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Author(s): M. Neil Browne and Stuart M. Keeley  
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# Achieving Excellence:

## Advice to New Teachers

M. NEIL BROWNE AND STUART M. KEELEY

**N**ew teachers, fresh with enthusiasm, deserve better advice than most educational research provides. Disputes about effective teaching are fueled by strong views on alternative models of teaching. While these disagreements are significant, they divert our energies away from techniques or behaviors that are embraced

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by most experienced teachers. Despite a consensus about behavior that contributes to superior teaching (1), most research that focuses on the teaching process is descriptive, rather than prescriptive. Typically, such studies shy away from establishing a link between specific teacher behavior and probable educational outcome.

This article makes some suggestions for new teachers who aspire to excellence. Our suggestions stem from our experiences as teachers in our respective disciplines and in interdisciplinary programs (Eble 1983). Our numerous encounters with dedicated teachers expanded our appreciation for the shared prescriptions that developed

from our personal classroom experience. While it seems pretentious to attempt a list of behaviors consistent with excellent teaching, we wish that experienced teachers might have provided us with just this type of advice when we were neophytes. Those who share our concern for the perils of the non-directive on-the-job training procedure encountered by most new teachers can supplement or delete elements of our list, but experienced teachers know more about their craft than we sometimes pretend. While new teachers should have broad latitude to experiment and create, they should also be aware that some teaching behaviors are particularly productive. Those of us who serve as role models for new teachers have a responsibility to identify those behaviors.

A few caveats should precede suggestions. First, certain suggestions are more appropriate for some courses than others. Large classrooms have special problems that may minimize the utility of individual suggestions. In addition, those courses where the primary objective is either memorizing a huge volume of accepted facts or acquiring a technical vocabulary would be inappropriate contexts for those suggestions aimed at classrooms with broader educational objectives. Second, while most elements on our list would be compatible with contending visions of teaching excellence, we owe it to the reader to make our major pedagogical assumptions explicit. Initially, we assume that interactive learning is preferable to passive learning. Next, we make the related assumption that the development of critical thinking skills is as important a goal as content acquisition. Finally, we assume that demanding mental effort is painful in the short run, but highly satisfying in the long run. This final assumption requires the attendant belief that respect from students is preferable to their immediate approval. Ideally, of course, it is especially desirable to engender both short-run applause and long-run gratitude from students.

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*The authors are professor of economics and professor of psychology, respectively, at Bowling Green State University, Bowling Green, Ohio.*

A third qualification to our suggestions is the omission of those forms of advice that are already relatively obvious to the new instructor. Certainly, nervous gestures should be eliminated; lectures should be orderly; notes on blackboards should be legible. However, achieving these minimal standards hardly places the new instructor on the path toward teaching excellence. Each of our suggestions is comparatively more difficult than the mechanics mentioned above, but the type of learning they encourage provides unusually satisfying rewards.

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**I**t is tempting—and erroneous—to assume that students are learning while the teacher is teaching.

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The next section consists of advice to new teachers who wish to be excellent teachers. Our list of suggestions is in no particular order. Each suggestion strikes us as important in its own right, but a teacher who tries to implement individual suggestions would probably miss the holistic strength of the entire set. The final section proposes the modification of student evaluation forms so that they focus on the elements of teaching excellence.

- **Ask frequent questions during each class**

Students will think when you require them to do so. It would be nice to enter a classroom where students would of their own volition struggle with intellectually demanding tasks. In fact, there are a very few students who do conform to that romantic characterization. Students rarely think intensely for the same reason that professors primarily lecture. It is relatively secure and simple to stay with behavior patterns that are familiar and non-threatening.

If you ask questions frequently, you must be patient. If students notice that the teacher after a brief pause answers each question he asks, students will soon wait until the teacher answers his own questions. Such a pattern transforms what appears at first glance to be questioning behavior into a mode of lecturing. Hence, new teachers should generally hesitate to answer questions they ask until their students have had adequate opportunity to experiment with a response. The patience required is difficult to develop because responsible teachers want to “cover” a lot. Thus, every silence of extended duration subtracts from lecture material that the teacher could have delivered.

What seems faulty about this quest for “coverage” is that it presumes that when teachers speak, others learn (14). Those of us who regularly wince at the test results of our own students should know better than to make this assumption. Moreover, when a teacher covers an extensive body of material, the teacher’s behavior has not thereby developed complex cognitive skills for students.

There are several excellent sources for teachers who want to improve their ability to develop effective questions (Dillon 1982). Payne (1951), for instance, has some good advice on the treatment of respondents to questions so as to maximize the type of desired responses. Hunkins (1972), Browne and Keeley (1981), and Saunders (1966) all provide useful discussions on levels and purposes of classroom questions. Instructors at any stage of development might benefit from a review of the twenty-five questioning dialogues that Hyman (1979) developed as models of questioning behavior.

- **Ask only those questions that will inform you what the student is learning**

Asking just any question is not necessarily more advantageous than asking no question at all. Questions which require students to apply their assignments or make reasoned judgments about the worth of a particular contention require complex thought at the same time that they provide feedback to the instructor about the effectiveness of her performance as a teacher. Answers to such questions advance the understanding of everyone in the classroom. They indicate individual problems, provide an opportunity for creativity, and reveal to the teacher the actual level of learning that has transpired.

Teachers frequently deceive themselves into believing that more learning is occurring than a realistic appraisal would find. McKeachie (1980) and Entwistle and Ramsden (1983) help teachers understand that students process information at a different pace and in different forms than teachers disseminate it. Eble (1981) and Davies (1983) have both pointed out how tempting and erroneous it is to assume that students are learning while the teacher is teaching. They want their students to learn; there is always a small coterie of students who look as if they might be learning; hopes concerning student achievements are easily transformed into beliefs that these achievements do exist. Evidence for these exaggerated beliefs that students have learned what they have been taught may be derived from student answers to ineffective questions from their instructors.

Teachers may habitually ask their students the following set of relatively wasteful questions:

1. Does everyone understand?
2. Have I made myself clear?
3. Are there any questions?

The modal response to each of these questions is silence. The questions are treated by students as a ritualistic exercise by teachers. So rare is a student response to these questions that asking them has only slightly more educational value than asking no question at all. When students do not answer such questions, learning should not be inferred.

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**T**hese optional viewpoints . . . tempt the learner to risk personal commitment, to make a judgment.

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A deficiency in each of the three ineffective questions listed above is the ease with which they can be answered with a "yes" or "no." When students are permitted to answer a question by silence or by uttering a one-word reply, the teacher has little appreciation for what the student's response actually means. Such responses are too brief and ambiguous to provide accurate sketches of what has or has not been learned. Questions that require lengthier, more complex answers enable both teacher and learner to decipher the impact of a particular learning experience. Examples of these more effective types of questions are the following:

1. What is your understanding of . . . ?
2. How would you evaluate . . . ?
3. Why was X included in the text, lecture, or argument?

• **Require students to ask precise questions**

It is difficult to give disciplined answers to lazy questions. Teachers and students both experience frustration when a student says, "I'm lost. Can you help me with Chapter 23?" The teacher needs a more precise question to be helpful. A student may not be able immediately to form a description of the problem he is having. Students will not be aware of this difficulty if the teacher does not address it directly with them. Students can be encouraged by excellent teachers to delight in the self-discipline required to formulate a question that can be meaningfully answered.

When students are permitted to follow their normal inclinations, they will ask vague questions that do indicate confusion, but offer no apparent pathway whereby that condition can be repaired. Questions such as "Could you clarify Chapter 10?" or "Would you please go over theory X?" are frustrating because a serious attempt to respond might take three class periods.

Students can expedite their own understanding and enhance the efficiency of the class by asking questions that focus directly on the problem they are experiencing. By requiring students to use a format such as "My understanding of theory X is. . . . Is that correct?", you can determine whether anything about theory X is understood, particular elements need clarification, or the student is ready to advance to subsequent material. In general we find it useful to respond to whatever question a student asks by asking the student to first explain his or her present understanding. When students are taught to reflect before they ask questions, they will find themselves actively engaging with the course material. In addition, they will find that teachers really can answer their queries in an enriching fashion.

• **Explicitly teach and encourage the development of mental skills that transcend memory**

To facilitate the type of self-censorial behavior that post-school learning requires, teachers should require students to practice the evaluative and synthetic skills that will permit them to build on the knowledge they have accumulated while in school (4). That is, it is important that students practice actively asking questions about course material. Unfortunately, this usually means that you have to explain gradually the meaning of these questioning skills for the student, since the majority of classrooms will not demand their use (Barnes 1983, Fischer and Grant 1983).

Many of the skills that transcend memory are rarely taught in classrooms, except in an indirect fashion. Thus, the teacher who hopes to cultivate those skills must not only ask questions in class and on tests that encourage the use of these skills, she must also teach the skills explicitly. These skills are spelled out in some detail in a number of texts (Browne and Keeley 1981, Carlson 1978). Skills that transcend memory include the identification of ambiguity and assumptions, judgments about the quality of evidence and inferences, recognition of significant omitted information, and the formulation of decisions based on personal value commitments and reasonable arguments.

Teachers can do several things to stimulate higher-order thinking processes in students (Cooper 1977). First, teachers themselves can familiarize themselves with the skills by reviewing critical thinking texts. A second technique is to distribute to and review with the students at the beginning of the course a list of critical questions to ask about materials. The third is to require the student to actively use this list through homework assignments and through classroom questioning activities. It is important frequently to remind the student to "keep your eye on the list" while studying. We have found the following set of questions particularly useful (Browne, Haas and Keeley 1978):

1. What is the conclusion or main point?
2. What are the reasons or evidence?
3. What are the elements of ambiguity?
4. What assumptions are being made?
5. How convincing are the reasons or evidence?
6. What value priorities are evident?
7. Is there important missing information?

Higher-order mental skills are developed by no particular department or course. They are considered every teacher's responsibility. Hence, they are typically overlooked as the teacher plans her classroom activities around those topics for which she has been assigned specific responsibility by her colleagues. An excellent teacher must resist this tendency to ignore high-order mental skills, and the primary path of resistance is to teach students explicitly how to analyze, integrate, and evaluate.

- **Share your performance objectives with your students**

Picture in your mind what an ideal student performance would look like, then prepare your instructions for assignments and tests. If you are fuzzy in your own mind about the behavior expected, the student is forced to play a guessing game. There is nothing particularly exemplary about guessing correctly and excelling on such an assignment. Those assignments with behavioral clarity offer a real opportunity for a more equitable assessment of student performance.

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**T**here is an enormous chasm between what is said in a class and what the student hears or infers.

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- **Provide students with alternative models, visions, or interpretations**

These optional viewpoints or interpretations alert learners to the many questions about which reasonable people frequently disagree. In addition, they tempt the learner to risk personal commitment, to make a judgment. One of the most memorable events for any learner must be when he recognizes that learning is so much more complex than is suggested by simply mastering knowledge. It is exciting to enter a shared quest for better answers on a personal level; it is tedious to memorize and apply pat answers sanctioned by the experts in the domain.

- **Take frequent breaks in lectures or discussions to ask students to summarize or explain the significance of what was just said**

There is an enormous chasm between what is said in a class and what the student hears or infers. Both the student and teacher need feedback about the specifics of that discrepancy. In classroom discussions this technique is particularly effective as a means of encouraging students to listen to one another. Most students know they are supposed to listen to teachers, but they are reluctant to focus attention on the statements of "just another student." Such an attitude is deadly to the classroom that relies on productive student interchanges. One benefit of forcing students to put into words their interpretation of the significance of what was just said is the possibility that their notes will be improved. A useful device for integrating notes from a course is the habit of jotting down *why* a certain topic is being discussed at that particular juncture of the course.

- **Require students to acknowledge the problems identified by your evaluation of their work**

One of the most onerous, but also one of the potentially most rewarding, tasks of the teacher is the evaluation of students' exams and papers. This evaluation optimally should provide information that students can use to improve feedback during the course (Carlson 1978). Thus, for essay assignments specific written comments or ratings assigned to specific criteria are superior to holistic ratings, such as an overall grade. While many forms of specific feedback can contribute to learning, many students cannot use feedback in a corrective fashion unless the teacher takes explicit steps to require such action. In the absence of these explicit evaluative comments, students' initial reactions usually consist of noting that the teacher is indicating something good or bad about their performance. If the learner is to use feedback in a corrective fashion, then he must think carefully about each comment the teacher made on the exam or paper.

One technique for increasing the likelihood that grading will be the learning experience that it *can be* is to incorporate the idea that an assignment or test is not completed when you return the paper or exam to the student. Instead, your comments on the returned work include an imperative for ongoing communication between the student and you. For instance, the student might be required to provide you with a rationale for each of the positive comments on her paper and a correction plus rationale for the correction for each of the negative comments. By attempting to understand what about certain aspects of her work was so positive that she received compliments, the student can replicate those tendencies on future assignments. By correcting

negative comments, the student can focus on what she did not know before or on elements of her work about which she should become more precise.

Further good examples of how to provide useful feedback are provided by Carlson (1978). Also, the *Handbook of Formative and Summative Evaluation of Student Learning* (1971) gives a useful description of how to design tests for feedback.

the instructor does not know the rationale for the score (Eble 1983). This last item is especially controversial because it provides a convenient number by which administrators can rate teachers. What rankles many sensitive teachers about this ranking system is first the murkiness of the criteria used by students to determine the global rating. A second legitimate concern about ratings is the association between favorable ratings and

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**T**he hurried and superficial procedure for filling out these important evaluation forms seems inconsistent with the heavy weight given such forms by administrators.

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- **Share with students your rationale for unique classroom behavior**

Presenting at the outset explicit statements of your values, of your basic assumptions about the educational process, and of how your "different" teaching procedures can help them reach desirable educational goals helps create a feeling in the learners that they are getting something special and unique. Since efforts to become an outstanding teacher will by definition distinguish you as "different," you might as well acknowledge the designation and turn it to your advantage. Students repeatedly indicate that they learn more from those who evince enthusiasm and concern for the quality of teaching, even though they may frequently complain about their own required extra effort. Thus, it is helpful to provide them an explanation for your systematic efforts to enrich the learning process. Such an explanation provides you with a dual opportunity to demonstrate to students that you have carefully reflected about what you are doing as a teacher and to explain exactly why you have adopted the format they are experiencing.

### **Improving Student Evaluation Forms**

The effectiveness of teachers is frequently gauged by student evaluation forms. The forms typically contain questions about the curriculum materials chosen by the teacher as well as questions inquiring about the teacher's clarity, organization, empathy, and knowledge. Most significantly, the forms contain a global rating of the instructor. Such a summary assessment does not serve diagnostic or formative purposes because

factors such as high prior subject interest, higher expected grades, and lower levels of difficulty (Marsh 1983). These correlates of high ratings may be either educationally unsound or beyond the instructor's control.

Reliance on the global rating as the single indicator of teaching performance is based on an overly rational model. Somehow the untrained rater implicitly reviews the relevant (unnamed) criteria and arrives at a reasonable weighted average prior to his designation of the global ranking. The hurried and superficial procedure for filling out these important evaluation forms seems inconsistent with the heavy weight given such forms by administrators.

Despite their flaws, student evaluation forms will be around for a while. Professors are reluctant to evaluate the teaching of their peers in any systematic fashion. Teaching performance needs to be evaluated. Students are viewing the teacher on a regular basis. Consequently, they are and doubtlessly will continue to be the raters of teacher quality. Nearly seventy percent of colleges now use student evaluations as a major source of information about teaching. This number represents a thirty-five percent increase from ten years ago (Seldin 1983).

How can student ratings of teacher performance be improved? One obvious, but unrealistic, improvement would result from a training program for the raters (Keeley and Browne 1978, Pulich 1984). Without a well-conceived idea of the characteristics of teaching excellence, the raters must rely on whatever comes to mind at the point of evaluation. Since training programs for student raters are impractical, the form should highlight those factors that constitute high quality teaching. To a minor extent current forms do make that attempt. How-

ever, their concern for clarity and organization call to the raters' attention only those aspects of teaching that provide a floor on the definition of *acceptable* teaching.

The criteria on rating forms should include questions that teach or remind the student that excellent teaching is much more than a coherent presentation to a class. To the extent that rating forms refer raters to specific behavior rather than to lists of traits, the results will be less ambiguous (Pulich).

The list of behavioral suggestions for excellent teaching contained in this article provides one possible set of questions, the inclusion of which would improve the acceptability and quality of student evaluations. Even if a colleague has low regard for our particular suggestions, he or she may see the need to modify student evaluations in the manner we are proposing. If teachers are to be rated by their students, the evaluations should be based on someone's reflective definition of teaching excellence. Current forms rely heavily on a pedestrian and bureaucratic concept of what a teacher can accomplish.

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*The precepts of cognitive psychology provide highly practical suggestions for teachers and learners. These suggestions make learning more efficient in the present and produce learners who will be more self-sufficient in the future.*

## Practical Implications of Cognitive Theories

*Marilla D. Svinicki*

To adopt cognitive theory is to build one's teaching practice on the following assertion:

**Learners are not simply passive recipients of information;  
they actively construct their own understanding.**

The learner is at center stage. The instructor becomes a facilitator of learning, rather than one who delivers information. This perspective on learning contrasts sharply with models that imply that learners get the point as long as the instructor provides an appropriate stimulus. Cognitive psychology says that the learner plays a critical role in determining what he or she gets out of instruction.

As instructors, we may provide the same information to several students, but we cannot always predict how a student will interpret or use the information. To illustrate this dilemma, consider what comes to mind when you hear the word *cardinal*. Some individuals think of baseball, some of numbers, some of the Roman Catholic church, some of the color red. Some even think of sin; it all depends on background and current mindset. As a teacher, my goal is that when I say the word *cardinal*, everyone in the class makes the same association. It has been shown (Naveh-Benjamin, McKeachie, Lin, and Tucker, 1986) that students who make the same connections and use the same content-organization patterns as the instructor do best on standard measures of learning, no matter how they start out organizing or associating content. This change in the conception of what happens during learning makes big differences



in our perception of what students and teachers do in the classroom. Let us explore what some of those differences are.

### **Redefining the Student Role**

Many students are under the impression that their task in class is passively to absorb what the teacher says in lecture, what is in the textbook, what they see in lab, and what they practice in homework. They are often unaware that what they think they absorb, read, see, or learn from practice may not be what the instructor intends. Their understanding of all these things is strongly influenced by a whole array of variables: their prior knowledge, their interpretation of what is important, the frequency with which they test themselves and their understanding, their perspectives on how all this relates to future use, and so on. Whether they realize it or not, and whether they like it or not, what they learn depends on who they are, where they have been, and what they do. Thus truth is no longer absolute; even the initial intake of information is subject to idiosyncratic interpretation. Scholars in the field of communication have long maintained that both the receiver and the medium are part of the message.

To be most effective, learners must become aware of how their own biases and behaviors filter the information they receive. They must also take a developmental step forward in their understanding of the epistemology of knowledge. They must come to understand that there are multiple ways of interpreting reality. In one cognitive-development model (Perry, 1981), this movement from a dualistic view of the world ("Truth is truth") to a multiplistic view ("Truth is subject to interpretation") carries with it a necessary change in one's view of oneself and in what one does during learning. It is the change from lower cognitive levels (memorization and simple translation of authoritative sources) to higher levels (analysis, evaluation, and acceptance of personal responsibility for one's choices).

### **Redefining the Instructor Role**

For the instructor's role, the first implication of shifting to a cognitive perspective is that neither the teacher nor the content is at the center of the learning universe. Instructors become facilitators of learning. What we say is not necessarily what students get, unless we are very careful and deliberate about how it is presented. Information is easily garbled in transmission. Our job becomes one of minimizing the noise in the transmission, so that all the listeners (learners) interpret our statements in the same way, or in as close an approximation as possible, and store information in long-term memory so that they can retrieve it in the future. Better yet, we hope to convey the message in such a way that the learner can retrieve it without our intervention when the occasion demands. We do this by careful atten-

tion to how the content is structured, how it is sequenced, what examples and activities we use, how we respond to initial learning attempts, and an array of other instructional strategies.

A second implication for the instructor's role is that we are freed from our "Atlas complex" (Finkel and Monk, 1983). The weight of the world of learning does not rest on our shoulders alone; that responsibility is shared with students. They are the ones who must do the learning. They select the learning strategies, monitor their own comprehension, and chart their own future course. What we do is help them understand the tools they need for success and arrange the environment to make success possible.

These are difficult adjustments for teacher and student alike, but, in the end, students are better off. Someone will not always be there to decide for them what should and should not be learned, how to interpret new information, or what to believe. Those choices eventually fall to the learners. The college years are none too soon for learners to become self-sufficient.

### Implications for Teaching

From the cognitive perspective, teachers are faced with two tasks. First, we must organize the course and its content in a way consistent with what we believe about how learning takes place, paying attention to structure, sequence, examples, and activities. Second, and simultaneously, we must help students learn how to learn content, a step in sophistication above the mere learning of content itself. Let us examine how these two tasks are translated into action. Here are six principles drawn from cognitive theory, along with some implications for teaching.

*Principle 1. If information is to be learned, it must first be recognized as important.* Implication: the more attention is effectively directed toward what is to be learned (that is, toward critical concepts and major areas), the higher the probability of learning.

It is easy to see this phenomenon in operation. Consider the way textbooks are structured. Important concepts are highlighted in bold or italic type. This draws the learner's eye immediately to those words, and they are interpreted as important. A lecturer does the same thing by writing a word on the board or putting up an overhead transparency. The lecturer can also highlight concepts by using an outline on the board, indicating the major components of the lecture. Verbal cues, such as "the next main point is . . .," or vocal cues, such as slowing down perceptibly when emphasizing some idea, or repeating something important, can be used as highlighting. Phrasing an idea as a question is another way of drawing attention, by making it stand out from the background. In discussion classes, instructors draw attention to main ideas by writing them on the board, repeating them, incorporating them into a summary, or reacting favorably when they are raised by students.

Likewise, students need to learn to recognize the cues that help them identify what is important. This may be what students mean when they say they have learned to "psych out" the instructor. They learn to pick up cues, however subtle, that the instructor uses to denote the relative importance of material. Eventually, as students become more knowledgeable about the content itself, they can use that knowledge to help determine the importance of new information, without the need for external cues. As noted in the previous chapter, this is one of the differences between the ease of learning in an advanced course and in an introductory course. Without extensive background in a field, all content appears important, and students struggle to master everything. As they learn more, they develop a feeling for what is critical in the discipline. An instructor can do a lot to assist students in recognizing how the discipline determines what is important, by making such discriminations explicit in class. It cannot be accomplished in one class alone. Over the space of several classes, however, students can become more efficient in discriminating the critical features that make ideas important for a field.

*Principle 2. During learning, learners act on information in ways that make it more meaningful.* Implication: both instructor and student should use examples, images, elaborations, and connections to prior knowledge to increase the meaningfulness of information.

It is natural, in the flow of conversation, to cite examples, evoke images through metaphors and analogies, and translate abstractions into concrete instances for ease of understanding. Most instructors use these devices regularly in explaining content. All these devices depend heavily on students' prior knowledge and experience. An example does not clarify a concept if the student has no experience with that example. Saying that a *phratz* works just like a *klogue* does not help if you do not know how a *klogue* works in the first place. Thus it becomes important for an instructor to know students and their backgrounds and to use that knowledge in the selection of activities and examples for use in class.

Students should be encouraged to make their own connections between what is being studied in one class and what they have learned in previous classes or in other settings. For example, students can create personal bibliographies of texts and readings from other courses that are related to the content at hand and then use those materials to supplement assigned readings. Many instructors have students scan the news media for examples related to class concepts. Students can learn to use vivid images and other elaboration strategies, as described in the previous chapter, if the instructor allows time during class for such activities. Instructors can also counsel students to incorporate this practice of making content meaningful into their regular study procedures. An instructor who finds a student having difficulty creating class notes can suggest alternatives to make notes more meaningful. For example, class notes do not have to be exclusively in

prose format; sketches and other visual stimuli can serve as helpful elaborations on a basic text. The common thread in these examples is to encourage students to make connections between what they know and what they are learning.

*Principle 3. Learners store information in long-term memory in an organized fashion related to their existing understanding of the world.* Implication: the instructor can facilitate the organization of new material by providing an organizational structure, particularly one with which students are familiar, or by encouraging students to create such structures; in fact, students learn best under the latter condition.

This principle is at the heart of the cognitive view of learning. We learn and remember information because we act on it in such a way as to fit it into an organized pattern based on our world view. Instructors who present course content in an organized fashion are increasing the probability that students will use that organizational structure to understand and store the content. For a single lecture, this means having a clear outline, displaying that outline as a guide to listening, and maintaining an orderly sequence of concepts and examples. Earlier, we saw that the outline enhances attention; here, we see it playing an additional role in learning.

In the overall course structure, organization means relating logical units of content to one another and building in a regular pattern toward the ultimate goal of the course. The pattern can be chronological, comparative, hierarchical, or representative of any other relationship. Whatever pattern is chosen, it should be made explicit to students.

The second part of the concept of organization is also important: relating the organizational structure to students' existing world views. In the absence of a clearly delineated structure from the instructor, students will impose on content the organization most closely related to their current view of things. Thus, in a history course, the organizational structure that students are most likely to choose is chronological; it is what they are used to and is often their sole view of how history is organized. If the instructor's thinking is organized around some other structure, such as causes and effects, and if that organization is not made clear to students, then class content may appear very confused and disorganized. In the sciences, the influence of students' preexisting organizations shows up in commonsense misconceptions about the causes of everyday phenomena. These misconceptions can create some bizarre attempts to explain events and are often very difficult to overcome.

In the absence of a preexisting organization or one provided by the instructor, students are likely to revert to rote memorization, a technique that may work in the short run but will eventually reach critical mass and produce failure. When new information is not or cannot be tied to old, students may easily encapsulate it as separate from everything else. This makes the new information hard to learn and easy to forget. It pays for the

instructor to be aware of students' backgrounds and predispositions and to clarify which patterns of organizing the content are acceptable and which may be in conflict with those of the students.

Students can learn to recognize or create structures to facilitate their own learning. As noted earlier, one measure of students' grasp of content is the degree to which each student's conceptual map of the content organization matches the instructor's map. Getting in the habit of outlining readings and lecture notes, creating tree diagrams showing the relationships of concepts to one another, and learning other forms of content organization are tools students can use to make learning more efficient. By introducing students to these tools, an instructor helps them move closer to self-sufficiency.

*Principle 4. Learners continually check understanding, which results in refinement and revision of what is retained.* Implication: opportunities for checking and diagnosis aid learning.

Think about how you read different types of material. If you are truly attending to the material and not just skimming it, you constantly monitor your reading. Sometimes you are brought up short when you find a sentence that seems incongruent with your understanding of what has gone before. At that point, you back up and reread, to find the cause of the discrepancy. That practice illustrates comprehension monitoring, an important executive process in learning. In reading, we have the luxury of interrupting ourselves to check on understanding, going back and replaying what we have just read to look for inconsistencies. In classes, however, most students do not have that opportunity, because they are not in control of the pace of the class; the lecturer controls the pace. If they do not understand something or think they hear a discrepancy, few students have sufficient self-confidence to interrupt and ask for clarification. Their usual response is to write down verbatim what is being said and go back and check it later. Poorer students, especially, may have given up the monitoring process altogether, in favor of just getting it all down. They feel they do not have time to think during class.

The instructor could give them that time. Most instructors pause periodically and ask for questions. They may rarely hear the important questions, however, because they seldom wait long enough for students to formulate them. It takes a few seconds to mentally look back over what has just been said and check for understanding. It takes a few more seconds to create a question that will make sense to others and not make the questioner look foolish. That is already six seconds, at the minimum, and only for really good students who have been able to keep up. Most instructors have difficulty waiting even three seconds before moving on; no wonder we seldom get questions. Students do not understand everything perfectly—they are just not fast enough to recognize what they do not understand and then ask.

Once instructors become aware of the need for and difficulty of monitoring, they can take steps to help students engage in this important strategy. For example, as just discussed, learning to wait a little longer after inviting questions (known as *wait time*) can be a big help. An even more significant step is to be very directive about checking understanding. For example, many instructors insert pauses in their lectures, during which students are instructed to write a one- or two-sentence summary of what has just been discussed. One or two of these summaries are then reviewed out loud for accuracy. This practice gets students in the habit of thinking in terms of major ideas and summaries and periodically checking their understanding. Students who have not been able to produce the summaries become aware immediately that they did not understand something and can either ask questions or note their confusion for future questioning or remediation. This practice also provides the instructor with feedback on students' understanding before it is too late to do something about it. These are only a few examples of how monitoring can be built into a class. For additional ideas on monitoring, consult Cross and Angelo (1988).

Students can be encouraged to engage in their own comprehension monitoring. One particularly popular strategy is to set aside a column on each sheet of class notes. In this column, the student records monitoring questions as the lecture or class period proceeds, noting confusions, connections with other ideas, potential test questions, and so on. The mere presence of this column reminds the student to monitor thinking as the class proceeds.

Comprehension monitoring shows up most frequently in suggestions about reading. Students are encouraged to preview the reading and to record questions that they expect to be answered in the material. As they read, the need to answer those questions prompts students to process the reading at a deeper level than mere repetition of the words on the page. Getting in the habit of pausing at each break in the reading (say, where headings appear) and asking questions about what went before is another way of tracking comprehension. There are many possibilities for increasing awareness of understanding and its failure. Most important is to ensure that students see the need to pay attention to their attention.

*Principle 5. Transfer of learning to new contexts is not automatic but results from exposure to multiple applications.* Implication: provision must be made during initial learning for later transfer.

To believe that one exposure to material is sufficient to allow a student to use that information forever in the future is naïve. To believe that a beginning student is able to see all the potential uses for what he or she is learning is also naïve. Indeed, much of their schooling seems to have convinced students of the independence of content; what they learn in math class has no relationship to what they learn in English or chemistry, and vice versa. As instructors, however, we know that knowledge is inter-

related and that using it in different contexts makes it more meaningful and more easily remembered. We also know that, in the real world, students are unlikely to encounter situations for using their new knowledge that are exactly the same as what they experience in the classroom. They must learn how to take what they learn and transfer it.

We can help them make that transfer by building it in from the very start. Our greatest tool for facilitating transfer is incorporating a wide range of application opportunities and settings into the learning situation. The more (and the more different) situations in which students see a concept applied, the better they will be able to use what they have learned in the future. It will no longer be tied to a single context.

An instructor can facilitate transfer through sheer repetition. The more we use a skill or concept, the more automatic its use becomes, until we hardly have to think about it at all. It is the rare student who can learn to solve a complex type of math problem after trying only one example. It takes many hours of practice to become proficient at most things, to reach a level of "automaticity." Why should intellectual skills be any different?

A final facilitator of transfer involves getting students to abstract the principle from the practice. If students can articulate the steps they are taking to solve problems, or if they can extract an underlying concept from a set of examples, then they will be more likely to use that abstraction in a different context. This is known as decontextualizing and is the more complex complement of "automaticity." In practice, an instructor can have students talk to one another about the processes they are going through to solve problems. In so doing, they become aware of the steps they use (Lochhead and Whimbey, 1987). This awareness is then translated into increased ability to apply the same steps, now detached from their original context, to a new situation.

*Principle 6. Learning is facilitated when learners are aware of their learning strategies and monitor their use.* Implication: the instructor should help students learn how to translate these strategies into action at appropriate points in their learning.

These six principles discuss instructors' activities in the context of teaching the content of specific courses, but they also apply to the content of knowing how to learn. (Learning strategies, too, can be viewed as content to be learned.) Attention should be drawn to learning strategies. Their use should be monitored, and their transfer to new settings should be ensured. When an instructor takes on the task of teaching both the content of the discipline and the content of learning strategies within the same course, he or she will enrich students in both areas. There are several objectives and instructional methods for teaching the content of learning strategies.

*Students need to know what cognitive learning strategies are.* Most students are not aware of the different strategies available to them. An instructor can illustrate the strategies that exist by taking every opportunity to point out

the process of learning as it occurs. For example, to help students learn to recognize the cues that indicate the importance of material and the degree of attention it should receive, the instructor, during the first few class periods, can explain the purpose of using visuals or the blackboard to highlight important concepts, as well as how the textbook uses similar techniques to highlight important ideas. After the first lecture, the instructor can illustrate these strategies by taking a few minutes to show students how the organization of the lecture should be reflected in their notes and to remind them of how that organization was made explicit during the lecture itself. At the beginning of the next class period, students can be asked to recall the main points of the previous class and to discuss how the organizational structure helped them remember the main ideas. These are only a few examples of how an instructor can make learning strategies explicit in the context of the course itself. These strategies are applicable to listening in class, reading the textbook, preparing for exams, monitoring understanding, managing time, and a whole range of other general learning situations that students may never have analyzed in just this way.

*Students need to know how to monitor their own use of learning strategies.* Perhaps the best way an instructor can help students get in the habit of using learning strategies is by providing opportunities, within the structure of the course itself, for students to use them. As discussed earlier, the instructor can pause during class to allow students to monitor their comprehension, by asking questions of themselves and of the instructor. An instructor can incorporate an optional learning log, in which students keep track of ways they have applied some of the strategies suggested by the instructor. The instructor can build a component on time and resource management into a term paper assignment, so that students set up work schedules, with goals and action plans, early in the semester and monitor their adherence to or revision of those plans. The instructor can take time after an exam to work with students on understanding how to use errors to diagnose study problems. All these activities both give students the opportunity to use learning strategies in their classes and demonstrate how important the instructor thinks these strategies are.

*Students need to know when to use the strategies they have learned.* This is a more difficult task for the instructor, because much of the decision about when to use a strategy depends on students' individual needs, as well as on the context. Nevertheless, the instructor helps by providing information on what alternative strategies are available and how they can be applied to different situations. He or she can model different strategies while answering questions or solving problems raised in class. Too often, students believe that the instructor immediately knows all the answers to all questions asked; they do not realize that instructors frequently have to think through new problems and new questions, just as students do. Taking the opportunity to work on new problems with students and show how to



approach a new situation serves as a good model for students to understand that different problems require different approaches.

Another opportunity to help students understand the situational contexts of learning strategies occurs when students come individually for assistance. Talking with them about the strategies they have tried, as well as working with them to develop new strategies for attacking new problems, can make them aware of the need to vary the solution with the situation.

*Students need to know how to adapt their strategies to new situations.* This is really the problem of transfer, taken one step farther. Just as we need to vary contexts in order for students to transfer content skills to new situations, we need to vary learning situations in order to show how strategies apply to different situations. Something that would be particularly helpful in this task is cooperation among instructors in different areas. This has been referred to as the *metacurriculum* (Weinstein, 1982): the idea of incorporating instruction in learning strategies into all courses, regardless of content. If instructors in chemistry used the same terms for learning strategies that instructors in history used, students would begin to decontextualize those strategies and then be more likely to apply them to French as well. They may not work identically in all fields, but many of the concepts can be applied across disciplines, or at least in similar contexts (for example, in all language classes or in all fact-based classes).

### Summary

There is a great deal of intuitive appeal to the cognitive approach to teaching. It echoes our own experience as learners and is easy to understand. Applying the approach is more difficult, however, because we must give up our illusion of control. That change shakes the foundation of content as the primary focus of our teaching. We are then faced with the task of adapting to the needs of learners, a varied and unpredictable group. Fortunately, if we accept the precepts of cognitive theory—that learning is active, not passive—we will help to develop more productive learners who will function effectively and independently in the uncertainties of the future. Isn't that what it means to be a teacher?

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*Marilla D. Svinicki is director of the Center for Teaching Effectiveness, University of Texas, Austin.*



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# Promoting Motivation and Learning

Joseph Lowman

**F**ew words are bandied about in college teaching more frequently or glibly than *motivation*. Faculty members sometimes complain about the strength or direction of students' motivation: "My students (or today's students) just aren't very motivated," or "They only care about making money (or having a good time)." Students may mirror these attitudes when they complain about the impact of some teaching on their desire to learn: "Prof. So-and-so's classes are so confusing and boring they kill my motivation to study the material," or "His exams are so tricky and unpredictable they make it very hard for me to keep trying to do my best."

There is surely truth in each of these perspectives: Students do differ in the amount and kind of motivation they bring to classrooms, and teachers can enhance or reduce it. This article reviews research on teaching and student motivation in the college classroom, especially recent studies of the effect of extrinsic rewards on intrinsic motivation and of specific ways instructors can encourage intrinsic motivation.

## Popular Views of Motivation

Motivation is commonly thought of in the larger American culture in an

overly simplified way. For example, popular books (especially those directed toward sales personnel) frequently argue that high achievement comes from setting explicit goals and keeping positive thoughts in the face of adversity (Tec 1980, Emery 1982). An unfortunate consequence of this simplified view is the accompanying assumption that people who seem to lack motivation are weak or culpable for their lack of "get-up-and-go." Anytime we in higher education speak of motivation in a way that assumes that it is something people either have or do not have, we are endorsing this popular (even moralistic) view.

A related notion is that motivation can be increased by positive exhortations from a powerful leader. Our culture has traditionally emphasized the critical role in successful accomplishment of inspirational speeches from the military leader before battle, the athletic coach before the big game, or the sales manager at the start of the workday. The classroom teacher who gives pep talks before exams as a means of encouraging students to do well may be unintentionally endorsing this simplistic view.

A slightly more complex perspective sees motivation as resulting from the interaction of various reinforcers that are positive (carrots) and negative (sticks). The federal tax code exemplifies the belief that the citizenry can be persuaded to spend (or save) their

money in various ways through a complex system of tax credits, deductions, and penalties. Grades, of course, are the sticks and carrots of the classroom. Some students strive for high grades as rewards; others are motivated more by the fear of failure, whether defined by a particular student as an F or D or a C or B (for some even an A-).

Surveys of instructors, students, administrators, and parents show a widespread endorsement of the view that college grades reflect motivational qualities, such as self-discipline and competitiveness, in addition to academic achievement (Milton, Pollio, and Eison 1986). Many instructors assume that grades are the primary if not sole instruments for stimulating students' achievement.

Though there is some truth in both the inspirational speech and reinforcement explanations of motivation, each is obviously limited in accuracy and complexity. Recent research on the subject is substantive and provides many suggestions for classroom instructors.

## Empirical Research

Few topics in psychology have received as much empirical attention as motivation. The feedback-loop analogy of biological needs for food and water has been used widely to describe a variety of personal and social needs, such as the needs for achievement, affiliation, or power. Whether psycho-

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Joseph Lowman is an associate professor of psychology at the University of North Carolina at Chapel Hill.

analytic, humanistic, behavioral, or cognitive, most major theories of human behavior deal with the issue of why we behave as we do (Steers and Porter 1987).

For the college classroom, what are the differences between intrinsic (largely internal and self-defined) and extrinsic (largely externally defined) motivation? According to this well-researched perspective, individuals are moved by these two large sets of forces, the extrinsic coming from external sources

behave in an easily specified way, extrinsic inducements always work more quickly and powerfully than intrinsic ones. Students can be motivated to learn almost anything if promised a sufficiently attractive external reward. Unfortunately, extrinsic attractions must usually be offered indefinitely for the behavior to continue. In contrast, intrinsic interests are slower to motivate new behavior and less certain of being effective, but they are usually more lasting once they take hold.

many types and ages of subjects, in many kinds of settings, and using a variety of experimental manipulations (see Deci and Ryan [1985] for a comprehensive review).

This phenomenon, that extrinsic rewards decrease intrinsic satisfactions, has been interpreted from several psychological perspectives, such as cognitive dissonance theory and three variations in cognitive evaluation theory. Table 1 shows how each perspective would interpret the effect. Using a cognitive dissonance formulation, Deci (1971) initially interpreted the effect as "overjustification"—paying people to do something they like and would do without the concrete reward leads them to see the behavior as overjustified (or overdetermined). They resolve the resulting cognitive tension by devaluing the less salient (and less powerful) intrinsic reward. In later interpretations of this effect, Deci stressed the role of feelings of competence and self-determination in motivating behavior: "If a person's feelings of competence and self-determination are enhanced his intrinsic motivation will increase. If his feelings of self-determination are diminished, his intrinsic motivation will decrease" (1975, p. 141).

A number of studies suggest ways to encourage intrinsic motivation (Deci and Ryan 1985). In order to remain interested in learning, students must feel challenged and must receive feedback on their progress. Using grades or other inducements to emphasize teachers' control over students rather than to give feedback on performance has been shown to reduce intrinsic motivation. Giving students an opportunity to choose learning activities also increases internal attraction (Deci and Ryan 1985).

One study suggested that cooperative learning promotes intrinsic influences (Benware and Deci 1984). College students were assigned an article on neurophysiology to study and were told that in two weeks they would either take an examination on the material or teach it to other students. When they returned, everyone completed a satisfaction questionnaire and an exam on the arti-

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**It is never the case of whether intrinsic or extrinsic motivation is operating but of how strong each is in a given situation.**

and often tangible and intrinsic coming from within, usually in the form of intangible personal satisfactions, such as feelings of self-determination and competence (Deci 1975; Deci and Ryan 1985). Although intrinsic motivation is generally more desirable, it is not sufficient to suggest that college instructors strive to encourage intrinsic satisfactions and discourage extrinsic rewards. Empirical research on these kinds of influences indicates that they are related to each other and to learning in complex ways.

For example, it is never the case of whether intrinsic or extrinsic motivation is operating but of *how strong* each is in a given situation. Some students may be highly impelled to learn for intrinsic reasons but still enjoy the challenge of meeting an external demand by taking an exam or submitting a paper for criticism. Other students may dread beginning a paper, care primarily about the grade they receive, but still find the reading and writing pleasurable once they begin and become caught up in the creative process. Extrinsic persuasion cannot be abandoned altogether, but it can be deemphasized.

In addition, if an instructor wants students to begin a new behavior or to

#### **Extrinsic Rewards Decrease Intrinsic Motivation**

Even more complex are the ways extrinsic rewards influence intrinsic motivation. A common method to investigate this issue is to ask subjects to arrange complexly shaped objects to match three-dimensional patterns displayed on paper, a very engaging task for most college students. After building a few of the designs, half of the subjects are promised \$1.00 for each correct construction and half are asked to continue working. Afterward, the subjects in each group are observed during a seven-minute "free period" during which the objects and additional patterns were available, but no explicit instructions were given about their use.

A number of studies using this paradigm consistently found that subjects who were paid spent much less time working with the puzzles during a free period (Deci and Ryan 1985). Conversely, students not given explicit rewards who presumably were receiving mostly self-administered intrinsic rewards spent much more time working on the puzzles during their free time. This effect has been replicated with

**Table 1.—Theoretical Perspectives of the Negative Influence of Extrinsic Rewards on Intrinsic Satisfaction**

Perspective	Formulation
Cognitive dissonance: Over-justification	Performing an act for competing motives (intrinsic and extrinsic) leads to tension, which is reduced by devaluing the weaker, intrinsic motive
Cognitive evaluation: Perceived causality	Extrinsic rewards shift the perceived causality for our own behavior from an internal to an external locus
Cognitive evaluation: Self-determination	External rewards reduce our sense of choice and self-determination over our own behavior
Cognitive evaluation: Integrated theory adding self-competence	Intrinsic motivation results from an internal perceived causality and a sense of personal competence, in a context of choice and self-determination

cle's content. Those expecting to teach the material were then told that they had been randomly selected to take the exam first, to see if knowing how their students would be evaluated helped their teaching.

The results showed that subjects expecting to teach were more intrinsically attracted to learning the content. They had higher scores on questions measuring conceptual learning and identical scores on those measuring rote learning. Expecting to apply what they were learning apparently increased students' focus on higher-level learning objectives as well as their intrinsic interests.

The deleterious effect of extrinsic rewards on intrinsic satisfactions has proved to be very robust. Although there may be different interpretations of the research, it is clear that powerful extrinsic rewards can reduce the effectiveness of more subtle intrinsic ones. Likewise, we know that giving choices to students and reducing instructors' external control increase intrinsic desire. We still need to explore how extrinsic and intrinsic motivation can work together optimally and how behaviors begun under external rewards can become controlled intrinsically.

### Learning and Grading Orientations

The dimensions of learning orientation and grading orientation (Eison 1981) in college classrooms are very much like intrinsic and extrinsic motivation. Students with a strong interest in learning (and a weak grading orientation) tend to see "the college classroom as a context in which they expect to encounter new information and ideas that will be both personally and professionally significant" (Milton et al. 1986, p. 126). In contrast, students with a stronger interest in grades than in learning "view the college experience as a crucible in which they are tested and graded and which is endured as a necessary evil on the way to getting a degree or becoming certified in a profession" (Milton et al. 1986, p. 126). Eager learners are surely more intrinsically attracted, whereas students concerned about grades are more extrinsically influenced.

Using different versions of his LOGO (learning orientation/grading orientation) scale, Eison and his colleagues measured the strength of learning vs. grading in students' expectations and in faculty evaluation techniques (see Milton et al. [1986] for an overview of

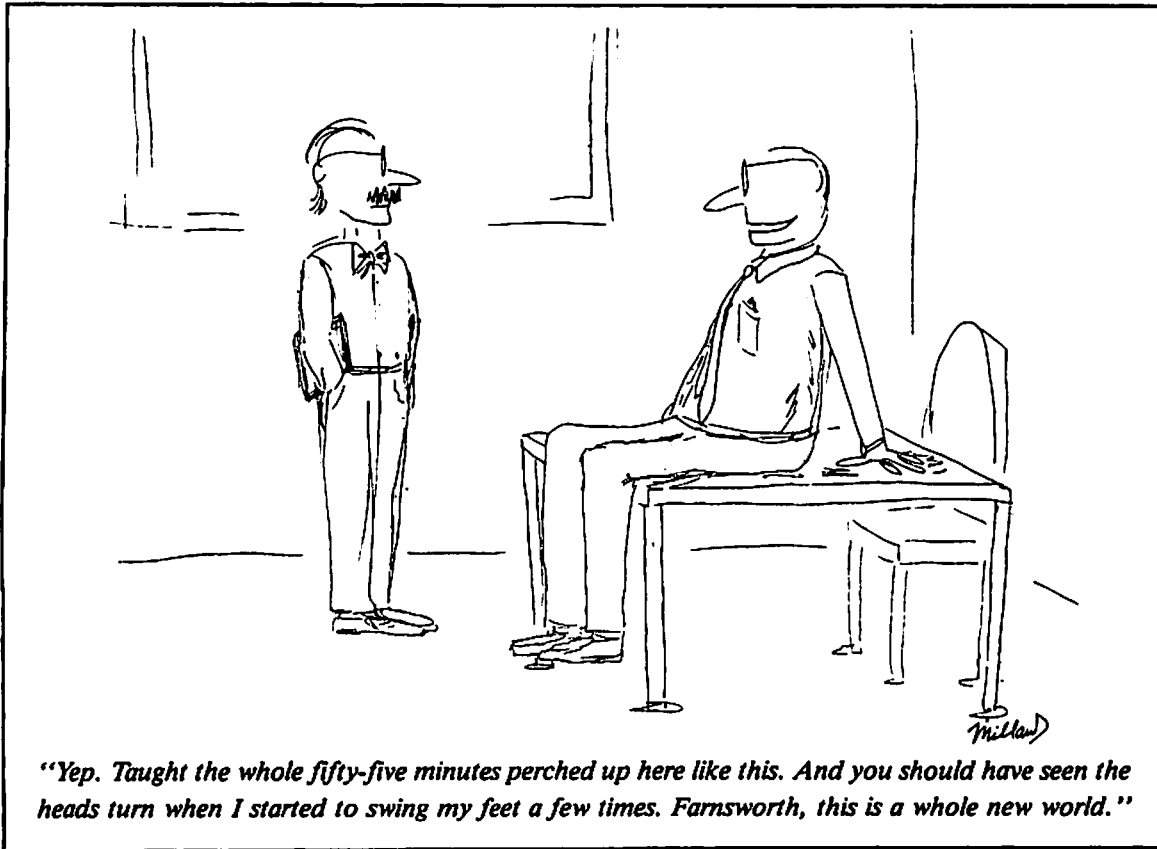
these studies). Their findings are provocative. For example, students interested in learning were found to be more emotionally stable, trusting, imaginative, self-sufficient, and relaxed on the Sixteen Personality Factor Questionnaire than those oriented toward grades. The latter students also reported more debilitating test anxiety and strong concerns about impressing instructors.

Though most faculty members advocate a learning orientation in students, Eison's research demonstrates that many instructors unwittingly encourage an emphasis on grades. For example, stressing extrinsic rewards (such as a complex system of credit points) and using grades to control nonacademic behavior—by lowering grades for missed classes or late exams or papers—encourages a grading orientation. In contrast, designing evaluations that give instructive feedback, assigning ungraded written work, and stressing the personal satisfactions of assignments encourage learning. The parallels between LOGO research and intrinsic and extrinsic motives are striking.

### Implications for Motivating Students

College instructors most skillful at motivating students to work and to learn share a number of qualities (Lowman 1984). They recognize that students vary greatly in academic abilities and in interests and attitudes toward work and authority. Because extrinsic attractions are powerful and widespread in our culture, many students are influenced by the rewards of meeting others' expectations and have weak capacities for self-reinforcement. Skilled instructors accept the necessary extrinsic role that evaluation plays—if intrinsic satisfactions were sufficient, there would be no need for external influences. But good teachers also deemphasize grading as much as possible and encourage students to develop their intrinsic motives.

Teachers who wish to increase their students' motivation should be concerned about their evaluation methods. Though studying for exams and writing papers are largely extrinsic activities,



they offer some possibility for intrinsic satisfactions also. Teachers who over-emphasize exams as external ordeals by making them difficult to complete in the allotted time may promote debilitating anxiety as well as a narrow focus on rote memorization. To increase an interest in learning, teachers can use evaluation methods that encourage conceptual learning without threatening students. *Making Sense of College Grades* (Milton et al. 1986) offers a wealth of specific suggestions on how to minimize the negative and promote the positive consequences of evaluation.

Interest in learning and inner motivation can also be increased by avoiding subtle—or blatant—messages that promote faculty power over students. When teachers joke about the difficulty of their exams (“Don’t worry about making an A; just hope you all don’t make F’s—hah—hah!”), they emphasize their ability to give external rewards or punishments. Saying “I require,” “you must,” or “you should” when discussing assignments underscores the teacher’s power. Conversely,

choosing phrases such as “I hope,” “I think you will find,” or “I will be interested in your reaction,” deemphasizes the instructor’s power over students and strengthens their incentives for learning.

Most long-term objectives for students involve independent behavior based on internal satisfactions. Many college students are still in transition from adolescence to adulthood and are still learning to balance meeting others’ expectations with thinking for themselves. The life-long learning that educators espouse is unlikely to result from encouraging dependence and external motivation. Thus, faculty members have both a responsibility and an opportunity to encourage the growth of intrinsic satisfactions and the rewards of learning in students. Because overemphasis on extrinsic rewards tends to weaken intrinsic ones, it is necessary to reduce extrinsic forces as well as to encourage inner attractions. Instead of complaining about unmotivated students, faculty members should examine their teaching and

grading practices and strengthen those that encourage intrinsic motivation.

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**Group-Inquiry Turns Passive Students Active**

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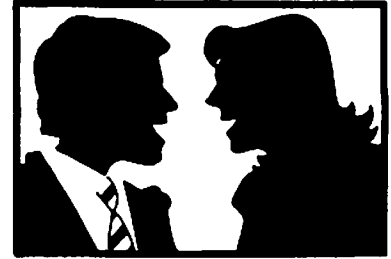
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# Group-Inquiry Turns Passive Students Active

ROBERT G. KRAFT

Several years ago I won an award for “excellence in teaching.” I know this is not a modest way to begin. I mention it because it created a problem for me. Students often assumed I was some combination of Bob Hope, Leo Buscaglia, and Albert Einstein. Of course they were disappointed, and sometimes they told me so.

And they were right, as I’m rather short on wit and humor. I’m too earnest and have a tendency to preach. In fact, I don’t think students like me especially, but they like what goes on in my classroom.

What goes on is group-inquiry. Simply, my class is divided into groups of five. These groups are asked to inquire into the central problems of the subjects under study. They read about and write about these problems, then read their discoveries to their own group. Then they report their consensus to me and the rest of the class. At that point we all get a chance to challenge and modify. Later, they write new papers and argue some more. The whole process is busy, noisy, and powerfully effective.

It took me thirteen years of study and classroom experiments to develop this form of group-inquiry. It came out of a conviction that students did not grow and develop, did not genuinely learn, with traditional teacher-dominated practices. I now believe such practices are obsolete and must be abandoned in favor of something like group-inquiry.

I’ve tried to describe the process to the many teachers discouraged with business-as-usual classes. But they are

usually suspicious and reluctant, just as industrial managers often are with “participatory management.” The program is so different from what they’re used to; they simply can’t imagine it. “How do you motivate students to do all that?” they ask. Finally they dismiss it as my

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**T**hey write new papers and argue some more. The whole process is busy, noisy, and powerfully effective.

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unique style, not something they could use. That always disappoints me, but I know the habits of decades are not easy to question, much less dislodge.

Recently, the clamor for improved teaching has become louder. Also, some new evidence—one might even call it proof—suggests that the usual classroom practices don’t work and must be replaced by something more active and involving. All this renews my hope, because the specific complaints are so beautifully eliminated in group-inquiry.

## Passivity and Emotional Flatness

Complaints are coming from all over. Of the blizzard of K-12 education reports in 1983—most of them not just critical but *alarmed*—the most substantial was UCLA Dean John Goodlad’s *A Place Called School*.

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*The author is a professor of English at Eastern Michigan University in Ypsilanti.*

His immense three-year study concludes that secondary classrooms in the core subjects utterly lack effective learning atmosphere. Goodlad says these classrooms are monuments to "passivity and emotional flatness." They are dominated by endless teacher-talk and textbook exercises mechanically performed. Little in these classrooms will engage an adolescent's mind. As a consequence, "boredom is a disease of epidemic proportions."

Critics of higher education are acutely aware of the same problem. The National Institute of Education convened a Study Group on the Conditions of Excellence in American Higher Education. That group chose to call their 1984 report, "Involvement in Learning."

the lecture encourages. As a result, students disengage from genuine involvement and come to believe that learning is the same as note-taking.

The results are predictable. As Professor Lewis Schipper puts it, students "substitute mechanical learning for real learning. We emphasize extraneous motivation (exams, grades, credits, degrees), and students substitute short term memory for comprehension."

### What To Do about It

But what to do about it? Most teachers have never been convinced there are better ways. Their own

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**F**ormerly, students disengaged from genuine involvement and came to believe that learning was the same as note-taking.

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The study group recommends that faculty "make greater use of active modes of teaching and require that students take greater responsibility for their learning." The group specifically asks for "small discussion groups, especially in large classes," and for "in-class presentations and debates." Students must "hone their skills in writing and speaking, to extend their abilities in critical thinking and analysis." The NIE group insists that such approaches are essential because "students are more apt to learn content if they are engaged with it."

The Association of American Colleges Committee on the Baccalaureate Degree makes essentially the same points. They insist that "teaching comes first." They call for more inquiry and critical analysis through a celebration of "literacy: writing, reading, speaking, listening." Specifically, they urge faculty "to allow for more reading . . . and fewer lectures, those invitations to passivity and pencil-pushing that are generally, although certainly not always, educationally counterproductive."

### Once Again, the Failure of the Lecture

Past critics have also focused their complaints on the lecture. Yet the lecture dominates higher education and is often defended, mostly because professors have never seen successful alternatives. So they are unmoved when human development experts complain. In *The Adult Learner: A Neglected Species*, Malcolm Knowles says, "The best education takes place in nursery school and kindergarten. . . . It tends to get progressively worse . . . reaching its nadir in college." Generally, such complaints fix on the routine, "pencil-pushing" passivity

teachers—inspiring people among them—were lecturers. Other classroom practices they've heard of, or tried, seem no better, maybe worse. "Class discussion" often adds up to random and meaningless conversations with just a few students, many of whom are more aggressive than bright. And Socratic questioning generally falls flat. Since teachers know the answers, students won't offer any, because they feel they are being set up to look foolish.

Newer alternatives have been available for a long time, but they have rarely been put together in a coherent program or systematically demonstrated.

Group-inquiry is one such alternative. Most students find it irresistible and often ask me why everyone doesn't do it. They say, "It makes so much sense." It can be adapted to teaching any discipline. Teachers who understand it and try it never return to traditional practices, because it's simply easier and so obviously more effective.

But group-inquiry takes experimenting and getting used to. It's fundamentally different from what teachers and students have known. It requires that students take over much of what teachers did in traditional classes.

The central problem of teaching, then, is the conflict between the processes of genuine learning and the business of schooling. A good teacher understands this first, and then finds ways to minimize this conflict. Group-inquiry is one such way. Students tell me they often forget about their grades in working together to find answers. And because of their higher involvement, they usually do better on exams and get higher grades.

But for all this to happen, teachers must understand

precisely what they're after. Like coaches, they must have clearly defined goals; they must know what they want students to do, learn, and become. Vague goals like "an enlightened awareness of the subject" will not do.

### Developing Skills

Although educators debate about goals, there are goals most of us agree on. We agree, for example, that students must develop certain skills to assure continued learning and job success. In fact, employers and educators generally agree on the skills needed. When surveyed by a joint committee set up by Congress, employers asked for ten basic skills in graduates. Of the ten, six are especially pertinent to group-inquiry:

1. A functional command of the English language in its written and spoken forms.
2. The ability to reason, solve problems, and understand the consequences of alternative courses of action.
3. The ability to read, comprehend, and interpret written materials.
4. The ability to write in a clear, concise manner with correct grammar.
5. The ability to communicate orally.
6. A capacity to deal constructively and effectively with others.

In traditional classrooms, only teachers practice these skills. They write, speak, consult, organize, and solve problems every day. Teachers become highly skilled.

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**I**n every class meeting students work on a series of activities defined and organized by a teacher who acts as a kind of chief executive officer.

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But students rarely practice any skills at all, except for an occasional paper or essay exam, done in isolation.

Group-inquiry, on the other hand, reverses the usual functions of student and teacher. The students conduct the class. They read, inquire, write, work together, and present orally. They simply take over. And they do it in *every class meeting*, in a structured series of activities defined and organized by a teacher who acts as a kind of chief executive officer.

### How It Works

Here, briefly, is how the enterprise of "Introduction to Fiction"—of which I am chief executive—works.

I randomly divide my class of forty into teams of five.

### Students Discover That:

- They enjoy hearing the solutions of fellow students to the same problems they've struggled with.
- They can, in fact, come up with solutions, but they have to read closely and formulate ideas carefully.
- They must have a clear idea with some support for it, or no one will take notice.
- They have to write well to be taken seriously.
- They have some smart people around them.

After reading a work of fiction, let's say, *Huckleberry Finn*, each team is assigned a problem, such as, "How does Huck Finn change as he goes down the river?" As homework, each team member reads, rereads when necessary, and writes a preliminary response to the problem. On returning to class, students read their responses to their team. The team members alternate to present their consensus response to the other teams who are working on other, related problems. A team may also ask students with the best analyses to read them to the whole class. Then the teacher and the other teams are free to affirm, refine, contradict, or debate what's presented.

All teams present their solutions in turn. After the class completes the process, students are asked to write another, more complete and refined response about any of the problems raised. These more finished responses are also read aloud in the individual teams; some are selected for reading to the entire class. They are also turned in for grading.

At first, student reactions to all this are mixed. A few resist all the required writing and speaking; they drop out right away. Many take to the program quickly; it's what they've always wanted to do. And there are always some few who disdain the notion that they should listen to other students' responses. They decide they will just wait for "the word" from me.

The great majority, however, are willing, curious, and decide to wait and see. At first they find the process of inquiry puzzling. School for them has usually been a matter of right answers to a teacher's questions. They are perplexed that there are no objective answers and feel a bit helpless. They tell me they're "ignorant" and apologize profusely. Often, after a preliminary "I don't know," they write some interesting responses.

After a few weeks of group-inquiry, all the students make some discoveries. Eventually, all the students come to like the program. Some complain that it's not going on in all their classes.

The results—short and long term—are most gratifying. No student has ever reported disappointment in the

course. (Some have reported disappointment in *me*. But they readily separate *me* from the course.) No student has ever reported a preference for traditional approaches. On the contrary, enthusiasm for the program has been consistently high, even after the course has been over for some time. In recent months, I've encountered three students who were in past classes, one of them seven years ago. All three mentioned a work of fiction from the class, how they still think about it, use it, or how they are reminded of it in something they've felt or observed. And the ultimate reinforcement for me: one student told me he has changed his major to literature and he'd like to be a teacher.

### Why Group-Inquiry?

Group-inquiry works so well because it's based on learning principles we all recognize. The principles re-

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**S**tudents learn most permanently in an atmosphere of high feeling: enthusiasm, joy, even anger.

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mind us of how and why we learned. These are most important:

1. Students must be *genuinely interested* in what they're learning, apart from exams, grades, degrees and the paraphernalia of school.
2. Students are most interested when subjects are defined in terms of experience and concrete problems. That's why case studies are so useful. Abstract discussions do not sustain interest for long.
3. Students must dig out and test their own answers. Answers from authorities are not internalized and are quickly forgotten. That's why lectures and textbooks have limited use.
4. Students are most likely to think about their subjects when asked to write and speak. Thinking is composing; composing is thinking.
5. Students learn most permanently and with most pleasure in concert with other students. We all learn alone, but learning with others powerfully enhances learning and is crucial for most students.
6. Students learn most permanently in an atmosphere of high feeling: enthusiasm, joy, even anger. Teachers must acknowledge and encourage genuine feeling of all kinds in the classroom.
7. Students will learn most permanently and are encouraged to learn more when their learning is rewarded. Threats and punishment have uncertain effects. Often, punishment kills the desire for further learning.
8. Students are most committed to learning when they participate in planning and organizing their learning.

### Group-Inquiry Problems Must:

- Pertain to the central issues of the course and the work under study.
- Be written simply and clearly.
- Be open-ended; that is, they must allow for a number of possible responses.
- Require close observation and analysis; they cannot be simply "fact" questions with clearly right or wrong answers.
- Have a certain natural appeal, a "real-life" interest which can comfortably engage students.

### The Teacher's Role

My role in all this involves less work than in my earlier, traditional approaches. But group-inquiry is *much* less burdensome for me because the students carry most of the responsibility to make it all work. Planning is easier because there is a pattern of activities everyone knows and follows. And group-inquiry is certainly more stimulating.

But some teacher tasks continue. I give some introductory lectures to explain the hows and whys of the program. I present all necessary information—material I used to lecture about—in printed handouts and, in some classes, a coursepack. I also write analyses of some of the problems I assign and then read them to the class, so students can observe how I do them. Finally, I referee their discussions, usually to paraphrase their remarks in terms everyone will understand easily.

I give no quizzes and few exams. I respond to all papers and carefully review the finished ones. My primary job is to organize all this, define, and assign the problems, which must have the features listed in the box.

At first, preparing all this material was no easier than preparing lectures. But I find I only need to do it once. In the following semesters I only refine the problem questions, or add and subtract as necessary. The rest of the program requires little preparation unless I introduce new material. Mostly, I have to keep the program running smoothly.

I have some ways to grease the wheels. Group-inquiry seems to work best in an atmosphere of first-name informality, even festivity, so I introduce myself and ask for introductions all around. I encourage everyone to be open and personal. I also praise and reinforce whenever honestly possible. Which is *often*.

I reshuffle the teams once or twice during my fifteen-

week term and serve as trouble-shooter and resource person. As the term moves along I do less and less. When students get comfortable with the program, I like to add variety. I ask for panel presentations and other special performances. Any glitches in the program are discussed with the class. All "fixes" come out of class consensus.

actually resulted in a net loss in the quality of student writing.

Hillocks found that all other ways of teaching were more successful. Even unstructured classes, in which students got together to read what they had written and congratulated each other, produced greater gains than the presentational.

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**T**he challenge in the problem-solving, added to the constant and competitive social interchange, generates an interest no teacher alone can duplicate.

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The long term consequences for me are that teaching has become unpredictable and, so often, surprising and exciting. I don't get bored; I never worry about burn-out. And there have been more tangible rewards such as the aforementioned annual award for "excellence in teaching," won largely because of student testimonials.

So, of course, I believe in group-inquiry for any teacher. As long as a teacher understands and commits to the learning principles operating here, and the specific skills students must practice, all kinds of variations are possible. Group-inquiry works especially well because it makes every student active and visible. The challenge in the problem-solving, added to the constant and competitive social interchange, generates an interest no teacher alone can duplicate. However inert some students are inclined to be, they find it hard to stay uninvolved.

### Who Says It Works?

How do I know group-inquiry works better than traditional practices? I want to answer, "Ask my students." But since you can't do that, a quick review of a University of Chicago study may do as well.

Professor George Hillocks, Jr., working under a grant from the Spencer Foundation, conducted a "meta-analysis," called, "What Works in Teaching Composition." He examined over 500 experimental studies conducted between 1963 and 1982. He tried to find out what kind of classroom practices produced the greatest gains in the quality of student writing. He did a careful statistical analysis, rigorously controlled for the countless variables involved.

Hillocks found that the usual "presentational" way of teaching, "emphasizing the role of teacher as presenter of knowledge, including lecture and teacher-led discussion" was *ineffective*, producing either slight gain or no gain at all. Some of the presenter's class activities, notably workbook exercises in grammar and mechanics,

One way of teaching was dramatically more successful than all others. It produced a difference in effect three to five times greater than all other ways. Hillocks calls it, "environmental." In his description you will recognize group-inquiry:

"Environmental" emphasizes specific objectives with materials and problems selected to engage students with one another. Teachers minimize lecture, but structure activities so that students work on particular tasks in small groups before proceeding to similar tasks independently. While teachers provide brief introductory lectures, principles are not simply announced and illustrated, but are approached through concrete problems, the working through of which not only illustrates the principles, but engages students in their use.

Hillocks concludes, "Clearly, the environmental mode is responsible for higher gains than the other modes."

I'm not aware of massive studies like this in the teaching of other disciplines. But this study is relevant to all teaching.

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**E**ven unstructured classes, in which students got together to read what they had written and congratulated each other, produced greater gains than the presentational.

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### The Unmajor

I once met a clothing salesman who told me he had a degree in history. I brought up the Russian Revolution, but he seemed to have little interest, recall, or sense of

that event. I got off the subject quickly when he said, "I guess I've forgotten all that."

He majored in history but never got involved in it. No one ever asked him to. He was only asked to take some courses, some notes, and some examinations. If you talk to enough people about what they studied in school, you will find that this history unmajor is the rule, not the exception.

If teachers and schools are to improve, educators and the public at large must surrender some comfortable assumptions. They must give up notions that students have learned because they: were told; took a course; attended class, read the text, and listened; scored well on exams; and/or have diplomas and degrees.

Students learn only because they want to, deeply care to, and invest themselves in it. We can no longer afford to *hope* they will care and invest. They won't. Not if we continue the same deadly routines in school.

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## CASE 1985 Professor of the Year

### **William Marvin Bass III** Professor of Anthropology University of Tennessee

Professor Bass was selected from 256 nominees from 41 states and Canada. The Council for Advancement and Support of Education (CASE) sponsors the annual competition, which is funded by the Carnegie Foundation for the Advancement of Teaching.

The University of Tennessee professor was chosen as winner from among ten Professor of the Year finalists. The others are:

**Robert G. Albertson**  
Professor of Religion  
University of Puget Sound, Washington

**Kenneth Eble**  
Professor of English  
University of Utah

**Ray A. Hefferlin**  
Professor of Physics  
Southern College Seventh-day Adventists,  
Tennessee

**Emil T. Hofman**  
Professor of Chemistry  
University of Notre Dame, Indiana

**Robert W. Mann**  
Whitaker Professor of Biomedical Engineering  
Massachusetts Institute of Technology

**Donald B. McIntyre**  
Professor of Geology  
Pomona College, California

**Russell A. Peck**  
Professor of English  
University of Rochester, New York

**Charles E. Ratliff**  
Kenan Professor of Economics  
Davidson College, North Carolina

**Benjamin Franklin Richason, Jr.**  
Professor of Geography  
Carroll College, Wisconsin

# Strategies to Extend Student Thinking

- 1. Remember “wait time.”**  
Provide at least three seconds of thinking time after a question and after a response.
- 2. Utilize “think-pair-share.”**  
Allow individual thinking time, discussion with a partner, and then open up to class discussion
- 3. Ask “follow-ups.”**  
Why? Do you agree? Can you elaborate?  
Tell me more. Can you give an example?
- 4. Withhold judgment.**  
Respond to student answers in a non-evaluative fashion.
- 5. Ask for summary (to promote active listening)**  
“Could you please summarize Sara’s point?”
- 6. Survey the class.**  
“How many people agree with the author’s point of view?”
- 7. Allow for the student calling.**  
“Juan, will you please call on someone else to respond?”
- 8. Play devil’s advocate.**  
Require students to defend their reasoning against different points of view.
- 9. Ask students to “unpack their thinking.”**  
“Describe how you arrived at your answer.”
- 10. Call on students randomly.**
- 11. Student questioning.**  
Let students develop their own questions.
- 12. Cue student responses.**  
“There is not a single correct answer to this question. Consider alternatives.”

# Vanderbilt University

## Center for Teaching

### Teaching Problem Solving

- Tips and Techniques
- Expert vs. Novice Problem Solvers

## Tips and Techniques

### Communicate

- Have students **identify specific problems, difficulties, or confusions**. Don't waste time working through problems that students already understand.
  - If students are unable to articulate their concerns, determine where they are having trouble by **asking them to identify the specific concepts or principles** associated with the problem.
  - Make students **articulate their problem solving process**.
    - In a one-on-one tutoring session, ask the student to **work his/her problem out loud**. This slows down the thinking process, making it more accurate and allowing you to access understanding.
    - When working with larger groups you can ask students to provide a written **"two-column solution."** Have students write up their solution to a problem by putting all their calculations in one column and all of their reasoning (in complete sentences) in the other column. This helps them to think critically about their own problem solving and helps you to more easily identify where they may be having problems.
- Two-Column Solution (Math)
- Two-Column Solution (Physics)

### Encourage Independence

- **Model the problem solving process** rather than just giving students the answer. As you work through the problem, consider how a novice might struggle with the concepts and make your thinking clear
- Have students work through problems on their own. Ask directing questions or give helpful suggestions, but **provide only minimal assistance** and only when needed to overcome obstacles.
- Don't fear **group work!** Students can frequently help each other, and talking about a problem helps them think more critically about the steps needed to solve the problem. Additionally, group work helps students realize that problems often have multiple solution strategies, some that might be more effective than others

### Be sensitive

- Frequently, when working problems, students are unsure of themselves. This lack of confidence may hamper their learning. It is important to recognize this when students come to us for help, and to give each student some feeling of mastery. Do this by providing **positive reinforcement** to let students know when they have mastered a new concept or skill.

### Encourage Thoroughness and Patience

- Try to communicate that **the process is more important than the answer** so that the student learns that it is OK to not have an instant solution. This is learned through your acceptance of his/her pace of doing things, through your



refusal to let anxiety pressure you into giving the right answer, and through your example of problem solving through a step-by-step process.

## Expert vs. Novice Problem Solvers

Experts (teachers) in a particular field are often so fluent in solving problems from that field that they can find it difficult to articulate the problem solving principles and strategies they use to novices (students) in their field because these principles and strategies are second nature to the expert. To teach students problem solving skills, **a teacher should be aware of principles and strategies of good problem solving in his or her discipline.**

The mathematician George Polya captured the problem solving principles and strategies he used in his discipline in the book *How to Solve It: A New Aspect of Mathematical Method* (Princeton University Press, 1957). The book includes a summary of Polya's problem solving heuristic as well as advice on the teaching of problem solving.

"The teacher should put himself in the student's place, he should see the student's case, he should try to understand what is going on in the student's mind, and ask a question or indicate a step that *could have occurred to the student himself.*"

– George Polya, *How to Solve It*

Novices in a particular field typically have not yet developed effective problem solving principles and strategies. **Helping students identify their own problem solving errors** is part of helping them develop effective problem solving skills. Beverly Black and Elizabeth Axelson's list of common problem solving errors, adapted from Arthur Whimbey and Jack Lochhead's book *Problem Solving and Comprehension* (Lawrence Erlbaum, 1999), provides useful insight into the mindset of a novice problem solver.

## Teaching and Learning – inquiry, experimentation, reflection

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# Essays on Teaching Excellence

## *Toward the Best in the Academy*

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## Critical Thinking by Design

Joanne Gainen Kurfiss, *Santa Clara University*

Students frequently complain when professors require them to think critically about course concepts. Professors, in turn, are often surprised or even offended by these complaints. Yet when we consider the intellectual demands of critical thinking, and the virtual absence of instruction students receive in how to use knowledge, we can see why thinking critically about an unfamiliar subject might be challenging- even threatening- to many students.

Critical thinking is often thought to be a general ability that students either possess or lack, but much of what critical thinking entails is specific to particular fields and can be learned (see Kurfiss, 1988, for a review). However, learning to think rarely enters the educational scene when "covering" a fixed quantity of "content" occupies center stage in teaching. Must acquisition of knowledge precede thinking, as many educators seem to believe?

Critical thinking is the mental work involved when we investigate complex questions. The quality of the outcome depends upon many factors, including:

- How much we know about the subject and how easily we can retrieve relevant information;
- What we know about how to conduct inquiry in a particular subject (which includes the kinds of questions we ask and how we attempt to answer them);
- How well we organize our inquiry (for example, the goals we set and the ways we monitor and revise them);
- Our assumption that knowledge is constructed through human inquiry and must be judged according to criteria of adequacy rather than standards of ultimate truth (a view shared by academics but generally not by undergraduates), and
- How much we care about the work (Kurfiss, 1988).

When courses are designed to emphasize knowledge acquisition, only the first of these facets of critical thinking comes into play. The rest are left to a hypothetical future which materializes, if at all, in graduate school. So when we ask students to think about course content, we should not be surprised if they object. They have not been taught how to think about the subject, and they may have no intrinsic reason to pursue it.

If we believe students cannot think until they "know" a lot, and if teaching for information crowds out learning to think, how and when will critical thinking abilities develop? To escape this impasse, let's explore an alternative proposition: *students' ability and willingness to think critically are most likely to develop when knowledge acquisition and thinking about content are intertwined rather than sequential.*

I have said that critical thinking is the mental work involved in formulating and pursuing complex questions. Questions are powerful motivators of inquiry; what frontiers of knowledge have ever been pushed back without them? Yet questions are disturbingly absent from college classrooms. Less than 4% of class time is spent in questioning, and fewer than one-third of professors' questions invite complex thinking. Students' questions are rarely heard in classrooms (Barnes, 1983).

The absence of questions is the direct consequence of our faith in the content coverage myth. When our goal is to "cover" the content, efficiency and accuracy in delivery of information become measures of "effectiveness." If we

ask questions, we may have to "waste" time correcting inaccuracies in students' responses. If we permit students to ask questions, we may fail to reach our content goals. Yet students' "inaccurate" answers to our questions, and their "irrelevant" questions to us, reveal the true "effectiveness" of our "delivery system."

In contrast, when courses are designed to get students to ask and answer questions about the subject, our students can practice thinking *while they acquire knowledge*. Courses organized around intriguing open-ended questions arouse curiosity about the subject from the first day of class. Students will try to answer them if their questions connect the topic to something they know, and if they believe their answers will be taken seriously. Of course their initial attempts to answer these questions will be limited, even crude. But *their* attempts lie on the frontier of their knowledge, where all real learning takes place. Textbooks and library materials become resources for that inquiry rather than boring encyclopediae of disembodied information to be memorized for examinations.

Small group work, class discussions, and writing can be used to help students deepen their understanding of the subject, generate new questions, and reflect on the inquiry process. Small groups (4-6 students) can be used with good results even in very large classes (Bouton and Garth, 1983). Groups provide a forum where all students can argue about questions and develop their ideas. Reports from group representatives stimulate lively whole-class discussion since group members become invested in their work and want to test it in the public forum. Differences that inevitably arise lend new impetus to the inquiry. The professor's role is to mediate the discussion, encouraging students to check their facts, listen thoughtfully to divergent views, and evaluate their reasoning.

Frequent, short writing assignments help students clarify concepts, prepare for discussion, and practice critical thinking skills such as interpreting data (Griffith, 1982). Writing short essays in response to analytical questions fosters more learning and thinking than does notetaking or responding to study questions, and students with the least background knowledge gain most (Newell, 1984). For longer assignments, students can exchange drafts of work in progress, gaining multiple benefits of giving and receiving criticism and learning about each others' projects. Sharing their writing helps students to discover that to know a subject involves more than accumulating information about it.

The quality of students' work improves when they have argued their ideas in class and discussed work in progress, which may make grading less traumatic and even potentially satisfying. You can still test "content." Students learn it because they have been using it to develop their ideas and bolster their arguments.

Courses that use questioning to integrate knowledge acquisition and thinking contradict widely shared assumptions about learning. But the benefits of learning based on questions are being recognized. For example, two major medical schools, McMaster and Harvard, have designed their programs to involve students in active problem-solving rather than memorization. Other examples can be found in Bouton and Garth (1983), Kurfiss (1988) and Weaver (1989).

The Russian psychologist Lev Vygotsky said that what a child can do with assistance today, she can do by herself tomorrow. Conversely, what she does not receive assistance to do today, she is unlikely to do on her own in the future. College professors are the people most qualified to assist students in learning to think critically. The responsibility is as great as the rewards.

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# Using Tests As Teaching Tools • Instructor<sup>TM</sup>

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by Margaret Nuzum, Ed.D.

*"But you didn't tell us you were giving a test today!"  
How to stop the excuses and get the focus on learning.*

"You said the test would just be on the Civil War. You didn't say anything about Abraham Lincoln," complains a perplexed student. "I study, I think I know the stuff. But when I get to the tests it's like all of my ideas fly out of my head and float around the room and go into some other kid's head," wails another.

When it comes to tests, we've heard it all. And then some! There are many reasons, of course, some children do well on examinations and others struggle — how well students know the material, how prepared they are, what their natural abilities are, the support they receive at home, and more. While not all of these factors are under your control, you can drastically change how students respond to examinations and increase their enthusiasm for learning by giving tests a new role. The key: to think of tests as teaching tools, not just as a means to evaluate learning after it has occurred. Knowing exactly what you expect students to learn — that is, what you will eventually test for — before you start teaching will help you develop focused, goal-directed lessons and learning and keep you on track along the way.

## Stay the Course

Think of teaching as taking a trip, with testing analogous to reaching your final destination. The real value of the trip, of course, is the traveling — the learning. But to get on the road, and stay on course, you need to know where you're going — what you want your students to learn. You already do this when creating individual lesson plans. But for units, the test offers you additional opportunities to focus your teaching and keep your students on track.

Let's say you're planning a unit on volcanoes. It's easy to get excited, jump in, and quickly start outlining great activities that will touch on numerous curricular areas. As with an open-ended trip, the options are so vast that it's easy to lose direction. If you love geology, you might focus on teaching about the earth's structure and what causes the volcanoes to erupt. On the other hand, you might concentrate on the social ramifications of volcanic activity. But developing your unit test up front in conjunction with your lesson plans will help you narrow your focus. It will also act as a sounding board for picking the best activities to teach what you want your students to learn — and what you want to test on.

## Foster a Positive Attitude

Clearly defining the role of testing in your class and your grading policies can ease the anxiety or negative feelings that students may have about tests. And thinking of your students as partners in testing will help foster a positive attitude about examinations. Let your students know:

- Tests help them focus their learning. Tell them: "If you know what you will be tested on, you will know what's important to learn, and it will help you organize your study time."
- Tests give them an opportunity to convey what they know. Tell them: "After all the time you spend in class and doing homework, you should have a chance to show your stuff!"
- Tests show you who needs more help in certain areas. Tell them: "Tests help me teach you better by showing where you need the most assistance and giving me ideas on how to help."

## Create a Test-Date Calendar

Establish a test-date calendar and give students their own individual copies on which they write in the dates and lessons or units on which they will be tested. Then hang a large, blank calendar on a classroom wall and fill in test dates with students to reinforce the dates and provide them with a visual reminder about upcoming examinations.

It is equally important to inform parents about your testing vision. Many parents are grade conscious because they are concerned that test scores reflect intelligence and will affect their children's educational opportunities. They may unwittingly put pressure on their children by asking such questions as "Why did you only get a B+?" or repeatedly asking when upcoming tests are.

Give parents a copy of the test-date calendar, and share your grading policies and your outlook on testing. Armed with clearly outlined expectations from you, parents will be better able to help their children study for tests.

## **Pretest Strategies**

Before giving a test, employ these simple strategies to teach students study skills and improve their performance:

- Announce the test, even though you have a test-date calendar. Students need ample time to study, regardless of how limited or comprehensive the content.
- Define the scope of the test. One of the chief reasons students say they don't do well on a test is that they didn't know what was going to be on it. Tell them the exact format of the test and carefully outline the topics that will be covered.
- Help students plan study time. Work out a nightly study plan with youngsters, providing it in writing or having them write it in their assignment books. Besides helping youngsters do well on the test, this promotes the development of study skills and gets parents involved.

Ask your students to identify what they believe will be hard for them to learn and come up with how they will work to learn it. This will make them active participants in their education and facilitate planning your last lessons before the test.

## **After the Test**

The testing process is not over when grading is finished. You can use the results of the test to make your students more active learners and to gain insight into your teaching.

- Review the examination. After collecting the tests, go over the answers with students so that they can see exactly what you expected from them. Model correct written answers. Then return their tests and have each student correct his or her own exam in class or at home to reinforce what they have learned and teach them a powerful study skill.
- Have students analyze their performance. Students need truly to understand how they did on a test, and why. Did they know the material? Did they prepare for the test effectively? How well did they perform during the test? (In other words, they need to know that they are responsible for their performance and the grade that they received.) After each examination, have each student fill out a test-analysis questionnaire that asks these questions and any others that you think are pertinent. Ask them whether there is anything they would do differently if they had to study for and take the test again. This is a powerful tool for helping students improve their test-taking abilities.

## **Analyze Your Teaching**

Test results can give excellent feedback on how successfully you've taught the material as well as provide insight into ways to adjust your teaching, both for your entire class and for individual students. Although this type of analysis is not a science, determining whether there is an overall pattern of success or failure can help you identify teaching strengths and weaknesses as well as guide you toward better planning in future.

In this way, testing will help you create a full-circle approach to teaching. From lesson planning to analyzing test results, you will stay focused on what you are teaching, how well your students are learning, and how to make them more proficient — and more enthusiastic — learners.

[Back to top](#)

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**Margaret Nuzum, Ed.D.**, is the director of Empire Educational Services, Inc., a tutoring center located in Brooklyn, New York. She wrote the feature "Creating Homework Success," which appeared in the October 1998 issue of Instructor.



# Publications ~

## Teaching at the University of Virginia A Handbook for Faculty and Teaching Assistants

### I. *Preparing a Course*

< Previous | TOC  
| Next >

#### The First Day of Class

It's your first teaching position and you've got butterflies in your stomach. Or maybe you've been teaching for years, and you've still got butterflies. They come because you care about what you're doing—not to mention the thrill of performing before a group. In fact, the first day of a course is exciting and anxiety-provoking for everyone. How do you take advantage of that excitement, inspire your students, and reduce anxiety? It's traditional to begin by discussing course requirements and perhaps even to cut the first class short, but is it a good idea? Does such a beginning tell your students why they should become excited about your course, or why you spend most of your waking hours studying this discipline? Does it tell them about how you teach or how you'll approach the subject matter? On the contrary, it tells them only the course outline and how to procure a grade. Here are some techniques to get your course off to a productive and stimulating start.

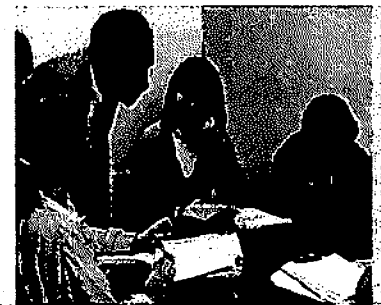


Photo by Tom Cogill.

#### *Plan the First Day*

To plan the first day, think about your discipline and why students should be interested in it. Know that students tend to see the first day as a microcosm of the entire course. So, if you will want them eventually to participate, think creatively, work effectively in groups, and so on, incorporate such activities into the first class.

- Prepare, as appropriate, a short lecture, discussion questions to raise students' awareness, or a quick review of information from the previous course in a sequence. If possible, link your topic to students' daily lives: how a recent news event relates to your history course or why the language you teach appears in American advertisements.
- Be ready to summarize and answer questions about the syllabus and course requirements (see "Preparing a Course").
- Decide what you want to learn about your students and how best to discover it. Use small group discussions, individual conversations, information sheets, or games (see Magnan, 1989, for specific ideas). Plan to talk with your students before class to put everyone at ease, and meet



them person-to-person, not teacher-to-student. The more you know about your students, the more easily you can communicate with them.

- Devise a first assignment.
- Visit the assigned room ahead of time, and visualize you and your students in it.

### *Teach the First Day*

Use your plan to teach the first day:

- Arrive early. Distribute or write on the board the course title and number and your name as you'd like to be called. Arrange the chairs in an appropriate configuration (a semi-circle, for example), if possible.
- Teach a real class the first day. Start on time, and use all of your allotted time, sending a clear message that you take the course seriously. Show why your discipline is exciting; involve students with the course substance from the moment you meet. Your course is more than a bare-bones syllabus and set of requirements!
- Get to know your students and tell them something about yourself, your research interests, your background.
  - Memorize names from the class list before the first day; in class, attach faces to names.
  - Call the roll the first few days, soliciting proper pronunciations and nicknames. Use and learn as many names as possible-go ahead and make mistakes! o Encourage students to learn each others' names.
  - Have students complete an information card or sheet with name, address, phone number, previous study in your discipline, reasons for taking your course, hobbies, and any other appropriate information.
  - Or request for the next class a one-page self-description; you'll be surprised at what they write and will see how much students want teachers to know them.
  - If you find it hard to learn names, ask students to note a particularly salient identifying feature.
  - Take photos or ask permission to have a helper photocopy students' IDs during class. Since people tend to sit in the same places, you might find it helpful to make a seating chart.
  - Study your information sheets between meeting times, and use them to recall participants' names when they contribute and during roll call. Eventually the faces and names will come together.
- Ask for students' questions and concerns.
- Encourage engagement in the course by involving students with the syllabus, rather than simply "going over" it. Ask them to think about and discuss their expectations of the course. Or ask them to read the syllabus and write three questions they have. Or ask them to discuss with a peer what seems most interesting or challenging about the course.
- Show what kind of an instructor you are. Consider what students seem to appreciate most in teachers: enthusiasm and willingness to make the course worthwhile, objectivity (what students most often call "fairness"), and a sympathetic attitude toward their problems (McKeachie, 1999). Begin to show your students that you have these characteristics (see also, "Your Multiple Roles").

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*A liberal education is at the heart of a civil society, and at the heart of a liberal education is the act of teach.*

—A. Bartlett Giamatti, Former President, Yale University,  
and Former Commissioner, Major League Baseball

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## **Six Ways to Handle Nervousness**

- **Practice**  
Although practice may not make perfect, doing a presentation out loud several times before the real thing will make you feel more confident, especially if you practice under conditions as close to the actual situation as possible. Make yourself do at least one dry run in front of an audience, even if it's just a friend or spouse.
- **Concentrate on the Ideas**  
Concentrate on your ideas, not on your own nervousness. Even timid people speak up when it's something they care about. Think about your audience's needs, not your own.
- **Make a Strong Start**  
You'll be the most nervous at the beginning of the talk, so start with an introduction that will be easy to remember and that will relax you as well as the audience.
- **Visualize**  
Rehearse for your first presentation by actually visualizing how it will go. Imagine what you'd like to say, how you'd like to say it, and a positive response from the audience. Many athletes use a similar approach by imagining an entire dive or jump, in detail, before they actually do it.
- **Use Audiovisual Aids**  
Particularly if you have lots of technical information to cover, it can be reassuring to have some of it already written on transparencies or in an outline on the board.
- **Assume a Confident Attitude**  
To a large extent, you can control your own reaction to sweaty palms or a beating heart. Tell yourself you're "psyched," not nervous. Remember that to an audience nervousness can seem like dynamism or energy. Your attitude will probably determine what the audience thinks.

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[Home](#) > [Content](#) > Teaching Tips: Six Common Non-Facilitating Teaching Behaviors

# Teaching Tips: Six Common Non-Facilitating Teaching Behaviors

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Many instructors unwittingly behave in ways which not only frustrate their own goals, but also actively discourage significant (as opposed to rote) student learning. The relationship between teachers' behaviors as perceived by their students and the quality and quantity of students' learning, motivation, and student-teacher communication is amply documented in the research literature (Amidon & Hough, 1967; Flanders, 1970). In this author's experience observing teachers' behaviors in elementary, secondary and university classrooms, both in person and on videotape, certain non-facilitating behaviors have become vivid through their very repetition.

At issue is the relationship between intent and actions: what teachers do and how they do it delivers more of an impact than what they say. Within the body of this paper, six common non-facilitating teacher behaviors will be defined, exemplified, and discussed.

## 1) Insufficient "Wait-Time"

"Wait-time" is the amount of time after an initial question has been posed before the teacher answers it, repeats, rephrases, or adds further information to the question; or accepts an answer from a student.

More than just a few seconds are necessary for mental information-processing (Moriber, 1971; Rowe, 1974). When the teacher becomes a nonstop talker, filling every possible silence with his voice, what chance do students have to think over what is being said, formulate intelligent responses, or ask for clarification.

Mental information-processing may be accompanied by verbal analyses or proceed in silence. It does seem logical, therefore, that if the facilitation of students' learning is of paramount importance, then teachers should allow for individual differences in learning style by providing a modicum of quiet time for thinking as well as opportunities for verbal responses.

Students who note that their instructor answers a preponderance of his own questions without waiting for a response soon grow dependent upon the teacher to do their thinking for them. In like manner, an answer too rapidly accepted has the effect of cutting off further information-processing and analysis by the rest of the class. Instructors may attest verbally to their aim of encouraging independent thinking, but unless they consciously work to expand their wait-time, they will have rhetoric with little resultant change in behavior.

Rowe (1974) reported that when teachers were trained to increase their wait-time from one second to 3-5 seconds, several changes occurred in students' behavior: the length and number of unsolicited but appropriate responses increased, the number of failures to respond decreased, and the incidence of student-to-student comparisons of data increased. Instructors who are interested in repeating this experiment in their own classrooms can measure their wait-times ("one, one-thousand; two, one-thousand," etc., sufficing for timing purposes) and then deliberately expand these periods of

silence-for-thinking both after a question is posed and after an answer has been given. Sharing the concept of wait-time for thinking with the students often enables the teacher to maximize his efforts and gives the class an insight into learning skills.

## 2) The Rapid-Reward

Consider the effect on students' processing of information and analysis of data when an instructor says immediately to the first respondent to his question: "Right, good." As if to assure that further thinking will be terminated, the teacher either proceeds to re-word, repeat, and exemplify the answer, or goes on to the next topic. Learning being a highly individual process, people learn at different rates and in varying ways. Rapid acceptance of a correct answer favors the faster thinker/speaker who has completed his thought processes; those in mid-thought have their answers terminated prematurely.

A variation on this theme is the softly-voiced, hesitant answer of the student seated nearest the instructor. Because many students commonly respond softly to the teacher if he is within close proximity, an awareness of the consequences of this behavior is crucial. Many a student seated out of earshot has become frustrated, bewildered, or disinterested when a softly-voiced, difficult-to-hear answer is rapidly rewarded. To ameliorate this situation, encourage student-to-student dialogue, discussion, and peer critiquing of ideas. The following are suggested: extended silent time after an answer is offered; a questioning glance around at other students, tacitly requesting comment; a question to those in the rear, "What is your analysis of what was just said?" and, most important, physical movement of the teacher from place to place about the room in order that as many students as possible enjoy close proximity to the instructor, or "front row seats," at one time or another during the class.

## 3) The Programmed Answer

The following are examples taken verbatim from classroom dialogues and best exemplify this third non-facilitating teaching behavior.

- "What are some of the enemies of the praying mantis? Cats kill them, don't they? How about other animals? Or insects?"
- "What reasons do you have to use that formula? Was it suggested in the homework chapter? Had you ever used it before? Or seen it used in this context?"
- "What happens when we add the sums of the rows? Do we get skewed results?"
- "Look at this shrub and tell me, what observations can you make? Do you see the dead stems? Are they damaged from insect feeding?"

The programmed answer not only deprives the respondent of expressing his own thoughts by steering him toward the answers that the questioner expects, but also conveys the message that there is really little interest in what he thinks or says. While the reasons offered by those who make a practice of this pattern are usually altruistic (i.e., "Silence after the posing of a question is embarrassing to the student;" "I feel impelled to help out by suggesting clues"), one needs to ask oneself honestly: "Is it I or the student who is uncomfortable after a second or two of silence?"; "Do I have confidence in the students' ability to think about the question and formulate a response?"; and, more importantly, "Am I interested in what the student has to say, or in determining which of my answers he prefers?" While programming can be an effective tool when one desires to guide students' thinking, suggest possibilities, or model logical thought processes, it is important to be aware of its limiting effect in opening up a wide variety of possible ideas. It is via the latter route that an instructor can demonstrate his interest in the students' ideas and himself model inquisitive learning behavior. A willingness to

listen helps to create in the classroom a community of learners in place of an authoritative, superior-subordinate relationship between teacher and class.

#### 4) Non-Specific Feedback Questions

Many instructors feel justified in assuming that their students have no questions if no one responds when they ask, "Are there any questions? Do you all understand?" Purportedly designed to give the instructor information as to the clarity and comprehensibility of his presentation, these questions usually fail to solicit feedback. Why? We can isolate several possibilities, two of which are the nature of students and the nature of the questions.

What type of student will bravely call attention to his own ignorance when the question is posed to a class: "Does everyone understand?" Interestingly enough, it was a student who suggested that those who do respond comprehend most of the concept, lesson, problem, etc., and need only a minor point made clear. Others, whose lack of understanding is more comprehensive, whose confusion is more widespread, may be too intimidated to call attention in such a public way to their situation. Often, the latter are so confused that they cannot think of questions to ask. Yet these are the students who most need assistance. How can instructors determine what it is they do and do not understand?

Contrast the following pairs of questions:

- A. "Does anybody have any questions?"
- B. "Let's think of some other examples now of situations in which this principle is applicable."

- A. "Does everybody see how I got this answer?"
- B. "Why did I substitute the value of  $x$  in this equation?"

- A. "Who wants me to go over this explanation again?"
- B. "What conclusions can we generalize from this specific graph?"

You need to ask yourself, "What do students need to say or do for me to determine the extent of their understanding?" You can then formulate and pose one or several specific questions, which will give a more comprehensive sounding of the class's problems, and questions.

#### 5) The Teacher's Ego-Stroking and Classroom Climate

Think of the effects on students' willingness to respond to teacher-posed questions when statements such as the following are made:

- "Since I have explained this several times already, you all should know what is the effect of an increased demand upon this supply curve."
- "Obviously, when you use this formula you'll get...?"
- (After having listened to several students' answers) "The real answer is this:"
- "Does everybody understand the explanation I just gave? It should be clear by now."
- "O.K. Now rephrase your answer the way you think I would say it."

Students need to feel that it is psychologically "safe" to participate, to try out ideas, to be wrong as well as right. Your behavior is an important determinant in the establishment of a safe or comfortable climate. Learning, an active process, requires that the learner interact with ideas and materials. Constant teacher-talk, feeling compelled to comment on each student idea, deciding to be the final arbiter in decision-making processes, interrupting, controlling, and intimidating either through expertise, or the threat of grades - these are but some of the behaviors which prevent students from engaging in the active processes needed for significant (as distinguished from "rote") learning to take place. It is interesting to note the increased levels of student participation when instructors do not conceal the fact of their ignorance, when they sometimes hesitate about certain questions or information, when their responses are dictated more by an honest desire to assist the students than to demonstrate the extent of their own knowledge.

A few of the possible behaviors which can encourage the establishment of an environment conducive to participation are:

- Remembering and referring to students' ideas
- Yielding to class members during a discussion
- Acknowledging one's own fallibility
- Framing open-ended questions which allow expressions of opinion and personal interpretations of data
- Accepting the students' right to be wrong as well as correct
- Encouraging joint determinations of goals and procedures when feasible (e.g., "How can I help you best to learn this material?")
- Sharing the responsibility for learning with the learners (i.e., permitting students to answer their peers' questions)
- Freeing oneself from the burden of thinking that students cannot learn elsewhere what isn't covered in class
- Encouraging group presentations of the material to be covered
- Soliciting student participation in their own learning assessment such as developing test questions and jointly correcting examinations

## 6) Fixation at a Low Level of Questioning

Bloom (1956) has postulated that cognition operates on ascending levels of complexity. One begins with knowledge, or informational details, and moves upward through comprehension, analysis, and synthesis to evaluation. Questioning can be a central feature in promoting the development of conceptual abilities, analytical techniques, and the synthesis of ideas. Skillful teachers use questions to guide thinking as well as to test for comprehension. Too often, however, as illustrated by this sixth recurring pattern, teachers' questions become fixated at the informational level, requiring of students only that they recall bits and pieces of rote-memorized data: informational-level questions. For example, asking, "What is the formula for finding the force between two charges?" or "What is the definition of 'quantity demanded?'"

One-word or short-phrase answers, those capable of being sung out in unison, constitute the preponderance of question-and-answer dialogues in many classrooms and necessitate little interrelating of material, sequencing of thoughts, or analyzing of data. While a solid base of factual information in learning is clearly important, fixating students' thinking at this level discourages the development of more complex intellectual skills. Questions can encourage the students to use informational knowledge to analyze concepts, synthesize complex relationships, and evaluate the new data. For instance, ask, "What would happen if we inserted a metal conductor in between the moving charge and the current?" or "Why must the information in Table One change when we consider these new data?"

Being conscious of the levels of questions one is asking and attempting to structure the questions toward analysis, synthesis, and evaluation can do much to combat fixation at the informational level of thinking.

## **Conclusion**

If asked to formulate the goals of the educational process, most teachers would include the nourishment of intellectual curiosity, encouragement of independent learners, and development of more complex thinking processes. Yet instructors' behaviors such as the six described in this paper militate against the achievement of these goals.

Those who sincerely desire to examine and analyze their own teaching behaviors face a problem - the evanescence and multi-dimensional aspects of the teaching-learning relationship. Capturing the classroom behaviors of teachers and students on closed-circuit television with instant-replay features offers one solution. Utilizing such criteria as the six patterns described in this paper - insufficient wait-time, the rapid-reward, the programmed answer, non-specific feedback questions, the teacher's ego-stroking and classroom climate, and fixation at a low-level of questioning - teachers can analyze their own behaviors and examine the effects of their actions on student learning. Such self-analysis can be the beginning of behavioral change.

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# Helping Faculty Design Assignment-Centered Courses

Barbara E. Walvoord

John R. Breihan

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# Helping Faculty Design Assignment-Centered Courses

**Barbara E. Walvoord**

University of Notre Dame

**John R. Breihan**

Loyola College in Maryland

*Faculty developers must help faculty shift from a teaching paradigm to a learning paradigm. Workshops that help faculty plan the "assignment-centered" course are a productive approach to that challenge. This article shows faculty developers how to plan and lead such a workshop. Research suggests that faculty often focus on content and coverage in their course planning. To combat this tendency, the workshop leads faculty through the course-planning process. In the workshop, faculty first develop learning objectives, then plan the assignments and exams that will both teach and test the essential skills and knowledge of the course. Then faculty choose and organize their instructional methods and the use of in-class and out-of-class time to maximize the development of the most important knowledge and skills. This approach contrasts with the text-lecture-coverage-centered course, in which the teacher concentrates first on the topics she or he will cover. The assignment-centered course is one of the strategies that research suggests will enhance students' critical thinking in higher education.*

## **The Assignment-Centered Course**

Increasingly faculty developers are being called upon to help faculty shift from a teaching paradigm to a learning paradigm. Focusing on the assignment-centered course is one productive approach to that challenge. Research suggests that the assignment-centered course enhances students' critical thinking (Kurfiss, 1988).

In planning the assignment-centered course, instructors begin not by planning content and coverage, but by establishing what they most want students to do by the end of the course. Then they construct assignments and exams that both teach and test the essential skills and knowledge of the course. They choose pedagogical strategies, and they use in-class and out-of-class time to ensure that students systematically learn and practice the skills necessary to succeed in those assignments and exams. When faculty adopt the assignment-centered approach from the first moments of the course-planning process, they can structure the course around a learning paradigm, address the "coverage" issue, and manage workload. Because this course-planning strategy contrasts with faculty's normal content-centered course planning, it makes sense to bring the course-planning process into the workshop.

We can illustrate the differences between the two approaches by contrasting the planning processes of two faculty members planning "Western Civilization," a one-semester general education history course for first-year students. Professor A begins her lecture/textbook/coverage-centered planning process by saying to herself, "In this course, I have to cover 1500 through the end of the Cold War." Then she divides the semester into sections, covering 1500-1800 in the first six weeks, and so on. Professor B, who is "assignment-centered," begins his course planning by saying, "By the end of this course, I want my students to be able to construct arguments about debatable issues within the period 1500 through the end of the Cold War." Then he constructs the assignments and exams that will both teach and test what he wants students to learn. He plans the rest of the course to teach the information, concepts, and skills students will need to construct their arguments. This mode of course planning tends to draw Prof. B away from straight lecture to collaborative learning, active learning,

and other strategies that help students build skills such as argumentation. Facts and coverage do not disappear, but they are organized around a focused set of learning goals. To plan an assignment-centered course is to move from "I must cover" to "They must learn."

Research suggests that the typical faculty planning process focuses heavily on content (Stark and Lattuca, 1997, p. 114). Typical faculty planning processes may not yield the kind of interactive teaching that research suggests will enhance students' critical thinking (Angelo, 1993; Chickering and Gamson, 1987) and that faculty development workshops often promote. It makes sense, then, to bring the course-planning process INTO the workshop.

Our goal in this article is to enable our readers to plan and lead a 1-2-day faculty workshop in which participants actually engage in planning a course of their own that is "assignment-centered." Our experience suggests that a major stumbling block for faculty will be their sense that they must use class time to "cover" material. Thus, in this article we also devote considerable attention to a model by which faculty can think about how they structure and use both in-class time and students' study time.

We will use as a model a workshop frequently offered by Walvoord. In her workshops, she uses a "case" developed by Breihan, Professor of History at Loyola College in Baltimore. Breihan, who also has led faculty-development workshops and has served as co-director of his college's cross-curricular writing program, describes how a standard first-year Western Civilization course might be structured along the "assignment-centered" lines we advocate. In this essay we present or summarize some of the materials on Breihan's course; for more detailed explanation, syllabus, assignments, etc., consult our website: [www.dev.loyola.edu/~jbreihan](http://www.dev.loyola.edu/~jbreihan).

You may duplicate and use for workshops any materials presented here or on our website.

## **How to Lead the Workshop**

-Barbara E. Walvoord

### **Titling and Advertising the Workshop**

I never use the term "assignment-centered" in the workshop title because it means little to faculty until the concept has been explained to them. I usually call the workshop "Teaching the Thinking of the Discipline" or "Designing Courses for..." or "Getting Students Involved in Learning." In the title or the workshop description, make clear that in the workshop faculty will design their own courses. Invite participants to bring a current syllabus and key assignments if they have them.

### **Workshop Step 1: Articulate Participants' Concerns and Objectives**

A study that I and my colleagues recently completed (Walvoord et al., 1997) suggests that faculty members come to workshops with their own goals and concerns strongly in mind. Thus the first step in the workshop is to ask everyone (or, in a large workshop, a sample of participants) to name issues they would most like to see addressed in the workshop. Participants typically mention grading and responding, assignment design, student motivation, handling the paper load, getting good class discussions, etc. I list these on a screen, blackboard, or newsprint sheets so I can continue to refer to them throughout the workshop. Thus I convey that the approach I am about to explain integrates current faculty concerns.

Next, and still without mentioning the word "assignment-centered," I ask each participant to select one of his/her own courses on which to focus during the workshop. Each participant then lists, in 7 or 8 minutes, the 3-5 things he or she most wants students to be able to do at the end of that course. I urge participants to avoid vague words such as "know" or "understand" and passive voice verbs such as "be exposed to." I encourage verbs such as "define," "argue," "describe," "analyze," "solve," and "create." I show an example of what Breihan wants from his students at the end of his required General Education Western Civilization course for first-year students:

Students should be able to:

- (A) define, describe, and analyze important historical events, people, and concepts
- (B) use this information to formulate arguments in which they state a position, back it with accurate and specific evidence, and answer counterarguments against it.

I give examples from other disciplines. A mathematician may write, "I want my students to solve [certain kinds of] mathematical problems and to be able to explain what they did and why they did it." Faculty in client-oriented disciplines such as nursing may write, "I want my students to observe clients effectively, to identify problems, and to find reasonable solutions." Literature faculty will write, "I want my students to analyze literature using the strategies common to literary studies," or "I want my students to enjoy literature."

After a 3-minute period when people call out items from their lists, I point out that no one has written, "I want my students to memorize 4,275 facts about my discipline." Instead, they have listed discipline-specific abilities of what might be called "critical thinking" or "higher-order reasoning." Basic information, concepts, and procedures ARE important, but most faculty want students to USE that basic material for higher-order thinking. This step take 20-40 minutes.

### **Workshop Step 2: Introduce Methods for Interactive Teaching**

The next step is to give participants 3 minutes to list what they believe are the best teaching methods to achieve the learning objectives they have listed earlier. They compare their own lists to my research-based list (see Figure 1).

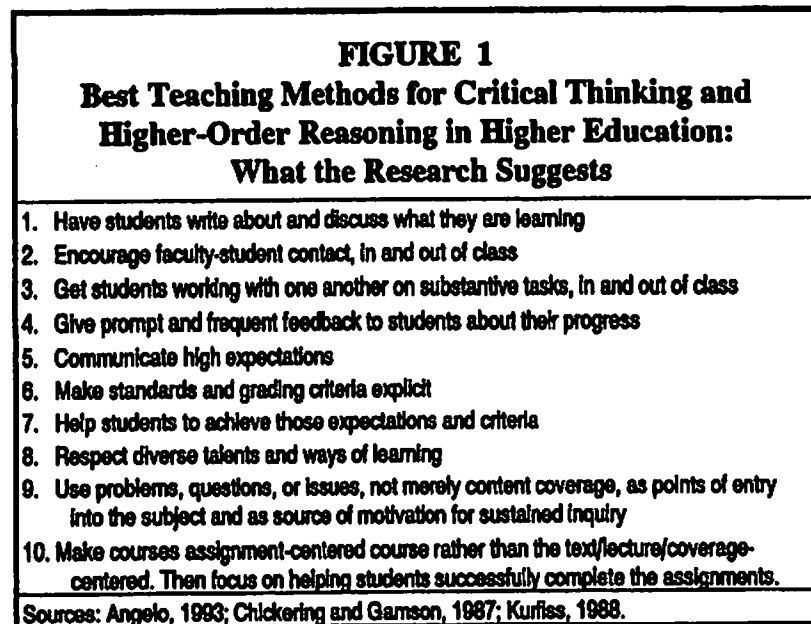
### **Workshop Step 3: Acknowledge the Difficulties of Interactive Teaching**

Often, faculty members' initial response to this list is to feel overwhelmed and inadequate. Sometimes, to loosen up the group and to demonstrate that I take their difficulties seriously, I ask each person to write privately on a sheet of scratch paper one reason why it is hard for them to use these strategies. Then I ask them to ball up that paper

and throw it across to the other half of the room. This of course results in lots of laughter as balls go awry and I or others must scoop them up and redirect them. Then each person unrolls the ball that she or he has caught and reads it. Typically, people have written, "Class is too large" or "Students expect me to lecture" or "Seats in my classroom are bolted to the floor" or, "don't have the skills to do this" or my favorite comment of all time, "hate to change." I make a list of the comments on newsprint and then tape the newsprint to the wall to demonstrate that the workshop will help faculty to deal realistically with these difficulties. Then I refer to them again periodically throughout the workshop. This step takes 15 or 20 minutes. In a workshop of only one day, I may omit it in favor of a 2-minute acknowledgment of some of these difficulties.

#### **Workshop Step 4: Illustrate the "Assignment-Centered" Course**

I now call participants' attention to Item 10 on my list (Figure 1), which suggests the "assignment-centered" course. I give them three



reasons for being interested in the concept: (1) research suggests it will enhance student learning; (2) the "assignment-centered" course can integrate other good teaching strategies; and (3) it can help them deal with workload.

To lay the groundwork for the assignment-centered course, I present a hypothetical course that is text/lecture/coverage-centered. The hypothetical professor might first begin to think about the course when her department head says, "Jane, will you teach 'Western Civ' this fall?" She next checks, or composes, the catalogue description, which tells the content of the course: Western Civilization from 1500 to the end of the Cold War, emphasizing such-and-such themes. Now she lays out the 15 weeks (see Figure 2), saying to herself:

Let's see. I'd like to use Burke and Paine, Marx, Lafore, and *Heart of Darkness* in addition to the textbook. I'll cover 1500 to the French Revolution in six weeks and get through the French Revolution by midterm. Then in the second half of the course, I'll cover 1800 to the present.

I ask the group, "What is the subject of these sentences?" Answer: "T". The most common verb? Answer: "will cover." This teacher is already well launched on the coverage-centered model. Next, she will compose her syllabus. It will go something like this:

<b>FIGURE 2</b>			
<b>Text-Lecture-Coverage-Centered Course Skeleton for Western Civilization (1500-present)</b>			
<b>Week</b>	<b>Topic</b>	<b>Week</b>	<b>Topic</b>
1	Renaissance/Reformation	8	Industrial Revolution
2	17th-Century Crisis	9	Marx, <i>Communist Manifesto</i>
3	Absolutism	10	Imperialism
4	Age of Reason	11	Conrad, <i>Heart of Darkness</i>
5	French Revolution	12	World War I
6	Burke, <i>Reflections</i> , and Paine, <i>Rights of Man</i>	13	Lafore, Long Fuse
7	MIDTERM	14	World War II/Cold War
		15	FINAL



Tues., Sept. 5: Social and religious background of the Renaissance and Reformation. Read ch. 1 and 2 in textbook.

Thurs., Sept. 7: Economic and political background of the Renaissance and Reformation. Read ch. 3 in textbook; Machiavelli handout.

"When students first see this syllabus," I ask the group, "what are they likely to assume will happen in the class?" Answer: "lecture." Thus the traditional course-planning process and the syllabus that results from it can trap both the faculty member and the students into the text/lecture/coverage-centered model.

Once the teacher has filled in the topics she has to "cover," she is likely to say to herself,

Let's see, I'll use essay tests at midterm and final, with questions on lecture, textbook, and supplementary readings. The midterm will cover 1500-1800. I'll have a "comprehensive" final, covering all the course material, but I'll weight it in favor of 1800 to the present. And I'll assign a term paper due near the end of the course. Students can choose which of the supplementary readings they'll cover in their term papers.

In this text/lecture/coverage-centered planning process, the tests and papers are added on at the end, and their implied role is to test coverage.

Asked in a workshop what she wants students to be able to do at the end of the course, this faculty member lists goals similar to Breihan's—that is, she not only wants students to describe events but also to analyze and argue. Will her current exams and term paper likely elicit coherent arguments with full evidence and answers to counter arguments? Participants often volunteer that essay exams may be merely what one teacher called "fact dumps." Research indicates, I tell participants, that many students view school reading as a collection of discrete facts to be memorized and regurgitated on tests. Further, I remind the group, some students have taken essay exams that were graded in this way: the teacher went through the student's answer, placing a check mark next to every fact or idea that would "count," and the student's score was the total of the check marks. What is the smart person's way of taking such a test? Someone will say, "fact dump." Moreover, if the students see the exam question for the first time when they walk into the class and then have 20 minutes or 50

minutes to write a cogent argument, what is likely to come out? I ask participants, "What comes out when you yourself, as a faculty member, pose yourself a task or question for the first time—say for a research proposal or journal article—and write about it for 50 minutes. Is it cogent, tightly argued, thoroughly logical?"

The term paper, too, is likely to be a disappointment. Participants will probably predict that many term papers will be cut-and-paste pastiches of library sources. Schwegler and Shamoan (1982) asked students in a variety of disciplines what they thought a term paper was and how they did one. Students described term papers as gathering and displaying information. Professors, when asked what they thought a term paper should be, responded with verbs like "analyze" and "argue." But "I'm not in the habit of developing arguments," said a student I interviewed in a Western Civ course. "In high school we took the answers straight from the book." A lecture-based class with a term paper tacked onto the end is not likely to elicit cogent arguments from that student.

In contrast, what would an "assignment-centered" course look like, and how might it help to address the problems we have noted? The assignment-centered course begins by stating not what the teacher must cover, but what the students will be asked to do. Then insert the major tests and assignments in the week in which they are due. (I define "major" as those tests and assignments on which the majority of the student's grade will be calculated, and on which the teacher would stake his or her reputation for achieving the most important learning in the course). At this stage, don't list all the smaller, preparatory tests, quizzes, and so on. Faculty need to see the course in its bare-bones outline, with just the major tests and assignments. Then the teacher can ask, "Are my major assignments and tests likely to elicit the kind of learning I most want?" As an example, I use an assignment-centered course skeleton composed by John Breihan (see Figure 3). You might use your own example. Here is Breihan's explanation of his assignment-centered course.

## **My Assignment-Centered Course Plan for Western Civ**

- John R. Breihan

My course, like the hypothetical text/lecture/coverage/centered course presented earlier, proceeds in chronological order. Having students master factual material remains one of my two stated course goals. But unlike the hypothetical course, my essay tests, designed to elicit higher-order thinking, are spaced more evenly through the semester. Because each has the same format, students have the opportunity to improve their level of performance by carrying over their experience on one test to the next.

I hand out and discuss the "essay" topics in advance of the "test" date, so that students can go through their notes and readings to frame arguments and to locate the facts that they think will best contribute to their arguments. Students must write a draft of their essays in class

**FIGURE 3**  
**Breihan's Assignment-Centered Course Skeleton for Western Civilization (1500-end of Cold War)**

*By the end of the course, I want my students to: (see Breihan's goals, listed earlier)*

<b>Week</b>	<b>Major assignment</b>	<b>Week</b>	<b>Major assignment</b>
1		8	
2		9	
3		10	
4		11	In-class essay on Industrial Rev./Imperialism; revision optional
5		12	
6	In-class essay on Age of Reason/French Revolution, later revised after teacher comment	13	
7		14	
		15	In-class essay on World War I/II/Cold War (given in final exam period)

without notes. The in-class format discourages students from another traditional counterproductive technique, copying material directly from their textbooks. For the first essay of the semester, I offer comments on the in-class drafts, and students then revise those drafts at home for their final grade. For the second essay, revision is optional. For the third, written in the final exam period, revision is not possible.

Notice that, in comparison with the hypothetical Western Civ course, I assign no formal term paper. Sometimes it is better to concentrate on fewer well-conceived and well-guided learning experiences than to proliferate poorly-designed and poorly-guided papers and exams.

The assignments in this course skeleton are by no means the only pieces of writing students produce in the course. There are numerous short writings by which students respond to readings and actually learn the skills needed to make effective arguments. More on these later. For now, we want to concentrate on the course skeleton.

### **Workshop Step 5: Participants Construct Course Skeletons**

-Barbara Walvoord

After reviewing Breihan's course skeleton, which takes 15-30 minutes, I show several other course skeletons from various disciplines (included on our website), and participants discuss: (1) whether the major tests and assignments are best structured so as to elicit the kind of learning the teacher most wants and (2) whether the number and distribution of major tests and assignments are sustainable in terms of workload. When such problems are pointed out, I ask participants in small groups to generate suggestions for improvement in the course. This takes 15-30 minutes.

Next, I ask participants to work alone or with others for 20-30 minutes on constructing their own course skeletons and posing the two questions. I remind them that the skeleton should contain only the major, graded tests and assignments, not every smaller assignment or quiz. I keep myself available for consultation.

### **Workshop Step 6: How to Help Students Learn What They Need for Their Tests and Assignments**

When we reconvene, I make the point that *in the assignment-centered model the whole course is planned to give students the knowledge and skills they need if they are to do well on the major tests and assignments.*

To illustrate, I put Breihan's course skeleton (see Figure 3) back on the screen and ask whether, according to the research we have reviewed earlier in the workshop, lecturing each class day is the best way to prepare students to write the first argumentative essay in week 6. The answer is "no." Well then, what IS the best method? I tell faculty that they should not just pick teaching strategies at random from my list (see Figure 1), nor should they seize every neat idea they hear—"oh, yeah, let's do journals." Rather, they need to construct interactive learning strategies from a clear idea of what THEIR students MOST NEED TO LEARN in order to do well on the major tests and assignments.

To illustrate how a teacher can plan interactive learning strategies, I return to Breihan's case. His planning begins by examining his central assignments and tests. As an example, I show participants this short summary of an argumentative essay assignment that Breihan's students write in week 6, for his first unit, on The Age of Reason/French Revolution.

Though Edmund Burke and Thomas Paine did not directly answer to the question, "Was Louis XIV of France a good king for his times?" how WOULD they have answered it? With whom would you agree? Be sure to give evidence for your views and respond to counterarguments against them. [The actual assignment to students provides fuller detail.]

I ask participants to suggest what first-year students at THEIR institutions would need to learn if they were to write a successful answer. Typically, faculty mention things like "facts about Louis' reign" and "understanding how to find and structure counterarguments." (Breihan's own list is on our website, and in Walvoord and Anderson, in press.) Then I give participants 7-10 minutes to look at

the first assignment or test from their own course skeleton and to generate a similar list.

Then, working from the list that participants made for Breihan's Burke/Paine/Louis assignment, I ask participants in small groups, in 10 minutes, to generate ideas about *what Breihan could do* during the first six weeks to help his students learn what they need to know.

As we share these ideas in the larger group, the issue of content coverage is sure to come up. Faculty will say that students can't do well on this assignment unless they know a lot about Louis, his era, and the philosophies of Burke and Paine. How can one cover all this and still have time for interactive discussion in class? Faculty in scientific and technical fields are sure to say that their courses are much different from history, where one can discuss and argue. Their students are preparing for board exams, for medical school, for chem 102, and they need to cover all the required material. Also, faculty will be worried that students are not prepared for class discussion or that interactive teaching wastes time.

### **Workshop Step 7: A Model for Planning Time**

These concerns provide a bridge for introducing my model for thinking about in-class and out-of-class times (see Figure 4). Unless faculty have such a model, concerns about "coverage" are likely to undermine their assignment-centered course planning and slide them back into the content/lecture/coverage mode.

With Figure 4 on the screen, I explain that, in the traditional lecture/text/coverage model, the teacher lectures the material in the class, and she/he models the thought processes students should follow. But the students are left on their own to do the hardest processes—solve the homework problems, draw inferences from data, study for the test, write the paper. The class time is used only to administer the test or to hand in the assignments with which students have struggled in their study time. Then the teacher spends enormous amounts of his or her own time writing responses to this work, trying, without the benefit of face-to-face interaction, to help the student improve his or her higher-order reasoning, analysis, argument, or critique. Teachers wish they could engage in more interactive processing with their students but because students often arrive in class unprepared, and thus

unable to conduct useful discussion, the teacher is forced to lecture what we call "first-exposure" material which is new to the students.

In the interactive model, all this changes. The students are expected to use their study time for "first exposure." They must read, view tapes, conduct observations and so on, and then prepare writings, graphs, problem solutions, or other work that forces them to wrestle with the material. Then the class is used to help them with the hardest part—the process. Because a great deal of response to students' work now happens in the class-time itself, the teacher need not spend large amounts of out-of-class time responding to that class-preparatory work. (The teacher, of course, *will* want to respond outside of class to some kinds of student work.)

**Workshop Step 8: Case Studies of How Faculty Use Time in Various Disciplines**

To illustrate how this model for use of time would work in an actual situation, you may want to use cases from your own faculty or Breihan's case, below. If you use Breihan's case, call participants' attention to his course skeleton (Figure 3), his first argumentative essay assignment on Burke/Paine/Louis, and the earlier participant-

<b>FIGURE 4</b>		
<b>A Comparison of the Use of Teacher Time and Student "Study" Time in Traditional Lecture and in Interactive Teaching</b>		
	<b>Traditional Lecture</b>	<b>Interactive Teaching</b>
<b>Class Time</b> (includes lab, clinic)	<b>First Exposure:</b> (student first hears or observes facts, ideas, processes s/he has not encountered before)	<b>Process:</b> (student applied, analyzes, argues, solves problems, using first-exposure material)
<b>Student "Study" Time</b>	<b>Process</b>	<b>First Exposure</b>

generated list of what Breihan's students would have to learn if they were to write good argumentative essays in week 6.

## **How I Use In-Class Time and Student Study Time for Western Civ**

**-John R. Breihan**

Based on my analysis of what students would need to learn in order to write sophisticated arguments, I have devised a series of preliminary "exercises" that my students write at home, one for each class session. I give each a minimal grade to ensure completion; reading them usually takes about a minute each, not a substantial addition to my marking load. In return for the time spent, I gain useful insights into how well students are comprehending the course readings. In class I use their "first exposure" work to have them practice more sophisticated skills, such as analyzing evidence and shaping arguments and counterarguments.

A set of preliminary exercises for the first twelve meetings (six weeks) of my Western Civ class is laid out in Figure 5, along with the skills involved in each. Besides short written pieces, the exercises include three classroom "debates" in which groups of students present evidence for various analytical categories or defend assigned positions, while I write on the blackboard the points that each side makes. Students enjoy the give and take of the debates, which is intensified by a small grade given for each point "scored."

Figure 6 is an example of one of these exercises—number 5 on the list above. I base class discussions directly on these exercises. For example, I will begin by asking a student, "What is the issue at stake for today." She or he will respond. Then the next question, again working directly from their writing: "Bishop Bossuet—who was he and when did he write?" The key to this method is to use the students' writing as the basis of in-class interaction. As we move through the questions on the exercise, I try to build upon them for more sophisticated thinking. For example, once we have clarified Bossuet's and Saint Simon's positions, I may ask, "What would they would have to say to each other?" or "What was the most important difference



between them?" or "Which provides the best evidence?" By the end of this class session, students have had my and their classmates' specific response to their preparatory writings. Thus the writings they brought to class are now out of date. That is why I need only glance over these exercises, awarding points, and perhaps writing a very brief comment. Most of the responding has been done in class.

**FIGURE 5**  
**Exercises and Skills for First Six Weeks of Breihan's**  
**Western Civ Course**

Exercises	Skills
1. Summarize textbook chapter	Perceiving authorship; Accurate reporting
2. Paragraph narrating 8 scrambled events	Accurate reporting (chronology); Narration
3. Analysis of eyewitness accounts	Using standard analytical categories of civil violence in 17th century
4. Classroom competition	Using analytical categories in analyzing accounts; Perceiving possible theses
5. Analysis of primary-source accounts of Louis XIV (see example below)	Perceiving authorship; Perceiving theses; Using sources as evidence
6. Analysis of secondary-source accounts of Louis	Perceiving authorship; Using sources as evidence
7. Worksheet for classroom debate on Louis XIV—summary of evidence for assigned position	Perceiving theses; Using sources as evidence; Stating and defending a thesis
8. Classroom debate on Louis XIV	Stating and defending thesis; Defending against counterarguments
9. Second chance work-sheet: what you might have said in debate	Stating and defending thesis; Defending against counterarguments
10. Burke and Paine on the French Revolution—views and evidence	Perceiving authorship; Perceiving theses; Using sources as evidence
11. Debate worksheet "Was Burke or Paine most correct about the French Revolution?"	Using sources as evidence; Stating and defending thesis; Defending against counterarguments
12. Classroom debate	Using sources as evidence; Stating and defending thesis; Defending against counterarguments

## Workshop Step 10: Participants Plan Their Own Use of Times and Spaces for Learning

-Barbara Walvoord

Once participants have read and discussed Breihan's (or your own) case, you will probably want to include illustrations from different disciplines. For example, I often briefly describe the method of a physics professor with whom I have worked. Previously, he was spending most of his in-class time explaining and illustrating the

### FIGURE 6

#### A Sample "Exercise" from Breihan's Class

Note: This exercise, which students complete at home before class, is based on assigned reading in a problem-oriented text entitled, *Great Issues in Western Civilization*, by Brian Tierney, Donald Kagan, and L. Pearce Williams. The text chapter contains a collection of primary sources, all addressing the issue, "How effective was Louis XIV's rule in ending civil disorder in 17th-century France?" After each question, space is provided for the student's answer.

Name \_\_\_\_\_

EXERCISE 5: PRIMARY SOURCES ON LOUIS XIV—due Oct. 7

What is the issue at stake in this chapter of selected readings?

Who was Bishop Bossuet?

When did he write?

What was his position on the issue at stake?

What evidence did he use to back it up?

Who was the Duc de Saint-Simon?

When did he write?

What was his position on the issue at stake?

What evidence did he use to back it up?

*[and so on through several more selections]*

principles and concepts of physics and demonstrating problem-solving. Because this was “first exposure” material to the students, they were primarily just struggling to write it all down; they didn’t have time to formulate questions. Or they were timid about asking questions, or they thought they understood what he was saying. So, although he frequently asked, “Are there any questions?” he seldom got much response. Outside of class, he assigned homework problems. As students began the problems at home at 2 a.m., they found out they hadn’t fully understood the material after all. NOW they had questions, but the professor was unavailable to them for this hardest part of the course—applying the principles to solve problems. In a faculty workshop, he wondered aloud how he might get out of lecturing first-exposure material and help his students in class with the hardest part. Participants asked, “Could you give students a study guide and make them read the book, like Breihan, the historian, does?” “No,” said the physicist, “my students can’t read the book and then solve the problems, even with a study guide. They need to see concepts illustrated and demonstrated in real time, and they need to see the process of problem-solving worked out step by step, as I talk through why I did this step and then why I did the next step.” But there was a way to move the first-exposure out of the classroom: The professor had himself video-taped demonstrating physics principles and problems, and he required the students to see the videotape before they came to class. He might also have used available materials on CD-ROM or on the web. Then, in the class, students gathered in groups of 3 to do the homework problems. The faculty member sacrificed the chance for any interaction during the lecture, but he gained the opportunity for students to replay the taped lecture and to see the tape at a time when they were alert and ready. If he used interactive computer programs, students could make choices and get feedback throughout the demonstration.

What the physicist *gained* was the ability to help his students in class with the hardest part—the solving of problems. In groups, they taught each other. If the whole group was stuck, they raised their hands, and the professor came over to help them. He had completely reversed his use of class time, moving first exposure to student study time and the hard part—applying the principles—to in-class time.

Having illustrated how faculty in various disciplines use the model to plan their use of times, you can now ask participants to work on their own course plans. Ask them to return to their list of what their students would need to learn in order to do well on their own first assignment, test, or exam from their course skeleton. Ask them also to return to the list of best methods for enhancing higher-order reasoning (see Figure 1). Keep before them the list of methods that were generated for Breihan's class. If time permits, it's very useful here to spend even more time suggesting possible interactive teaching strategies, so people work with the largest possible repertoire of ideas. You might show videos which demonstrate interactive teaching (e.g., Walvoord & Williams, 1996). You might have participants, in disciplinary groups, generate wide-ranging lists of teaching strategies that are alternatives to lecture, and discuss the strengths, weaknesses, and characteristics of each method (Bean, 1996, Bonwell & Eison, 1991, Brown & Ellison, 1995, and Kurfiss, 1988, are useful).

Then ask faculty to begin laying out their own individual plans for using in-class and out-of-class time in the weeks before their first exam or assignment is due. They might use Breihan's plan as a model (see Figure 5). Refer back to the list of difficulties from the balled-up sheets and tell them it's okay to modify the model to deal realistically with the constraints of their own situations. In this planning they may work together or alone. I keep myself available for consultation.

### **Workshop Step 11: Address Logistics, Teaching Strategies, and Problematic Issues**

If the workshop length is one day or less, you may only have time to give participants a half hour or so to work on their plans, then 20 minutes to share their ideas with a colleague in pairs, and then you'll have to send them on their way. They'll still have lots of questions: How do I do this in large classes? How do I manage students collaborative groups? How do I work with students who speak English as a second language? How do I handle plagiarism? How do I establish criteria for grading? How do I get a reluctant class involved? These might be handled with a bibliography on these various issues or with follow-up brown bag lunches.

If the workshop is 2-3 days long, you can give participants longer for the initial work on their course plans, say an hour or two, or overnight, or a half day. Ask them to return with a roughed-out plan and with questions they'd like to see discussed in the group. Keep the list of initial concerns and the list of difficulties from the balled-up papers available for their reference.

In a longer workshop, you can also address faculty questions. I ask faculty to call out their questions and I list them on the screen or board. Then I conduct a straw vote to decide which topics we will discuss. Each person may vote for two of the issues on the list. Issues with the highest vote are then scheduled into the remaining workshop time. So, for example, we might spend an hour or two on how to guide collaborative student groups or on how to establish criteria for grading. An alternative is to get a small group working on each question and have the small groups report their best ideas to the larger group.

An alternative plan is to have participants convene in discipline-based groups with facilitators you have chosen—skilled teachers from those disciplines. In the discipline-based groups, people share the nitty-gritty of applying these principles and models in their own disciplines.

### **Workshop Step 12: Plan for Follow-Up**

Because this workshop is helping faculty to shape a PROCESS, follow-up is very important. One way I do this is to invite participants to join a group of 3-4 people who agree to meet several times during the ensuing semester to share how their course plans are developing and what is happening as they implement those plans.

### **Outcomes**

What are the outcomes of such workshops? End-of-workshop participant evaluations have been very positive. Asked to give the workshop a letter grade, participants (averaged over the past six years) have awarded the workshop almost 80% A, about 20% B, and very few C, D, or F grades. "This workshop has revolutionized my teaching," is a common response. Longer-range outcomes are described by faculty at Whitworth College, where over several years I led a number

of such workshops (Hunt, 1992). A 1997 study (Walvoord et al.) documents the long-range effects of Whitworth workshops in which, over the past decade, I have increasingly used the models I have presented here. My co-authors and I did not, in that 1997 investigation, directly document changes in the planning process per se, but rather changes in participants' teaching philosophies, teaching methods, and career patterns. However, participant comments and my own observations have increasingly led me to believe that those changes we documented in the 1997 study are closely bound to the integration of the planning process within the workshop and subsequent changes in faculty course planning.

The workshop, then, builds on the assumption that faculty members' course-planning processes are important to teaching and learning. The "assignment-centered" course-planning model provides the basis for faculty action and interaction within the workshop. A model for using time helps faculty to move beyond the concern that they need to use all their in-class time to "cover" the material. These models and the workshop's coherent flow seem to give planning a visibility and importance that faculty have not necessarily recognized. The term "assignment-centered" gives a name to a particular approach to course planning and to teaching and learning. It's a learning-centered and assessment-centered approach. A faculty workshop participant from Criminal Justice reported that she had been groping her way toward such strategies, but the workshop showed her that "there was this school of thought about using these different kinds of techniques." A faculty workshop participant from Communications put it this way: "Naming and renaming [are] extremely powerful. As teachers, we name and rename experiences with our students. As we name and rename with one another and for ourselves, our lives change" (Walvoord et al, 1996, p. 63). Those life changes—in process, in habit, in perspective—are what this workshop seeks to achieve.

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*To Improve the Academy*

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**Contact:**

**Barbara E. Walvoord**  
Kaneb Center for Teaching and Learning  
University of Notre Dame  
353 De Bartolo Hall  
Notre Dame, IN 46556  
(219) 631-9147  
(219) 631-8047 FAX  
walvoord.1@nd.edu

**Jack R. Breihan**

## 4 Arguing and Debating: Breihan's History Course

Barbara E. Walvoord  
Loyola College in Maryland

John R. Breihan  
Loyola College in Maryland

This chapter continues the exploration of the “difficulties” (p. 5) that arose as students tried to meet their teachers’ expectations, and the teachers’ methods and students’ strategies that appeared to affect those difficulties. Our special focus (p. 16) in this chapter is students’ development across the semester and how John R. Breihan’s teaching methods nurtured that development.

Breihan’s “Modern Civilization” course was a 100-level, required CORE course enrolling 27 students (mostly freshmen) at Loyola College in fall, 1985. Characteristics of the class, the college, and the students appear on p. 18 and in Appendix B. “We” in this chapter refers to Walvoord and Breihan, who collaborated in gathering the data and writing this chapter.

In Breihan’s class, difficulties arose in all six areas we constructed for the four classes (p. 14). However, we chose three areas of difficulty—stating a position, managing complexity, and using discipline-based methods to arrive at and support a position. We chose these three, first, because they were the main focus of Breihan’s and his students’ attention: 76 percent of Breihan’s meaning-changing comments (p. 40) on students’ essay drafts involved these three areas. Second, these three areas have seemed important to teachers and difficult for students, not only in our four classes but in other academic settings as well (Applebee et al. 1990; Connor 1990; Connor and Lauer 1985; Cooper et al. 1984; Perkins 1985).

We chose to focus on the effects of Breihan’s teaching methods because those methods had been carefully crafted over a period of years and influenced by his extensive experience in writing-across-the-curriculum workshops (Breihan 1986; Mallonee and Breihan 1985;



Walvoord and Dowling 1990). Further, Breihan's methods conformed to the "environmental" mode that Hillocks's (1986) analysis of empirical research on writing instruction has shown to be the most effective. Rather than merely presenting information (the "presentational" mode), Breihan's environmental mode structured ways for his students to learn to use information. Breihan's course also contained the characteristics that Kurfiss (1988), after a survey of the literature, lists as being common to courses that successfully support critical thinking:

- Critical thinking is treated as a learnable skill, with instructor and peers as resources for learning.
- Problems, questions, or issues are points of entry into the subject and a source of motivation for sustained inquiry.
- Challenges to think critically are balanced with support for students' developmental needs.
- Courses are assignment-centered rather than text- and lecture-centered. Goals, methods, and evaluation emphasize using content rather than simply acquiring it.
- Students are required to formulate and justify their ideas in writing or other appropriate modes.
- Teachers make standards explicit and then help students learn how to achieve them. (88-89)

Breihan's specific teaching methods most notably included:

1. An issue-oriented course plan, using issues as points of entry into the course.
2. Three major argumentative essays about those issues; these essays formed the central assignments toward which much of the other course activities were pointed.
3. A checksheet for evaluating/grading the essays that made his expectations very explicit.
4. Daily, focused writings ("exercises") explicitly planned both to develop needed skills and information and to serve as pre-draft preparation for the essays.
5. In-class discussions in which Breihan led his students through the modes of argument he wanted them to learn.
6. Seven in-class debates on historical issues that also served as pre-draft preparation for the essays.

7. Responses by Breihan on drafts of the essays, after which students revised.

But more important than the individual methods, to Walvoord the striking characteristic of Breihan's classroom was the consistent, focused, deliberate amassing of various activities, both written and oral, that all pointed toward the central course goal—teaching students to argue about issues by using historical evidence.

### BREIHAN'S EXPECTATIONS

A student we call Bonnie Kraft recalled, in an interview by Walvoord three years after having taken Breihan's class, her surprise as she began to comprehend Breihan's expectations:

I remember going in there thinking, O.K., this is just a basic history course, you know, it's not going to be a lot of work, you know what I mean, it's just going to be basically all lecture and then I'm going to have to restate what he told me on an exam. But Dr. Breihan was saying, "I'm not a history teacher; I'm a historian who teaches history." And right there I knew the outlook that I had was WRONG! [As I looked through the course material] I remember thinking, this is going to be different than what I thought.

Breihan describes what history courses, in his opinion, should do:

The difference between basic historical study, of the sort that ought to go on in high school, and history as what historians actually *do*—is argument. History textbooks, for example, attempt balanced, comprehensive narratives of past events. Historians don't read them. They read (and write) opinionated arguments about what the past was like, and they often say why contemporary eyewitnesses and even other historians had it wrong. College history courses should introduce students to the world of what historians actually do. This usually involves introducing them for the first time to the concept of conflicting opinions in print, which is often difficult for them to grasp, and teaching them to recognize and adopt a critical approach to the opinions of others. This is combined with assigning them to develop their own opinions and to argue them against opposing points of view.

Breihan's history department had specified a goal of cultural literacy for this course as well, and the readings and lectures accordingly contained a great deal of factual material. But Breihan felt that this material was best learned by being used in argument.

### THE ARGUER/DEBATER ROLE

The professional-in-training role (pp. 8–9) that Breihan wanted was the role that during data analysis we came to call “arguer” or “debater.” It was different in emphasis, as we will see, from Sherman’s expected role of business decision maker, though Breihan, like Sherman, tried to move students from mere text-processor or lay roles into the appropriate professional-in-training role.

Because few of Breihan’s freshman and sophomore CORE students would major in history, he expected them to use historical material as evidence to argue questions of concern to citizens involved in the public life of the nation. Many of Breihan’s essay questions therefore cast students in the role of politician (senator, advisor to a ruler) or of citizen/analyst who applies historical knowledge to current world concerns. The titles of the three main units of Breihan’s course were phrased as questions on such concerns:

- Unit 1: Political stability—What is it worth?  
(16th–18th centuries)
- Unit 2: Economic growth—What does it mean?  
(Industrial Revolution)
- Unit 3: Why arm? Why fight? (World Wars and the Cold War)

The “Loyoliana” question is one of the options for Essay 1 at the end of Unit 1 (see Figure 4.1).

### BREIHAN’S EMPHASIS ON GOOD/BETTER/BEST REASONING

Seventy-seven percent of Breihan’s essay questions, like all of Sherman’s, were in the good/better/best mode—here, for example, he asks what kind of government would be “best” for Loyoliana. Other questions involved actual historical situations: he asked the writer to be a U.S. senator who must decide whether to vote for ratification of the N.A.T.O. treaty and then must explain that decision in a letter to constituents. In still others, the student as historian/citizen-in-training argued a position to the teacher on, for example, whether Burke’s or Paine’s theories of government were more “valid.”

### BREIHAN’S EXPECTATIONS FOR FINISHED ESSAYS

Figure 4.2 summarizes Breihan’s expectations for the finished essays. Our analysis relies on the various handouts Breihan used to explain

You have been approached by General Perez, dictator of . . . Loyoliana, for advice about politics. General Perez would like to bring about reform in his . . . country, where the relative positions of the relatively small landowning elite and the majority of impoverished inhabitants resemble France in 1789. He is willing to leave office peacefully and hand over his powers to a constitutional government. Yet he fears anarchy—Loyoliana had a serious civil war 40 years ago that killed thousands. He is also a keen student of European politics, 1500–1800, and is worried that reform might go too far and become a bloody revolution like the one in France. That is why he has come to you. He knows that you were a good student in the early part of History 101 at Loyola College, where you studied such matters with great intensity. He will not be convinced by any arguments or facts about other political systems (like those of the U.S.A. or U.S.S.R. today); he wants you to draw your arguments about government and examples to prove them entirely from the record of the European past during the three centuries between 1500 and 1800. He also requires that you answer any possible counterarguments against your recommendations. Prepare a report to General Perez along these lines. Be careful—the fate of millions may be at stake!

Figure 4.1. The Loyoliana Assignment.

**Key words**

**used in class: The essay should:**

issue	address the issue stated or implied in the question
opinion	by stating the student's opinion or
thesis	thesis that has been reached by
feelings	evidence from the standpoint of the student's feelings and values.
values	
fact	The student's opinion should be supported by specific, accurate facts/opinions found in the primary and secondary sources students read.
evidence	These facts and opinions should be used as evidence—that is, the student should connect the historical material to his/her own opinion by stating warrants and by using subtheses.
connect	The student should draw material from all or most of the relevant lectures and readings.
subtheses	
alternatives	In the argument, the student should acknowledge alternative solutions/outcomes and should raise and answer the counter-evidence or counterarguments that would be expected from course readings or common sense.
counter-evidence/argument	

Figure 4.2. Summary of Breihan's expectations for the essays.

his expectations to students, his statements in class as recorded by Walvoord and the student observers (p. 23), the checksheet he returned to students with drafts and final essays, the comments and grades he assigned to essay drafts and final papers during the course, the log he kept during the course, interviews and discussions between Walvoord and Breihan both during and after the course, and Breihan's post-course primary trait analysis (p. 35).

We turn now to explore three areas of difficulty that arose as students tried to meet Breihan's expectations. In each area, we focus on how students developed across the semester and on how Breihan's teaching methods appeared to structure and nurture that development. In the third area—using discipline-based methods to arrive at a position and to support it with evidence—we also explore some differences between good/better/best reasoning in Breihan's and Sherman's classes, as well as aspects of Breihan's teaching methods that, on the basis of our study, he decided to change.

## DIFFICULTIES WITH STATING A POSITION

### THE NATURE OF THE DIFFICULTIES

When they entered the class, Breihan's students generally expected to play the text-processor role (p. 9), not to state intellectual positions of their own. In the fourth week of the course, a freshman we call Tracy Wagner wrote in her log,

I haven't done things like this before. In high school we took the answers straight from the book. I am not in the habit of developing arguments.

Stating a position has seemed hard for students in other academic settings. Though Sherman specifically asked students to defend a stadium site, 16 percent of his class of junior and senior business majors stated no stadium location, and another 11 percent tacked on a decision only as an afterthought to their textbook summaries (p. 71).

In the 1988 National Assessment of Educational Progress, when eleventh graders were asked to take a stand and argue their position against an opposing point of view, nearly 33 percent did not state a position (Applebee et al. 1990).

## STUDENTS' DEVELOPMENT

Breihan had good success in teaching his students to state a position. By the seventh week, when they drafted Essay 1 in class, every student in the focus group of nineteen students stated a position and then tried to support that position with evidence (for focus group see p. 40 and Appendix B). Further, all but one of the nineteen students stated the position in the first paragraph or two of the essay. The one student who did not—Tracy Wagner, who was “not in the habit of developing arguments”—devoted the first 40 percent of her draft to an encyclopedia-like report that began “Edmund Burke was born in . . .” But even she eventually got to a statement of her position on the issue.

## HOW BREIHAN'S TEACHING METHODS HELPED STUDENTS LEARN TO STATE A POSITION

Our data suggest that Breihan's teaching methods helped students learn to state positions in the following ways:

### **Visible Issue Orientation**

Breihan titled each unit with an issue-oriented question that implied a position (e.g., “Unit 1: Political stability—what is it worth?”). These issues were printed in the syllabus and at the head of the lecture outline that Breihan gave his students at the beginning of the semester. Walvoord observed that most students kept the outline in front of them during the class session, and many made notes directly on it; thus the issues were constantly before the students' eyes.

### **Daily Focused Writing**

Many of the daily, in-class writing exercises focused on issues. For example, Breihan's instruction sheet for a number of the exercises began with the question, “What is the issue at stake in this chapter?” Only then would succeeding questions on the sheet address the specific readings for that day. Several students remarked in their logs or on their tapes that these questions about the “issue at stake” became habitual for them whenever they began a reading assignment for Breihan's course. The focus on issues, then, pervaded those areas—

readings and class sessions—where students might otherwise have expected merely to be acting as text processors, storing up facts. The exercises directly guided the way students approached their textbook—one of the sources of difficulty in Sherman's class.

Further, the daily writings gave students practice in stating a position before they wrote their essays. One daily writing assignment shortly before Essay 1 asked students to state in a single paragraph which solution to 17th-century anarchy—the English or the French type of government—they personally found most reasonable and attractive. This exercise served as a direct preparation for Essay 1 where, for example, the Loyoliana question asked students to recommend a type of government to General Perez.

Finally, the daily writings, coupled with a series of debates, gave students the time, information, and experience that made them ready to adopt positions. Before the in-class draft of Essay 1, students had written and debated a number of times and from different angles 17th-century French absolutism and the Glorious Revolution in England. Their logs and tapes show them reacting to the issues, expressing likes and dislikes, hashing over various positions, and getting ready to take a stand.

### **In-Class Debates**

The seven in-class debates held at various points in the semester also reinforced the process of taking a stand on an issue. For example, shortly before they wrote Essay 1, students participated in a debate in which half the class argued that Louis XIV was a "good king" and half the class argued that he was not. (Breihan consciously sacrificed subtlety of historical interpretation in order to emphasize the importance of taking a clear stand on an issue.) The debates were a visible and prominent feature of the course for students, who mentioned them frequently in their logs, notes, and dormitory study groups. Students in two dormitory study groups who taped their sessions for us discussed who said what in specific debates, weighed the relative merit of various debate teams, and debated some of the issues. The seven debates cast students visibly and physically in the role of arguer/debater (not of text processor) and encouraged them to read their assignments with the goal of preparing for the upcoming debates.

### In-Class Discussions

The in-class discussions likewise emphasized the importance of taking a stand. Quoted below is an excerpt from a class Walvoord visited during the fourth week. First, notice that the written exercise students have brought to class is the basis for the discussion—the course is assignment centered; writing directly relates to what happens in class and to the central goals of the course. Second, note how Breihan emphasizes “turning the corner” from mere summary to taking a stand. (The discussion contains other lessons as well—about how to raise and answer counterarguments and how to support a position with evidence, which are the topics of the last two sections of this chapter.)

At the point where the classroom discussion begins, Breihan asks the same question as the exercise sheet students have just submitted:

*Breihan:* How can the letter by Colbert be used as evidence on the issue of whether Louis is a good or a bad king?

*Vicky Ware:* [summarizes the reading]

*Breihan:* [reinforces her, but pushes her further] Everything you've said is right, but you need to turn one little corner.

*Ware:* [hesitates]

*Breihan:* [rephrases his question]

*Ware:* He [Louis XIV] was good.

*Breihan:* [exults] YES!

The “corner” is to move from merely summarizing Colbert's letter to saying that the material can be used to support an argument that Louis was a good king. Breihan tells the class he wants them to state their positions (“opinions”) boldly: “be *that* heavy-handed in your writing.” They must take a stand; then they must “make the connection” that links the historical material to their opinion about Louis, so that the historical material is not merely included, but acts “as evidence” to support the student's opinion. Breihan also suggests that, to make the connection between specific information and their own opinions, students can say, “*Louis XIV was a good king because. . .*” (Later in the chapter, we will see how Bonnie Kraft adopted this linguistic formula as a key to her reasoning about good/better/best issues.)

Further lessons about how to form and support opinions emerge in a multi-student exchange which Breihan orchestrates later in the same class period:



*Bonnie Kraft:* [summarizes part of a reading selection in response to Breihan's question]

*Monica Rhodes:* [summarizes another part of it]

*Breihan:* How does it go, this dispute? Mr. McConnell?

*Jim McConnell:* [answers with summary of the argument]

*Breihan:* So how would you use this as evidence [on the central issue of the day's discussion]?

The same question about evidence has been asked on that day's exercise sheet. The lesson is that readings are not merely to be summarized, they are to be used as evidence for a position.

*McConnell:* [responds satisfactorily]

*Breihan:* Anybody look at it differently? Mr. Nessay?

*Jerry Nessay:* [responds]

Breihan has introduced counterargument, a necessary part of any successful essay in his course. He is also emphasizing that various opinions may arise in the class, even though students are all reading the same material.

*Breihan:* Yes, but you've made some very general statements. Get to *this* document. Miss Ware?

*Ware:* [begins, but stops]

*Breihan:* How do you know Louis was bargaining here—let's get specific. Let's get to the document.

Breihan pushes for specificity and for reference to the day's readings—both important lessons for success on the essays.

*Ware:* [silence]

*Sharon Drake:* [bails her out]

*Breihan:* [leads Drake, as she makes the argument that Louis was autocratic]

Again, Breihan is insisting that students take stands and construct arguments in the class, not merely summarize readings.

*Breihan:* Look at the dates. It takes three years of dickering before he [Louis] dismisses the deputies. We have absolutism here, *but*. When he did go in, he didn't send the army in, he took just ten guys. This is the importance of information [i.e., the little piece of information about how long it took for the king to act and how few men were involved allows one to make a point]. So you could use this as Miss Ware and Miss Drake

did [to support the point that Louis was autocratic], *but* [he explains how the same reading selection could also be used to support a different point—that Louis was restrained in his use of absolute power].

Throughout this and other in-class discussions Breihan led his students through the process of taking a stand, supporting it with evidence, and defending it against counterargument—all part of the professional-in-training role of arguer/debater he expected from them.

### Comments on Essay Drafts

Notice Breihan's last comment: Even Vicky Ware, who had made a beginning and then had to be bailed out, shared the credit for having made the point that Louis was autocratic. Breihan credited students with stating positions even when they had needed help in articulating those positions. He did the same in his responses to their essay drafts. The comments Breihan wrote at the end of a draft always began with a summary of the student's thesis and main points. Here is the opening of a typical comment:

Mr. Carter:

This essay puts forward a very clear thesis that a "strong government" is needed to end anarchy. After reviewing several alternatives, you end by saying that a mixed government on the English model would work best for Loyoliana.

What is missing here is argument and evidence in favor of the thesis that you state so clearly. *WHY* would this system work so well? [The comment continues with further questions and suggestions for revision.]

Breihan's habit of addressing students by their surnames and crediting them with positions was intended to help them act like mature adults and scholars who take positions and defend them. His comment to Carter opened in much the same way he would open a published article in which he first stated the argument of another historian, then addressed the strengths and weaknesses of that argument. Thus the conversation between Breihan and his students took on the cast of professionals participating in a dialogue about historical issues.

Breihan's practice of identifying an argument with the student who had made it also reinforced the concept that argument in history is made by individuals who may be more-or-less accurate and astute, and who work from various biases, and that in their own writing students were expected to cite the authors of arguments they included.

### Checksheet

Another teaching method that emphasized the importance of assuming a position was the checksheet that Breihan gave students at the beginning of the semester (Figure 4.3).

Breihan had constructed the checksheet based on his observations of students' essays over several years. Each item on the checksheet described a type of paper Breihan actually received, beginning with the least successful and going up to the most successful. Rough grade equivalents were:

<i>Items</i>	<i>Grade</i>
1-4	F
5	D
6-9	C
10	B
11	A

On the checksheet, stating a position appears as the first characteristic in every item from 7 to 11. The breakdown of grade values above also shows that students, in order to get a "C" or above, had to state a position. The checksheet, then, was one way Breihan did what, as we have mentioned, Kurfiss (1988) found in her survey of successful courses that teach critical thinking: the teacher makes expectations clear (pp. 88-89).

Breihan took pains to make this sheet highly visible to students. A copy of the checksheet was included in the packet of materials they received at the beginning of the semester. Breihan marked a copy of the checksheet and returned it along with his written comments and the draft. Later, each student resubmitted the revised essay together with the draft and checksheet, and Breihan made another check on the checksheet to represent his evaluation of the revised essay. Usually the student had improved, and the second check was higher on the scale. The checksheet, as well as Breihan's other methods, embodied another characteristic Kurfiss (1988) notes—critical thinking is treated as a learnable skill, and the teacher offers support for students' development (pp. 88-89).

### Breihan's Use of "Thesis" Terminology

Notice that the checksheet mentions the word *thesis*. Breihan frequently and deliberately used that term. He was consciously relating his course to the required freshman composition course, which his students would

An assessment of your essay is marked on the scale below. The scale describes a variety of common *types* of paper but may not exactly describe yours; my mark on the scale denotes roughly where it falls. More precise information can be derived from comments and conferences with the instructor.

- 1. The paper is dishonest.
- 2. The paper completely ignores the questions set.
- 3. The paper is incomprehensible due to errors in language or usage.
- 4. The paper contains very serious factual errors.
- 5. The paper simply lists, narrates, or describes historical data, and includes several factual errors.
- 6. The paper correctly lists, narrates, or describes historical data, but makes little or no attempt to frame an argument or thesis.
- 7. The paper states an argument or thesis, but one that does not address the questions set.
- 8. The paper states an argument or thesis, but supporting subtheses and factual evidence are:
  - a. missing
  - b. incorrect or anachronistic
  - c. irrelevant
  - d. not sufficiently specific
  - e. all or partly obscured by errors in language or usage
- 9. The paper states an argument on the appropriate topic, clearly supported by relevant subtheses and specific factual evidence, but counterarguments and counterexamples are not mentioned or answered.
- 10. The paper contains an argument, relevant subtheses, and specific evidence; counterarguments and counterexamples are mentioned but not adequately answered:
  - a. factual evidence either incorrect or missing or not specific
  - b. linking subtheses either unclear or missing
  - c. counterarguments and counterexamples not clearly stated; "straw man"
- 11. The paper adequately states and defends an argument, and answers all counterarguments and counterexamples suggested by:
  - a. lectures
  - b. reading assignments: specific arguments and authors are mentioned by name
  - c. common sense

Figure 4.3. Breihan's checksheet for essays.

take the following semester, and in which "thesis" was heavily emphasized. By encouraging the thesis/support format, Breihan also forefronted the student's position.

Breihan's method here contrasted with Sherman's, which emphasized define/analyze/prescribe. Each format brought corresponding difficulties. The define/analyze/prescribe format offered a process for arriving at a position, but, if students used it as an organizing pattern in their papers, it postponed the student's position statement until the end. This sometimes invited students' difficulties with stating any position at all, or with linking a stated position to the definition and analysis that had preceded it (see Kurt Larson, p. 89). The thesis-first format, on the other hand, forefronts the students' decision but might encourage the view that forming a thesis is the first act of a writer, rather than the result of evolving investigation, planning, drafting, and revising. Breihan countered this danger by the daily, focused writing and the frequent debates which prepared students to state a thesis for each essay.

### Essay Assignment Sheets

Breihan's Loyoliana essay assignment sheet (p. 101) does not begin with advice to the student to read the textbook, but rather with General Perez's dilemma. Breihan uses the words *advice* and *recommendations*, and, twice, the word *argument*, which he also used frequently in class, and which appears frequently in students' logs and tapes—they get the message that this class is about argument. The word *report*, which might imply mere textbook summary, appears at the very end, where its meaning has already been established by the earlier framework of "argument." Explicit instructions to answer counterarguments further define the students' position as arguer/debater.

Further, the assignment sheet does not specify a limited body of information that students could summarize, but only refers to "European politics 1500–1800." There is little on this assignment sheet that could possibly mislead students into thinking that they should summarize a portion of historical material they had studied. Everything drives toward the message that they are to assume the role of arguer/debater.

After analyzing all these teaching methods, it seemed to us that what helped students learn to take positions was not only the number and type of teaching methods Breihan used, but their consistency in

reinforcing the arguer/debater role and in addressing students' approaches to textbooks, their use of the "thesis" model, and their pre-draft writing.

Joe Walker's log entry from the third week of the course shows how Breihan's teaching methods were helping students learn to state a position:

I feel pretty good about the work done so far. It teaches you to think in a new way, which is somewhat difficult to adapt to after spending many years doing things the other way—that is spitting out facts instead of arguing opinions with support of factual evidence. Dr. Breihan explains things well, which is a big help.

As students adopted the arguer/debater role and learned that they must state a position, they began to confront two other areas of difficulty—managing complexity (primarily through raising and answering counterarguments) and using discipline-based methods to arrive at a position and to support it with evidence.

## DIFFICULTIES WITH MANAGING COMPLEXITY: COUNTERARGUMENT

### THE NATURE OF THE DIFFICULTIES

Breihan, like Sherman, expected that students would not merely use a "find reasons" strategy—listing advantages or reasons for their own positions—but that they would consider the complex aspects of an issue, entertain alternative solutions to a problem, and raise and answer counterevidence and counterarguments to their own positions. Breihan often used the term *counterargument* generically to refer to both counterevidence and counterargument, and we follow his practice.

In other academic settings researchers have found raising and answering counterarguments both rare and difficult for students. In the 1988 National Assessment of Educational Progress, when eleventh graders were asked to take a stand and argue their position against an opposing point of view, only 21 percent even briefly refuted some aspects of the opposing ideas (Applebee et al. 1990, p. 34). In a study by Perkins (1985), high school and college students offered only a few lines of argument to support, and far fewer in opposition to, their oral arguments on current issues. Cooper et al. (1984) asked a group of 400 SUNY at Buffalo entering freshmen to write persuasive essays during orientation week, then asked a group of SUNY teachers to rate

those essays holistically. In a sample of 50 essays, only 16 percent of the students addressed an opposing point of view on the issue. Yet counterargument was important to the raters.

#### STUDENTS' DEVELOPMENT

In contrast to these other settings, 58 percent of Breihan's students, by the final essay in his class, raised at least one counterargument relevant to a stated position and responded to that counterargument with further argument and specific evidence.<sup>1</sup> Even by Essay 1, in the seventh week of the course, 47 percent of the students met that standard. Data from early logs and exercises indicate that this was not because Breihan's students expected or knew how to raise and answer counterarguments when they entered the course; on the contrary, as we have seen, most expected to "take answers out of the book." Rather, Breihan's teaching methods very early impressed upon students the importance of counterargument. And Breihan's methods taught students how to raise and answer counterarguments. Larry Crane, for example, got the message very early. In the third week of the course, he recorded in his log:

As I read the selected passages, I tried to discern the writer's opinion (thesis) of Louis XIV. I looked for evidence in support of his opinion and *evidence in support of the opposite.* [Italics ours]

In the sixth week, preparing for the Loyoliana essay, he recorded that he jotted down "any ideas at all I had about the various aspects of the question, possible solutions, *counterarguments*, strategies, areas I need to investigate further, etc." (Italics ours). Like many other students, Crane early realized that, as he observed in his log on November 11, "counterarguments really thrill the professor!"

#### HOW BREIHAN'S TEACHING METHODS HELPED STUDENTS LEARN TO RAISE AND ANSWER COUNTERARGUMENTS

##### Choice of Texts

Breihan used four textbooks, one of which was a traditional, chronological account of events. A student who clung to the text-processor role and who received a "C" in the course wrote in her course evaluation at the end of the semester that this text was "straight facts stated out, easy to understand. We didn't use it enough." As the

student noted, Breihan placed his major emphasis on other texts that modeled and encouraged counterargument. One such text was a collection of primary and secondary readings arranged by issue—for example, evaluating Louis XIV. The other two texts were writings of Edmund Burke and Thomas Paine. Thus Breihan chose and heavily emphasized textbooks that presented conflicting viewpoints on issues, making it difficult for students to see one book as a single, monolithic “right” representation of historical facts. Moreover, many of the authors in the textbooks themselves raised and answered counterarguments, thus providing further models for Breihan’s students.

### **The Language of the Assignment Sheets and the Checksheet**

Assignment sheets specifically mentioned the need for counterarguments, as we saw in the Loyoliana question. Further, Breihan’s checksheet (Figure 4.3), which students had from the first day of class and which Breihan used as part of his response to their drafts and final essays, featured counterargument as the final, crowning trait that distinguished an “A” paper from all the rest (item 11).

### **Response to Drafts**

Twenty-one percent of the meaning-changing comments (p. 40) Breihan wrote on students’ essay drafts concerned counterarguments.<sup>2</sup> Breihan both praised counterarguments when he found them and suggested them when he did not. He frequently mentioned specific authors or positions that the student should answer; for example, on one essay he suggested that

You need to answer the counterarguments contained in Ashton.

To a student who had included a number of counterarguments but not answered them very fully, he wrote:

You might also elaborate on the game laws counterargument and do more to counter Bossuet than simply to bring up St. Simon (who says St. S. is right??)

Our data reveal that 93 percent of Breihan’s meaning-changing comments on essay drafts resulted in some kind of revision.<sup>3</sup> Breihan’s draft response then led students to consider counterarguments as one of the chief issues in their revisions.



### In-Class Discussions

The in-class discussions, often based on the daily writings, aided comprehension and reinforced the notion that the readings were arguments on an issue. In the in-class discussion reproduced earlier, Breihan had asked for a summary of some readings by saying, "How does it go, this *dispute*?" In the class discussion, as we saw, Breihan led his students through a dialogue of argument and counterargument.

### Debates

The seven in-class debates helped students in many ways. On a basic level, they helped with reading comprehension—not only with understanding the meaning of statements in the readings, but also with understanding that the readings were themselves debates, answering other voices, and that they could be used as ammunition for the students' own debates. Bonnie Kraft, reading the assignments in Burke and Paine, recorded in her log:

The readings were difficult and confusing. I spent much time rereading passages to make sure I understood what each man was arguing. This assignment took about 6 or 7 hours.

During the Burke-Paine debate, still unsure of herself, she sat silent, allowing her classmates to carry the argument, remarking in her log later:

Today's debate was a good experience and turned out exactly as I thought. I [had] missed some major points in the readings of Burke and Paine. I left class with a better understanding of the assignments.

After this debate, another student recorded the insight that "Burke and Paine are counterarguments to each other!!"

### *Debate as an Aid to Dialogic Thinking*

In the high-success students' essays, argument and counterargument proceed in a constant, seesaw pattern of dialogue on both the macro and micro levels. For example, Larry Crane's in-class draft of the Loyoliana essay begins by arguing that the "English plan" of constitutional government has strong features that Loyoliana should adopt. Then, addressing the counterarguments, he acknowledges that this English plan has shortcomings, thereby setting himself up to argue

that it should be modified with some features of the "French plan"—absolutism—and some additions of his own. (In a wonderful adoption of the professional-in-training role, he calls this amalgam by his own name—"the Crane Plan.") At the macro level, the overall organization of his paper is thus a dialogue of argument, counterargument, and answer. But such dialogue is also integrated at micro levels in every section of his paper. An example is this section, in which he addresses the kind of executive that Loyoliana should have (labels at left are ours):

Argument	Another shortcoming [of the English plan] was the succession of the monarch through heredity. Paine is right in saying that talents and abilities cannot have hereditary descent. An heir to the throne may have no desire or talent to rule. What is worse, kings sometimes have congenital birth defects. Charles II of Spain was unable to father a child and the result was the War of Spanish Succession. Louis XIV was a child when he inherited his title and the Fronde ensued. The crown may even fall to a foreigner. For Loyoliana, a non-hereditary executive possessing talent and abilities and acceptable to a majority of legislators is clearly called for.
Counter	Hume argues, however, that such an "elected monarch" would be motivated to accumulate as much wealth as possible before giving way to his successor. Also, any elected monarch would still harbor friendships and animosities and use his position to address them.
Answer	But Hume also writes that people voting by their representatives form the best democracy. Could not those representatives then be counted on to elect a leader of limited powers who had the interest of the nation and the people at heart?

Other paragraphs and sections of essays proceed similarly in Crane's and other students' essays. The frequency and importance of the dialogue at macro and micro levels are shown by a count of the types of connections that link ideas to one another in a sample of Breihan's students' essays.<sup>4</sup> (We used Bonnie Meyer's categories to classify types of connections, p. 42.) As Figure 4.4 illustrates, the kinds of connections that introduce counterargument or answers to counterargument are second highest in frequency. Further, the "A" essays have substantially more such connections than the "C" essays.

This dialogic pattern of argument, counterargument, and answer was a unique feature of Breihan's class, different from the other classes we studied. It appears to us that Breihan evoked it because he made very clear that he wanted it and he taught students how to do it.

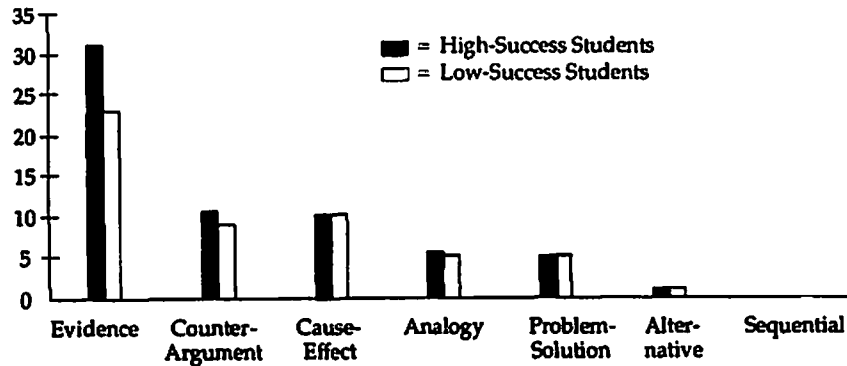


Figure 4.4. Types of connections among ideas in first three levels of hierarchy of high-success and low-success student essays. Evidence: Facts and opinions from course readings, presented as evidence (Meyer's "descriptive"). Counterargument: Counterargument and counterevidence, and answers by the writer (Meyer's "adversative"). Cause-Effect: Causes or effects (Meyer's "causation"). Analogy: (Meyer's "analogy"). Problem-Solution: (Meyer's "response"). Alternative: Any alternative not presented as a counterargument (Meyer's "alternative"). Sequential: Sequence is the only connective (Meyer's "sequential").  $N = 10$  essays: one high-success and one low-success essay (randomly chosen) on each of five topics spaced across the semester.

The debates seemed particularly effective in modeling the dialogic pattern of constant argument, counterargument, and answer. The teams in the debate did not simply each speak once or twice in a pro-con, one-side-other-side fashion. Instead, they contributed points in a basketball-like fashion, each side making a point, then yielding the floor to the other side, who could counter the point or begin a new one. In the debate about Louis XIV, for example, a student on one team might make the point that Louis built Versailles—a cultural and artistic landmark still admired for its elegance and beauty. Someone from the other side, however, might counter that Versailles was financed on the backs of desperately poor peasants cruelly taxed. Then the first side countered that or raised a new point.

Successful students' planning, as revealed in their logs and tapes, often exhibited a debate-like dialogue. One student described his habit of "arguing with myself" while planning a paper. Bonnie Kraft shows this dialogic way of thinking in an oral planning session for an exercise just after the Louis XIV debate, in the fourth week. Students were to make a one-paragraph statement and defence of what they thought was the best solution to 17th-century anarchy—the absolutism of Louis XIV or the limited monarchy of Britain. As she generated reasons why the English solution was better, she immediately addressed

counterarguments, as these excerpts from her think-aloud tape illustrate:

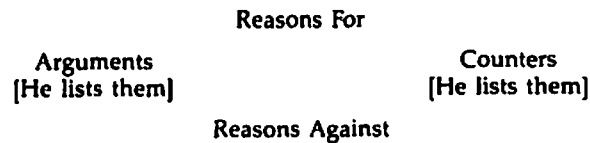
- |          |   |
|----------|---|
| Argument | This leads to another reason I think the English solution was better, because, um, because um, there were checks and balances. [she talks through some evidence and explanation] But under the absolutism in France, Louis could do or make the decisions that he wanted; he didn't have anybody to regulate him or to tell him that that was wrong and that wasn't a good thing to do. He just did what he wanted to do. |
| Counter  | I'm not saying that Louis didn't do good for the people or what he thought was good, but  |
| Answer   | no one was there to regulate what he did. . . .   |
| Counter  | The English solution didn't go without any problems. I mean there was a problem in finding someone that would succeed William and Mary and, um, and/or the Prince of Orange.  |
| Answer   | But the system is so much more democratic. . . . I wonder if I could include, or to say that the English wasn't perfect, but the good points outweighed the bad. I think that would be a good way to present this essay—to say that the English were good because they were doing good for the people.  |
| Argument | They did set up a framework of government and looked toward the future.   |
| Counter  | But then again there was always the problem of succession.  |
| Answer   | But they solved that problem [3 second silence] with the, uh, with the Hanoveria- Han, Ha-, um, HanOverian succession, HanoVERian, I guess, HanoVERian succession.  |
| Counter  | Or that, um, there was a problem with the title <i>prime minister</i> ,   |
| Answer   | but rather Walpole worked out the system for that.  |

Kraft's planning and that of a number of other high-success students was characterized throughout by this dialogic pattern. Other researchers have also noted the role of dialogue in argument. Basseches (1980) argues that mature critical thinking is "dialectical," that it moves beyond Piaget's formal operations to the ability to examine critically one's own ideas from an opposing point of view. Hays, Brandt, and Chantry (1988) suggest that this dialectical ability originates as literal internal dialogues between the thinker and one who might question or oppose the thinker's position. Our study of Breihan's class suggests that internal dialogues may be taught or evoked for students in a class where, over and over, in a number of ways, language is employed in a debate-like pattern.

*Debate as an Aid to Pre-Draft Writing*

Breihan used the debates also to help students with pre-draft writing. On the blackboard, he jotted down, in columns, the points the teams made, then drew chalk arrows between an argument in one column and its counterargument in the other. Similar arrows appeared in students' pre-draft writing, helping them to transcend a mere pro-con or one-side-other-side organization and to achieve dialogue on both the macro and micro levels. Pete Lane was a student who lacked counterargument in Essay 1 but achieved it by Essay 2. In the interim he had begun to use arrows in his notes in imitation of Breihan's blackboard models (Figure 4.5). A number of students likewise used arrows to make pros and cons talk to each other, some writing in the margins of their reading notes *counterarg* with an arrow to the argument under attack.

Jim McConnell combined pro/con with argument/counterargument in his written plan for Essay 3:



Lane's and McConnell's pre-draft writings use the two axes—horizontal and vertical—to bring different types of information into a disciplined relationship in order to arrive at and support a decision—the third task of good/better/best reasoning (p. 12). A related form of dual axis pre-draft writing—the factor-rating chart—was described in Sherman's textbook, but students did not use it (p. 75). In Breihan's class, the

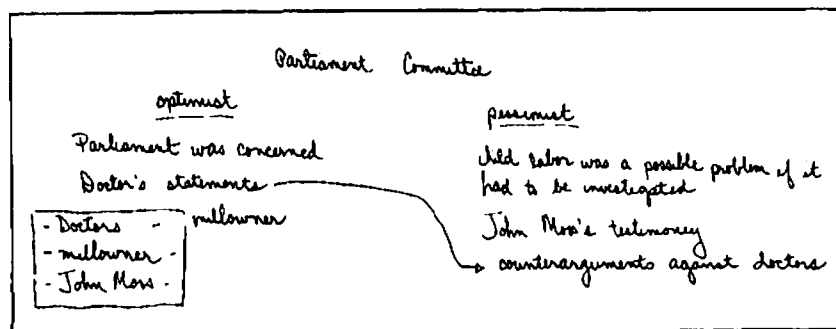


Figure 4.5. Pete Lane's notes (\*Optimists held that the Industrial Revolution was good for workers; pessimists held that it was harmful.)

dual axis forms students used were actually written on the board and they grew from a dialogic in-class debate.

Even more flexible than dual axis arrows or charts was the system of pre-draft writing Bonnie Kraft used for Essay 1. She noted "counterarg" in the margins of her reading notes, then cut up the notes and taped them back together to form a very detailed outline in which arguments and counterarguments were interspersed in a dialogic pattern. This pattern then governed her essay draft.

Once Pete Lane had begun to use arrows in his notes, he began to write essays that raised and answered counterarguments and even to help other students to do so. Here is such an exchange within a dormitory study group the night before the in-class draft of Essay 2. Notice that the other student, Sara James, envisions counterargument as the admission of weakness by the writer, while Lane portrays it as an actual dialogue among opposing voices. Lane also uses the word *sceptical*, which Breihan often used to describe the way students were to approach their sources.

*Sara James:* [What about counterargument in Essay 2?]

*Pete Lane:* That's like saying, England was a good government, look at England. Then talk about England. Then you say, but it did have its flaws.

*Sara James:* So are we supposed to say, this may seem a little shaky in this area, but blah, blah, blah?

*Pete Lane:* Don't say it like that. Not that terminology.

*Sara James:* I know, but that train of thought? . . .

*Pete Lane:* It's like this, Sara. Talk about England and how great it was, a mixed government with its parliament, and its king. Well then why did Cromwell step in? That's the question someone might ask you. [In deep, hokey voice of the antagonistic someone:] "Well, if England was so great, why did Cromwell step in?" And then you have to talk about [preventing anarchy]. But then you look at France—no anarchy. But then why the French Revolution? You got to keep asking questions. Just like, be sceptical about what you're saying.

*Sara James:* I was going to ask you if I should . . . just present the whole thing without any possibility of there being counterarguments, but firstly that's, like, almost impossible, and secondly that's not what he's looking for. You're probably right.

Lane tried to help James with the sceptical, dialogic frame of mind necessary to frame counterarguments, and with the linguistic framework in which counterarguments are couched. It is no surprise that in writing his in-class Essay 2 the next day, he incorporated counter-

arguments and answers to counterarguments. James was less successful because her essay lacked both effective organization and sufficient specific information from the readings, but the pre-draft notes she had made during or after the study session contained specific passages marked "argument" and "counterargument."

In this section, then, we have explored some teaching methods that seemed to help students achieve the arguer/debater role by raising and answering counterarguments. The methods included Breihan's choice of textbooks, the language of the assignment sheets and the checksheet, his response to drafts, the in-class discussions, and the seven in-class debates. But again, more than the number and type of teaching methods was Breihan's intense, careful guidance of students' thinking and writing processes, his frequent feedback, and his consistent, strong focus, with all his teaching methods pointing students toward developing their ability to raise and to answer counterarguments. Breihan wanted his students to adopt the arguer/debater role, and in many ways the whole class became a debate, with both oral and written language used dialogically at many levels.

#### **DIFFICULTIES WITH USING DISCIPLINE-BASED METHODS TO ARRIVE AT (AND SUPPORT) A POSITION**

In this section, we take up a third area of difficulty—using discipline-based methods to arrive at the position and to support it with evidence. Again, as in the first two sections, we discuss the nature of the difficulties, students' development, and how Breihan's teaching methods affected students' learning.

In addition, we have two other points to make in this section: (1) there were some significant differences in the models for good/better/best reasoning used in Sherman's and Breihan's classes. Exploring these models can contribute to an understanding of what constitutes "good" thinking and writing in various academic disciplines or classes; and (2) our study revealed some areas in which Breihan wanted to change his teaching methods.

We make all these points by telling the story of how Bonnie Kraft learned to use discipline-based methods to arrive at a position and to defend it with evidence. Accordingly, this section is organized differently from the rest, though it addresses similar issues.

Bonnie Kraft was the student who realized on the first day of class

that her previous notion about the text-processor role that would be required for the class had been "WRONG!" We've seen how she used dialogic thinking as she planned arguments and counterarguments about constitutional monarchy, and how she cut up and taped her notes to create an outline for her Loyoliana essay. During the first six weeks of the course, however, as she was learning the techniques of counterargument in preparation for her Loyoliana essay, Kraft struggled hard to learn how to use discipline-based methods to arrive at a position and to support it with evidence—a struggle that other students experienced as well. The story of her struggle comes from her log, think-aloud tapes, notes, and drafts for the daily writings and debates that preceded the Loyoliana essay, and from interviews conducted by a freshman composition student during the course (p. 27) and by Walvoord three years later.

Kraft entered the course with several strengths that helped her in her struggle: she was well motivated, she had good learning skills, she set goals and worked deliberately toward them, and she could take detailed notes about her reading. At 530, however, her verbal SAT score was 12 points below the mean for the class and about 100 points below the mean for the other students who received "A" as a final course grade. Interviewed by Walvoord three years after the course, she remembered it as "THE hardest course I ever had," but also one of the most useful because "there was a lot of writing involved and that was something that I hadn't come into so far" and as a result "my writing improved so much."

#### TEACHING THE HISTORICAL METHOD: FOUR STAGES

Breihan's teaching worked in many ways to help Kraft. One of the things he did was to structure in four stages the use of discipline-based methods to arrive at a position and to support it with evidence. Figure 4.6 shows selected exercises and debates that formed the four stages.

##### **Stage 1: Showing How a Single Reading Can Be Used as Evidence**

Kraft achieved:  
Detailed summary of sources



Exercises	Skills
<b>STAGE 1: SHOWING HOW A SINGLE READING CAN BE USED AS EVIDENCE</b>	
<i>Author's Purpose and Summary: Week 1</i>	
<p>What do you know about the textbook author?            What can you guess? When was the text written? published?            List its subheadings and summarize a chapter.</p>	<p>Recognize that history is written by people who reflect their cultural biases.            Pay attention to author's subheads.            Summarize.</p>
<i>Narrative of the English Civil War</i>	
<p>Write a one-paragraph narrative incorporating eight terms provided by Breihan.</p>	<p>Summarize events accurately.</p>
<i>Analysis of Anarchic Episodes: Week 2</i>	
<p>From eyewitness accounts of 17th-century riots, find evidence of the following factors: economic, political, social, religious, etc.</p>	<p>Become familiar with various analytical categories, and use them to categorize evidence.</p>
<i>Primary Sources on Louis XIV: Week 3</i>	
<p>What is the issue at stake in this collection of documents?            Who was the author of each document?            When did he/she live?            How can his/her material be used as evidence on this issue?            [Questions repeated for each source]</p>	<p>Understand how "primary source" material can be used as evidence by stating connections between eyewitness material and opinions on the historical issue.</p>
<i>Secondary Sources on Louis XIV: Week 4</i>	
<p>What is the issue at stake?            Who is the author and when did he/she write?            What is his/her position on the issue?            How does she/he back it up?</p>	<p>Understand what a "secondary source" is.            Use secondary sources as models for shaping historical arguments.            Understand how arguments are backed by evidence.</p>
<i>continued</i>	

Figure 4.6. The four stages of learning to use discipline-based methods to arrive at a position and to support it with evidence

Figure 4.6 (cont.)

**STAGE 2: CONTRIBUTING TO AN ARGUMENT ON AN  
ASSIGNED HISTORICAL OPINION**

*Louis XIV Debate Worksheet*

Prepare notes in support of your assigned position on whether or not Louis was a "good king" plus counterarguments against the opposing opinion.

Understand that history is argument about the past.  
Collect evidence for a position.  
Take notes that allow easy access to evidence during debate.

*Second Chance on Louis XIV Debate*

Write two points that were not discussed in the class debate.  
For extra credit say why you did not say them in the debate.

Learn skills and points not used in the debate.

**STAGE 3: CHOOSING ONE'S OWN POSITION ON A HISTORICAL ISSUE  
AND BRIEFLY DEFENDING IT WITH EVIDENCE**

*Best Solution to Anarchy Essay: Week 5*

In a one-paragraph essay, state which solution to the problem of 17th-century anarchy—French or English—you personally find more realistic and attractive. Try to explain why you feel the way you do and to back your feelings with evidence.

Choose one's own position.  
Address the relevant issue.  
Support the position with evidence.

**STAGE 4: CHOOSING ONE'S OWN POSITION AND DEFENDING IT IN  
A FULL ESSAY, INCLUDING COUNTERARGUMENTS  
AND ANSWERS TO COUNTERARGUMENTS**

*Essay 1: Week 7*

Select from among 3 essay questions:

1. The Loyoliana question.
2. Whose theories about the French Revolution—Burke's or Paine's—were more "valid"?
3. From class readings by Burke and Paine, infer their views, pro and con, of Louis XIV's reign.

Use several techniques for historical argument: analyzing problem, stating position, supporting it with evidence, answering counterarguments.

Kraft had difficulty:

- Recognizing bias in sources
- Stating the specific arguments the source could support
- Assessing a source's value as evidence

Bonnie Kraft struggled during the first weeks of the course to move from the text-processor to the arguer/debater role and to learn how to construct arguments as Breihan expected. In the third week her difficulty showed up clearly in the exercise analyzing primary source documents on Louis XIV (see Figure 4.6).

The assignment sheet asked students first, "What is the issue at stake in this chapter?" Like most students, Kraft correctly wrote, "The issue at stake is whether Louis XIV was a good king." The next questions asked for each of the primary source readings, "How can [this reading] be used as evidence on the issue at stake?" After completing the exercise, Kraft remarked in her log,

I really am not sure I did this assignment in the way the Professor planned it to be done. I took specific examples to back up what I thought the point of [the reading assignment] is.

For the finished exercise she had merely summarized the textbook, focusing on specific information and on "examples" as her way of expanding her writing. (In Sherman's class, "example" was a common mode for text-processing students to relate the assignment's issue or problem to their textbooks. See p. 72.) Here is Kraft's exercise:

Saint-Simon felt Louis XIV, as an absolute monarch was a bad thing because he had little education; he had spies everywhere that could tell him everything and when Courtenvaux made this known to the public, Courtenvaux position was taken from him; members of the Church sometimes acted as he wanted. For example, Abbe de Vatteville, ordained a priest, committed crimes yet made a deal with the government to be pardoned and live as abbey of Baume; in 1706, France lost wars and sustained losses on account of the cost of war. When Chamillart, the head of both finance and war department, could not carry on affairs due to lack of money, he asked to be relieved of his position; however, the king refused; finally, there was a tax put on baptisms and marriages because the need for money was so great. Poor people began to perform marriages themselves and their children were considered illegitimate. Peasants revolted against this tax, and it eventually had to be lifted. Louis was hurting the poor when he claimed he was trying to help them.

Kraft's shortcomings are evident when we see how a more successful student, Tom Siegel, after summarizing the reading, went on to assess it as evidence:

This all presents Louis as a bad king; however we must not forget that this was written after Louis' death and by a member of the social class which had the least to gain from Absolutism and who were viewed by Louis as the biggest threat to his person and his rule. But the material itself could be used to support the ideas that Louis' vanity made him a bad king; or that he was merciless in his demand for money to squander; or that he acted only on his own best interest rather than the best interest of the country by spying on his subjects and appointing ignorant people to positions of authority.

Siegel did several things that Kraft did not do:

- recognized bias in the source
- stated the specific arguments the source could support
- assessed the source's value as evidence

Breihan's written comments on Kraft's exercise called for her to transcend summary and to evaluate the evidence. For example, next to Kraft's summary of Bishop Bossuet's rationale for absolute monarchy (not reproduced here), Breihan wrote "true?" a version of another common question he wrote on many papers, "Yes, but is he [she] right?"

Another way that Breihan helped Kraft and other students transcend mere summary was through in-class discussion. Earlier in the chapter we analyzed the discussion that Breihan led on the day the Primary Sources exercise was handed in (pp. 105–107). After that discussion, Kraft, like several other students, wrote in her log, "I have a better understanding of the types of answers Professor Breihan expects because of the lecture on Primary Resources [*sic*]."

In Stage 1, then, Kraft was still merely summarizing readings, not fully treating them as evidence within the discipline-based method for arriving at a position and supporting it. Breihan gave specific feedback to her and other similar students by comments on their exercises and by in-class discussions of the exercises. Kraft came to some realization that she had not done what her teacher expected, but felt that she was coming to a "better understanding." She was switching from the text-processor role to the arguer/debater role, which was Breihan's version of the professional-in-training role that all four teachers expected from their students. However, as her experiences in Stage 2 will further demonstrate, Kraft still lacked a basic understanding of *how to construct* the arguments she had begun to realize Breihan wanted her to make.

### Stage 2: Contributing to an Argument on an Assigned Historical Opinion

#### Kraft achieved:

- Stating *why* something was good
- Trying to find evidence
- Constructing subtheses to organize source material
- Using the teacher's linguistic formulas (e.g. "X is good because") but in a limited way
- Trying, through revision, to bring herself closer to Breihan's expectations

#### Kraft had difficulty:

- Transcending a limited "find good things" strategy
- Forming an explicit definition of "good"
- Recognizing evidence when she had it
- Envisioning how to construct an argument to support a thesis
- Understanding her teacher's previous written comments

Students entered the second stage of learning the historical method when, in the third and fourth weeks, they had to collect evidence to help their team support the position it had been assigned to defend in the debate on whether Louis XIV was a "good king" (see Figure 4.6).

#### *Good/Better/Best Reasoning in Breihan's Class*

An analysis of Breihan's model for good/better/best reasoning as opposed to Sherman's will clarify the problems that arose for Kraft at this stage (see Figure 4.7).

Sherman's define/analyze/prescribe model emphasized definition very heavily and reflected his explicit instruction for students to begin with definition. Virtually all students in his class did so, but two major problems materialized: (1) Some students did not relate the definition to the analysis and prescription and (2) some students spent all their time on definition and/or analysis (often paraphrased and summarized from the textbook) and never got to a position or prescription at all.

Breihan, on the other hand, emphasized to students the need to

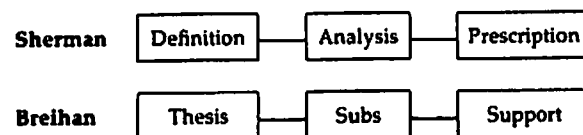


Figure 4.7. Sherman's and Breihan's models for good/better/best reasoning.

open with a statement of their position or "thesis" (Sherman's prescription), with the result, as we have seen, that virtually all of them learned to state a position. The hard part for Breihan's students, however, was stating a clear definition of "good." In his model, the definition was worked out through the subtheses or "subs." We can see the difference in Sherman's and Breihan's models by how each would critique this weak argument:

Louis was a good king. Louis controlled the nobles and improved the military.

In Sherman's terms, what is missing is an opening definition of what a "good" king was for 17th-century France, and Sherman would encourage students to begin their decision-making process and their papers with that definition. But Breihan did not talk explicitly about definition at all. In Breihan's terms, the argument appropriately begins with a thesis (Louis was a good king), but is faulty because it does not "connect" the "thesis" to the "facts" (Louis controlled the nobles and improved the military).

Breihan's model for good/better/best reasoning is similar to that of Toulmin, Rieke and Janik (1984) in that the warrant and backing (which would contain a definition of "good") are in the middle, connecting the grounds (or historical information) to the claim (or thesis). See Figure 4.8. Our exploration of the models of good/better/best reasoning in Sherman's and Breihan's classrooms indicates that teachers or researchers who use the Toulmin model should be aware that the language and the placement of elements in relation to one another may vary by classroom or discipline, and that these differences may shape the students' difficulties.

Breihan had four ways of talking to his students about how to make the connection between thesis and facts:

1. He urged them to tell why something (e.g., controlling the nobles) was "good."
2. He told them they must "use as evidence" the historical facts and material from their readings.

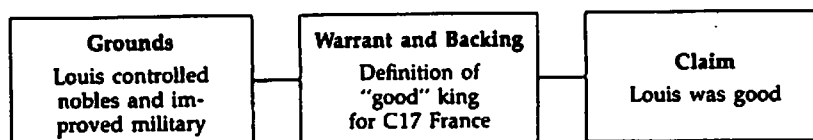


Figure 4.8. Breihan's model in the framework of Toulmin Logic.

3. He urged them to construct "subtheses" or "subs" to "connect the facts to the thesis."
4. He gave them a linguistic formula to develop the thesis: "Louis was good because. . ."

Breihan's models for reasoning and his four ways of making connections shaped Kraft's and other students' learning in the second stage.

#### *Bonnie Kraft's Second-Chance Exercise*

In the in-class debate on Louis XIV, Kraft remained silent, leaving her teammates to carry the argument. She was still tied to textbook summary and unsure of herself in the role of debater. Three years later, she remembered that, in the first weeks of the course, "I was so intimidated."

The day after the debate, the Second Chance exercise asked students to write two points that no one had mentioned during the debate. On Kraft's think-aloud tape as she plans the exercise, she tries to use all four of the ways Breihan has suggested for connecting thesis and facts: telling why something was good, using facts as evidence, constructing subtheses, and using the linguistic formula "X is good because" (italics are ours):

*I think that Louis was a good king because that was what the people needed at the time. They needed someone to take control and to get their lives back in order, but I don't have any evidence to back that up, so I think I should just leave that out [13 sec. silence]. I think Louis was a good king because when he did come to rule, there was a lot of disorder. Finances were exhausted, the administration of justice was filled by money instead of selection, people were poverty-stricken, and Louis did what he felt was best to reform these things. You know, he [Louis] was the one to know about everything going on in France through reports, and people were allowed to petition him, and he developed new whole industries which stimulated the economy. That wasn't in the debate. But on my evaluation of primary resources [sic], Professor Breihan wrote, "Does this mean he was a good king?" So I don't know, I guess that's wrong. [She abandons the point.]*

Kraft uses Breihan's formula "X is good because" to generate her two subtheses, each of which states one reason why Louis was "good." Kraft is also concerned about evidence to back her points. However, she does not understand what counts as evidence or how she could structure an argument about Louis. She makes a promising start at a definition of "good" as "what the people needed at the time," and she refers to the facts she has about the chaos in France. But she does

not recognize those facts as "evidence" (defined by Breihan as "facts linked to argument"), which would show that France needed order more than anything else. So she uses Breihan's formula: "Louis was a good king because . . ." in a very limited way, merely generating things that Louis did and calling them good, without explaining why they were good in terms of the needs of 17th-century France. This find-good-things strategy is akin to the find-reasons strategy we saw in Sherman's class (p. 80). In both classes, the thesis/subthesis model made it easy for students to fall into that trap.

Kraft's difficulties in her think-aloud planning are compounded by her misunderstanding of Breihan's response to one of her earlier exercises—a response in which Breihan had again sought to alert her to the need for evaluating Louis XIV's rule. Breihan had written next to her summary of what Louis did: "Yes, but is this good?" In her planning for the Second Chance exercise, she remembers that earlier comment, misunderstands it, and abandons the whole point as "wrong" because she does not yet see how to integrate the issue of what was "good" in Louis' time. Kraft's decision to abandon the point altogether was a rather common strategy, especially for low-success students.<sup>5</sup>

Figure 4.9 shows Kraft's Second Chance exercise with her revisions marked. It is weak because, following her find-good-things strategy, she merely picked two points from her notes, made them into her subtheses, and then tried to justify at the end of each point why these things were good, without formulating an explicit definition of "good king."

Despite the difficulties we have discussed in her planning and in the exercise itself, Kraft's Second Chance exercise exhibits her progress in Stage 2. Although each paragraph of her exercise is essentially a summary of one reading, it takes a step beyond her reading-by-reading debate notes, which had opened each section with the name of the author ("Mousnier says. . ."). In the Second Chance exercise, she opens each paragraph with a statement of the subthesis: "Louis was good because. . ." The names of the writers being summarized under each subthesis are subordinated as a phrase ("according to Mousnier") or as the second sentence in the paragraph ("Voltaire writes. . ."). She has begun to use subtheses to organize her information.

To state her subtheses, Kraft uses Breihan's formula, "Louis was good because." In her explanation for her silence in the debate, she also employs Breihan's language of specific evidence, thesis, and subtheses—words she had written several times in her class notes and her planning notes for Stage 2.

A third sign of Kraft's progress is that virtually all her revisions



[Single brackets are Kraft's. The underlined words were written later in the margins. We have indicated words that Kraft scratched out.]

1. Louis was a good king because, according to Mousnier, he tried to make opposing classes, the Bourgeoisie versus the Nobility, more equal in social standing. ~~This was~~ In order to make the Bourgeoisie rise in the social scale, Louis chose ministers, counselors, and intendants from among the bourgeois officers. ~~By opposing the Nobility~~ At the same time, Louis opposed the Nobility. He kept them busy by filling having them fill most grades of the army and by creating the artificial society at Versailles. ~~In Louis' Letters to His Heirs, Louis says he feels the Nobility~~ This was good because Louis, by establishing an equilibrium ~~on the state~~ between the bourgeoisie and the nobility, he also was able to establish ~~more unity and~~ more order ~~to the state. He also~~ in France.

2. Louis was a good king because he introduced discipline into the armies and developed new military ideas. Voltaire writes

"It was he [Louis] [brackets around Louis are Kraft's] who instituted the use of the bayonet affixed to the end of the musket" p. 44

"The manner in which artillery is used today is due entirely to him. He founded artillery schools." p. 45

"In 1688 [Louis] established thirty regiments of militia, ~~where were~~ ~~prove...~~ ~~These militia ha~~ which were provided and equipped by the communes. These militia trained for war but without abandoning the cultivation of their fields." p.45

[Next sentence was written in later] Inspector Generals and directors were used to report on the state of troops to Louis.

The strong armies could ensure more control within France and could be used to expand France's borders. More control was exercised within France by. The armies could control more exercise control within France.

This was good because France now had military resources to fall back on whenever necessary. ~~Also, armies were not no longer uncontrollable within France. There were inspector generals and directors who reported on the state of the troops. Armies could also helped trade?...~~

[Two arrows also mark the above paragraph: one moves the first sentence to the very end; the other moves the "Also, armies" passage to the beginning of the paragraph.]

Extra. Credit. I thought, at the time of the debate, that these arguments ideas were not as important as the economic ideas. I also was not prepared to back up my thesis with specific evidence tied together with subtheses.

Figure 4.9. Bonnie Kraft's Second Chance exercise.

forswear further summary of her sources and insert sentences that attempt to answer Breihan's questions on her earlier exercise, "Was this good?" and "Why was this good?"

For extra credit students might tell why they had not originally made those points. Berkenkotter, Huckin, and Ackerman (1988) note how a new rhetoric graduate student, faced with a demanding new kind of discourse he must learn, went through a stage in which he communicated with his professors by personal notes—a forum which seemed, for a time, to help him deal with his insecurity in writing formal papers. Breihan's Second Chance exercise served much the same function for Kraft. She spent two hours on the page-long exercise and wrote in her log:

This activity was worthwhile because it gave me the opportunity to explain my ideas in writing. [During the debate I had been] nervous about speaking and explaining myself in class.

In Stage 2, we have seen that Breihan asked students to contribute evidence to a team argument on an assigned historical position. Kraft was still basically organizing material reading by reading. She was still confused about the nature of evidence, about how to construct an argument to support her thesis, and about the role of a definition of "good" king for 17th-century France. She used merely a find-good-things strategy. Her confusion was compounded by a misunderstanding of one of Breihan's comments on a previous exercise. However, she made progress: she tried to state why Louis' actions were good, she tried to find evidence, she organized her Second Chance exercise around subtheses, she tried to use the linguistic formulas Breihan had modeled, and she revised to bring herself closer to Breihan's expectations. Her explanation about why she had not made her points during the debate reveals her insecurity in assuming the role of debater, but reveals, too, her eagerness to learn and her desire for Breihan's good opinion.

### **Stage 3: Choosing One's Own Position on a Historical Issue and Briefly Defending It with Evidence**

Kraft achieved:

Stating a thesis

Using the teacher's linguistic formulas (e.g. "X is good because"),  
but in a limited way

Testing her position against counterarguments

Kraft had difficulty:

- Transcending a limited, “find good things” strategy
- Formulating an explicit definition of “good” that addressed the “issues” Breihan had defined in the assignment
- Distinguishing between “evidence” and “feelings”
- Envisioning how to construct an argument to support a thesis

After the Louis debate, Breihan pushed students to a third stage: choosing and briefly defending their own positions. His wording on the single-paragraph exercise is important because it helps explain some of Kraft’s difficulties:

In a one-paragraph essay, state which solution to the problem of 17th-century anarchy—French or English—you personally find more realistic and attractive. Try to explain why you feel the way you do, and to back your feelings with some evidence.

Kraft’s “Best Solution to Anarchy” paragraph was a disappointment, both to Breihan and to Kraft herself (she received points equivalent to a “C+”). Her paragraph begins nicely with a thesis statement: “I find the English solution to 17th Century anarchy to be more realistic and attractive than the French solution.” Following that, however, she merely uses a “find good things” strategy to list three things about the English solution: it established a Bill of Rights, it built a system of checks and balances, it lasted a long time. Only once in her paragraph does she even refer to how a feature of the English system was a “solution to anarchy,” and she never explains why any of the features were more “realistic” or more “attractive” to her, as Breihan’s assignment had requested. Responding to her paragraph, Breihan wrote:

You need to *link* your facts to your argument. *Why* do these things make the English solution “more realistic and attractive”? You only mention those 2 words once.

Three aspects proved difficult in Kraft’s “Best Solution to Anarchy” paragraph:

1. Transcending a limited “find good things” strategy
2. Formulating an explicit definition of “good” that addressed the “issues” of the question—solving anarchy and being “realistic” and “attractive” to her
3. Distinguishing between “evidence” and “feelings.”

Breihan’s model for good/better/best reasoning and his phrasing on the assignment sheet helped to shape these difficulties.

*"Find Good Things" Strategy*

In her planning session for her paragraph, Kraft, as she had done in Stage 2, merely flipped through her notes, using the "X is good because" formula to generate "good things" about the English system, but without a controlling definition of "good." She begins her planning (italics are ours):

Okay, I obviously feel the English solution was better. [4 seconds silence] First of all, I think it was, I would say that it was less traumatic for the English people *because* [3 seconds silence] their individual rights were guaranteed, they were given rights by the Bill of Rights, they weren't taken advantage of. I think in Louis XIV's reign, in France, he didn't really c- I don't know, the common people weren't his main concern. He wanted to accomplish a lot of things, like, like let's say, um, taxes. He would tax the people, even though he knew they were poor. He just thought that taxing people was a way for him to get a lot of money to do things he wanted. This leads to another reason I think the English solution was better *because um, because um, there were checks and balances, like the king, and the House of Commons, and the House of Lords, all had checks and balances on each other, so they could, um, regulate what, what was going on, like the king's decision vs. the Parliament's decision.*

*Formulating an Explicit Definition of "Good"  
That Addresses the "Issue" of the Question*

In merely flipping through her notes to find "good things" about the English system, Kraft failed to define "good" so as to address what we call the "issue" of the question: that is, Breihan expected her to explain how her favored type of government was a "solution to anarchy" and was "realistic" and "attractive" to her. In a sense, these phrases in the assignment sheet laid a foundation for defining "good," but, after stating them in her thesis sentence, Kraft ignored them.

Kraft's shortcoming is clearer when we examine how Joe Walker saw the issues in the question. He explicitly stated how each feature of the system he favored solved the problem of anarchy or was "realistic" or "attractive" to him. In this excerpt from his exercise, Walker has been citing reasons why the French solution was superior to the English in preventing anarchy (italics are ours):

In addition, I feel the French solution to anarchy (Louis absolutism) is also superior to that of the English because of the efficient flow of information which it provided. Louis had established clear and well defined lines of authority and communication. In this absolute system all information flows in an orderly path up through the

chain of command to the king. This, I believe, is another major reason why *this is such a good system for stopping anarchy*. This information system allows the king to stay abreast of problems in his country and his government, which *allowed Louis to maintain order and diffuse potential problems before the[ry] arose into major disruptive problems*. Some people may argue that the issuing of power and authority to a single absolute ruler is [a] radical move and may be a mistake. However, if we view this problem in relation to the time, it becomes apparent that *radical action was required to end the anarchy of the 17th century and reintroduce order*. In this regard I think *absolutism is the more efficient form of government for halting anarchy*. This doesn't mean I feel this is the best form of government . . . [he goes on to explain why the English system is more attractive to him personally.]

#### *Distinguishing Evidence from Feelings*

The assignment sheet's language about "feelings" and "evidence" was confusing for many students. Walker handled it about as well as any, by stating "I feel" to open many of his points, and then presenting evidence to back his feelings, but distinguishing evidence about preventing anarchy from his personal preferences for a type of government. Kraft had more difficulty. She began her planning session, as we saw, with the phrase "I feel." The planning that followed contained evidence. But at the end of that long planning session, she said, "So I think I have a good idea of the way I feel. Now I need evidence." She defined her long planning session as "feelings" and did not recognize that it contained evidence. She marked off the composing process in her mind into the two sections of Breihan's instructions: choose topic by how you feel, then gather evidence to support it.

In Sherman's class, also, teachers' instructions, labels, and categories were literally interpreted by the students in ways the teacher did not intend. Here, too, as in Sherman's class, written instructions about how to perform a decision-making and argument-building process were very hard for students to follow on their own. Finally, we see in Breihan's and in Sherman's classes the difficulty for students of the fourth good/better/best reasoning task we mentioned—the task of integrating feelings and evidence in the decision-making process.

#### *Testing the Thesis Against Counterarguments*

Throughout the planning session for her one-paragraph exercise, Kraft's insecurity was evident. However, she met her fears by a strong strategy—testing her position against counterarguments. After she had generated some good things about the English system, she said,

I think I, I've, um, got good ideas here and I think I can write them in a coherent way, but that doesn't necessarily mean I, Dr. Breihan's going to like what I'm going to write and how I'm going to present it, because in other assignments I've thought I've done really well and I haven't gotten the grades I thought I should have. [5 sec. silence] But obviously I need practice or help in my, in the way I write. [7 sec. silence] Let me see if there's anything else I wanted to say [7 sec. silence] The English solution didn't go without any problems [resumes consideration of the question by raising and answering counterarguments to her support of the English].

In the rest of her planning session, Kraft addressed her fears about the adequacy of her evidence by raising and answering counterarguments. Throughout this long process, she kept trying to gain closure on her planning, saying things like "I think I'll just leave it at that," only to come back again to raise more counterarguments. Her careful consideration of counterarguments, though not much of it appeared in her finished exercise, presaged her later achievement of both written and oral arguments that raised and answered counterarguments as Breihan expected.

In sum, then, in Stage 3, where students had to choose a position and defend it in a paragraph with "some evidence," Kraft firmly stated a thesis at the beginning of her paragraph. She used Breihan's "X is good because" formula, though in a limited way, as part of a find-good-things strategy. In planning her paper, she tested her position repeatedly against counterarguments, seeking to strengthen it. She did not form an explicit definition of "good king" for Louis' time, nor address the issues that Breihan had posed and that should have helped to shape her definition of "good." Further, she did not recognize what was "evidence" and what was "feelings." More broadly, she still could not clearly envision how to construct the argument that would best support her thesis.

#### *Breihan's Teaching Methods*

An analysis of Kraft's and other students' difficulties led us to see the potential pitfalls for students in Breihan's model of good/better/best reasoning, his presentation of thesis and subtheses, and his "X is good because" formula. These insights caused Breihan, in succeeding semesters, to focus earlier and more heavily on the need to define "good" so as to address the "issue" of the question. He added that item to the checksheet, and he emphasized it more clearly in the

exercise instructions, in the class discussions, and in his responses to exercises and essay drafts.

#### Stage 4: Choosing a Position and Defending It in a Full Essay

Kraft achieved:

- Recognizing evidence when she had it
- Constructing an argument to support her position
- Transcending the limited "find good things" strategy
- Forming an explicit definition of "good"
- Addressing the issue Breihan had defined in the assignment
- Revising effectively to bring herself closer to Breihan's expectations

In writing the full essay that comprised Stage 4, Bonnie Kraft made a great leap to success. One factor that helped her was the Loyoliana question, which stated up front what General Perez wanted: to avoid anarchy and bloody revolution. There was no confusing language about "what you personally feel," or about a solution that was "realistic and attractive to you," as in the one-paragraph Best Solution to Anarchy exercise. General Perez's goals could become the definition of "good."

Breihan's past advice also appears to have helped her. In his written comment about Kraft's one-paragraph exercise, Breihan had concentrated on helping her address the issue of 17th-century government by asking, "Why do these things make the English solution more 'realistic and attractive?'" and he advised her to mention those two words throughout. Repeatedly on her and others' exercises, he had written "Why is this good?"

For the Loyoliana topic (see p. 101), she adopted Breihan's advice in the sense that throughout the essay she referred again and again to General Perez by name, and specifically to his goals of avoiding anarchy and bloody revolution. Several times, in the margins of the notes she was making for the essay, she added revisions that clarified how aspects of English government she was summarizing prevented anarchy and bloody revolution, the issue defined in the assignment. She also wrote, in large capital letters down the side of her notes for the Loyoliana essay, "KEEP IN MIND PROVING THIS GOOD." After the in-class draft, Breihan advised her to tighten her "connections" still more, and in the revision she did so by inserting additional explicit statements about how the English government prevented anarchy and bloody revolution. Her breakthrough was to transcend a mere find-good-things strategy by linking all her subtheses to a clear definition of what was "good" in that situation.

Another factor that helped her and other students is that Breihan, throughout the course, continually referred not to the English or French "form of government" or some other general term, but to the English [or French] *solution to anarchy*. That tag phrase appears throughout students' notes, think-aloud planning, and drafts. In the one-paragraph exercise, Kraft had ignored the part of the question that asked "which solution to anarchy" do you prefer. On Essay 1, however, Kraft made explicit, from the beginning of her planning, that the English system was a solution to anarchy. For example, in her earliest outline for the essay, after jotting down some notes about French absolutism, she wrote, "It is advisable to follow the English Solution to C17 Anarchy" and then went on to draw a number of parallels between Loyoliana and England before the English Civil War—both were threatened by anarchy and bloody revolution. At another place in her notes, she wrote, "One reason Parliament established the Bill of Rights was to ensure protection against anarchy." This is a significant step beyond her single paragraph in Stage 3, where she merely described the Bill of Rights as good, without linking it to the issues of the assignment or to an explicit definition of "good." Breihan's constant emphasis on the French and English systems as different responses to the threat of anarchy had sunk in. His specific statement that Perez wanted to avoid anarchy and his advice to Kraft on her earlier exercises helped her make the connection.

Once she had the structure of the argument—that Perez wanted to avoid anarchy and bloody revolution and that the English system had to be proven good *because* it would help him do that—then she could integrate into that structure the "X is good because" formula. She could also integrate her feelings, already expressed in the one-paragraph exercise, about the value of meeting people's demands and granting individual rights. She argued to General Perez that he could best avoid anarchy and bloody revolution by meeting the people's needs and demands, as the English system had done, rather than by repressing them and inviting their rebellion, as in France.

Kraft's in-class draft for Essay 1 received points equivalent to a "B+"; her revision after Breihan's comments not only received an "A" but was submitted, at Breihan's suggestion, as a candidate for a departmental prize awarded each semester for the most successful student essay from all sections of the Modern Civilization course taught by Breihan and others. (She did not win the prize.)

Here is a condensed version of her revised Loyoliana essay. We have italicized the points where she links her arguments explicitly to the issue of how Perez could prevent anarchy and bloody revolution by



meeting the needs of the people and respecting their demands. Notice, too, the many echoes of her earlier exercises and debate notes: her information about Louis XIV, her feeling that no one was there to regulate what he did, her early summary of how Louis hurt the poor, and (slipped quietly in at the very end) her point that the English solution was good because it lasted a long time. The exercises and debates thus served in important ways as preparation for her essay.

General Perez, you have stated that you would like to leave your office as dictator of Loyoliana to be replaced by a constitutional government. After examining European politics from 1500 to 1800, I am confident there exists a way for you to transform Loyoliana's government peacefully, *avoiding both a recurrence of anarchy and violent revolution*. The constitutional government to be established in Loyoliana *must conform to the needs of the people while maintaining political order within the state*. These goals can be obtained in Loyoliana if you follow the example of the English and their solution to seventeenth-century anarchy by establishing a mixed government.

Because the positions of the relatively small landowning elite and the majority of the impoverished inhabitants of Loyoliana are similar to those in France in 1789, I am forced to draw my conclusions from the occurrences in France at that time. I find it necessary to prove to you that the French example of revolution must be avoided because revolution is drastic and harmful to the citizens. [historical information on effect of revolution in France, used as evidence to support the previous sentence]

General Perez, it is necessary for you to take action to *meet the demands of the bourgeoisie and the peasantry before revolution*. Revolution may only lead to the oppression of the people by a military despot. This would not be a final solution to political unrest; military despotism would only contribute to unrest. I believe *the French example of violent revolution in 1789 can be avoided by following the constitutional government of England in order to provide for the demands of the people*.

The position of your government is similar to that of England during the seventeenth century. The civil war that Loyoliana experienced 40 years ago is synonymous to the English Civil War of 1640–60. General Perez is similar to Oliver Cromwell, who emerged from the English Civil War as a military dictator. Just as citizens of England swung steadily in favor of a formation of a constitutional government instead of despotism, it is advisable for you to do the same.

The rest of the essay makes a number of points about the constitutional government of England, each time showing *how England avoided anarchy and bloody revolution by providing for the demands of its people before they resorted to revolution*. Here is her paragraph developing one

of those points—that Perez should adopt something like the English Bill of Rights.

The Revolution Settlement occurred peacefully and the Bill of Rights, passed in 1689 by Parliament, created a legal government with defined rights of the people and rules by which to govern. The Bill of Rights declared parliamentary supremacy over the crown. The landowning elite now had a say in government as a governing aristocracy was established. The Bill of Rights also enlarged the exercise of individual freedoms. As a result, the peasantry now had basic inalienable rights, and the taxes imposed by the king needed the approval of Parliament. These improvements *were good for the bourgeoisie and the peasantry because their demands were being met before resorting to revolution*. This shows the French example of revolution is unnecessary when solving political problems. The Bill of Rights was also peacefully abolishing absolutism by setting up a mixed government constitutionally. When establishing the Bill of Rights, the government demonstrated an interest in the liberty and freedom of the people. Whereas, in France, the absolute monarch had the ability to do what he wanted, which was not always for the good of the most people. For example, Louis XIV wanted to accomplish much in the culture of France. He had the Louvre constructed, a town at Versailles created, the Observatory built, and an Academy of Sciences founded. However, the peasants bore the costs of Louis' cultural accomplishments in the form of taxes. I realize it has been said that the aristocracy of England, in the Bill of Rights, made laws to suit themselves, such as the game law against the poor. Nevertheless, the benefits of the Bill of Rights greatly outweighed the harm of such game laws. The Bill of Rights protected farmers by guaranteeing rights such as freedom to bear arms, to petition Parliament, to be free from excessive bail or punishment, and to a trial by jury. Also, because taxes could be more evenly distributed, less of the burden now fell on the farmers. The benefits of these laws, only to name a few, significantly offset the harm caused by hunters and their dogs running through fields and ruining some crops of the farmers.

Kraft makes additional points like the one above, each supported with information used as evidence, and each explicitly linked to the definition of "good" provided by General Perez's need to *avoid anarchy and revolution by meeting the people's needs*. Each point also includes relevant counterarguments raised and answered. Her reference to game laws is a response to a suggestion by Breihan written in the margin of her earlier one-paragraph exercise. Again, she *uses* his advice. Below is her final paragraph:

General Perez, from the conclusions and arguments I have drawn in favor of the English example of mixed government, I hope you

can understand the benefits of this kind of government. *The demands of the landowning elites and of the impoverished inhabitants can be met peacefully and successfully, making revolution unnecessary.* By establishing a Bill of Rights, you can ensure inalienable rights of the people of Loyoliana and a system of government in which Parliament and the king will balance the powers of each other most effectively for the betterment of the country and its citizens. The successfulness of the English may be measured by the fact that the ideas and laws established in 1689 still exist today. I hope you will be able to learn from history and realize the *English solution to seventeenth century anarchy would be most productive* for you to implement in Loyoliana.

### **Kraft's Final Victory: Fully Assuming the Role of Debater**

The Loyoliana essay represented a major step in Kraft's struggle to learn how to use discipline-based methods to arrive at a position and to support it with evidence. But it was not the end of Kraft's struggle to learn in Breihan's course. After the success of her essay, she soon set a further goal for herself.

We continue to follow her story because it illustrates the importance of the roles that students adopt. This final piece of Kraft's story can serve as a conclusion to our discussion of all three areas of difficulty—stating a position, raising and answering counter evidence/argument, and using discipline-based methods to arrive at a position and to support it with evidence. In her Loyoliana essay, Kraft had achieved those aspects privately, in the writing seen only by her teacher.

Kraft's next goal was to assume publicly the role of arguer/debater by participating in debates and discussions. No longer was she content merely to write to Breihan as in her Second Chance exercise, telling what she might have said; now she wanted to say it herself in public, though she knew that to do so would expose her to what she feared—attack by counterarguers—a fear that had been evident in her think-aloud planning for the one-paragraph exercise. But that planning, where she anxiously tested her position over and over against imagined counterarguments, was also a dress rehearsal for an actual debate. A week after she got back her successful in-class Essay 1, there was another in-class debate. After it, she wrote in her log:

The in-class debate went well over-all. But I need to develop more confidence in my ideas and to speak up in class. I find other people have similar ideas; these people have the nerve to present their ideas. I am afraid of being wrong or misinterpreting a written passage. I want to be right 100% of the time. I am afraid of being

criticized or not having enough evidence to back up my ideas. I am disappointed with myself today; I must learn to speak up.

Two weeks later, after a class session that (like several others in the course), Breihan had billed in the syllabus as a "class discussion," rather than simply listing a topic for lecture, Kraft was again disappointed with herself, but still trying:

I again did not contribute much to the class discussion. I did partially answer someone's question on the White Man's Burden. I have my own questions but I just [sic] so afraid of appearing stupid. I really have to get over this feelings [sic] because I'm only hurting myself.

Two days later, on November 14 in the in-class debate on an aspect of the Industrial Revolution, she achieved the breakthrough, and wrote ecstatically in her log,

I finally did it! My group as a whole was not very outgoing, but if I had an opinion I stated it out loud and not just to myself. I actually got into practically a one-on-one debate with another member of the class. I feel much better about myself. After all, no one stood up and said "you are absolutely wrong."

Kraft's achievement points, among other things, to the importance of students' roles. Her ability to meet Breihan's expectations that she would state a position, answer counterarguments, and use discipline-based methods to arrive at her position and to support it with evidence was intimately connected to her growing ability to assume the role of arguer/debater. She, herself, did not feel she had fully succeeded in the course until she had publicly assumed that role, both in writing and in oral discourse.

### BREIHAN'S AND WALVOORD'S CONCLUSIONS

Our conclusion from all this is that Breihan's careful, consistent teaching methods helped his students in many ways. Wanting students to be arguers and debaters, Breihan succeeded in using language in ways that encouraged that role. His daily focused writing exercises, his essay assignments, his in-class discussions, his responses to students' exercises and drafts, and the seven debates all offered guidance and feedback throughout students' thinking and writing processes. We saw how Breihan's teaching methods shaped students' ways of reading, of defining their tasks, of approaching texts, of arriving at and defending

positions, of using models learned in other settings—all factors that were important in all four classes we studied.

The study also revealed some differences between Breihan's and Sherman's classes in the models for good/better/best reasoning. Sherman's business decision-maker model features the manager's careful decision-making process, which begins by defining "good," uses factor rating, considers alternatives and counterarguments, and arrives at a responsible decision for implementation. Breihan's debater model, on the other hand, features the prominent statement of a thesis followed by the generation of subtheses, as the arguer supports the thesis and defends it against counterarguers. The definition of "good" is incorporated in the subs, but is not as visible or primary as in Sherman's model. Each model significantly influenced students' thinking processes and the difficulties that arose in each class. Writing teachers and researchers who use Toulmin's model for instruction or for data analysis need to keep in mind that the model's implied relationship among parts, and particularly the role of the definition of "good" in evaluative reasoning, may differ by classroom and discipline and that these differences may affect students' thinking and the difficulties that arise as students try to meet their teachers' expectations.

Our study focused on how difficulties were affected by students' strategies and teachers' methods, not on the influence of other factors such as gender, past education, learning style, or socioeconomic class. Nevertheless, we were very aware that, for example, Kraft's socialization as a woman must have affected her difficulty in publicly entering a dialogue where one stated a position boldly and defended it against counterarguers—in our culture a more typically male way of operating (Belenky et al. 1986; Chodorow 1978; Gilligan 1982). Breihan, we knew, faced a class of students with many differences which made it easier or harder for a given student to learn and adopt the role that Breihan expected. In the face of these factors, Breihan's response was to try to explain his expectations ever more clearly and guide his students' learning processes ever more effectively.

Breihan's primary goal for entering our research project was to find out how well his methods were working and to improve them. This study showed some difficulties that Breihan addressed in succeeding semesters—particularly the need to forefront the importance of defining "good," to make explicit his expectation that students would address the "issue" he outlined in an essay question, and to reshape the instructions for the paragraph exercise on the best solution to anarchy. More broadly, our study gave him an appreciation for how hard his

students worked to understand and meet his expectations and how important his guidance was to them.

Particularly, we stand amazed at Bonnie Kraft. Entering the course expecting to be merely a text processor, she struggled through what she remembered, three years later, as "THE hardest course I ever had," a course in which "I was SO intimidated." Her persistence, her keen desire to learn, her determination to use her teacher's guidance, her pluck and courage won our respect and admiration. It was no surprise that she graduated from Loyola College *summa cum laude* and planned to enter law school—the ultimate forum of public argument and counterargument.

### Notes

1. To conduct this analysis, we used the primary trait scale (p. 35). We each independently rated a random sample of 11 essays to identify those that reached the stated standard, which was equivalent to a score of 4 or above. We achieved 91 percent agreement. Walvoord then completed the analysis for the rest of the in-class Essays 1 and 3 written by the focus group.

2. This count was based on 25 drafts by ten focus group students, some high success and some low success (p. 36).

3. Sample of 12 essay drafts written by eight students—four who received "A" in the course and four who received "C."

4. Our sample was a random selection of one high-success and one low-success in-class essay draft for each of five essay questions, including essays for all three units across the semester—a total of ten essays.

5. Among our focus group who earned course grade "C," 30 percent of the marginal comments resulted in the student deleting the passage, resulting in no improvement of the paper (in Breihan's judgment; see p. 36). Among "A" students, 7 percent resulted in deletion with no improvement. At times, abandoning a passage that the teacher had marked with marginal comments may have been a low-effort way out, but, as this example of Kraft shows, at times it might also have been the student's way of dealing with an issue not yet understood.

# Creating Effective Library Assignments: A Guide for Faculty

*The following are suggestions to more effectively introduce students to library resources.*

**The effective library assignment has a specific, clear purpose.** It increases the student's understanding of the subject and teaches the process of information seeking. Students learn the proper way to cite a work and their appreciation for the scientific method grows as they are challenged to organize, analyze, and think critically about what they read. They have obtained skills that are transferable beyond immediate classroom applications.

**Talk with a Reference Librarian before the assignment.** The Librarians will be glad to look at a draft and can be a valuable resource to tap when designing a research assignment.

**Send a copy of your assignment to the Reference Department before it is distributed to the class.** The reference staff will be better prepared to help your students.

**Give assignment in writing** to reduce confusion. Differentiate between primary and secondary sources, popular and scholarly, computerized and print. Include the title and call number when appropriate.

**Give assignment early.** Discuss it with the course syllabus and prepare students by explaining why they are doing it and what purpose it serves. If the assignment requires the use of specific sources, a list of the complete citations for these should be included and kept current.

**Use correct terminology.** Define any questionable words. Students tend to interpret library assignments very literally.

**Check your assignment regularly so the students are not asked to use outdated methods and sources.** The Library is dynamic. New sources and ways of accessing information replace old ones every day.

**Use resources available in Nealley Library.** Students will be very frustrated and the library assignment will not be successful if the material they are being assigned to use does not exist, has been discarded, or is checked out.

**Appropriate time frame.** Do the assignment yourself to see how long it takes. Remember to allow for your experience and their inexperience.

**Assignment can be done by student with limited assistance from the Librarian.** If your assignment requires a great deal of instruction, arrange for the class to attend a library instruction lecture. Call the Bibliographic Instructor Coordinator at x6718. Allow at least one week notice when scheduling, please.

## **PITFALLS TO AVOID**

### **ASSUMING YOUR STUDENTS HAVE PREVIOUS RESEARCH EXPERIENCE.**

Many students don't understand the intricacies of subject headings, periodical indexes, or computerized databases. It is best to assume no previous research experience on the part of your students, especially in today's technological environment.

### **TREASURE HUNTS OR SCAVENGER HUNTS.**

The least effective assignment asks students to locate random facts with no prior instruction or guidance. Scavenger hunt assignments consist of a list of questions with no indication as to where a student would locate answers. Usually the librarians, not the students, end up locating the information. These assignments lack a clear purpose and create anxiety.

### **AN ENTIRE CLASS USING THE SAME BOOK.**

Instead of asking an entire class to research the history of IBM, ask them to research the history of a major, public corporation of their choosing. If it is necessary for a whole class to use a particular source, have it put in a special location like Reserves at the Circulation Desk.

### **Examples of Assignments to promote student library use**

- Read an article in a recent journal and compare it to a magazine article on the same topic. Cite sources using a style manual.
- Write an abstract of a journal article of personal interest, not to exceed 150 words.
- Compile a bibliography on one subject.
- Work with a librarian to develop a core list of sources for your discipline. Explain how to use these sources and have students use each source.
- Have students write a bibliographical essay.
- Research an historical aspect of a profession and explain how a change has helped or hurt the profession.
- Have students find a book review from a popular source and from a scholarly point of view and compare them.

### **Selecting the Right Source**

#### **Newspaper**

- Audience: general public to knowledgeable lay person
- Coverage: local, newsworthy events, any subject of interest
- Good for: local statistics, human interest articles, trends, events
- Written by: journalists, some specialists
- Timeliness: very current, 2 day to 1 week
- Length: 50-2,000 words
- Content: analysis, statistics, graphics, photographs, opinions
- Slant: mainstream, neutral

#### **Magazine**



- Audience: general public to knowledgeable lay person
- Coverage: popular, current affairs
- Good for: opinion, profiles, overview/introduction to topic
- Written by: journalists, freelance writers, editorial staff, essayists
- Timeliness: 1 week to several months, very current
- Length: 250-5,000 words
- Content: general discussion, graphics, photographs
- Slant: may reflect editorial slant of magazine

### **Journal**

- Audience: scholars, specialists, students, experts, academics
- Coverage: research results, emphasis on theory
- Good for: case studies, comparison studies, psychological analysis
- Written by: experts, specialists in the field, scholars with PhD's
- Timeliness: 6 months to 3 years, current
- Length: 2,500 - 10,000 words
- Content: detailed examination, statistical analysis, graphics, bibliographies
- Slant: objective, neutral, sometimes difficult to understand

# Teaching Strategies: Active Learning

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## Active Learning

Active learning is a process whereby students engage in activities, such as reading, writing, discussion, or problem solving that promote analysis, synthesis, and evaluation of class content. Cooperative learning, problem-based learning, and the use of case methods and simulations are some approaches that promote active learning. This section provides links to bibliographies, research summaries, articles, and other resources about active learning.

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Arthur F. Thurnau Professors: Engaging Students in the Classroom and Beyond  
<http://www.crlt.umich.edu/faculty/Thurnau/ThurnauVideos.php>

Arthur F. Thurnau Professorships are awarded annually to tenured U-M faculty who have made outstanding contributions to undergraduate education. This series of videos documents the ways in which these professors stimulate student engagement in their courses. There are also summary point pages that provide easy to follow strategies.

Active Learning for the College Classroom (Paulson and Faust, California State University, Los Angeles, 1998)  
<http://www.calstatela.edu/dept/chem/chem2/Active/>

This article presents a wide variety of active learning techniques that can increase student learning in a lecture course. Activities include listening, group, and writing exercises that foster student engagement.

Classroom Activities for Active Learning (Center for Faculty Excellence, University of North Carolina at Chapel Hill, 2009)  
<http://cfe.unc.edu/pdfs/FYC2.pdf>

Actively engaging students motivates deeper thinking about course content, brings additional energy to a classroom, and helps an instructor pin point problem areas. This article provides summaries of current practices and gives practical suggestions for implementing active learning in a variety of disciplines. Topics covered include: Questioning techniques, small groups, whole class involvement, and reading & writing exercises.

Does Active Learning Work? A Review of the Research (Prince, 2004)  
[http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/Prince\\_AL.pdf](http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/Prince_AL.pdf)

This study examines the evidence for the effectiveness of active learning. It provides a definition of active learning and explores the different types of active learning most frequently discussed in

engineering education literature. Those outside of engineering will likewise find this source helpful in providing concise definitions, literature review, and valuable questions that will promote instructor's understanding of active learning.

Donald R. Paulson

Chemistry and Biochemistry  
California State University, L.A.  
5151 State University Drive  
Los Angeles, CA 90032

[drpaulson@ouraynet.com](mailto:drpaulson@ouraynet.com)

Jennifer L. Faust

Department of Philosophy  
California State University, L.A.  
5151 State University Drive  
Los Angeles, CA 90032

[jfaust@calstatela.edu](mailto:jfaust@calstatela.edu)

## BACKGROUND & DEFINITIONS

The past decade has seen an explosion of interest among college faculty in the teaching methods variously grouped under the terms 'active learning' and 'cooperative learning'. However, even with this interest, there remains much misunderstanding of and mistrust of the pedagogical "movement" behind the words. The majority of all college faculty still teach their classes in the traditional lecture mode. Some of the criticism and hesitation seems to originate in the idea that techniques of active and cooperative learning are genuine alternatives to, rather than enhancements of, professors' lectures. We provide below a survey of a wide variety of active learning techniques which can be used to supplement rather than replace lectures. We are not advocating complete abandonment of lecturing, as both of us still lecture about half of the class period. The lecture is a very efficient way to present information but use of the lecture as the only mode of instruction presents problems for both the instructor and the students. There is a large amount of research attesting to the benefits of active learning.

"Active Learning" is, in short, anything that students do in a classroom other than merely passively listening to an instructor's lecture. This includes everything from listening practices which help the students to absorb what they hear, to short writing exercises in which students react to lecture material, to complex group exercises in which students apply course material to "real life" situations and/or to new problems. The term "cooperative learning" covers the subset of active learning activities which students do as groups of three or more, rather than alone or in pairs; generally, cooperative learning techniques employ more formally structured groups of students assigned complex tasks, such as multiple-step exercises, research projects, or presentations. Cooperative learning is to be distinguished from another now well-defined term of art, "collaborative learning", which refers to those classroom strategies which have the instructor and the students placed on an equal footing working together in, for example, designing assignments, choosing texts, and presenting material to the class. Clearly, collaborative learning is a more radical departure from tradition than merely utilizing techniques aimed at enhancing student retention of material presented by the instructor; we will limit our examples to the "less radical" active and cooperative learning techniques. "Techniques of active learning", then, are those activities which an instructor incorporates into the classroom to foster active learning.

[\(top\)](#)

## TECHNIQUES OF ACTIVE LEARNING

## Exercises for Individual Students

Because these techniques are aimed at individual students, they can very easily be used without interrupting the flow of the class. These exercises are particularly useful in providing the instructor with feedback concerning student understanding and retention of material. Some (numbers 3 and 4, in particular) are especially designed to encourage students' exploration of their own attitudes and values. Many (especially numbers 4 - 6) are designed to increase retention of material presented in lectures and texts.

1. **The "One Minute Paper"** - This is a highly effective technique for checking student progress, both in understanding the material and in reacting to course material. Ask students to take out a blank sheet of paper, pose a question (either specific or open-ended), and give them one (or perhaps two - but not many more) minute(s) to respond. Some sample questions include: "How does John Hospers define "free will"?", "What is "scientific realism"?", "What is the activation energy for a chemical reaction?", "What is the difference between replication and transcription?", and so on. Another good use of the minute paper is to ask questions like "What was the main point of today's class material?" This tells you whether or not the students are viewing the material in the way you envisioned.
2. **Muddiest (or Clearest) Point** - This is a variation on the one-minute paper, though you may wish to give students a slightly longer time period to answer the question. Here you ask (at the end of a class period, or at a natural break in the presentation), "What was the "muddiest point" in today's lecture?" or, perhaps, you might be more specific, asking, for example: "What (if anything) do you find unclear about the concept of 'personal identity' ('inertia', 'natural selection', etc.)?".
3. **Affective Response** - Again, this is similar to the above exercises, but here you are asking students to report their reactions to some facet of the course material - i.e., to provide an emotional or evaluative response to the material. Obviously, this approach is limited to those subject areas in which such questions are appropriate (one should not, for instance, inquire into students' affective responses to vertebrate taxonomy). However, it can be quite a useful starting point for courses such as applied ethics, particularly as a precursor to theoretical analysis. For example, you might ask students what they think of Dr. Jack Kevorkian's activities, before presenting what various moral theorists would make of them. By having several views "on the table" before theory is presented, you can help students to see the material in context and to explore their own beliefs. It is also a good way to begin a discussion of evolutionary theory or any other scientific area where the general public often has views contrary to current scientific thinking, such as paper vs. plastic packaging or nuclear power generation.
4. **Daily Journal** - This combines the advantages of the above three techniques, and allows for more in-depth discussion of or reaction to course material. You may set aside class time for students to complete their journal entries, or assign this as homework. The only disadvantage to this approach is that the feedback will not be as "instant" as with the one-minute paper (and other assignments which you collect the day of the relevant lecture).

But with this approach (particularly if entries are assigned for homework), you may ask more complex questions, such as, "Do you think that determinism is correct, or that humans have free will? Explain your answer.", or "Do you think that Dr. Kevorkian's actions are morally right? What would John Stuart Mill say?" and so on. Or you might have students find and discuss reports of scientific studies in popular media on topics relevant to course material, such as global warming, the ozone layer, and so forth.

5. **Reading Quiz** - Clearly, this is one way to coerce students to read assigned material! Active learning depends upon students coming to class prepared. The reading quiz can also be used as an effective measure of student comprehension of the readings (so that you may gauge their level of sophistication as readers). Further, by asking the same sorts of questions on several reading quizzes, you will give students guidance as to what to look for when reading assigned text. If you ask questions like "What color were Esmerelda's eyes?" (as my high school literature teacher liked to do), you are telling the student that it is the details that count, whereas questions like "What reason did Esmerelda give, for murdering Sebastian?" highlight issues of justification. If your goal is to instruct (and not merely to coerce), carefully choose questions which will both identify who has read the material (for your sake) and identify what is important in the reading (for their sake).
6. **Clarification Pauses** - This is a simple technique aimed at fostering "active listening". Throughout a lecture, particularly after stating an important point or defining a key concept, stop, let it sink in, and then (after waiting a bit!) ask if anyone needs to have it clarified. You can also circulate around the room during these pauses to look at student notes, answer questions, etc. Students who would never ask a question in front of the whole class will ask questions during a clarification pause as you move about the room.
7. **Response to a demonstration or other teacher centered activity** - The students are asked to write a paragraph that begins with: I was surprised that ... I learned that ... I wonder about ... This allows the students to reflect on what they actually got out of the teachers' presentation. It also helps students realize that the activity was designed for more than just entertainment.

[\(top\)](#)

## Questions and Answers

While most of us use questions as a way of prodding students and instantly testing comprehension, there are simple ways of tweaking our questioning techniques which increase student involvement and comprehension. Though some of the techniques listed here are "obvious", we will proceed on the principle that the obvious sometimes bears repeating (a useful pedagogical principle, to be sure!).

### The "Socratic Method"

Taking its namesake from the most famous gadfly in history, this technique in its original format involved instructors "testing" student knowledge (of reading assignments, lectures, or perhaps applications of course material to a wider context) by asking questions during the course of a lecture. Typically, the instructor chooses a particular student, presents her with a question, and expects an answer forthwith; if the "chosen" student cannot answer the question presented, the instructor chooses another (and another) until the desired answer is received. This method has come under criticism, based on claims that it singles out students (potentially embarrassing them), and/or that it favors only a small segment of the class (i.e., that small percentage of the class who can answer any question thrown at them). In addition, once a student has answered a question they may not pay much attention as it will be a long time before the teacher returns to them for a second question. In spite of these criticisms, we feel that the Socratic method is an important and useful one; the following techniques suggest variations which enhance this method, avoiding some of these pitfalls.

8. **Wait Time** - Rather than choosing the student who will answer the question presented, this variation has the instructor WAITING before calling on someone to answer it. The wait time will generally be short (15 seconds or so) - but it may seem interminable in the classroom. It is important to insist that no one raise his hand (or shout out the answer) before you give the OK, in order to discourage the typical scenario in which the five students in the front row all immediately volunteer to answer the question, and everyone else sighs in relief. Waiting forces every student to think about the question, rather than passively relying on those students who are fastest out of the gate to answer every question. When the wait time is up, the instructor asks for volunteers or randomly picks a student to answer the question. Once students are in the habit of waiting after questions are asked, more will get involved in the process.
9. **Student Summary of Another Student's Answer** - In order to promote active listening, after one student has volunteered an answer to your question, ask another student to summarize the first student's response. Many students hear little of what their classmates have to say, waiting instead for the instructor to either correct or repeat the answer. Having students summarize or repeat each others' contributions to the course both fosters active participation by all students and promotes the idea that learning is a shared enterprise. Given the possibility of being asked to repeat a classmates' comments, most students will listen more attentively to each other.
10. **The Fish Bowl** - Students are given index cards, and asked to write down one question concerning the course material. They should be directed to ask a question of clarification regarding some aspect of the material which they do not fully understand; or, perhaps you may allow questions concerning the application of course material to practical contexts. At the end of the class period (or, at the beginning of the next class meeting if the question is assigned for homework), students deposit their questions in a fish bowl. The instructor then draws several questions out of the bowl and answers them for the class or asks the class to answer them. This technique can be combined with others (e.g., #8-9

above, and #2).

11. **Quiz/Test Questions** - Here students are asked to become actively involved in creating quizzes and tests by constructing some (or all) of the questions for the exams. This exercise may be assigned for homework and itself evaluated (perhaps for extra credit points). In asking students to think up exam questions, we encourage them to think more deeply about the course material and to explore major themes, comparison of views presented, applications, and other higher-order thinking skills. Once suggested questions are collected, the instructor may use them as the basis of review sessions, and/or to model the most effective questions. Further, you may ask students to discuss the merits of a sample of questions submitted; in discussing questions, they will significantly increase their engagement of the material to supply answers. Students might be asked to discuss several aspects of two different questions on the same material including degree of difficulty, effectiveness in assessing their learning, proper scope of questions, and so forth.

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## Immediate Feedback

These techniques are designed to give the instructor some indication of student understanding of the material presented during the lecture itself. These activities provide formative assessment rather than summative assessment of student understanding. Formative assessment is evaluation of the class as a whole in order to provide information for the benefit of the students and the instructor, but the information is not used as part of the course grade; summative assessment is any evaluation of student performance which becomes part of the course grade. For each feedback method, the instructor stops at appropriate points to give quick tests of the material; in this way, she can adjust the lecture mid-course, slowing down to spend more time on the concepts students are having difficulty with or moving more quickly to applications of concepts of which students have a good understanding.

12. **Finger Signals** - This method provides instructors with a means of testing student comprehension without the waiting period or the grading time required for written quizzes. Students are asked questions and instructed to signal their answers by holding up the appropriate number of fingers immediately in front of their torsos (this makes it impossible for students to "copy", thus committing them to answer each question on their own). For example, the instructor might say "one finger for 'yes', two for 'no'", and then ask questions such as "Do all organic compounds contain carbon [hydrogen, etc.]?". Or, the instructor might have multiple choice questions prepared for the overhead projector and have the answers numbered (1) through (5), asking students to answer with finger signals. In very large classes the students can use a set of large cardboard signs with numbers written on them. This method allows instructors to assess student knowledge literally at a glance.



13. **Flash Cards** - A variation of the Finger Signals approach, this method tests students' comprehension through their response to flash cards held by the instructor. This is particularly useful in disciplines which utilize models or other visual stimuli, such as chemistry, physics or biology. For example, the instructor might flash the diagram of a chemical compound and ask "Does this compound react with H<sub>2</sub>O?". This can be combined with finger signals.
14. **Quotations** - This is a particularly useful method of testing student understanding when they are learning to read texts and identify an author's viewpoint and arguments. After students have read a representative advocate of each of several opposing theories or schools of thought, and the relevant concepts have been defined and discussed in class, put on the overhead projector a quotation by an author whom they have not read in the assigned materials, and ask them to figure out what position that person advocates. In addition to testing comprehension of the material presented in lecture, this exercise develops critical thinking and analysis skills. This would be very useful, for example, in discussing the various aspects of evolutionary theory.

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## Critical Thinking Motivators

Sometimes it is helpful to get students involved in discussion of or thinking about course material either before any theory is presented in lecture or after several conflicting theories have been presented. The idea in the first case is to generate data or questions prior to mapping out the theoretical landscape; in the second case, the students learn to assess the relative merits of several approaches.

15. **The Pre-Theoretic Intuitions Quiz** - Students often dutifully record everything the instructor says during a lecture and then ask at the end of the day or the course "what use is any of this?", or "what good will philosophy [organic chemistry, etc.] do for us?". To avoid such questions, and to get students interested in a topic before lectures begin, an instructor can give a quiz aimed at getting students to both identify and to assess their own views. An example of this is a long "True or False" questionnaire designed to start students thinking about moral theory (to be administered on the first or second day of an introductory ethics course), which includes statements such as "There are really no correct answers to moral questions" and "Whatever a society holds to be morally right is in fact morally right". After students have responded to the questions individually, have them compare answers in pairs or small groups and discuss the ones on which they disagree. This technique may also be used to assess student knowledge of the subject matter in a pre-/post-lecture comparison. The well-known "Force Concept Inventory" developed by Hestenes to measure understanding of force and motion is another good example of this.
16. **Puzzles/Paradoxes** - One of the most useful means of ferreting out students' intuitions on a given topic is to present them with a paradox or a puzzle involving the concept(s) at

issue, and to have them struggle towards a solution. By forcing the students to "work it out" without some authority's solution, you increase the likelihood that they will be able to critically assess theories when they are presented later. For example, students in a course on theories of truth might be asked to assess the infamous "Liar Paradox" (with instances such as 'This sentence is false'), and to suggest ways in which such paradoxes can be avoided. Introductory logic students might be presented with complex logic puzzles as a way of motivating truth tables, and so forth. In scientific fields you can present experimental data which seems to contradict parts of the theory just presented or use examples which seem to have features which support two opposing theories.

[\(top\)](#)

## Share/Pair

Grouping students in pairs allows many of the advantages of group work students have the opportunity to state their own views, to hear from others, to hone their argumentative skills, and so forth without the administrative "costs" of group work (time spent assigning people to groups, class time used just for "getting in groups", and so on). Further, pairs make it virtually impossible for students to avoid participating thus making each person accountable.

17. **Discussion** - Students are asked to pair off and to respond to a question either in turn or as a pair. This can easily be combined with other techniques such as those under "Questions and Answers" or "Critical Thinking Motivators" above. For example, after students have responded to statements, such as "Whatever a society holds to be morally right is in fact morally right" with 'true' or 'false', they can be asked to compare answers to a limited number of questions and to discuss the statements on which they differed. In science classes students can be asked to explain some experimental data that supports a theory just discussed by the lecturer. Generally, this works best when students are given explicit directions, such as "Tell each other why you chose the answer you did".
18. **Note Comparison/Sharing** - One reason that some students perform poorly in classes is that they often do not have good note-taking skills. That is, while they might listen attentively, students do not always know what to write down, or they may have gaps in their notes which will leave them bewildered when they go back to the notes to study or to write a paper. One way to avoid some of these pitfalls and to have students model good note-taking is to have them occasionally compare notes. The instructor might stop lecturing immediately after covering a crucial concept and have students read each others' notes, filling in the gaps in their own note-taking. This is especially useful in introductory courses or in courses designed for non-majors or special admissions students. Once students see the value of supplementing their own note-taking with others', they are likely to continue the practice outside of class time.
19. **Evaluation of Another Student's Work** - Students are asked to complete an individual homework assignment or short paper. On the day the assignment is due, students submit

one copy to the instructor to be graded and one copy to their partner. These may be assigned that day, or students may be assigned partners to work with throughout the term. Each student then takes their partner's work and depending on the nature of the assignment gives critical feedback, standardizes or assesses the arguments, corrects mistakes in problem-solving or grammar, and so forth. This is a particularly effective way to improve student writing.

([top](#))

## Cooperative Learning Exercises

For more complex projects, where many heads are better than one or two, you may want to have students work in groups of three or more. As the term "cooperative learning" suggests, students working in groups will help each other to learn. Generally, it is better to form heterogeneous groups (with regard to gender, ethnicity, and academic performance), particularly when the groups will be working together over time or on complex projects; however, some of these techniques work well with spontaneously formed groups. Cooperative groups encourage discussion of problem solving techniques ("Should we try this?", etc.), and avoid the embarrassment of students who have not yet mastered all of the skills required.

20. **Cooperative Groups in Class** - Pose a question to be worked on in each cooperative group and then circulate around the room answering questions, asking further questions, keeping the groups on task, and so forth.. After an appropriate time for group discussion, students are asked to share their discussion points with the rest of the class. (The ensuing discussion can be guided according to the "Questions and Answers" techniques outlined above.)
21. **Active Review Sessions** - In the traditional class review session the students ask questions and the instructor answers them. Students spend their time copying down answers rather than thinking about the material. In an active review session the instructor poses questions and the students work on them in groups. Then students are asked to show their solutions to the whole group and discuss any differences among solutions proposed.
22. **Work at the Blackboard** - In many problem solving courses (e.g., logic or critical thinking), instructors tend to review homework or teach problem solving techniques by solving the problems themselves. Because students learn more by doing, rather than watching, this is probably not the optimal scenario. Rather than illustrating problem solving, have students work out the problems themselves, by asking them to go to the blackboard in small groups to solve problems. If there is insufficient blackboard space, students can still work out problems as a group, using paper and pencil or computers if appropriate software is available.

23. **Concept Mapping** - A concept map is a way of illustrating the connections that exist between terms or concepts covered in course material; students construct concept maps by connecting individual terms by lines which indicate the relationship between each set of connected terms. Most of the terms in a concept map have multiple connections. Developing a concept map requires the students to identify and organize information and to establish meaningful relationships between the pieces of information.
24. **Visual Lists** - Here students are asked to make a list--on paper or on the blackboard; by working in groups, students typically can generate more comprehensive lists than they might if working alone. This method is particularly effective when students are asked to compare views or to list pros and cons of a position. One technique which works well with such comparisons is to have students draw a "T" and to label the left- and right-hand sides of the cross bar with the opposing positions (or 'Pro' and 'Con'). They then list everything they can think of which supports these positions on the relevant side of the vertical line. Once they have generated as thorough a list as they can, ask them to analyze the lists with questions appropriate to the exercise. For example, when discussing Utilitarianism (a theory which claims that an action is morally right whenever it results in more benefits than harms) students can use the "T" method to list all of the (potential) benefits and harms of an action, and then discuss which side is more heavily "weighted". Often having the list before them helps to determine the ultimate utility of the action, and the requirement to fill in the "T" generally results in a more thorough accounting of the consequences of the action in question. In science classes this would work well with such topics as massive vaccination programs, nuclear power, eliminating chlorofluorocarbons, reducing carbon dioxide emissions, and so forth.
25. **Jigsaw Group Projects** - In jigsaw projects, each member of a group is asked to complete some discrete part of an assignment; when every member has completed his assigned task, the pieces can be joined together to form a finished project. For example, students in a course in African geography might be grouped and each assigned a country; individual students in the group could then be assigned to research the economy, political structure, ethnic makeup, terrain and climate, or folklore of the assigned country. When each student has completed his research, the group then reforms to complete a comprehensive report. In a chemistry course each student group could research a different form of power generation (nuclear, fossil fuel, hydroelectric, etc.). Then the groups are reformed so that each group has an expert in one form of power generation. They then tackle the difficult problem of how much emphasis should be placed on each method.
26. **Role Playing** - Here students are asked to "act out" a part. In doing so, they get a better idea of the concepts and theories being discussed. Role-playing exercises can range from the simple (e.g., "What would you do if a Nazi came to your door, and you were hiding a Jewish family in the attic?") to the complex. Complex role playing might take the form of a play (depending on time and resources); for example, students studying ancient philosophy might be asked to recreate the trial of Socrates. Using various sources (e.g., Plato's dialogues, Stone's The Trial of Socrates, and Aristophanes' The Clouds), student teams can prepare the prosecution and defense of Socrates on the charges of corruption of

youth and treason; each team may present witnesses (limited to characters which appear in the Dialogues, for instance) to construct their case, and prepare questions for cross-examination.

27. **Panel Discussions** - Panel discussions are especially useful when students are asked to give class presentations or reports as a way of including the entire class in the presentation. Student groups are assigned a topic to research and asked to prepare presentations (note that this may readily be combined with the jigsaw method outlined above). Each panelist is then expected to make a very short presentation, before the floor is opened to questions from "the audience". The key to success is to choose topics carefully and to give students sufficient direction to ensure that they are well-prepared for their presentations. You might also want to prepare the "audience", by assigning them various roles. For example, if students are presenting the results of their research into several forms of energy, you might have some of the other students role play as concerned environmentalists, transportation officials, commuters, and so forth.
28. **Debates** - Actually a variation of #27, formal debates provide an efficient structure for class presentations when the subject matter easily divides into opposing views or 'Pro'/'Con' considerations. Students are assigned to debate teams, given a position to defend, and then asked to present arguments in support of their position on the presentation day. The opposing team should be given an opportunity to rebut the argument(s) and, time permitting, the original presenters asked to respond to the rebuttal. This format is particularly useful in developing argumentation skills (in addition to teaching content).
29. **Games** - Many will scoff at the idea that one would literally play games in a university setting, but occasionally there is no better instructional tool. In particular, there are some concepts or theories which are more easily illustrated than discussed and in these cases, a well-conceived game may convey the idea more readily. For example, when students are introduced to the concepts of "laws of nature" and "the scientific method", it is hard to convey through lectures the nature of scientific work and the fallibility of inductive hypotheses. Instead, students play a couple rounds of the Induction Game, in which playing cards are turned up and either added to a running series or discarded according to the dealer's pre-conceived "law of nature". Students are asked to "discover" the natural law, by formulating and testing hypotheses as the game proceeds.

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