TOPICAL ARTICLES

Engaging Students' Intellects: The Immersion Approach to Critical Thinking in Psychology Instruction

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Critical thinking *has been defined as a disposition of reflective skepticism. This article describes an approach to the teaching of psychology that is aimed at fostering this disposition. The goal is to teach in such a way that students define their task as thinking about the ideas of psychology, not simply memorizing psychological information. The methods include (a) using ideas as the units of the course, (b) modeling thought in lectures and other classroom activities, (c) teaching study techniques that involve elaborative rather than rote rehearsal, (d) holding discussion meetings at which students really contribute, and (e) testing and grading in a way that rewards thought and discourages rote memory.*

All college teachers have seen the evidence: Students write down absurdities without apparently noticing that they are absurd; feed back, undigested, the precise and sometimes peculiar words that a lecture or the textbook used in an example or definition; and recite facts but miss the ideas to which the facts pertain. Clearly, students often fail to bring their intellectual abilities to bear on their academic endeavors. For at least the past 30 years, educators have debated the causes and possible solutions to this problem. Their writings can be classified roughly into two camps.

According to one camp, students fail to think critically because they are deficient in the general ability to do so. The remedy, according to this camp, is to teach critical thinking explicitly, either in separate courses or in segments of existing courses. Advocates of this explicit-instruction approach typically define *critical thinking* as a set of skills or cognitive steps for reaching correct decisions or assessing the truth or falsity of statements (e.g., Ennis, 1962). The underlying assumption is that these skills are (a) specifiable; (b) teachable through explicit description of each skill and exercises for practicing it; and (c) sufficiently general that, once learned, they can be used for thinking critically about a wide variety of issues (Ennis, 1989). Consistent with this view, textbooks have been written for courses in critical thinking (e.g., Browne & Keeley, 1990); some textbooks in traditional subject areas now include separate critical thinking sections within chapters, in which a formula for critical thinking is applied to some issue relevant to the chapter.

People in the other camp favor an immersion approach. They argue that students fail to think critically in our courses not so much from lack of ability as from lack of will. From this view, critical thinking is best thought of as a disposition or attitude, which can be turned on or off, rather than as a skill, which one either has or does not have. For example, McPeck (1981) defined critical thinking as "a disposition of

reflective skepticism" (p. 6), and Siegel and Carey (1989) described it as "less a set of sure-fire procedures than an attitude of inquiry" (p. 26).

Immersionists do not deny that critical thinking involves cognitive steps, but they argue that the steps vary in innumerable, unspecifiable ways that depend on such factors as the kind of problem, the kind of information available, the thinker's specific goals, and the thinker's unique style of reasoning. Moreover, the steps are implicit, not explicit; critical thinkers focus attention on the issue and information about which they are thinking, not on a set of learned steps for thinking. Thus, immersionists argue, attempts to outline, teach, or use a general formula for critical thinking are futile. Any such formula simply becomes one more thing to memorize, one more thing to learn uncritically. People become better critical thinkers through engaging in critical thinking.

Immersionists argue that students will think critically and become better at it if they are immersed in a social environment that offers interesting ideas to think about, models of critical thinking to emulate, and rewards for (or at least toleration of) their own critical thoughts (McPeck, 1981; Prawat, 1991; Smith, 1990). As a rule, they contend, classrooms have not been that kind of environment, so students have learned to turn off the critical-thinking attitude in their academic work.

Whether or not immersionists are right about the futility of explicit instruction in critical thinking, they are surely right in their view that critical thinking can bloom among students only if students actually engage in it as they study subjects other than critical thinking. For many years, I have tried to teach my undergraduate psychology courses in a manner that is consistent with the immersion approach. My overriding goal is to teach in such a way that students will define their task as thinking about ideas in psychology, not simply learning (which to students often means memorizing) psychology. The remainder of this article describes some methods that I have found to be most helpful toward achieving that goal.

Providing Something to Think About: Ideas as the Units of the Course

If we want students to think about what we teach, then our teaching must focus on ideas. An idea, almost by definition, is something to think about. Ideas are the basic units of

an academic discipline. Psychology is a set of ideas about the mind and behavior that have accumulated and evolved over time. Some of these are accepted today as part of the discipline's foundation, and others are actively investigated as hypotheses. If we want students to approach psychology as scholars, we must put ideas on center stage in our teaching and relegate the specific findings, techniques, facts, terms, and famous people to the role of supporting cast.

If chosen properly, ideas are more general than facts and more specific than themes. Facts (e.g., the fact that electrical stimulation in the lateral hypothalamus can elicit feeding behavior) should be brought in when appropriate to substantiate ideas but should not be the basic units of a course. Facts are too narrow, perceived as unchallengeable, and uninteresting except as related to ideas. Themes (e.g., the theme that we are influenced by our social environment) should emerge in a course and help tie ideas together but, again, should not be the basic units. They are too general to be possibly wrong or to provide the basis for specific predictions. Ideas, by contrast, are sufficiently general to be interesting and sufficiently narrow to be testable. To test them we must discuss evidence, and that is how interest in a course develops; that is how students can experience the excitement of scholarship and research.

Every area of psychology, even those that seem to be most factual, can be viewed as a set of ideas. For example, an important idea in physiological psychology is that the nervous system is divisible into functionally discrete components, and the components operate in a hierarchical manner to control behavior. This idea is interesting and debatable, and it can serve as a vehicle for introducing neuroanatomy and factual material in physiological psychology. Here is a sample of other ideas, each from a different realm of psychology. Perception involves an unconscious, unselective first stage followed by a conscious, selective second stage. Human beings come into the world with special biological mechanisms for learning language. The human mind actively defends itself from certain kinds of knowledge as a way of reducing anxiety (the theory of defense mechanisms). The self-concept is a social product; its general nature depends on the person's culture, and the specifics depend on the reactions of others to the person.

When preparing a list of ideas to teach, certain guidelines are useful. First, each idea should be important to the subject of the course, as that subject is generally understood by psychologists. We have at least some obligation to teach conventional psychology. Second, each idea should be such that it can be stated clearly and can, in principle, be tested empirically. Psychology is a science, and a basic rule of science is that ideas are worthwhile to the degree that they are testable. Finally, each idea should be exciting to the instructor. If I am excited, I have a chance to excite my students; if I am not, I have no chance. If I have difficulty feeling excited about some central idea of the field—an idea that I feel obliged to teach—then I must think about that idea some more or do some additional reading to find the excitement. I must ask such questions as: Where did this idea originate?, Why was it exciting to its originators?, and What important controversies center on this idea? The pursuit for answers to such questions makes the idea exciting.

After preparing a list of ideas, the next step in planning an idea-centered course is to choose readings that convey and discuss those ideas. No textbook will fit any given instructor's set of ideas exactly, but some will fit better than others. In choosing a textbook you may ask: Do most of the ideas that I want to teach stand out in this book? Are they clear? Are they presented in a thoughtful, interesting way? In some courses, the ideas may be conveyed better with primary readings than with a textbook.

Regardless of how clearly ideas are presented in the readings, lectures can bring them forth even more clearly. Some lectures may highlight several of the main ideas in the readings, so students can read or reread in a way that focuses on the ideas. Other lectures may be devoted to a single idea. My single-idea lectures typically follow a certain pattern. I begin: "Good morning; the idea that I want to talk about today is. . . ." Then I state the idea (already written on the chalkboard or projected from a transparency); elaborate on it to make it clear; present examples to illustrate it and show its importance; ask students if they can think of additional examples; say something about the idea's history (including the people who developed it and the context in which they did so); ask students if they can think of ways to test the idea; and, finally, describe one or more actual research studies that support, refute, or delimit the idea. In the process, I may introduce some technical terms, talk about a famous person or two, and discuss some methodological aspects of the research; but the focus throughout is on the idea. The main goal is to have students understand, appreciate, and think about the idea.

Providing Models of Thought

It is useful to distinguish between the explicit and implicit content of a course. Explicit content includes information in readings and lectures, stated goals of the course, and assignments and suggestions for achieving those goals. In an idea-centered course, explicit content consists of a set of ideas, the elaboration of those ideas in readings and lectures, and various assignments and suggestions designed to help students think about the ideas. Implicit content is more subtle and more important. It is the set of messages conveyed by the manner in which the explicit content is presented. It includes attitudes about the subject under discussion, attitudes about the students, and expectations about what the students will do vis-à-vis the subject. The explicit and implicit messages can conflict, and when they do the implicit message wins. The explicit message may say, "Here is this interesting idea and some evidence pertaining to it for you to think about and evaluate." But that will have little effect if the implicit message is, "Here is so-and-so's idea and some facts pertaining to it, which you should memorize to do well on the test."

If we want students to think critically about an idea, then the implicit as well as explicit message must be that the idea is something to think critically about. I know of no other way to convey that message than to present the idea in the context of critical thought. If an idea in a lecture or a chapter comes across clearly as something that the lecturer or author is thinking about, then students will grasp it as something to think about. If students experience the genuine thinking of the lecturer or author in a way that invites them to participate, then at least some of them will accept the invitation.

The Instructor as Thinker

Most instructors cannot fake an implicit message, at least not for long. Students can see through our feigned interest or pretended thought and judge implicit messages to be part of a long string of pedagogical tricks played on them over the years. If we want to convey the message that a particular idea is something to think about, then we must really think about the idea. This is the most important meaning of the common statement that scholarship and teaching go hand in hand, and it is as true of the introductory course as it is of advanced seminars. To be good instructors of introductory psychology, we must be philosophers; we must be interested in and prepared to think critically about the ideas that make up the foundation of psychology.

The best way to prepare an idea-based lecture is to think through the idea critically yourself, working through the logic and evidence just as you would when preparing to discuss it with colleagues. There is no need to condescend. I believe that any important idea or argument in psychology can be understood by an average first-year undergraduate, if the idea or argument is clearly stated and the student is trying to understand it. Condescension—which may take the form of watering down ideas or presenting facts instead of ideas—contributes to the implicit message, "You are a mere student, you have a lot to learn before you can really understand and think about these ideas." This is the message students have received throughout their formal education; it is the main reason they enter our courses with the assumption that they will learn or be taught, rather than think.

If you attempt in each lecture to convey your own best thinking about the idea under discussion, then you will grow mentally as you teach, you will be enthusiastic toward your teaching, and your students will experience your thinking and enthusiasm. At least some of your students will begin to think along with you and experience the same joy in playing with ideas that led you to choose an academic career in the first place. Using this process, you will also gain respect for your students and increasingly invite them in as genuine collaborators, unpretentiously using phrases such as, "Am I making sense?" or "I can't think of any other explanation, can you?"

*Class Demonstrations as Opportunities
for Mutual Thought*

A lecture need not be just talk. Demonstrations and class experiments provide an enjoyable change of pace and can contribute to the implicit message that you and your students are doing psychology, not just teaching it and learning it. With a little imagination, many classic experiments in psychology can be replicated in class (as the pages of *Teaching of Psychology* have so frequently shown). Each demonstration or experiment becomes an opportunity for students and instructor to think together, as students pose possible explanations of the results and speculate on what may have happened had certain conditions been a little different. I have a battery of experiments and demonstrations for my introductory psychology classes, and each year I make up a new one or two to try out.

As one example, I routinely demonstrate group polariza-

tion before students have read the social influence chapter in their textbook. I first have each student declare on a Likert scale how strongly he or she agrees or disagrees with some proposition (e.g., the proposition that the next test should be essay rather than multiple-choice), then I divide them into like-minded groups for discussion. After the discussion, I have them again declare the strength of their agreement or disagreement. The results are always consistent with group polarization: Those who initially agreed with the proposition agree even more strongly after discussing it, and those who initially disagreed disagree even more strongly. When I then ask the class to speculate on why the results came out as they did, they often generate all the explanations of group polarization that social psychologists have proposed and tested over the years. When I then ask them to suggest a procedure for testing one explanation or another, they usually produce the outlines of a reasonable study.

What do students learn in that exercise? They learn in a memorable way the meaning of group polarization; but, far more important, they learn that they can think like psychologists; they can come up with plausible explanations of an observed phenomenon and can think of ways of testing those explanations. Students in one class were so enthusiastic about one of their explanations of a demonstration that they convinced me to repeat it in another class, varying the conditions in a certain way, to see if I would get the different result that they predicted would occur. To their delight, their prediction was confirmed.

Providing Study Techniques That Foster Thought

For some students, providing substance for thought and models of it is not enough. Some need extra help in overturning long-standing habits of intellectual passivity, especially in their approach to textbooks and other readings. Too often students focus so narrowly on term definitions and facts that they miss the overriding ideas to which the definitions and facts pertain. "How could I possibly have received a D on that test?" complained one student some years ago, "I memorized every definition in the chapters and the names of all the researchers." To prevent that kind of experience, I now teach my students some techniques, including those described later, designed to help them keep the main ideas in mind and to think about the more specific information in the context of those ideas.

*Asking Students to Make the Course's Implicit
Questions Explicit*

One technique, which I have found to be especially useful, was developed by Marcia Heiman (1987) as part of a program to help students get more out of their college education. Heiman's program grew out of research at the University of Michigan, directed by Dale Brethower, that systematically compared the study methods of successful and unsuccessful college students. The most striking finding was that successful students engage in a mental dialogue with authors and lecturers. They continuously form hypotheses, and they read or listen to confirm or disconfirm those hypotheses (Heiman, 1987). The aim of Heiman's program is

to teach students who have been unsuccessful to become engaged with their readings and lectures in the way that successful students do.

As a first step, Heiman (1987) taught students to infer and write out the questions that the course's readings and lectures are trying to answer. She told them that every statement in a chapter or a lecture is part of an attempt to answer some question and that the statement will make sense only if they know what the question is. Some authors and lecturers simplify the student's task by stating each question explicitly before trying to answer it, but more often the questions are implicit. To a student who has not inferred the questions, the statements aimed at answering them are bits of nonsense. Heiman taught students to read their textbook a section (or subsection) at a time using the following procedure; (a) Skim the section, using such cues as the section's heading, the first sentence of every paragraph, and figure captions to infer the section's main question or questions; (b) write the question or questions in the margin; (c) read the section carefully with an aim of answering the question or questions; and (d) if necessary, rephrase the question or questions in the margin to fit the actual contents of the section. She also instructed students to leave wide margins in their lecture notebooks and use that space to write the questions that their notes are designed to answer.

Controlled studies at Boston College and elsewhere have shown that Heiman's (1987) program significantly increases students' grade point averages and decreases their likelihood of withdrawal from courses. Reports from my own students suggest that the question-inferring technique works through the following means:

1. It keeps the mind alert and focused on the content while reading or listening.
2. It promotes curiosity, because the explicit phrasing of a question by the student tends to induce a desire to know the answer.
3. It serves as a guide for review and further study. To review, students can read the questions they have written in the margin and try to answer them.
4. Perhaps most important, the process of thinking about the author's or lecturer's questions helps engender a questioning attitude in students. The student may begin to think of important questions that the author or lecturer missed or may begin to see the flaws in the author's or lecturer's answers. When that happens, the student is thinking like a scholar.

Teaching Students to Make Question Maps and Hierarchical Review Charts

Students can also be shown how to summarize information in their readings in ways that promote active thought. One technique that Heiman (1987) recommended is the construction of question maps. This technique is a derivative of the question-inferring method just discussed. When students write out questions regarding the information in a chapter, they may find that some questions keep recurring, applied each time to a different item. A question map is simply a two-dimensional grid that lists recurring questions along one axis and the items to which they are applied along

the other. An example of such a chart that may be used to summarize part of a chapter on personality theories is shown in Figure 1. As another example, in a chart summarizing a chapter on social influence, the columns may represent different influence phenomena (e.g., social inhibition, social facilitation, social loafing, Asch conformity effect, group polarization, etc.), and the rows may represent questions about the definition of the effect, real-life examples of it, how it is demonstrated in the laboratory, conditions under which it occurs or does not occur, and theories offered to explain it. To complete the chart, students may fill the boxes with key words or abbreviations that hint at each question's answer.

Question maps are especially useful for identifying the similarities and differences among related theories or phenomena; they help students prepare for test questions of the "compare and contrast" type. Also, in producing such charts, students begin to understand that certain kinds of questions are common to psychology or specific branches of it, which helps them see how psychologists think.

Another kind of review chart, which I find to be even more effective than question maps, is the hierarchical summary chart that depicts relations among broad ideas or phenomena and the more specific ideas, phenomena, and lines of evidence pertaining to them. An example of such a chart, based on the discussion of classical conditioning in an introductory psychology textbook, is presented in Figure 2. The second level in this hierarchy contains, in abbreviated form, the basic ideas that the text offers concerning classical conditioning. Thus, the box on the left may be expanded to read, "The idea that Pavlov's work on conditioning was very important to the historical development of psychology as a science." As another example, the box on the right may be expanded to, "The idea that some aspects of classical conditioning are better understood from a cognitive rather than

Personality Theories

	Freud's psycho-dynamic theory	Adler's psycho-dynamic theory	Rogers's human-istic theory	Rotter's social learning theory	Eysenck's trait theory
What human motives are emphasized?					
What mental structures are posited?					
What sorts of differences among individuals are emphasized?					
What does it posit as the developmental causes of individual differences?					
What kinds of evidence were important in developing the theory?					

(left axis label: Questions)

Figure 1. Sample question map, which a student might prepare to summarize part of a textbook's chapter on personality theories.

Classical Conditioning

Pavlov's discovery & its historical importance
- Basic phenomenon & terms
- Relation to philosopher's law of association by contiguity.
- How it helped make possible a science of learning.

Phenomena associated with it
- Extinction & spontaneous recovery.
- Generalization & discrimination training. (How these are used to study perception in animals.)
- Higher-order conditioning.

Conditioned emotional responses
- Watson & Rayner's demonstration.
- Application to advertising.

Conditioned drug reactions
- Why the CR is sometimes opposite to the direct drug effect.
- How this helps explain drug tolerance.
- Evidence (with rats & people) for the conditioning explanation of tolerance.

Cognitive perspective on classical conditioning
- The S-S & S-R views.
- Why S-S is more cognitive.
- Rescorla's experiment supporting S-S.

- Role of expectation & prediction.
- Three lines of evidence that conditioning occurs only when the CS is a useful predictor of the UCS.
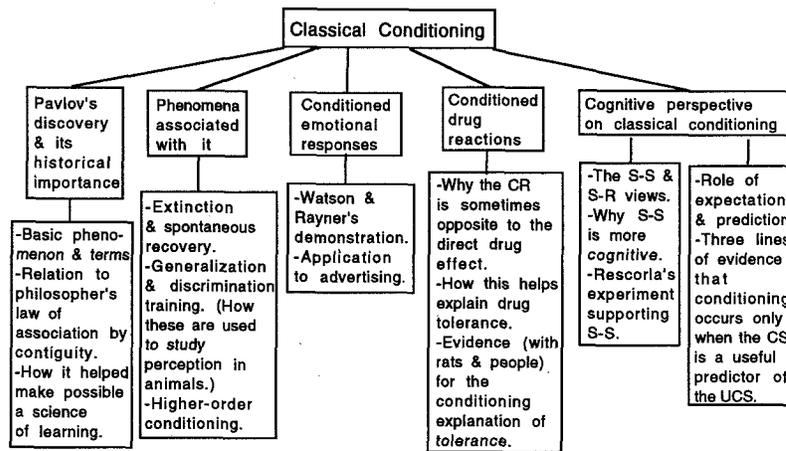
Figure 2. Sample hierarchical review chart, which a student might prepare to summarize the discussion of classical conditioning in a textbook.

behavioral perspective." The third level in the hierarchy shows how each idea is fleshed out or supported by the text.

Producing such charts is not as difficult as it may at first seem, yet it does require some intellectual effort. The information in most textbooks is organized hierarchically, with different levels marked by different kinds of headings—a fact that many students do not notice until it is explicitly pointed out to them. To produce the chart, students must focus on the logic of the author's organization and sometimes supplement that with some organization of their own. This requires that they think about the information more deeply than would be necessary to produce more conventional crib sheets or lists of key terms, people, and research studies. For example, to know where to place a certain experiment by Rescorla on the chart in Figure 2, they must understand why Rescorla did the experiment and what it has to do with the cognitive perspective on classical conditioning.

Once the chart is prepared, it is a marvelous tool for review. A dozen pages of text can be summarized on 1 page, visually organized in a way that preserves the lines of argument and interrelations of ideas. Computer scientists and cognitive psychologists have long known that hierarchical structures are the most efficient means to represent complex, logically related bodies of information. The hierarchical review chart helps students take advantage of that fact.

Requiring Students to Write Out Their Own Questions

The study procedures described so far are recommended in my courses, but the procedure to which we now turn is required. Because I believe that questioning is the essence of critical thinking and scholarship, I require students to write out and hand in questions on each reading assignment. In this assignment, I am not asking for the author's questions, which were answered by the reading, but for the students' own questions, which were stimulated by the reading but not answered by it.

The first time I made this assignment in my introductory psychology course I was amazed at how hard it was for some students to understand. They were so used to thinking of questions as things that teachers ask and students answer that the idea that they should have questions seemed upsetting to them. One student, complaining about the assignment, put it this way: "I understand everything in the chapter; I don't have any questions. Do you want me to pretend I don't understand something?" My gut-reaction answer to him, "If you understand it, and have thought about it, you must have questions," was not very helpful.

I now avoid that kind of misunderstanding by explaining the assignment carefully from the beginning, with the aid of a handout. The handout begins with the words, "To think is to question." It then describes the kinds of questions that may come to mind while reading a passage of text—such as questions about the evidence or logic behind some claim, the exact meaning of a somewhat murky concept, or possible implications or extensions of an idea or research finding. The handout then advises students to jot down such questions as they read and, after finishing the chapter, to select five of them from different parts of the chapter and elaborate on each in a paragraph that explains the question clearly, shows its linkage to something in the chapter, and shows some of the student's own thought behind or about the questions.

Most students like this assignment after doing it a few times. They gradually get the knack of reading in a questioning manner and discover that this makes their task more fun. The questions that students generate through this assignment also become the fodder for small-group discussions, to which we turn now.

Holding Discussion Meetings at Which Students Really Discuss

Critical thinking is fundamentally a social phenomenon; it derives from dialogue. In dialogue, one person makes a statement and another, in the attempt to understand or elaborate, asks a question or makes a related statement. In this back-and-forth exchange, the original statement is cor-

rected, clarified, or used as the foundation to build a larger argument. When we think things through alone we engage in an internal dialogue. It is as if we imagine how others would respond to our initial statement and in that way we correct, clarify, or build on our own germinal thought. A sad fact of university life—at least on the campuses that I have observed—is that many undergraduates rarely discuss with each other or with anyone else the academic ideas that they are studying. Their lack of dialogue about the ideas is part and parcel of the passive, absorptive mental stance that they take toward their studies.

To ensure that students engage in at least some dialogue about the ideas in my introductory psychology course, I divide them into groups of about 6 to 10 students each for weekly discussion meetings. Each group is led by an undergraduate teaching assistant (TA), whom I select based on previous excellent course performance and demonstrated enthusiasm about ideas in psychology. These TAs receive credit through a teaching experience seminar. In addition to leading the weekly meetings, TAs attend all lectures, study the textbook, and attend a weekly seminar meeting with me to discuss the course content, which I lead in much the same manner that I expect them to adopt in the meetings that they lead.

Each discussion meeting is devoted to a different chapter or pair of chapters in the textbook. Students must bring to the meeting their set of written questions for the chapter or chapters. At a typical meeting, the TA may begin by asking each member to read his or her most important question. Usually, one or more of these questions provokes controversy, and discussion follows. The TA does not take the role of an expert but rather acts primarily as a presider, moderating the discussion, keeping it on track, and elevating it by asking for logic or asking people to describe the evidence they would need to be convinced of a particular idea. Sometimes a group will decide that it wants my opinion on something or that an idea in the text needs elaboration. The TA brings that report to me, and, if I think it warranted, I will present the requested opinion or elaboration as part of a subsequent lecture.

Because the groups are small and are led by a nonthreatening but enthusiastic and capable TA who is essentially a peer, most students participate actively at every meeting. I evaluate the discussion groups through a number of means, including direct observation and questions on an anonymous course evaluation form. The results convince me that real discussions occur, most students become engaged in them, and sometimes the discussions continue long after the official period is over.

The discussion-group system has benefits beyond the discussions themselves. The TAs tutor students who need extra help (they teach the study methods described earlier), are sought out for advice about a wide range of issues pertaining to their college experiences, and provide a bridge between me and the large number of students whom I do not get to know personally. The discussion groups also promote friendships. Some students, especially commuters, report that without the discussion group they would not have become acquainted with anyone in the course. Some have told me 1 year or more later that they are still close friends with one or more former members of their group.

Testing and Grading To Reward Thought

Like everyone else, students are pragmatic. They gear their efforts toward solving the problems of life. The problem of life that college poses to most students is getting good grades, not thinking deeply about academic ideas. It does not help to blame students for this. Their view is quite rational. We have invented the grade and made it the wage for scholastic effort; people will work for the wage and will interpret as frivolous any activity that does not bring it.

If students believe they can do well on tests by memorizing, they will memorize. If they believe they can do better by thinking, they will think. But many students are not likely to believe the latter unless it is proven to them. As McPeck (1990) pointed out, they are used to tests that ask questions such as, "What is the definition of W?" or "Who discovered X and when?" or "What did Y believe about Z?" Such tests require that students store temporarily a lot of miscellaneous information, but they do not require that students organize the information in a coherent manner, attend to the evidence behind it, or even understand it in a way that allows them to do anything with it other than recite it. From experience, students know that the surest route to a good grade with such questions is to feed back the exact words used in the textbook or the lecture; any deviation may be interpreted as wrong. They also know that the correct answer on multiple-choice items often comes verbatim from the textbook or lecture.

Thinking is tapped by questions that ask students to do something with the information that was not already done for them by the author they read or the lecturer they heard. "How does X compare with Y?" is a good thought question if X and Y were both discussed in the textbook but were not directly compared there. Thinking is also tapped by questions that focus on logic and evidence, which cannot be efficiently encoded and fed back without intervening thought. I tell students that I will not ask them a question such as, "What is the S–S theory of classical conditioning?" or "Which theory of classical conditioning has the most support—the S–S or the S–R?" but will ask them questions such as, "Describe one line of evidence supporting the S–S theory of classical conditioning over the S–R theory."

Such questions are easier to ask (but harder to grade) with essay tests than with multiple-choice tests, but they are not impossible with the latter. For example, concerning the experiment by Rescorla supporting the S–S theory (included in Figure 2), a multiple-choice item may describe an experiment like his but with an opposite result, and then it may ask which of several theories about classical conditioning (including the S–S and S–R theories) is supported by that result. A student who had simply memorized which theory was supported in the textbook without understanding the logic would choose the wrong answer.

Occasionally students accuse me of being tricky with questions like that. I used to try to defend myself from that charge, but I do not any more. I now say, with a degree of genuine empathy,

Yes, I suppose that's true; but I don't know any other way, in such a large class, to test how well you've thought about the ideas and evidence in the course. Perhaps you can just accept

me as tricky and assume that your task is to outsmart me by thinking deeply about the ideas in the course and by thinking carefully about each question on the test.

By the time the first test is graded and discussed in class, most students are convinced that I am to some degree measuring the depth of their thought about ideas and evidence. So those who performed well feel rewarded for their efforts in that direction, and at least some of the others feel motivated to approach me or their TA for help in learning the study techniques designed to promote thought and discourage rote memory.

Conclusion

Over the years, I have observed that the procedures described in this article help stimulate critical thought and discussion in my courses. Sometimes I forget to use them, and sometimes I am too busy to use those that are time consuming; but when I do use them, my teaching is more effective than when I do not. I value thoughts from readers about other ways to encourage critical thinking in the context of psychology instruction. I hope that research on the teaching of psychology will begin to focus more on procedures for encouraging reflective skepticism and a spirit of inquiry.

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Notes

1. This article is based partly on a paper presented at the Fourteenth Annual National Institute on the Teaching of Psychology, St. Petersburg Beach, FL, January 1992.
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Women at Center Stage: A Course About the Women of Psychology

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The course described in this article highlights women's contributions to and impact on the field by devoting an entire semester to psychology's women. A social constructionist model provides a framework for understanding women's historical and contemporary position in psychology, as well as the implications of women's growing presence in the discipline. This understanding is then applied to consideration of individual women, with students' work generating biographical sketches of several of psychology's women. Suggestions are offered for using material from this course in modifying more traditional courses to incorporate the work and impact of women.

The process of incorporating psychology's women and their work into the psychology curriculum has taken many forms, including several reported in this journal (e.g., Bohan, 1990b; Furumoto, 1985; Paludi, 1991).[1] This work

[1]References for this article include full first names of authors. As many have argued (e.g., Bohan, 1992; Crawford & Marecek, 1989a; O'Connell & Russo, 1980), the citation format prescribed by APA contributes to women's invisibility in psychology by making it impossible to identify women's work, thus permitting the presumption of male authorship.