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Teaching Students to Think: A Workshop Design

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Like faculty in most colleges and universities, professors at the University of Rhode Island (URI) have been troubled by their students' performances on tasks which require reasoning and problem-solving, thinking and creating. Although URI students seem capable of memorizing every piece of information which comes their way, many appear unable to apply course material in any manner which might be called critical or creative thinking.

Over the past several years, we've spent a good deal of time with faculty speculating about why students seem so persistent in memorizing and so resistant to other forms of learning. Some hypotheses can be dismissed immediately. For example, there's no evidence that URI admission standards have dropped; in fact, SAT scores seem to be getting better. Other speculations merit further attention. It's conceivable that students' preoccupations with memorization are a function of early positions in the pattern of intellectual development described by Perry (1970). Furthermore, if it's true that critical thinking involves socializing students into the implicit values and assumptions

that determine the forms of critical inquiry and analysis in different disciplines, then the values, motivations, and aspirations which today's students bring to the university may make it especially difficult to engage students in thinking in some disciplines. Such hypotheses are intriguing, and further investigations may produce valuable insights and suggestions for college teachers.

Meanwhile, more is known about how students develop abilities to think critically and creatively than finds its way into college classrooms. Most learning theorists agree that students are more likely to develop their thinking skills if they are given opportunities to practice those skills during instruction. Alas, not all college professors provide practice for the variety of thinking skills they hope students will develop, and few provide students with enough practice. Lectures and reading assignments continue to be the most widely used teaching methods. Although they give professors (who probably don't need it) lots of practice in thinking, lectures and readings do not typically provide the practice which students need. We suspect that professors who rely exclusively on these methods may (albeit unintentionally) be encouraging students to memorize and retarding the development of their thinking skills.

Yet, in the ten years we have worked in URI's Instructional Development Program, we have seen some truly exceptional teachers—faculty who recognize students' needs to practice, who are imaginative in creating practice exercises and assignments, and who are skilled in using these activities in their courses. We decided to create a forum in which these faculty might share their ideas, experiences, and insights with their colleagues. We organized a workshop, called it "Teaching Students to Think," invited several of URI's outstanding teachers to conduct sessions, and promised the rest of the faculty that they would be hard pressed to find so many good teachers with so many good ideas in one place at one time.

We have offered this workshop at least once, sometimes twice in each of the past four years. Each time, we've asked 8-12 faculty (depending on the time of year and number of people we anticipate might attend) to

prepare sessions in which they describe, demonstrate, and discuss techniques and activities which they use to engage students in practicing the thinking skills required in their courses. We also ask these faculty to prepare short papers that: (1) outline the skills they hope students will develop in their courses; (2) describe the methods or activities they use to provide practice for those skills; (3) include samples of actual questions or exercises or assignments they've used; and (4) summarize their perceptions of the strengths and limitations in the methods. We request only brief, informal papers—outlines, notes, sample assignments which can be used as an entree to discussion and as a reminder when faculty leave.

We open each workshop with a few introductory remarks, summarizing the research on thinking and stressing the need to provide practice. We then introduce the faculty we've asked to present and mention the techniques or methods they'll discuss.

The remainder of the workshop is conducted in a round table format. That is, each discussion leader is assigned to a table which seats 8-10 people. We encourage small groups so that faculty have opportunities to ask questions, to offer suggestions, and to exchange ideas. Faculty attending the workshop are invited to go to a table which interests them and to spend 30-45 minutes at that table. The discussion leaders have been told that they're on their own to do whatever makes sense during that time. Some give people time to skim their papers; others provide brief summaries of their ideas; still others demonstrate the techniques or show videotapes of their classes. All save ample time for discussion. After 30-45 minutes, we interrupt these conversations, announce that people may move to another table which interests them . . . and so on, for as many sessions as are scheduled.

These workshops have brought rave reviews from faculty who attend. For the most part, the success of these sessions must be credited to the talents and creativity of the faculty who serve as discussion leaders. Although the papers which follow do not report all of the issues raised or ideas considered during the sessions, we do think these

papers suggest their authors' thoughtfulness about teaching, their creativity in designing activities and assignments, and their good humor.

On the other hand, those who might try to replicate this workshop on other campuses should probably know that we take some credit for their success. When our program was young, we tried to organize similar sessions . . . before we knew much about URI faculty and their teaching skills. We made some unfortunate mistakes. We learned to be very careful and highly selective in the faculty whom we ask to conduct these sessions.

First, we only ask faculty whose teaching we know well. Most have participated in our year-long Teaching Fellows Program and/or have used our rather intensive consultation service. In every case, we've had many opportunities to examine their course materials, to observe and videotape their classes, to discuss their examinations, to review their student evaluations, and to talk with them about their courses. Thus, we can say with unwavering confidence that faculty who are leading these sessions do indeed teach and test for critical and creative thinking, that they are thoughtful and creative in planning their instruction, and that they have some good ideas worth trying.

When selecting discussion leaders, we also try to draw faculty from a variety of teaching situations. Because many faculty initially suspect that their problems are unique to their disciplines or their class sizes or their course levels, we try to find discussion leaders who teach in different disciplines, who teach classes of different sizes, and who teach courses at different levels in the curriculum. The variety is important in order to attract people to the workshop; once there, most faculty discover that they are intrigued by suggestions from people they initially regarded as unlikely sources of inspiration.

Finally, we ask only those faculty who can "talk to" faculty outside their disciplines. Although most of the ideas suggested in these sessions could be adapted in a wide variety of courses, this is not immediately obvious to all who attend. URI faculty are as inclined as any to

say "You can have discussions in the humanities, but you can't do that in the sciences," or "Your subject lends itself to that sort of assignment, but those situations don't exist in my area." These workshops are successful only to the extent that the discussion leaders are able to respond with concrete and specific ideas. Often, this requires that discussion leaders be able to take a topic from another discipline and illustrate how the method or assignment might be adapted to teach that particular topic.

In sum, the faculty whom we ask to conduct sessions in these conferences pass some pretty rigorous tests. They must be imaginative teachers, capable of designing exercises and assignments which engage students in thinking about their subject matter. They must be effective in using those exercises and assignments, and their effectiveness needs to be reflected in student learning and in student ratings of instruction. They must be able to suggest strategies and assignments which colleagues in disciplines different from their own might use in their courses. Finally, they must care enough about teaching and learning to go to the trouble.

We think URI has more than its fair share of such folks, we feel lucky to know who several of them are, and we look forward to discovering others. Meanwhile, the papers which follow represent a sample of those prepared by faculty for these conferences. Although they were intended to be "notes" which participants might take away from the conference in order to remind them of things they heard, we think they can stand alone and offer "some good ideas worth trying."

First, Wendy Holmes (Associate Professor, Department of Art) describes how she uses small group discussions to engage students (all 200 of them) in thinking about art in her introductory art course. C. B. Peters (Associate Professor, Department of Sociology and Anthropology, and Associate Dean, College of Arts and Sciences) offers eight creative, yet practical, suggestions (ranging from study skills workshops to limerick contests; there's something here for everyone) for "waging war on ennui" and involving students in learning. Yngve Ramstad (Assistant

Professor, Department of Economics) provides several cleverly written group problem-solving exercises and explains how he uses them to encourage his students to "think like economists." Lois Cuddy (Associate Professor, Department of English) suggests a brief (but elegant in its simplicity) writing assignment which several URI professors have borrowed and adapted to help their students state opinions and defend them with evidence. Finally, James Fasching (Professor and Chair, Department of Chemistry) and I describe the use of small group discussions (yes, there is room for discussion, even in the sciences) and group research projects to give students practice in scientific reasoning and problem-solving.

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- Perry, W., Jr. (1970). *Forms of intellectual and ethical development during the college years: A scheme*. New York: Holt, Rinehart and Winston.