see learning as a process of rethinking and revising, in particular if the portfolios are monitored throughout the semester.

2. Duffy and Jones (1995:210) also suggest that instructors use the syllabus as a tool for review: did the course fulfill the stated goals and objectives?

3. Saleh A. Ebrahim (1995) asks students to create their own flow chart in the final exam, graphing the relations between concepts learned in the course, a task that encourages students to review and synthesize the material.

4. As part of the final evaluation, Karen McComas (1995) asks students to annotate their portfolios, describing how their achievement compares with the objectives of the course.

Students might also assess goals they set for themselves at the beginning of the course compared with what they have accomplished.

1. Gary Wagenheim (1993) requires students to write these goals early in the course on the reverse side of a name card that they keep in front of them throughout the course. In addition to helping the instructor and other students learn names, the cards remind students of the goals they set. At the end of a course,

2. Ted Panitz (1995) asks students "Has your approach to math changed during this course compared to previous courses?" "What would you do differently if you had a chance to do this all over again?" His goal is tell help students think about how they approach their subsequent courses and to encourage them to make changes needed to insure future success.

3. Dean Mancina (1995) uses the ideas of David B. Ellis (1994) in which students write a letter on three-part paper at the end of course that completes the sentence "I am becoming a student who..." in ten different ways. The student keeps one copy, the instructor keeps one and the third is mailed to the student so that it arrives just before the start of the next semester. In this way students receive a "reminder of the skills they developed and commitments to change they made the prior semester."

4. Every course of study leaves some questions unanswered. Here self-awareness may help students. Randal Parker (1995) models for students the self-aware learner who makes choices about what to study--we can't do everything--and what we sacrifice in not learning a particular concept. He then asks students to reflect on the benefits and costs of not understanding a particular part of the course. We can help students celebrate what they have mastered and to specify what it is they will learn later.

If students have worked in small groups for substantial periods of time, then a more formal structure may be needed. They include:

1. Wagenheim and Gemmill (1994) ask students to write a separate letter to each group member again using sentence completion stems as a guide: "The way I experienced your behavior in the group...; and What I personally feel you contributed to the group..." The authors recommend that the letter writers "circle those things that your feel are true about you" so that students recognize the importance of projection. They point out that: "When we own our feedback (e.g., 'This is true about me and maybe it is true about you'), we usually decrease interpersonal defensiveness and increase our learning."

2. George Jacobs (1995) adds a twist to such letters, recommending that they be put in the form of a 'letter of reference' for other group members to take to their next groups.

3. Ted Panitz (1995) makes the final examination a teaching tool by asking students to take it in two stages, first, individually, and then with help from other class members. He has seen students make breakthroughs in understanding material they missed during the semester. This method of examination assesses the how well students work together to solve problems, a course goal omitted in a traditional format.

4. Henry Maier (1995) suggests an end of class technique in which the instructor describes what he or she learned, including evaluation of teaching technique used in the course and also new insights that the instructor gained about the subject material. In our experience, a semester never goes by that we don't better understand something we thought we had mastered.

4. After the course

In our last formal interaction with students in a course, we might discuss explicitly our future contacts with them. Such opportunities obviously vary in different courses and institutions, but at a minimum we can inform students about our intentions and desires. Instructors extending an invitation for students to stop for a visit after the course may want to explain that usually we do not receive enough feedback from students and that we would like to learn more about how our courses affect them. There are innovative strategies available for maintaining contact with students:

1. George M. Jacobs (1995) asks students to write a letter at least three months after the course, but no more than nine months later, telling him "one thing they learned [in the course] which they have used."

2. Carol Haussermann (1995) creates a connection between students in a course from one semester to the next by asking students to write a letter to a student who will take the same course the next semester. The letter "summarizes the material covered, topics and strategies that were worthwhile and those that caused problems and provide a general introduction to the course." The letters are sealed and then delivered at random and individually to students at the
start of the next semester. Haussermann reports that students take the activity seriously and the recipients appreciate a student's point of view on the new course. The techniques described here have helped use to overcome some of the problems we had experienced at the end of class and courses. We find that think-pair-share and classroom assessment are the easiest to implement. The greatest benefits occurred when we asked students to write a letter to classmates taking the course the following year. Even so, problems remain. Years of experience have socialized us and our students into teacher-focussed endings, however ineffective they may be. We find ourselves struggling to cover content at the end of class and at the end of courses. And, we face institutional constraints such as fixed times to end classes and rigidly scheduled final
examination. Thus, endings remain a challenging issue on which we invite readers to share their suggestions.

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