Teaching for Excellence

A Handbook for Wright State University Teachers

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What We're About

The Center for Teaching and Learning offers services to Teaching Faculty and Teaching Assistants by providing professional resources for enhancing the effectiveness of teaching and learning at Wright State University.

The Center offers valuable resources on course design, teaching evaluation, teaching improvement, as well as many other important issues on the subject of teaching and learning. Many of the resources listed at the back of each chapter are available at the Center or at the Dunbar Library. Please feel free to come and check us out.

The Center also offers workshops, teleconferences, seminars, and other special events. If you do not receive our newsletter and would like to be on our mailing list to receive it and our other special mailings, please call or stop by.

The Center for Teaching and Learning is located in 023 Dunbar Library, and our extension is 3162.

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INTRODUCTION: DEFINING EFFECTIVE TEACHING

The most important goal of the University is to offer effective instruction to the students who study here. WSU strives to recruit the best faculty and teaching associates possible and to support them in their teaching, research, and service endeavors. In an effort to support new teachers, the Center for Teaching and Learning has designed this handbook to provide an overview of some basic information on instructional strategies.

Although many people believe good teaching is impossible to define, a large body of research suggests that certain characteristics are consistently associated with good college teaching as viewed by students, other teachers, and administrators. In a study of winners of the Alumni Distinguished Teaching Award at Ohio State University (Ebro, 1977), observation of classes identified the following characteristics of effective teaching, which strongly parallel those found in other studies.

1. The teachers got right down to business. They began class promptly and were well organized.

2. They taught at an appropriately fast pace, but stopped regularly to check student comprehension and engagement.

3. They used a variety of instructional strategies rather than lecture alone.

4. They focused on the topic and on their instructional objectives and did not get sidetracked. Their explanations were clear.

5. They practiced good classroom management techniques, holding the attention and respect of the group.

6. They interacted with students by providing immediate answers to questions or comments and corrective feedback when needed. They praised student answers and used probing questions to extend the answers.

7. They provided a warm classroom climate by allowing students to speak freely and including personal humor or other attempts to relate to students as people.

8. They used nonverbal behavior, such as gestures, walking around, and eye contact to reinforce their comments.

Other studies consistently identify knowledge of subject matter, organizational skills, enthusiasm, clarity, and interpersonal skills as marks of the effective teacher. The degree of agreement across studies suggests that the characteristics of good teaching are not mysterious. They can be, and have been, identified by researchers, students, and professionals alike.

Observation of these characteristics fails to support another commonly held belief about teaching: good teachers are born, not made. While certain characteristics, such as humor and interpersonal skills, seem to come easily to some people and not others, people are not born with knowledge of a given discipline or competency in the use of instructional strategies. Furthermore, those who exhibit these qualities most consistently state that they work hard at attaining them and are very conscious of their actions and their effects.

These highly conscious teachers are examples of what Donald Schön (1983) has termed the "reflective practitioner," the professional who acquires expertise by learning in the classroom environment. Based on a study of Ohio State University faculty (Chism, 1988), a model of faculty growth in teaching emerged suggesting that effective teachers develop by maximizing what they learn through experience. They engage in cycles of learning during which they try a practice, observe its effects, and decide how and when they will use a similar practice. The best teachers, however, know not only what they are doing, but *why* it is working and *why* it is likely to work

in one kind of environment and not in another. Although they may have some natural personality characteristics that support their success, they also work very hard at their teaching and continually try to improve.

1 UNDERSTANDING STUDENT DIVERSITY

One of the most difficult issues in beginning to teach a new group is assessing the entry level of the students. Even experienced teachers often get the "first-day-of-class jitters," uneasiness associated with trying to make a good first impression without advance knowledge of the expectations or abilities of the students. This knowledge is extremely important to effective teaching; a poor understanding of the needs and abilities of students can result in teaching that is at an inappropriate level of difficulty or is irrelevant to the needs of the students.

WAYS OF DESCRIBING STUDENT DIFFERENCES AND THEIR IMPLICATIONS FOR TEACHING

An important aspect of teaching is understanding how students are likely to differ in the ways in which they learn. Three broad categories of descriptive literature on students' ways of learning will be discussed here. They include cognitive development, cognitive style, and differences based on age, disability, or cultural background.

Differences in Cognitive Development

The most widely known work on the cognitive development of college students is *Forms of Intellectual and Ethical Development in the College Years* by William Perry (1970). The scheme of development that he described has proven helpful to many in understanding students in different settings. However, Perry's study has several weaknesses: It was completed some time ago, was based on a small sample of students from Harvard and Radcliffe, and was heavily biased toward males. Important new contributions that focus on the development of women, although not necessarily college students, have been made by Gilligan and Belenky et al., which will also be discussed in this chapter.

Perry's Stages of Cognitive Development

Perry concludes that students move through several stages of cognitive development, each of which is qualitatively different and more complex than the previous stage. As students move through these stages, the ways in which they perceive, organize, and evaluate experiences and events in their lives change.

Description of Stages

Perry (1970, p. 9) describes nine stages, the first six of which pertain most directly to cognitive development.

Dualistic Positions
Perry uses the term *dualistic* to describe the first three positions. The ways in which students at these stages differ are based on how they account for uncertainty:

- Position 1: All information is either right or wrong. Uncertainty is not perceived.

- Position 2: All information is either right or wrong, and where uncertainty seems to exist, it is really an error committed by a wrong authority.

- Position 3: All information is either right or wrong, but uncertainty is acceptable in areas where experts do not know the answers yet. Someday the right answer will be discovered or found.

Students in the dualistic stage are often confused or hostile in a classroom setting in which multiple points of view are presented. They want "just the facts, please" and do not want to hear that there are conflicting opinions. They want the teacher to be strong, authoritative, and clear in the position that is taken. These students are apt to view their roles as passive recipients of a body of knowledge and will often resent being asked to play an active role in class. They regard the teacher as the person who already has the knowledge and may not feel that there is any value in contributing an opinion or listening to the opinions of their fellow students.

Students in positions 1 and 2 are able to learn (often by memorizing) basic facts and definitions of words and concepts, identify parts of a whole, begin to compare and contrast, and provide an explanation of why they answer as they do. In position 3, students can compare and contrast and see multiple perspectives, parts, opinions, and evaluations. Students can do basic analytic tasks but need to learn to use supporting evidence.

Relativistic Positions
Perry uses the term *relativistic* to describe students in positions 4-6. During this phase, the students' previous categories of right and wrong are transformed. Knowledge is now seen as uncertain or valid only within a context. The positions are differentiated by the following traits:

- Position 4: The student begins to feel that most questions cannot be answered with absolute certainty. When uncertainty prevails, the student feels that all answers are of equal value.

- Position 5: The sense of relativism enlarges, and the student begins to form non-absolute criteria for making judgments.

- Position 6: The ability to make judgments increases, and a personal stance or commitment develops.

Students in position 4 can compare and contrast, do abstract analysis, and do some synthesis. They can do both positive and negative critiques and use supporting arguments well. At this stage, students are developing the capacity to relate learning in one context or class to other issues in other classes or to issues in real life.

In positions 5 and 6, students can relate learning in one context to learning in another with some ease and can look for relationships in learning. Students can evaluate, conclude, and support their own analysis and can synthesize various points of view. Finally, students learn to modify and expand concepts of knowledge and may be able to generate new ways of looking at a given question or to formulate new questions.

Implications of Perry's Scheme for Teaching
Administration of instruments designed to assess cognitive development in terms of Perry's scheme has revealed that, although students of a given age category vary in their cognitive levels, most college students in the traditional age range of 18-24 enter at the dualistic stage, and many progress toward the advanced relativistic stage as they

go through college. Some enter at higher levels, and some will not progress, so one cannot assume homogeneity in a group of a given age. Nevertheless, a general guideline is that most seniors can perform cognitive tasks that most first-year students cannot, and instructional expectations should be based on this general guideline.

Based on Perry's ideas, Widick, Knefelkamp, and Parker (1975) use the notions of challenge and support to draw more implications for teaching. They argue that students at a given level need to be stretched or challenged to continue to reach higher levels but also need support to handle the challenge. They caution that one cannot expect students to skip over developmental stages; tasks must be at or only slightly above the student's level. Specific recommendations are summarized below:

Students in the dualistic stages. Teachers can *challenge* the students to move on to other levels by:

1. Employing content diversity in the curriculum by presenting two or three, but not more than three, points of view.

2. Assigning different kinds of experiential learning activities and encountering content diversity through such activities as structured discussion, structured group experiences, role playing, and field trips with structured observation guides.

3. Processing experiential encounters in prestructured ways that emphasize differentiation and the use of evidence to support views.

4. Using a variety of media (print, AV, multimedia) to convey information. (Services are available through Wright State's Center for Teaching and Learning.)

5. Incorporating opportunities for the ideas of others to be heard in class.

Teachers can *support* the students as they work toward other levels by:

1. Responding to their need for structure by using a syllabus that itemizes such details as specific assignments, policies, and due dates, and by using outlines of each class, textbook session, etc.

2. Preparing handouts that help students to fulfill course requirements (e.g., how to do a bibliography, laboratory report format).

3. Personalizing interactions with students by providing opportunities for students to get to know each other and the instructor; using small group work in or out of class; using feedback techniques such as logs, journals, or response forms; and responding to written work as concretely as possible.

Students in the relativistic stages. Teachers can *challenge* the students to move to higher levels by:

1. Providing them with opportunities to choose positions and defend their choices.

2. Asking them to narrow choices and weigh pros and cons of alternative arguments or choices.

3. Drawing upon course material that stimulates thinking about personal philosophy and life choices.

4. Setting learning tasks that call for students to engage in more and more complex cognitive processes. Tasks should help students analyze, synthesize, and evaluate first from personal perspectives, and then later from more abstract or experiential perspectives. Finally, tasks should require students to apply learning from one context to problems in a different context.

5. Posing activities that ask students to generate new questions or evaluate assumptions inherent in how points of view are constructed.

Teachers can *support* the students as they move to higher levels by:

1. Providing choices of assignments and projects and gradually reducing the structure and guidance provided.

2. Allowing for more flexibility and creativity in formats of written work.

3. Continuing personalization through opportunities for group work, participation, and peer teaching and learning.

Belenky's and Gilligan's Analyses of Women's Development

Belenky and associates (1986), aware that the sample for Perry's research was largely male, undertook research on female cognitive development and found different patterns in their sample of women. They described an initial level of silence in which women feel powerless and intimidated by male authority and forms of argumentation. Following this are four more levels:

- Received knowledge. Women at this level are listening to others around them and relying on the voices of authority. They see things dualistically, as did the participants in this stage in Perry's study, but identify less with the authority figures. They regard the multiple perspectives they read and hear as increasingly confusing and hard to reconcile.

- Subjective knowledge. Dissatisfied with received knowledge, they turn to their inner voices and trust their own feelings and thoughts at this level. They believe that all opinions are equally valid and that first-hand experience is the only valid route to knowing.

- Procedural knowledge. Once again, women listen to outside voices; but this time, they are listening about how to think rather than what to think. They are interested in and aware of multiple perspectives. Belenky et al. borrow from Gilligan (1982), who distinguishes between two kinds of procedural knowledge: separate knowing that relies on analysis, dispassion, and argument; and connected knowing that is holistic in nature, joining emotion with reason and seeking understanding and interconnections among perspectives. Even those connected, however, experience a sense of alienation at this stage since their knowledge is so directed toward the other.

- Constructed knowledge. At this level, women are able to integrate their own voices with those of others. They are active builders of a knowledge base and see that "All knowledge is constructed and the knower is an intimate part of the known" (Belenky et al., p. 137).

Implications of Belenky's and Gilligan's Work for Teaching

Although Gilligan and Belenky and associates make the point that given types of cognitive development are not exclusively male or female, they do note that the above pattern is found more often in women than men. The implications for teaching include the importance of recognizing that women may often feel overwhelmed and silenced by a discourse style that is not comfortable to them; that they may want to trust personal judgment, instincts, and emotions as valid contributions to arriving at a position; and that they may withdraw from argumentation and forced analysis as hostile or unproductive forms of activity. Instructors can help women to

progress in their cognitive growth by providing a supportive and nurturing environment, being especially sensitive to "giving women their voice" through moderating discussion to ensure equal levels of participation and encouragement and providing opportunities for personal forms of expression in papers and projects.

Differences in Cognitive Styles

Another way of describing differences in students is based on the idea that people have different ways of learning. Research in this area has mushroomed in the past several years, producing descriptions of styles based on a variety of organizing ideas. A few of the dominant schemes are described below.

Kolb's Learning Styles

David Kolb (1981) posits that four main processes are used in learning:

- Concrete experience: learning through direct involvement in a new experience
- Reflective observation: learning through watching others or through thinking about our own experiences or those of others
- Abstract conceptualization: learning by creating concepts and theories to describe and explain our observations
- Active experimentation: learning by using the theories and concepts we have derived to solve problems and make decisions

Kolb states that most people apply these four processes in cyclical fashion as they learn but that each person engages in some activities more than others. Depending on these preferences, he describes four learning styles:

- *Convergers* rely most on abstract conceptualizing and active experimenting. They like to find specific, concrete answers and move quickly to solution. They are relatively unemotional and prefer dealing with things rather than with people. Convergers often specialize in the physical sciences or engineering. They prefer learning tasks that have specific answers.
- *Assimilators* rely most on abstract conceptualizing and reflective observation. They like to integrate ideas and are more interested in theoretical concerns than in applications. Assimilators tend to gravitate toward math and the physical sciences and like research and planning. They prefer learning tasks that call for them to integrate material.
- *Divergers* rely on concrete experience and reflective observation. They like to generate many ideas and enjoy working with people. They often are attracted to such fields as counseling and consulting. Divergers enjoy class discussion and working in groups.
- *Accommodators* rely on concrete experience and active experimentation. They take risks, are action oriented, like new experiences, and are very adaptable in new situations. They prefer a hands-on approach and often are attracted to technical or business fields, such as marketing and sales.

Learning Modalities

Several researchers have focused on the extent to which sensory receptors influence learning. In general, they describe the following different types of learners:

- *Auditory* learners prefer to learn by listening. Lecturing is the teaching approach that works best for them.

- *Visual* learners prefer print material. They learn best by reading or responding to visual cues, such as the chalkboard or overhead transparencies.

- *Tactile* learners like to manipulate objects. Laboratory or hands-on methods of learning are most appropriate for them.

- *Kinesthetic,* or whole body learners, like to learn through experiential activities. They prefer simulations, exploratory activities, and problem-solving.

As with all of the literature on learning styles, however, the emphasis with sensory modality preferences is not on trying only to match learning and teaching styles, but on extending the strengths of learners and expanding their range of modalities.

Field Independence and Field Dependence

Based on studies on perception, Witkin & Moore (1975) described a central differentiating characteristic of learners based on the way in which they handle information in context. They called learners who perceive in holistic fashion *field dependent* learners. These individuals rely on external stimuli in approaching a task and have a much more difficult time separating the individual parts within a whole. These students tend to be more social in their interests and like teachers to structure classroom goals for them. They prefer group work and student discussion in class.

Witkin & Moore describe *field independent* students as those who try to analyze things into component parts and like to work independently. Field independent students are able to set their own learning goals and prefer the freedom to participate in setting their assignments. They like to work with abstract ideas and prefer to work with a minimum of structure and guidance.

Implications of Differing Cognitive Styles for Teaching

The differences in cognitive learning styles have distinct implications for student preferences of teaching strategies. According to Anderson and Adams (1991), an initial approach for instructors might be to develop a sense of the expectations that students and instructors have in the classroom. Such interactions guide the more formal dimensions of the teaching-learning dyad. One example of the expectations that two different types of students exhibit is outlined below.

What Students Expect from Instructors

(based upon students' preferred styles)

Field Dependent Orientation	***Field Independent Orientation***
To give support, show interest, be emotional	To focus on task and be objective
To provide guidance, modeling, and constructive feedback	To provide independence and flexibility

To provide verbal and nonverbal cues to support words	To provide commands and messages directly and articulately
To minimize professional distance	To maximize professional distance
To seek opinions when making decisions and incorporate affective considerations	To make decisions based upon analysis of problem and objective criteria
To identify with values and needs of task	To identify with goals and objectives of students

What Strategies Teachers Use

(based on teachers' preferred styles)

Field Dependent Orientation	***Field Independent Orientation***
Focuses on needs, feelings, and interests of students	Focuses on task
Acts as a consultant or supervisor in the classroom	Fosters modeling and imitation
Uses an informal approach–elicits class discussion	Uses a formal, lecture-oriented approach
Uses personal rewards	Uses impersonal rewards
Encourages group achievement	Encourages individual achievement
Narrates and humanizes concepts	Emphasizes facts and principles
Identifies with class	Remains emotionally detached

Teaching in a diverse classroom means that there will be many different learning styles. Effective teaching cannot be limited to the delivery of information, but needs to be based on a model of minds at work. The generative process of learning is most effective when instructors affirm the presence and validity of diverse learning styles and maximize the climate or conditions for learning in the classroom (Anderson and Adams, 1991). While instructors are alerted to differences when they identify learning styles with particular groups, they should still use a full range of instructional strategies.

Differences Based on Age, Disability, Gender, or Cultural Backgrounds

Researchers who study the learning styles of diverse populations have made observations about the particular ways in which students not traditionally a part of the college enrollment can learn most effectively. A summary of some of the characteristics of different learners is included below.

Students of Non-Traditional Age

Many students of non-traditional age lack confidence and feel uncomfortable in a college environment still predominantly populated by young adults. Instructors can help by offering positive feedback frequently, by

avoiding comparing students, and by avoiding drawing attention to their age or directly calling on them to contribute when they do not volunteer.

Learners of non-traditional age, even more than younger students, feel the need for learning to be relevant to their life experiences. They are more likely than younger students to question the importance of a given assignment or body of information (although they may not make their reservations known, since they may lack confidence). They are also more eager to make contributions based on their personal experiences and to use these experiences as the basis for argument in papers and other assignments. Instructors can enlist the support and enthusiasm of older learners, explaining how assignments and class activities are relevant to the course. They can also provide opportunities for older students to draw on their experiences and incorporate new learning through the lenses that past experience provides, helping students learn to derive abstract ideas from these experiences in the process.

Personal responsibilities of non-traditional learners are often different than those of younger learners. They may have a child in the hospital, a major report due at their office, or a leaking roof to fix at the same time as a term paper is due. Often, they are making large sacrifices to attend college and are spreading their effort over many different life tasks. Instructors can try to understand their situations and exercise whatever flexibility they can in helping older learners to be successful.

With some non-traditional aged learners, physical limitations, such as poor vision, hearing loss, or diminished memory can impair learning. Time limits and reliance on a single mode of teaching, such as lecture, constrain opportunities for these older students. Instructors can vary the stimuli (using visual as well as auditory approaches) and make whatever allowances for time and recall they judge appropriate in the situation.

Students with Disabilities

Students who are physically challenged may be relying on special transportation and may need special considerations in order to attend. Instructors who are flexible about time and make sure that physical arrangements accommodate these students help them to participate in higher education.

Students with physical and learning disabilities may require such considerations as extra time to take a test, a reader to read the text or test to them, or special equipment to compose written work. The Office of Disability Services provides these services and can advise instructors on what is reasonable to allow and how to refer students to appropriate support services. Often, however, students will be reluctant to ask for special arrangements. Instructors can help by notifying the entire class publicly or stating in the syllabus that any student who has need for test-taking or note-taking accommodation should feel free to discuss the matter with them.

Students with learning disabilities sometimes need extra encouragement to sustain their participation but often do not want to be singled out for special attention. Instructors who try to be sensitive to maintaining a balance between helping these students and not providing undue attention to the disability will help further their learning.

As with students with different learning styles, it helps students with learning disabilities and some physical disabilities to have information presented in a variety of ways, such as visually, orally, and tactually. Supplementary sessions outside of class time can be scheduled for this purpose.

Women Students

Although women have been a part of the college scene for many years now and constitute close to half of the undergraduate population at Wright State, classroom practices that have arisen through a tradition of male-dominated instructional settings are often still in use and detract from learning opportunities for women. These practices are described extensively in Hall & Sandler (1982) and include using sexist language and jokes, failing to recognize women during discussion or to employ eye contact with women, failing to intervene when male students interrupt or deny access to women in discussion situations, holding lower performance expectations for

women than men, and routinely assigning dominant roles such as team leader to men rather than women.

The world view, epistemology, and curriculum content of most university instruction has been rooted in the male western tradition. Instructors can enhance learning opportunities for women as well as men by trying to incorporate in their teaching the contributions of women and other cultures and recognizing the value of multiple ways of knowing. They can see knowledge as constructed, rather than transferred, and learn to appreciate alternate ways of knowing, such as emotions, insight, and intuition.

Students of Different Cultural Backgrounds

Stereotypes about cultural background abound and often lead to faulty expectations that are communicated to students in subtle ways, often only subconsciously. Before forming expectations, it is important for instructors to view students as individuals from various cultural backgrounds who may or may not fit a "profile" of someone from that culture.

Many students whose family traditions are rooted in the culture of such places as Africa, Puerto Rico, Mexico, and pre-European America exhibit learning styles that emphasize group cooperation, holistic thinking, concrete rather than abstract orientation, oral over written tradition, and reliance on imagery and expressiveness, demonstrating an affective component to their learning. Instructors who recognize the strengths of these cultural orientations and provide opportunities for students to draw upon them not only further the learning of the students but enrich the learning opportunities for majority students, some of whom may share these styles and others of whom can profit through expanding their stylistic repertoires.

Language, either of another country or an American dialect, is often a sensitive issue with students from different cultural backgrounds. Students with language differences need to know, first of all, that their language is respected. It is important to remember that all language is culturally bound. The rules of a given language are determined by usefulness; therefore, it is problematic to impose standards from one context on a language that is part of another, or to denigrate language systems that are not mainstream. Instructors who focus on task or content when this can be separated from language help students to retain self-confidence and cultural pride in a different environment. Using visuals, synonyms, and examples when lecturing or in examination questions helps those with different language backgrounds to understand what is being communicated. Instructors should take the time to get students' names right, especially those in a language other than English. It is important to be sensitive to names of groups; for example, "African American" and "people of color" and "students with disabilities" are currently favored, at least in certain geographic locations. "Minorities" is objectionable to many who know that they either already are, or soon will be, in the majority in their state or country. The safest stance is to ask the student how he or she prefers to be addressed before assuming the use of a particular term.

Teaching style expectations are often different across cultural backgrounds. Students from Asian countries may regard asking questions or maintaining prolonged eye contact as improper behavior toward a teacher. Many African American students prefer an informal conversational style with sustained eye contact and use of humor by their teachers. While it is impossible for an instructor to accommodate all teaching style preferences and still be true to a personal style, it is important to work to accommodate different frames of reference.

Students bring to the classroom a knowledge of the achievements of their cultures and the traditions of their heritage. Instructors who incorporate these achievements in their curricula not only build on their students' sense of pride and self-esteem but also enrich the scope of knowledge available to all students in the course. It is important, however, for the instructor to avoid assuming that a student with a given cultural background is able or willing to serve as the representative of that culture when classroom discussions occur. Calling on an African American student to talk about slavery or a Native American to talk about life on an Indian reservation puts the student in a sensitive position, even if the motivation is student involvement. Such potentially uncomfortable situations may be avoided by assigning and discussing a reading on multicultural sensitivity early in the quarter.

WAYS OF RESPONDING TO STUDENT DIFFERENCES

To summarize the advice on individual differences, the following suggestions are provided:

1. Instructors can talk to others who have previously taught a course about what can be reasonably expected of the students in that course.

2. Instructors can use the first class session to obtain information, either on cards or orally, on the backgrounds of the students (major, hometown, age, etc.), their prior preparation for the course (previous related coursework, previous degrees or work experiences in the area, etc.), expectations for the course (personal goals, career goals, preferred learning activities or teacher styles).

3. Instructors can administer a pretest at the beginning of the course or unit to determine students' entry levels.

4. While working in a group setting makes it impossible for instructors to respond to each unique need, they can try to be sensitive to individual differences by providing options for participation, assignments, and class activities; and by varying the ways in which instruction is provided, supplementing lectures with discussion, audiovisual aids, and hands-on experiences.

5. Instructors can try to extend the learning styles of all their students as well as respond to them. Students from an oral tradition need to have more writing experiences; students who view knowledge from a dualistic perspective need to be helped to understand that things are more complex; students who rely on concrete experience need to develop greater facility with abstract thinking. It is important, however, that efforts to extend student learning styles and cognitive levels build incrementally on given levels and that instructors not expect major leaps or changes in direction.

6. Instructors can administer a learning style inventory to assess differences in the students or ask students to provide a self-report on the ways in which they learn best.

7. Instructors can respect individual differences, avoid thinking about students in terms of stereotypes, and keep channels of communication open.

8. Instructors can be vigilant in avoiding sexist or racist behaviors and humor in their own actions and in correcting these behaviors if they are displayed by students.

9. Instructors can watch students' facial expressions and other nonverbal signs of understanding, confusion, or emotional response in class.

10. Instructors can encourage students to speak with them outside class or can routinely arrive early and talk with students before class. Instructors can make a point of speaking with a wide range of students and not only the high achievers.

11. Instructors can make use of resources and seminars that are available through the Center for Teaching and Learning.

SUMMARY

In summary, effective instruction entails paying attention to the "people" dimensions of the learning situation. Instructors who make some effort to get to know their students and to establish a good relationship with them will find that the efforts are well rewarded in the quality of learning that results.

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2 DESIGNING AN EFFECTIVE COURSE

The syllabus represents the itinerary for a ten-week trip, but no one would confuse the itinerary with the trip itself. The essence of learning is what takes place above and beyond the syllabus: the excitement of discovery, the development of appreciation . . . the teaching problem is to engage the student in the fullness of the learning experience while honoring the policies stated with respect to routine matters.

C. Grey Austin

When designing a course, it is important that instructors determine what will form "the essence of learning" for the students about to embark on that course. Before constructing a syllabus, therefore, instructors are advised to turn their attention to the formulation of instructional objectives.

INSTRUCTIONAL OBJECTIVES

An instructor faces four central tasks in teaching a course:

1. Deciding upon the goals that he or she wishes the students to reach at the end of the course.

2. Selecting subject matter, materials, learning activities, and teaching methods that are appropriate and relevant to those goals and objectives.

3. Ensuring that students interact with the subject matter in accordance with the basic principles of learning.

4. Measuring and evaluating students' performance according to the objectives and goals that were originally selected.

The Importance of Instructional Objectives

If clearly defined goals are lacking, it will be impossible to evaluate a course or program efficiently, and there will be no sound basis for selecting appropriate subject matter, materials, and teaching methods. What is more, tests are supposed to be indicators that tell both learner and instructor how efficient the learning and teaching process has been. Unless the objectives of the course are clearly understood by both parties, tests will be at best misleading and at worst irrelevant, unfair, or useless.

According to Robert Mager (1962), an instructional objective is "an intent communicated by a statement describing a proposed change in a learner—a statement of what the learner is to be like when he [or she] has successfully completed a learning experience."

If one attempts to teach without instructional objectives, the following results are likely:

1. Students complain that the course is irrelevant, that the material is not related to their personal educational goals or to any other goals they can recognize as being important.

2. Students complain that the tests are unfair; one topic is assigned, another is taught, and a third is covered on the tests.

3. Students complain that they do not know what to study since no priorities among topics are provided.

4. Students complain that the course is disorganized, that the topics do not fit together, and that there is no clear direction.

On the other hand, the results of the proper use of instructional objectives should be:

1. Teaching will be more focused and precise. Instructors will have subjected the course to a thorough analysis and selected *on purpose* what they expect the students to learn in the course in the time they will spend with them.

2. It will be easy to identify points where learning needs to be monitored or tested.

3. It will be possible to confirm that student needs are being met.

4. Students will always have a clear statement of the purpose and aims of the course to turn to when they are studying or are unsure of the course's aims. They will find it easier to progress through the course in an organized manner.

In short, there is a clear communication of intent on the part of the teacher regarding what he or she is trying to teach, what the students are going to be expected to be able to do, how their achievement will be measured, and what will be accepted as evidence that they have achieved the goals.

Constructing Objectives

Good instructional objectives are neither so narrowly stated that they represent the intended curriculum mechanistically nor so generally stated that they lend little clarity to the intended goals. They should not discourage creativity on the part of either teacher or learner, nor should they take away the need for the teacher to communicate the "challenge" of studying and learning to her or his students. Other dangers to be aware of are objectives that insult students' intelligence, that are restricted to lower level cognitive skills, that seem dehumanizing, or that result in overconcentration on the aspects of a subject while the students miss the "big picture."

Loosely stated objectives—such as "The students in Theatre 100 will understand what makes good theatre"—are not especially useful. It is generally better to refer to a specific realization or ability that the teacher wants his or her students to gain as a result of their course. An example of a well-stated objective might be the following: "The students in Physics 101 will demonstrate awareness of the importance of safety in the laboratory by learning and completing six standard precautionary steps before beginning each of the experiments in the latter half of the course."

In *Teaching Assistance: A Handbook of Teaching Ideas* (1982), John Andrews suggests that a teacher should use the following questions as a means of planning an effective course. These points should enable the instructor to see how objectives can shape planning for other aspects of the class. Note that the questions focus at the end point first and then work backward in time to the first action the teacher will take:

1. How does the teacher want students to be changed as a result of this class? What should they be able to do that they can't do now?

2. How are these changes to be measured? What sorts of performances (exams, papers, etc.) will be effective in measuring students' progress?

3. What subject matter will be covered to help students meet the expectations of the course?

4. What about the "how" of teaching? What sorts of formats or activities will be used to help students practice the skills needed to complete the course successfully?

5. How will expectations be communicated to the students?

Mary Minter of the University of Michigan (1986) has suggested a more detailed planning analysis for an instructor faced with a new course. She suggests that on accepting the course assignment, well-prepared instructors first set out to acquire as much information as possible about the students they will be teaching (see chapter one) and about the content they will be expected to cover in the course. Resources to consult include the college catalog, previous syllabi, the official department course description, chair of the department, and the assigned textbook. Instructors could also solicit help from anyone who has previously taught the course.

Minter regards the next step as the setting of general goals and specific instructional objectives for the course. Instructors might be able to use a general purpose statement given on a previous syllabus, and/or they might want to include different or additional goals. The next step is to provide the student with even more specific instructional objectives, which should relate to the overall goals and be specific to the major content sections/topics. "Action verbs" that are specific, such as: "list, write, report, do" are highly recommended. The final step is to conduct another level of task analysis. Students' basic learning needs in the subject area should be identified. (This can be based on past experience with similar groups of students or on a personal questionnaire that students complete on the first day.) This analysis should provide ample foundation for the course.

Another possible way to formulate instructional objectives revolves around the work of Benjamin Bloom. Bloom (1956) classified various abilities and behaviors that could correlate with cognitive learning objectives into a taxonomy that represents the thinking processes required of students as a continuum moving from the simple to the complex. This hierarchy can serve as a classification scheme for constructing course objectives since it focuses on the way a student acquires and uses knowledge in any subject area. It includes the following levels:

Knowledge	Primarily concerned with the student's ability to memorize or recall specific facts.
Comprehension	Usually involves the ability to interpret, paraphrase, and extrapolate, thus demonstrating the student's basic understanding of ideas that he or she did not originate.
Application	Includes activities in which the student applies concepts and principles to new and/or practical situations.
Analysis	Concerned with breaking down a piece of information into its constituent parts, differentiating and discriminating.
Synthesis	Involves the blending of elements and parts in order to form a whole. Students should be able to create a structural pattern that was not previously present.

Evaluation	The highest level. Students might judge the value of a work, the logical consistency of written data, or the adequacy of someone else's conclusions.

If the above are used when formulating objectives, it should be possible to analyze which of the course objectives require higher-order student behavior (application, analysis, synthesis, and evaluation) and which center around lower-order objectives (knowledge and comprehension). Most instructional specialists argue that effective objectives (and well-designed courses) will almost always include some higher-order objectives and not center exclusively around retention and understanding. Likewise, in most curriculums there are foundational knowledge and comprehension requirements that must be achieved before higher-order objectives can be addressed.

THE SYLLABUS

The syllabus is a formal statement of what the course is about, what students will be asked to do, and how their performance will be evaluated. Unlike the comments an instructor makes in class, it is a lasting statement to which students can refer again and again. Careful construction of the syllabus reduces ambiguity and is the first step toward producing an environment in which student learning can flourish.

Having a well-developed syllabus will require the instructor to organize early and think precisely about teaching, both of which are essential for a successful class. In addition, a well-prepared syllabus presents a positive image to the students and is evidence that the instructor takes teaching seriously. A good syllabus can help students know what is expected from the start of the course and can allow them to plan their quarter efficiently. A syllabus also provides the departmental office, supervisor, and/or colleagues with pertinent information about the course. All WSU departments require some sort of syllabus.

It is worth noting that a large number of complaints that administrators and teachers receive involve misunderstandings of the requirements and expectations for performance in a course. A syllabus can consolidate into a single document all of the routine matters that surround teaching a course–-reading schedules, grading, due dates, class topics, etc. that would otherwise have to be communicated in individual conversations with each member of the class.

Preparing an Effective Course Syllabus

One can begin by studying syllabi that have been used previously in the course being taught. Instructors might also check with their departments for specific guidelines they may have about a syllabus format. The following should be included in every syllabus:

1. Relevant information about the course and instructor

   The information should include the current year and quarter, the name and number of the course and the meeting time (with days of the week), and location. It should also include the instructor's name, phone number, the location of the instructor's office, and the times of his or her office hours. These facts are normally placed at the beginning of the document.

2. A clear statement of course objectives

   The course objectives should be as clear as possible and should describe what the students will be expected to know at the end of the quarter, rather than what the instructor plans to do. Note that the use of vague terminology such as "students will develop a clear understanding," can result in arguments over degrees of understanding. It is generally better to use specific, measurable behaviors as objectives.

3. A description of the means (or activities) by which the course objectives will be met

   Possible items include field trips, guest lecturers, discussions with active participation, problem-solving groups, assignments, use of audiovisual materials, etc. The amount of student time required for each activity may be estimated.

4. A list of the resources to be obtained by the students.

   Most important here are the required text(s) and reading assignments. Their prices and where they are available for purchase or loan might also be included. (It is important to check that the bookstore or library will have the text on the shelves before students are sent to find it.) This section might also list any materials other than the text(s) that are required of students. Any supplemental materials such as lecture tapes, sample projects, or past tests that are available can be mentioned.

5. A statement of grading criteria.

   This will explain the grading criteria, the components of the final grade, the weighting of various grades, the relationship of class participation and attendance to the final grade, and other relevant information. The number of tests and/or papers might be included, along with a description of each. The numerical equivalent of letter grades can be provided, or the "ranges" of each grade. A fuller explanation of the concept of grading can be found in chapter seven.

6. A statement of course policy

   This is best expressed in a clear, nonthreatening form. Policies should be set for such events as missing an exam, turning in a late assignment, missing class, requesting an extension, and reporting illness. It is a good idea to go on record with a fairly stringent policy that can be informally tempered at a later date, if and when circumstances warrant. Avoiding absolutes is advisable on the grounds that they are sometimes more trouble than they are worth. There can also be a short statement defining academic misconduct in one's individual subject. Instructors should make it clear that, according to University guidelines, they *must* report any suspected case of academic misconduct.

7. A schedule

   If each class hour is mapped out in detail, this will doubtless be the longest and most time-consuming segment of the syllabus to prepare, although it will be a good investment in a well-organized class. The syllabus should, as a minimum, contain dates with the corresponding sequence of lecture or lab topics, the preparations that are required or suggested, and the assignment that will be due. Note holidays and the date and time of any midterms, as well as the final examination.

Using the Syllabus in Class

First, check over the final typed copy for mistakes and typos. If the instructor does not spot them, it is certain that the students will. It is good policy to hand out the syllabus on the first day of class. That lets the students know that their teacher is well prepared, and it provides an easy way to begin the interaction with students and to reduce some of the uncertainty and anxiety of the first class meeting.

The instructor will need to review and discuss the syllabus with the students, answering any questions that they may have and providing appropriate amplification where necessary. The instructor will probably find that most student feedback will be generated by the section on grading.

It is vital to have enough copies of the syllabus. The teacher should also allow for the need to replace lost copies and to accommodate students who have registered for the class but do not appear on the initial roster.

If changes are subsequently made in the syllabus, ambiguity and confusion can be avoided by giving the changes to students in writing.

TEACHING METHODS

Once objectives have been set, the next task is to determine the methods that will help achieve those goals. There are a variety of methods for the delivery of instruction. These are discussed in the following chapters on lecturing, active learning, and assessment.

Matching Methods to Objectives

In selecting and planning classroom instructional strategies to match course objectives, it is important to consider the following:

1. Will the strategy accomplish the objective? It is unlikely, for example, that straight lecturing would be an appropriate strategy for a course designed to increase problem-solving skills. Group work would be a poor choice if rapid transfer of information is the goal.

2. Will the strategy be accessible to all students? If only hands-on work is used, those who learn best by listening, reading, or writing will be at a disadvantage. It is best to establish a rhythm of strategies, varying the approach and introducing redundancy so that all can learn.

3. Will the strategy be feasible, given the context? Is the classroom structured to preclude certain activities? Is the class too large or too small for certain activities? Are the class periods long enough to accommodate the use of certain activities?

4. Will students need preparation to respond to the strategy? Since students are so used to being passive in class, instructors cannot automatically assume that they will be able or want to respond to group work, independent work, or other activities. It is often important to build in some time for helping students to get the most from a given instructional approach before it is used.

5. Is the instructor comfortable with the approach? Often, even when a given approach seems most appropriate, an instructor will not be at ease with it. Although instructors should continually try to expand their repertoire, it is important to choose strategies that are within their personal range.

Considering Possible Methods

Individualized or other nontraditional forms of instruction are particularly useful when an instructor is faced with students whose backgrounds and time schedules are widely varying, yet who all need to reach the same levels of competency in an area or task. This approach is also suitable when hands-on work, problem-solving, or creative activity is being promoted.

Examples of nontraditional forms of instruction include having students complete projects (alone or in small groups); writing and distributing self-study guides or course manuals to the class; using lectures or discussions recorded on video, audio tape, or computer programs; employing case studies; and engaging in other kinds of custom-designed, computer-based instruction. There are many other possibilities.

Among the general advantages of these methods is the fact that learning can occur at the rate and time most suitable for individual students who must seek out their own information in order to progress and who consequently are often more highly motivated than students in the traditional classroom. In group work, students learn valuable communication and management skills as well as the importance of teamwork in general. From the instructor's point of view, he or she is freed from the repetitious presentation of material and is able to assume a more fluid and personal role in the instruction of the students.

There are also some disadvantages. Individualized exercises are time consuming to prepare and refine, and external monitoring may be needed if students hit problems or slow down. To profit from these exercises, students need a level of maturity that they may not yet have developed, which can result in increased plagiarism or procrastination, if self-pacing is involved. Group assignments can be particularly difficult to grade on an individual basis, since it is often unclear which members of the group made the most significant contributions.

Teachers choosing to use these important alternative methods need to be clear about specifying the learning task and breaking it up into manageable units. Students will need monitoring through the exercise, and an external resource person who can offer students help should always be available. It is a good idea to test new material on a sample group so that it can be revised before it reaches the intended audience. Finally, it is vital to ensure that easy access is available to all the materials and that sufficient opportunities for student feedback are built into the course design.

USEFUL SOURCES ON COURSE DESIGN

There are a number of resources available at the Center for Teaching and Learning. In addition to general works on college teaching skills, the Faculty Development Series produced by the University of Michigan-Dearborn is highly recommended. Modules on course goals and objectives and creating a lesson plan are available. Syracuse University has produced an interesting sourcebook on the rationale and design behind student manuals. Other useful sources include:

*Andrews, J. (1982). *Teaching assistance: A handbook of teaching ideas*. San Diego: University of California-San Diego, TA Development Program.

*Austin, C. G. (1985). Letter to the faculty at The Ohio State University.

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*Day, R. S. (1980). Teaching from notes: Some cognitive consequences. New Directions for Teaching and Learning, No. 2. San Francisco: Jossey-Bass.

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Millis, B.J. Syllabus Construction Handbook. College Park, MD: University of Maryland, University College.

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*Office of Instructional Research and Development. (1976). How should *instructors plan their instruction?* Note to the Faculty, No. 2. Tucson: University of Arizona.

*Office of Instructional Research and Development (1977). *Developing instructional objectives*. Note to the Faculty, No. 3. Tucson: University of Arizona.

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The preceding information has been adapted from a variety of sources. Special acknowledgment is made of our use of the starred items above.

3 LECTURING EFFECTIVELY

Effective lecturers combine the talents of scholar, writer, producer, comedian, showman, and teacher in ways that contribute to student learning.

W. J. McKeachie

The survival of the basic lecture–a method of teaching by discourse rather than conversation or seminar–in this age of technology and electronic media is, in many ways, remarkable. Lecturing is probably the oldest teaching method and remains the most common form of instruction to be found in United States colleges and universities, despite the fact that some research has shown that lecturing is ineffectual, especially if not combined with some alternative style of teaching. This chapter will explore how to use lectures for effective instruction.

EVALUATING THE LECTURE APPROACH

Lecturing is appropriate for some goals and inappropriate for others.

Strengths of the Lecture Approach

1. Lectures can communicate the intrinsic interest of the subject matter. The speaker can convey personal enthusiasm in a way that no book or other media can. Enthusiasm stimulates interest, and interested, stimulated people tend to learn more.

2. Lectures in university settings can provide students with role models of scholars in action. The professor's way of approaching knowledge can be demonstrated for students to emulate.

3. Lectures can convey material otherwise unavailable, including original research or recent developments that have not yet made it to publication.

4. Lectures can organize material in a special way. They may be a faster, simpler method of presenting information to an audience with its own special needs. Lectures are particularly useful for students who read poorly or who are unable to organize print material.

5. Lectures can convey large amounts of factual material.

6. Lectures can speak to many listeners at the same time.

7. Lectures permit maximum teacher control. The instructor chooses what material to cover, whether to answer questions, etc.

8. Lectures present minimum threat to students, since their participation is passive.

9. Lectures emphasize learning by listening, an advantage for students who learn well this way.

10. As Eble (1976) noted, lecturing beats textbooks or video in that it offers "face-to face confrontations with other talking, gesturing, thinking, feeling humans."

Weaknesses of the Lecture Approach

1. Lectures put students in passive rather than active roles, which can hinder learning. Lectures position the teacher as the sole authority and students as empty receptacles incapable of participating in the construction of knowledge.

2. Lectures lack feedback to both the instructor and the students about the students' learning. They encourage one-way communication.

3. Lectures require an effective speaker who can vary tone, pitch, and pace of delivery. Lecturers must be verbally fluent, a skill that is not stressed nor learned in many Ph.D. programs and is, in general, distributed unevenly among people.

4. Lectures place the burden of organizing and synthesizing content solely on the lecturer and are not well suited to higher levels of learning such as application, analysis, and synthesis.

5. Lectures are not well suited to complex, detailed, or abstract material.

6. Lectures assume that all students are learning at the same pace and at the same level of understanding, which is hardly ever true.

7. Lectures do not sustain student attention, which wanes quickly (15 to 25 minutes).

8. Lectures tend to be forgotten quickly.

PREPARING LECTURES

Instructors should remember that learners' minds are not blank slates; the organization of the lecture must take into account students' existing knowledge and expectations as well as the structure of the subject matter. L. Dee Fink (1989) has pointed out that the most intellectually alive and exciting lecturers tend to be those who view knowledge as a dynamic process rather than a static product.

Planning the Lecture

Phil Martin, Coordinator of the public speaking team at Ohio State University, suggests the following process as one way to handle the preparation of a lecture.

1. *Select a topic*. The lecturer's first decision should be on the overall subject matter of the lecture. This will probably be drawn from whatever is on the syllabus for that day's class.

2. *Decide on the purpose*. Once the topic is chosen, the next stage is to decide *why* it is being taught (this is not as obvious as it may first appear). Possible questions might be: Is my aim to make students *understand* this difficult concept? What are the key facts I want my students to *remember*? Do I want to *advocate* a particular idea or behavior? Is one of my purposes to entertain? Is preparation for an examination the main point of the lecture?

3. *Analyze the class*. Just as performers need to know their audience, so lecturers need to analyze their class. It is useful to determine: What is the level of students in this class? How mature are they as learners? What is their prior relationship with this subject matter? Exploring the population of the class may help predict what learning styles will be preferred by this group of students.

4. *Analyze the occasion*. In addition to studying the composition of the class, it is helpful to analyze the

occasion. A class early in the morning might require the lecturer to be more extroverted, in order to wake the students up. Long class periods may be especially suited to interactive lectures. Students at the beginning of the quarter may be more enthusiastic than during the last week of classes. These issues can be predicted in advance, and such an awareness will usually improve the effectiveness of the lecture.

5. *Gather materials*. The next step is to gather materials to be used in preparation of the lecture. It is a good idea to bring everything together before sitting down to write so that the instructor has all the necessary sources immediately at hand.

6. *Prepare the lecture*. After the materials are together, the next step is to actually write the lecture itself. Some discussion of lecture notes follows, but it is certainly desirable for lecturers to have done sufficient preparation to be comfortable with the content of the lecture.

7. *Practice the lecture*. Finally, it is a good idea to practice the lecture, either to a living audience or to an inanimate object (e.g., cassette tape, audio tape, mirror), especially if the lecturer is inexperienced. This will help phrasing, delivery, and time management, and will perhaps provide some advance feedback.

Structuring the Lecture

Here are some suggestions for the content of an effective lecture.

The Introduction of the Lecture

It is advisable to plan an introduction that might point to a gap in the students' knowledge or raise a question about or challenge something in the students' minds in order to arouse curiosity. Good introductions also help students to discriminate between more and less important features of lectures, help them create realistic expectations about what they are supposed to learn from the lecture, and enable them to allocate their information-processing capability much more effectively. The aim, in short, is to capture the interest of the listener. As with a good drama, effective lectures "hook" their listeners' attention from the start.

Suggestion: Raising a question to be answered by the end of the hour

Example: By the end of the hour, you should be able to answer the question, "Are lectures better than discussions?"

Suggestion: Explaining the relationship of the lecture content to professional career interests, the real world, etc.

Example: Today's lecture is about the cost of living indices, a topic in macroeconomics that should help you understand the recent discussions in Congress related to inflation.

Suggestion: Relating lecture content to previous class material

Example: For the past week we've been occupied with the history of the live theater. Today, we'll be looking at film history, and we'll spend the rest of the week comparing the two forms.

Suggestion: Telling students how they are expected to use the lecture material

Example: Today, I'll offer a specific model of evaluation and illustrate its applicability in several different kinds of settings. When you meet in your discussion groups later this week, you'll be asked to apply the model as you discuss the Brown vs. the Board of Education *decision.*

Some other ways to start a lecture include:

- Telling a personal anecdote or a relevant funny story or joke
- Providing an overview of the lecture
- Giving the lecture an intriguing title

The Body of the Lecture

In the body, instructors can allow for some flexibility in the amount of content to be presented in order to respond to students' questions and comments. It is imperative for the lecturer to determine the key points to be developed during the class session and not to present nuances and minute detail to the extent that students lose sight of the main idea. Instructors should not feel pressed to cover everything, since an effective lecture uses varied pacing to help students make critical discriminations between important concepts and trivia. Many researchers suggest that the individual lecture should cover only four or five main points that are made explicit to the students. The body of the lecture must, of course, be well organized. Organizing the lecture can be done in a number of different ways; the most appropriate will depend on the subject itself as well as on the lecturer's personal approach. Here are some examples:

Cause and effect: Events are cited and explained by reference to their origins.

Example: One can demonstrate how the continual revolutionary movements of the late 1700s affected British politics at the turn of the century.

Time sequential: Lecture ideas are arranged chronologically.

Example: If lecturing about the steps in a clinical supervision model, talk about the initial step to be taken, the second step, and so forth.

Using an organizational idea to structure the lecture.

Example: Today we'll view all these methods from a perspective of validity.

There are many other organizational possibilities. One can state a problem and then offer alternative solutions; arrange lecture topics according to their importance, familiarity, or complexity; or offer a two-sided "compare and contrast" presentation.

The body of the lecture can help the students understand the way in which the points are organized. After stating major points verbally, it is a good idea to put them on a handout or write them on a board or an overhead projector. Complex points are easier to explain if the instructor:

- Uses an appropriate vocabulary level.
- Uses a variety of illustrations.
- Includes essential content before "nice to know" content.
- Restates points after illustrations.

Examples should be included in the lecture because they help people to understand things. Illustrations or examples will work best if they include some of the following qualities:

- Precision (fit the idea well)
- Relevance (fit the context well)
- Ingenuity
- Interest

- Novelty
- Humor
- Scholarship

Lecturers might try to provide a break in the information output every 10 minutes or so to maintain attention. These are good times for anecdotes, visuals, humor, questions, and the like.

The Conclusion of the Lecture

McKeachie (1986) says that in the conclusion of the lecture one has the opportunity to make up for any lapses in the body of the lecture. He also notes that by asking questions themselves, instructors can encourage students to formulate their own questions, thus facilitating memory and understanding. The prospect of unanswered questions to be treated in future lectures creates anticipation of the future. Other possibilities for concluding a lecture include:

- Restating the main points by using a new example, asking for the main points, and showing where the class is now.
- Asking a student to summarize the lecture's key ideas.
- Restating what students are expected to have gained from the lectures.

Instructors can stimulate discussion and increase interaction after presenting a lecture or large amount of content by pairing up students and giving them two to three minutes to react, respond and raise questions or issues about the material just presented. Instructors can ask for volunteers to report the issues or questions raised in their dyads.

Another option for broadening the circle of discussions is to call on pairs that include individual members of social groups (e.g. women students, students of color, etc.) who may not be getting much "air-time."

Choosing a Format for Lecture Notes

There is no easy answer to the question of what kinds of lecture notes work best; it depends on the individual. According to Ruth Day (1980), lecture notes vary widely as to the amount of information they directly display, the extent to which they rely on overt organizing structures, and their general formats. As lecturers become more experienced, many find that they become less reliant on notes.

Verbatim Notes

One option is a verbatim script of the lecture, from complex points to the closing words "have a nice evening." Some of the drawbacks of this approach are:

- that the lecturer is encouraged to use language more appropriate for the eye than for the ear—such as long and syntactically complex sentences.
- that lecturers may simply read the words without regard for the thoughts expressed or read from the wrong page by mistake.
- that both lecturer and students may become disengaged and remote from the material, and that students may become discouraged from asking questions and making comments.
- that verbatim notes require a great deal of preparation time.

One advantage of this approach, however, is that verbatim notes allow lecturers to decrease the number and complexity of things they need to think about while teaching. This may be particularly important for beginning teachers.

Outlining
One widely used format for lecture notes is the outline. This is the style of notes recommended most often by expert lecturers. Outlines have many advantages. If one is used, the instructor will need to form new sentences in class since the notes will merely express thoughts in simple phrases. The result is likely to be language devised for the ear rather than the eye. The lecturer is also more likely to speak with appropriate intonation. Seeing what is ahead at a glance makes it easier to work out what to omit if time is short and to judge which points can be embellished if it is long. Lecturers using outlines need not be as tied to a podium. There are disadvantages, though. If the instructor is not very fluent in front of an audience, um's and er's may result, along with a lot of fumbling. There is also an increased danger of not making the points of connection clear to the students.

Some lecturers simply jot down the major points in the order they want to discuss them. The advantages are similar to those of the more formal outline approach, but there is a danger of forgetting why a specific phrase or example was included. This method necessitates a very firm grasp of the material. It is most appropriate if used as a memory aid to recall a detailed set of notes that perhaps used to exist.

Nonlinguistic Formats
An alternative to linguistic formats is the use of "tree" diagrams, computer flowcharts, and the like. Another choice is a pictorial format, which includes all nonlinguistic symbols to be found in lecture notes. Some points work wonderfully well as pictures; others are extremely difficult to represent in a nonlinguistic form. Nonlinguistic formats have disadvantages similar to the other non-verbatim forms of notes already discussed.

A final possibility is a mix of all these options that reflects the special strengths and weaknesses of the individual teacher. Instructors are advised to assess what needs they want their lecture notes to fill and whether they prefer to work with linguistic or nonlinguistic notations. Once the overall format is chosen, the instructor may wish to examine the other possibilities to determine if they can be used to supplement it and produce a more effective format.

PRESENTING LECTURES

For many students, memorable lectures are those presented by instructors with a flair for a vivid, exciting style of presentation. No matter how well structured and carefully prepared a given lecture may be, the importance of the way it is actually delivered cannot be overemphasized.

Improving Presentation Techniques

Oral Delivery

1. It is advisable to vary speech rate, volume, and pitch. Important ideas can be cued by slowing down and leaving pauses. Students usually take notes at less than one-fifth the rate at which most lecturers speak.

2. It is important to enunciate clearly and to speak loudly enough to be heard. In the very first class instructors might suggest that people—especially those at the back—signal if they cannot hear.

3. Repetition of pet words or phrases (e.g., uh, okay, all right, you know) should be avoided.

4. Instructors can feel free to let their sense of humor show. However, be particularly cautious with jokes; it is easy to offend unintentionally. Jokes at the expense of the students or jokes that offend the reasonable sensibilities of the group should be avoided.

Gestures

1. Establishing and maintaining eye contact with students usually makes for better communication. Good lecturers speak to the students and not to the chalkboard, walls, notes, or floor.

2. It is appropriate to use gestures and physical movements that complement verbal statements and teaching style (e.g., looking at students while asking for student questions).

3. Distracting gestures or physical movements (e.g., grooming, pacing, straightening tie or notes, playing with beard, etc.) are best avoided.

Atmosphere

1. Enthusiasm is important. If the teacher does not think the material is worth learning, why should the students?

2. The lecture room may need adjusting for physical comfort (chalkboard, lights etc.). If there are physical problems with the classroom, the Physical Plant department can help.

3. Effective teachers often cultivate an informal classroom atmosphere. They try to build a rapport with students during the lecture so students feel drawn in close to the speaker and consequently ready to listen. One suggestion is to come down from the lofty podium, lean against the wall, or pull up a chair and join the class.

A final point: Lecturers should not let their students tyrannize them (through packing bags, talking, or moving around) into cutting the lecture short. Herr (1984) suggests that instructors make a remark designed to refocus student attention:

> (With a smile): 'You have four more minutes for which you have paid, and I shall end promptly, so just wait to grab your backpacks.' Another trick for the end of class is the creation of suspense, which can be accomplished in a variety of ways such as posing a question. One should make sure that there is no consistent verbal or nonverbal cue signaling the end of class, which will cause the students to lose attention. Such a cue might be the return to the podium, gathering of papers,...or a variety of other gestures or phrases.

Soliciting and Responding to Student Feedback During Lectures

Here are some suggestions:

1. Looking at one's listeners provides all kinds of information. Most people provide a multitude of nonverbal clues (such as rustling or facial expressions) about whether they are paying attention, whether they understand, and whether they agree.

2. It is crucial to solicit questions. Even if all the instructor does is pause, look around, and ask if there are any questions, he or she will have significantly added to the effectiveness of the lecture. An instructor may check for student understanding by asking general questions such as "Do you have any questions?" or "Is this point clear to you?" The instructor may also ask more focused questions of an individual or small group. Another strategy is periodically to ask students to summarize a major point of the lecture in their own words or to identify one or more main ideas of the lecture. These techniques not only increase interaction during the lecture, but also allow students to assume more responsibility for learning.

3. Discussion techniques can be used. There are many ways of involving students, even in huge groups. Instructors can use show of hands to get a discussion started. It often works to call on a student with the correct response and have him or her explain.

4. Praise is an important tool in classroom give-and-take with students. Making positive comments when warranted has been shown to increase learning.

SUPPLEMENTING LECTURES WITH INSTRUCTIONAL MEDIA

Instructional media used effectively can help emphasize important concepts within the lecture and can stimulate student interest and prevent boredom. Davis and Alexander (1977) found that instructional media can create an emotional response among students and generally motivate students to learn.

Some examples of instructional media include the chalkboard, flip charts, magnetic or velcro boards, models, printed diagrams or illustrations, audio tapes, transparencies on overhead projectors, computer software, videotapes, 16 mm film, maps, slides, and film strips. The course objectives should determine the choice of media and not vice versa.

Although instructional media may seem, and often are, a fun way to improve every lecture, it might be remembered that these materials are only as good as the thought and preparation that preceded their use. And good instructional media, like good lectures, are notorious for the amount of initial preparation time they swallow up. Once one has developed instructional media, however, they can be used over and over again.

General Presentation Techniques

The following presentational hints apply to a variety of instructional media:

1. Visual aids should augment the presentation; they are not meant to *be* the presentation.

2. It is important to be able to give the lecture without visual aids. Equipment may arrive late or not arrive at all. Also, something may go wrong or break down.

3. It is imperative that all of the instructional media are previewed before they are used in class. This will familiarize the instructor with content and structure, as well as ensure that no mix-ups occur.

4. Visuals are best kept simple, with minimal wording. They should always be readable from a distance, so it may be necessary to enlarge graphics and printing when reproducing from texts. The teacher can practice using the visual aids in the actual classroom before the lecture begins.

5. The audience's line of vision should not be obstructed.

6. Visual materials should be put on only when the instructor is ready to use them and kept visible until the students have finished taking notes. The instructor is advised to remove them when she or he plans to talk about something else. Some blank slides can be inserted within a carousel to signal times for discussion or to note a subject change.

7. Effective teachers talk to the students, not to the visual aids.

Using the Chalkboard

The chalkboard is probably the most widely used example of instructional media, and almost all Wright State classrooms have one. The following hints may be useful:

1. It is advisable to bring one's own chalk and to carry plenty of spares. Colored chalk is useful to highlight important aspects of the lesson.

2. When planning the lesson, instructors might include a board plan that determines which aspects of the lesson will be illustrated on the board. They may also map out plans for the board before class. One possibility is to come to class early and lightly outline any sketches that will be used. When the appropriate point in the class arrives, the instructor can simply draw heavily over the outline.

3. Good teachers write neatly and horizontally, making sure handwriting is large enough for the students to read. It is useful to look critically at what is on the chalkboard from the point of view of the students in the class. Scrawling or excessive, incomprehensible abbreviations tend to be especially problematic.

4. It is important to remember that unless the classroom is sloped, students seated toward the back of the room will not be able to see the bottom of the board. If the instructor sits briefly in the back row of the occupied classroom, it will be evident how far down the board one can go. It is a good idea to mark this point with a piece of chalk. Also, it is advisable to check for any intervening obstacles (such as an overhead projector, lectern, table, etc.) that may prevent students from seeing the board. To keep the board visible for the longest possible time, instructors who are left-handed can fill the right panel first; those who are right-handed can fill the left panel first.

5. It is necessary to give the students time to copy what has been written. It is easy to erase material much too quickly. Instructors might remember that it is difficult for students to think while they are copying from the board. People need time to catch up before the beginning of a classroom discussion. Instructors are advised to avoid modifying the board work while students are in the middle of copying it down.

6. The board is best used for essential information, not for everything the teacher wishes to say. Board work must be organized so that students later will be able to interpret their notes.

Using Overhead Projectors

The overhead projector is a versatile tool that can be used in normal room lighting, and it allows lecturers to face their audience. Instructors might be aware, however, that students' learning will not necessarily improve simply by using an overhead projector.

Instructors will find an overhead projector in a good number of their classrooms. If a scheduled classroom does not contain one, a projector can be ordered from The Center for Teaching & Learning. The overhead projector uses inexpensive plastic transparencies.

The following tips may be helpful:

1. Overhead transparencies work best if they are prepared *in advance* and placed on the machine during class time. They tend to be much less effective if the instructor writes as he or she goes (the chalkboard is more suitable for this approach), and there is a danger of their merely becoming a prop for the teacher who is nervous of interaction. One exception is when overheads are used as a way of recording a variety of student responses to an open question - this allows the instructor to visually group

arguments and opinions to better focus the discussions. Left-handed instructors, however, should note that their left hand will continually be covering the script as they write. This problem can be circumvented by asking one of the right-handed students to record the responses.

2. It is important to limit the amount of information displayed on an overhead, which should not appear cluttered or crowded and must be easy to read. Six words per line and six lines per transparency is about the maximum amount of writing desirable. Overheads do not work well as a means of regurgitating all of a textbook. Predetermined outlines tend to work best, especially if they contain clearly defined headings and several different colors, allowing the instructor to make verbal amplifications.

3. Overhead projectors can display a great deal more than just writing. Slides are a possibility, as are silhouettes and small, opaque objects. Computer laser printers can usually handle transparencies and often produce excellent results. Enlarged newspaper articles and other print materials can be copied by putting the blank transparency in a photocopier. The Educational Resources Center can help design effective graphics for overheads, and it is also possible, through a special liquid crystal display panel, to directly project a normal computer display onto the large screen. The Center for Teaching & Learning can provide the equipment, hook-up assistance, and further information.

4. Students can be given blank overheads - either in class or to take home - that can be used in formulating assignments for in-class presentation.

5. It is appropriate and enjoyable to be creative with an overhead. Color works well—especially as a means of emphasis—as does inventive use of white space. Cartoons are an excellent way of simplifying complex ideas and adding humor. With a little effort spatial, statistical, and structural relationships can all be visualized on an overhead.

6. It is important to point down at the overhead instead of at the screen. Standing in front of the screen puts glare in the instructor's eye, blocks the screen, and works against one of the advantages of the technology, which is to allow the instructor to face the class when pointing to text material.

7. The projector is best turned off when the instructor is not directly referring to the overhead; the sound and the light are distracting.

8. Many instructors use a piece of blank paper to cover part of the transparency so that only the point being developed is revealed. It is also important never to leave a transparency on the screen so long that it becomes boring.

Using Video in the Classroom

Video can be quite effective and very easy to use in the classroom. Why ? - because video has the ability to communicate complex processes or abstract concepts in a relatively short period of time and in an engaging manner. However, video doesn't just convey content, and doesn't merely tell a story. By combining moving images, sound, graphics, and text, video creates drama. If that drama is successfully tied to and integrated with course content, it can help students remember the information for much longer periods of time.

Where do I get video material to use in my classroom?

The Center for Teaching and Learning (CTL) can videotape television and cable broadcasts for use in the classroom (federal copyright law and 'fair use' guidelines apply). The CTL also subscribes to several

educational satellite services that can also be videotaped for your use in the classroom (e.g. modem languages, math, and science programming). For more information about these services or to request a taping, please call the CTL at 775-4568. All requests for television, cable, and satellite tapings must be made at least 24 hours in advance.

The CTL can videotape your students in-class presentations. These tapes can, in turn, be used as assessment tools (e.g. for presentation critique or to measure progress throughout the quarter). Please call 775-3688 for more information about this service.

- The Dunbar Library has extensive, educational, video holdings that can be checked-out for use in the classroom. For information about searching these video holdings, please contact the Information Desk of the Dunbar Library at 775-2925.

- If you have a specific need, and the commitment, to create an original instructional video, the CTL is home to a number of creative and seasoned video professionals who can help you accomplish this goal. This service includes original production for playback on VCR, for use within CD/DVD projects, or for on-line display. If you'd like to discuss your instructional video idea, please call George Frey at 775-3685

How do I obtain a VCR and TV monitor for use in my class?

Many classrooms are equipped with a VCR and monitor to accommodate video playback. However, if your classroom is not so equipped, please call the CTL at 775-3162 to request a VCR and monitor (requests must be received *no later than* 2:30 p.m. on the preceding business day). On the scheduled day and at the appointed time, the equipment will be delivered to, set-up in, and picked-up from your classroom. It's that easy!!

Tips for Using Video as a Teaching Tool

- Before viewing the video in class, present students with a list of concepts, main points, or issues they should be looking for as they watch. This will guide students' in-class viewing habits, transforming them into active, thinking, and discerning media viewers.

- To establish relevance between the video and course content, plan follow-up activities such as a writing assignment, in-class discussion, or internet/listserve chat. Asking students to tie what they've seen with what they are studying will engage and develop their critical thinking skills - the secret to moving information from short-term into long-term memory!

- For longer video programs, consider showing the video in shorter segments. This "chunking" of content helps establish the information that is salient, promotes "active" viewing on behalf of the student, and provides frequent opportunities for interactive discussion and/or feedback.

Web Enhancement

Web-enhanced courses provide students an opportunity to engage in learning activities outside of class meeting times. For instance, the use of an electronic bulletin board allows students an opportunity to discuss topics in a flexible, asynchronous environment. The threaded feature of the bulletin board makes it easy for students to follow the progression of the discussion and without the pressure of classroom spontaneity, students can craft thoughtful, well supported responses. Access to chat, e-mail, multimedia presentations, and Internet sites can also be made available to students in a web-enhanced course. However, web-enhanced activities are only as beneficial as the instructor makes them. To be fully utilized by students, web-enhanced activities need to be an integral part of the course.

Using Multimedia

Developments in technology continue to provide a variety of other media to make classroom applications more varied. The Center for Teaching and Learning can acquaint teachers with the various developments in interactive video, videodisks, computer-based instruction, and other instructional media.

USEFUL SOURCES ON LECTURING

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The preceding chapter has been adapted from a variety of sources by faculty members at The Ohio State University. Particular acknowledgment is made of the workbooks and advice papers on lecturing prepared by the Office of Instructional Resources at the University of Illinois, Faculty Evaluation and Development at Kansas & State University, and the Center for Teaching Effectiveness at the University of Texas.

4 ENCOURAGING ACTIVE LEARNING

To have knowledge is to make it, to construct it, not to record, absorb, or memorize it. Teaching is not simply telling.

Martin Bickman
Active Learning in the University

Traditional metaphors for learning that depict a student as an empty vessel or a blank slate to be filled with knowledge are reflected in classroom practices that call for the teacher to be active and the student passive. The lecture is the standard method of instruction in higher education, reinforcing the notion of knowledge as a product to be passed from a teacher to a student. These metaphors and practices have exerted a strong influence on the ways in which we think of teaching and learning in the college classroom. Studies of classrooms show repeatedly that nearly 90 percent of time in college classrooms is filled with teacher talk.

Recently, new challenges to traditional practices and ways of thinking about learning have been raised. National reports criticizing higher education have called for the use of instructional strategies that more actively engage students in learning and that help them to acquire better skills in writing, speaking, thinking critically, and solving problems. Cognitive scientists are arguing for new conceptions of learning, emphasizing that knowledge is not passed intact from a knower to a learner, but is actively constructed by learners who draw on their previous knowledge, mental processes, and experience to integrate new information into their knowledge base in ways that expand their knowledge and influence subsequent learning.

This section will talk about ways in which instructors can engage students actively through integrating active learning strategies into a lecture or using them as stand-alone methods. The main focus will be on discussion, writing, laboratory instruction, and other strategies for active engagement.

LEADING EFFECTIVE DISCUSSIONS

A highly effective way of promoting active engagement in learning is to provide opportunities for students to verbalize what they are learning in the classroom. Instructors are thus able to provide the feedback that is such an important part of the learning process at the time when it is most needed.

Discussion techniques are one way to get students to verbalize what they are learning. In addition, discussions can provide a socializing mechanism, examine and clarify confusing concepts, and raise value questions. Discussions can be invaluable for any of the following goals of instruction:

1. To help students learn to think in ways that are particular to the discipline.

2. To help students learn to identify and evaluate the logic and evidence that form the basis of their own and others' positions.

3. To give students opportunities to formulate applications of principles.

4. To help students identify, formulate, and solve problems using information gained from readings, lectures, and/or life experiences.

5. To use the resources of members of the group.

6. To gain acceptance for information or theories counter to previous beliefs of students.

7. To develop motivation for further learning.

8. To get prompt feedback on how well objectives are being attained.

Setting Discussion Objectives

Well-defined objectives are an important prerequisite to a good discussion. They also help determine what kind of discussion is appropriate for the situation. It helps to view discussions along a continuum from *targeted* discussions, where the instructor carefully controls the discussion and asks questions requiring specific responses, to *open-ended* discussions, where the instructor allows the students to formulate the questions and control the discussion. If the objective is to assess students' comprehension of course material or review or summarize content, targeted discussions will serve best. If the objective is to promote critical thinking, curiosity about the topic, or tolerance for opposing viewpoints, open-ended discussions are most appropriate.

A key difference between a targeted and open-ended discussion is the kind of question asked. Questions asked in a targeted discussion are often structured to produce short, specific responses. Questions in an open-ended discussion provide more latitude for response. Some examples are below:

Targeted questions:	What is the definition of patriarchy?
	What are the stages of cell division?
Open-ended questions:	What are some ways we might solve the energy crisis?
	Given the medical data before you, how would you go about diagnosing this patient's problem?

In targeted discussions, the instructor wants to keep a fairly tight rein on the direction. In addition to using targeted questions, other ways in which the instructor can focus the discussion include intervening after each response to comment upon it, summarize it, or redirect the question; mapping the direction of the discussion on the blackboard or overhead transparency; limiting the duration and number of responses; and moving quickly from one question to another. In contrast, the instructor in an open-ended discussion would act differently by using broader questions; allowing ample time to respond; encouraging a lateral rather than teacher-directed response pattern (e.g., "Does anyone have a comment on X's response?" or "Feel free to jump in and respond to each other"); and reducing his or her role as authority by sitting down or remaining quiet.

Although the type of discussion questions must be tied to the purpose of the discussion, there are findings to indicate that questions that are middle-range in their openness elicit a greater number of responses. John Andrews writes, "Perhaps the most important quality to grasp is a subtle blend of structure and freedom which gives a discussion momentum and yet does not let it wander indiscriminately" (1980, p. 147). In a study of questioning behaviors, he found that when instructors used what he called "playground" questions—questions that designate the intellectual sphere for discussion and then give students latitude for answering—they got better results than when they asked very open-ended "brainstorming" questions, targeted "quiz show" questions, or highly unfocused "general invitation" questions, such as "So what do you think about Plato?"

Building Rapport

Perhaps nothing is more important to a good discussion than good rapport between instructor and students. Some behaviors that promote the establishment of good rapport include: willingness to share personal experiences;

willingness to admit uncertainties; openness to new ideas; ability to suspend one's judgment of others; ability to listen carefully to others' statements; tolerance of opposite points of view.

The first day is especially important in building rapport since students are looking for clues to an instructor's temperament and priorities. Instructors who emphasize that discussion will be an important part of the course influence students' expectations. Some instructors go on to define the criteria for receiving full credit for class participation, including such items as "integration of class experiences and materials, the development of pertinent ideas, insights, or points of view, the sharing of exemplary experiences, asking of crucial questions, or building on provocative points made by others" (Barnes-McConnell, 1978, p. 67).

But perhaps the most important ways to build rapport on the first day are more subtle. In order to set up a supportive environment, some instructors start the first day with activities designed to break the ice and get students used to speaking in front of the group. In a smaller class, they might ask students to share their names, home towns, academic majors, and/or a question they would like the course to answer. Some instructors have students break up into pairs and share this information with each other. In larger courses instructors might ask the same questions, only using a show of hands, e.g., "How many of you are from central Ohio? How many from the South?" Instructors get the best results when they offer personal information about themselves to get the discussion rolling. They might, for example, talk about their personal and professional backgrounds or their initial experiences with the discipline.

Setting Ground Rules

Establishing ground rules can be a way of having students take ownership of the concept of co-creating a classroom environment conducive to learning. By gaining class consensus on ground rules from the outset, teachers can be assured of student support and participation in their enforcement; and many of the most common behavioral problems can be avoided. Here are some issues to ask students to consider when forming ground rules.

1. *Participation.* Instructors can ask students who tend to monopolize discussions to self-monitor and make room for quieter students. At the same time, instructors can encourage students who tend to be quieter to contribute to the learning by sharing their perspectives and experiences. Additionally, rather than generalize and say "those people" or "don't you think," students should be encouraged to use "I" statements and speak from their own experiences. Personalizing discussion invites diverse perspectives from students—such as gay, lesbian, and bisexual students; nontraditional-age students; and students of color—who often find themselves on the fringe of university life.

2. *Confidentiality.* Instructors can encourage students to take concepts and ideas from class and discuss them freely; however, they should suggest that personal stories or issues raised by individuals are to be kept confidential as the property of the class.

3. *Respectful listening.* If someone raises a point that others disagree with or find offensive, instructors can remind students to give respect to the human being behind that question or comment. Instructors can encourage students with differing points of view to refrain from comment until they have given careful consideration to what is being said.

4. *No zaps*. Tied to the notion of respect is the ground rule of no put-downs in class, not even the humorous variety called "zaps." To "zap" one person often serves to discourage open and honest exchange of ideas among the whole group.

Getting Discussions Started

There are many different techniques for leading discussions, from the most nondirective to the most programmed. Here are some ways to get discussions moving:

Start with a common experience. One of the best ways to start a discussion is to provide a concrete, common experience like a demonstration, film, or role playing. Following such a presentation it is often easy to ask a relatively *open* question such as, "What are your immediate reactions?" or "Does anything in this film disturb you?"

Start with a question. The instructor can ensure that the students' questions are answered by asking them to submit written questions in advance of the session. Once the first question has been asked and responded to, further questions come easily. The trick is to phrase the first question as well as possible. In generating a long discussion, it may be helpful to start with an open question. If the initial question does not elicit a response, the instructor can wait at least ten seconds before rephrasing the question or can offer an example. Instructors rarely wait long enough for student responses.

Start with a controversy. One of the best ways to create a hot discussion is to pose a controversial issue and ask by a show of hands how many students take one side or the other (e.g., "How many of you feel that . . . is true? How many feel it is false?"). To control the discussion, ask for five statements of evidence or argument from each side, then statements of rebuttal. Write these statements on the board. One of the easiest ways to create controversy is to play devil's advocate when a class comes too quickly to agreement on a complex issue. Students should later be informed that the position was taken for purposes of discussion.

Place students in buzz groups. In this procedure, classes are split into subgroups for a brief discussion of a problem. Groups can be asked to come up with one hypothesis that they see as relevant, with one application of a principle, or with an example of a point. In order to make this method effective, students must be given a clear task, a definite amount of time in which to do it, and time for a follow-up discussion in which they report their conclusions.

Ask for responses in writing. One excellent way to get discussions going is to ask students to respond in writing to the question you wish answered. Usually five minutes is enough time for students to prepare their answers. Encourage them to write freely without concern for form, punctuation, or grammar. Often quiet students will speak up if they have words before them, and written responses often lead to more reflective discussions.

Maintaining Discussions

Keeping a discussion moving and on-track can be challenging and often means dealing as smoothly as possible with the problems that arise. This section will present some positive methods for managing a discussion and for handling difficult situations

Strategies for Managing Discussion
During a course the instructor can promote an atmosphere of trust and rapport and keep a discussion moving with some of the following verbal and nonverbal cues.

Verbal Cues

1. Can you think of a situation in which this notion might apply? Might not apply?

2. That's an interesting idea; tell me more.

3. I don't know either, but that's a very interesting question. Can anyone help us unravel ourselves here?

4. I'm not sure I understand. Were you saying that the survey questions were too personal? Can you give me an example?

5. Feels to me like we've kind of strayed from the point. Have we?

6. Let's not forget the basic problem we're trying to solve.

7. What's the first step?

8. Other affirmations, such as "yes," "very good," "exactly," etc.

Nonverbal Cues

1. Showing enthusiasm when listening to student responses by smiling expectantly and nodding as the student talks.

2. Keeping eye contact with the student who is talking.

3. Walking toward the person who is talking, even if there is only space to take a few steps in any direction.

4. Walking around the room throughout a discussion so that students will view people in different parts of the room.

5. Looking relaxed by leaning against the wall, sitting on a desk, or pulling up a desk or chair and joining the class.

6. Arranging students' chairs in a circle or in a configuration in which they can see each other talking.

7. Standing by students who have not contributed to the discussion. Proximity may draw them into the conversation (though in some cases, the proximity might make them more uncomfortable).

Strategies for Handling Problems in Discussions

Here are some common problems and suggestions for how to deal with them:

The student who won't talk. Several of the ideas mentioned previously can be helpful in dealing with class members who may be reluctant to engage in class discussions. Establishing clear expectations for participation and then reinforcing that participation with positive verbal and nonverbal cues can be very important. Additionally, using small groups or having students write responses can be helpful in "warming up" reticent participants before beginning the larger class discussion.

The student who talks too much. A way to handle the avid talker and pull in nonparticipants is to avoid looking in the direction of the one speaking or to move the discussion toward other students. For example, the instructor could say, "Your perspective is very interesting; let's hear from some of the rest of you." Instructors might also ask one or more members of the class to act as observers for a few class periods, reporting back their observations to the class. Perhaps assigning the avid talker to be the observer would help develop their sensitivity. Another technique is to talk to the student individually outside of class.

The discussion that turns into an argument. In good discussions conflicts will often arise. If such conflicts are left ambiguous, they may cause continuing trouble. Here are some ways to resolve them:

1. If the conflict hinges on facts, the instructor can ask students to refer to the text or another authority.

2. If there is an experimentally verified answer, the instructor can use the opportunity to review the method by which the answer has been determined.

3. If the question is one of values, the instructor may use the occasion to help students become aware of the values involved.

4. The instructor can list both sides of the argument on the board.

5. The instructor can take a strong position as moderator, preventing students from interrupting each other or speaking simultaneously. She or he can remind students of the ground rules they agreed to earlier.

Unclear or hesitant comments. The instructor can encourage a student who has made an unclear contribution to give examples, or the teacher might paraphrase the student's response to make sure the student's meaning is understood. The instructor can also encourage students with hesitant comments by using enthusiastic nonverbal cues and patience.

The discussion that goes off track. Some instructors keep discussions on track by listing the questions or issues they want to cover on the board or summarizing the discussion on the board as it proceeds. Instructors could also stop a discussion that seems to be going off track and ask a student to summarize. Several of the suggestions under "Strategies for Managing Discussion" may also help.

The student who attacks the instructor. When students argue for the sake of argument, instructors will almost always lose if they take the bait. This situation often occurs when instructors are going over exams or assignments. Students who attack may want attention, so simply giving them some recognition while firmly moving on often takes care of the problem. If students are simply trying to embarrass the instructor, they may seek to make him or her defensive with such comments as, "How do you *really* know that . . . ?" or "You're not really saying that . . . ?" Such questions can be handled by playing boomerang. The instructor might say, "What I'm saying is . . . , but what's *your* perspective?" Turning the question back to the questioner forces him or her to take responsibility for his or her opinion. Other ways to handle these situations include:

1. *Confrontation*. Instructors can confront the questioner with their reactions to his or her behavior. "I am uncomfortable with the indirectness of your questions. What I really hear you saying is . . . ."

2. *Active listening*. Instructors can paraphrase the message they heard and check out the accuracy of their assumptions before responding.

3. *Locating*. Instructors can ask the questioner to explain the context behind the question. "What is the issue as you see it, and what makes this a concern for you?"

4. *Reframing*. The focus can be on clarifying the assumptions behind the person's argument and then inviting her or him to see alternative possibilities. "Your argument is premised on the idea that people cannot be trusted. How would you restructure your position to reflect the assumption that people can be trusted?"

5. *Deferring*. Often, the best strategy is to invite students to come up after class and arrange a time to talk about the disagreement further.

Creating Closure

Good discussions end with a summary so that students know what important points were covered. In addition to showing students why the discussion was important to their learning, a summary provides the opportunity to fill in points that weren't covered and to praise the class for the quality of their responses.

INCORPORATING WRITING IN INSTRUCTION

Recently, writing has been recognized as an important vehicle through which people not only communicate ideas but also generate them. Writing, then, can be used as an inherent part of learning, creating occasions for students to fit new information into their existing knowledge structure and to expand their ways of thinking. Additionally,

the development of writing skills has been recognized as an essential accomplishment of a college graduate for which all instructors, not only those in English departments, have responsibility. Therefore, writing should take place in courses throughout the curriculum.

Many instructors do not feel they have the specialized training necessary for incorporating writing in their courses. They are also reluctant to add the grading of great amounts of written work to their existing workload. Fortunately, experts in the field are able to provide reassurance on both counts. The emphasis on writing as process stresses the role of the instructor as a facilitator of the thinking process rather than as "guardian of the semicolon," the technical expert on points of grammar. Suggestions for setting and responding to writing assignments in ways that engage students without creating excessive burdens on the instructor are also available. They revolve around two main thoughts:

1. *Writing assignments need not be formal or lengthy.* Writing as a medium for actively engaging students in learning can be used as a tool for discovery and understanding in an ongoing way that is integral to course activities; for example, an instructor might ask students to take a minute to write down their ideas before they respond to a question posed in class. The instructor might ask students to write a short summary of what they learned in class or any questions that they still have about the material after class. Good writing assignments are meaningful, related to the goals of the course, clearly defined, and practical for both student and instructor.

2. *Not all written work needs to be graded*. In fact, instructors who always grade written assignments perpetuate the notion that writing is only an end product of learning, rather than a tool to be used in the process. Writing can be incorporated into the class to serve several different functions for the teacher, including providing feedback and assisting in class management. Writing also can be used as a way of helping students reflect on their learning, on themselves, and on their audience.

Here are a number of ways in which teachers can incorporate writing in their courses.

Journals

Journals can help students reflect on unresolved questions and conflicts raised for them in class and see how they have grown during the life of the course. These journals can also serve to personalize the classroom learning if they are turned in periodically or at midterm for instructor comment or response.

Instructors can suggest that students keep reading journals to chronicle their understanding of texts that they are reading for class. Students can be encouraged to write entries that reflect the main idea of the reading, major points that are covered, and the questions that they have after reading the text. To increase the level of cognitive activity involved in the reading assignments, instructors can suggest that students write about possible applications of the ideas, ways in which the material fits with other course readings and information, and their critical evaluations of the merit of the ideas or readings. Instructors may elect to review these journals periodically, reacting to points that they find particularly interesting, or they may view the journals as personal aids to scholarship for the use of the students alone.

The Précis

Instructors can ask students to write a brief summary of the major points of a reading assignment or class session. Often, teachers may wish to specify a certain word limit, such as 25 words, in order to stretch students' language skills and cause further reflection on the material. These may be used simply to help focus a discussion or for students' personal use. If collected, they may serve to check attendance or to motivate students to keep up with their reading. When collected, they may be graded very quickly. Elaborate comments do not have to be given if the précis paragraphs are viewed as formative documents.

Brainstorming/Freewriting

Instructors can ask students to jot down ideas very quickly in response to a given problem or stimulus. They should be encouraged to focus on generating ideas rather than worrying about the format that their writing takes. Brainstorming can be used prior to the introduction of new material to enhance discovery and curiosity. Instructors can ask students to guess the causes of a historical phenomenon before these are discussed in class; they may ask students to predict the results of a scientific experiment before it is demonstrated. The lists that result can be shared in groups or in class before the material is formally discussed. Brainstorming and freewriting can also be used as effective summarizing techniques. Students may be asked to compose "laundry lists" of things to remember when diagnosing a certain virus or analyzing characteristics of abstract art. They can compare lists to supplement their own with those of their classmates or to correct misinterpretations. Once again, these assignments are most effective when they are viewed as parts of the learning process rather than as end-point assessment devices.

Papers

Although the formal term paper can be a valuable learning activity for many courses, some instructors who once gave their students long research papers are discovering that assigning one or more five-page papers, usually requiring some sort of analysis of ideas or readings, is both easier to evaluate and more useful for their students' learning. To focus students' work, it is helpful to pose a direct question, e.g., "What problems do sociologists encounter in defining 'deviance'?" Instructors can also help by conveying as clearly as possible their expectations concerning the appropriate style and tone of the writing, the desired length, and the kind of documentation required. Exemplary papers from past offerings of the course can be made available for students' reference. If the assignment calls for a prescribed format, such as a laboratory report, an outline of the format or examples of good lab reports will help the students. Students may also be encouraged to look in scholarly journals in the discipline for examples of writing to use as models. When longer papers are assigned, instructors have found that requiring drafts in advance of the final paper helps students to pace themselves better and gives the instructor a chance to provide direction while the ideas are still in process so that the resulting final papers are of higher quality. Drafts also give instructors the opportunity to note stylistic and grammatical problems for students to correct so that they learn about writing while they are engaged in a specific revision task, rather than in the abstract.

A discussion of how to use writing in essay exams is contained in chapter five. A discussion of how to grade student writing is contained in chapter six.

USING OTHER ACTIVE LEARNING STRATEGIES

The following are some additional activities for engaging students in active learning.

Problem Solving

A traditional part of courses in such fields as mathematics and physics, the use of problems as a strategy for active engagement and practice has extended to other fields as well. Problem-based teaching involves structuring learning around some central questions or skills involved in the discipline. Often, however, the instructor's task is more elaborate than simply isolating good problems. An essential part of helping students to solve problems is the creation of an affective climate that is conducive to risk taking and the free exchange of ideas. Direct instruction in the techniques of problem solving is also often required for students who have not had much problem solving experience. The instructor will need to model how professionals in the field go about defining problems, gathering data, generating hypotheses, and supporting conclusions or solutions. In addition, researchers have found that effective teachers help students to be aware of their own problem solving strategies. Often, having students "talk through" a problem out loud or work in pairs or groups increases their problem solving skills.

Case Studies

Broadly defined, a case study is a teaching instrument that portrays a real life situation for student analysis. Case studies are used frequently in professional schools to enable students to develop their skills in analyzing situations and making sound decisions. Often, a prepared case can be used, but when new cases are developed, the instructor should focus on an important dilemma or issue, create enough detail for the students to comprehend the case, and choose a situation about which there is room for debate and for several possible courses of action. Students are asked to read the case before class. During the class session, the instructor first makes sure that the students understand the details of the case, then leads them through an analysis of the problem and discussion of possible alternative courses of action. The instructor serves as discussion facilitator, encouraging students to provide details, to support arguments with evidence, and to generate and critique solutions.

Peer Learning

Classes can be divided into groups of about five students with each group showing a range of abilities. The groups are given learning tasks that will require them to share knowledge and experiences. The task may be to answer some review questions, to pose some critical issues about a topic, to solve a problem, apply some principles, or create a product. If the groups are balanced well, the task is clearly outlined, and the allocated time is appropriate for the task, the group will engage in peer learning and increase their abilities to function in an interpersonal setting. The instructor's role is first to serve as designer by carefully structuring the groups and tasks and second to serve as facilitator while the groups are working, helping with interpersonal or task-related problems as they arise.

Learning Cells

Learning cells are a type of peer learning that can be used when it is important to have students verbalize what they have read. Reading assignments are given before class, and part of class time is spent with students in pairs telling each other what they have read. The students may have read the same material beforehand, in which case they are demonstrating their comprehension and recall and getting an opportunity to clarify their understanding with one another; or they may have been assigned different readings, in which case they can complement each other's knowledge with some different information or perspectives.

Discovery Format

In a discovery or inquiry format, the instructor sets up a novel situation, an interesting puzzle, or an open-ended question that students are asked to explore using their own creativity and resources. They may be asked to hypothesize, based on only partial information, about what building materials were used to construct an ancient building; they may be asked to construct a device for measuring something or making certain musical tones; or they may be asked to interview each other about what triggers depression in their lives. The instructor once again serves as designer of the activity, choosing activities that are likely to lead students to accomplish a learning goal, and as facilitator during the process, helping students to stay on course and to locate the resources they need. In the discovery format it is important for the instructor to stay as nondirective as possible so that students develop independence and excitement.

Role Playing

In many courses, role playing can be used to develop empathy; to enliven a historical, philosophical, or literary topic; or to provide a concrete enactment of an abstract topic. Volunteers are asked to portray certain roles and are given sufficient information on the context to enable them to improvise dialogue and actions. In some classes, the instructors have attended class in the role of a character and have enlisted colleagues to join them in enacting a situation for the students. The class is asked to play the role of those in the situation as well, asking questions or engaging in dialogue in ways that would be appropriate for the setting.

Class Debate

Using a central aisle or a real or imaginary boundary to divide the class space in half, the instructor poses a

debatable proposition and asks those who agree with the proposition to sit in one section and those who disagree to sit in the other. (The instructor may also want to create a third section for those who are undecided.) The instructor then moderates, asking students from one section, then the other, to support their positions. At set intervals of perhaps fifteen minutes, students are given the opportunity to move to another section, based on whether they have changed their positions through listening and participating in the debate. A variant on this theme is to have students argue for the opposite of their original positions by changing the section designations after the students have already chosen positions. The instructor is responsible for setting up the proposition, enforcing the rules of the debate, and summarizing the discussion and results of the debate.

Simulations

Simulations allow students to engage in learning activities that may otherwise be too time consuming, too expensive, or ethically questionable (requiring animals or intervention into human behavior). Using an established game or computer software or creating a scenario, the instructor develops a simulated environment within which students will engage in an activity directed toward a learning goal. They may be asked to set up companies and create mergers; they may be asked to develop marketing packages that they will present to a real or simulated client; they may be blindfolded to experience sightlessness; or they may be required to recreate a military battle or other historical event using a new strategy. The role of the instructor is to identify and preview established simulations for use in the course or to create scenarios that are likely to engage students in experiential learning directed toward a course goal. During the simulation, the instructor serves as a facilitator and manager, providing the structure necessary for completing the project on time.

USING ACTIVE LEARNING IN SPECIAL SETTINGS

Some instructional situations, by their very nature, involve active learning. Examples of such situations include studio classes, performance areas (perhaps where students are working on a creative project), field studies, or laboratory situations. While the dynamics of the student-teacher relationship and the criteria for improving it remain essentially the same as in traditional situations, working with students in active teaching situations is especially challenging, and an appropriate teacher-student relationship, clearly understood by both parties, becomes particularly necessary.

Teaching in the Lab

Here are some tips for teaching in the lab.

1. *Preparing for the lab.* When preparing a lab assignment, instructors might take a moment to view it from a student's perspective. It is important to look for ambiguities and poorly designed procedures that may give the students trouble and to think about whether they will understand the exercise. The best way for instructors to troubleshoot a lab is to do a trial run themselves.

   Instructors should also give attention to how the lab assignment will be introduced. Since time is always tight, it might be helpful to have students read through the assignment before coming to the lab so they can come prepared to begin. An effective oral presentation might be planned in order to introduce the lab to the students. This brief presentation should engage the students' interest in the assignment and include all the information needed to understand and complete the assignment.

2. *Teaching in the lab.* When teaching in a laboratory, it is easy to become a solitary figure at the front of the lab, doing nothing unless people approach with questions. A better strategy is to walk around and talk with students, acting as their guide. Students can be asked about difficult points from the lecture so the instructor will better know if they understand what they are doing. This way, the instructor can also help students prepare for their examinations. When offering information, it is important for the instructor to be wary of talking over the heads of some of the students, especially if the information is

pivotal to the basic understanding and completion of the lab exercise. Scientific vocabulary is a significant stumbling block; it is perhaps better to emphasize the concepts and gradually introduce the terminology that students should use to discuss those concepts.

Good teachers stay organized and help their students to be organized too. It is important to know where equipment and reference materials are located, to make careful note of any missing or damaged supplies and equipment and take care of the problem right away rather than waiting until the next lab. Checking on how students organize their data collection, written work, and drawings helps keep them on track. It is also useful to remind students how much time remains, what needs to be accomplished, and how much time they need to allow for clean up. Safety rules should be established, and the instructor should make sure the students follow them.

3. *Learning in groups*. It is often a good idea to have students work together, either formally or informally. In this way they can help each other learn the material, share equipment and preparation, and answer each other's questions. When students are working in groups, instructors are advised to check on the progress of each individual within the group, encouraging everyone to participate and making it everyone's responsibility to help their group members understand the material.

Teaching in the Studio

Studio situations present their own significant problems. Often, especially in performance areas, the role of individual judgment becomes extremely significant, and the teacher has some hard questions to answer before the course begins. For example, instructional objectives take on particular importance when a teacher must consider whether talented performers who do little work will be judged the same as less talented performers who must work hard to achieve the same level of performance (for further discussion of performance evaluation, see chapter six). Although much will vary depending on the precise instructional situation, the following guidelines may help:

1. *Planning the course*. The instructor is advised to determine in advance and clearly communicate to the students how such issues as talent, level of achievement, effort, and attendance will be viewed. One major dilemma is the relative importance of process and product in the course. Will the instructor feel that students have achieved the course goal if they demonstrate an excellent process, even if their final product is bad? Does the instructor care just about the quality of the art work produced, or is he or she equally (or more) interested in how the product was arrived at? Such issues require serious consideration before the syllabus is written. Whatever the decision, the instructor is advised to make sure all students have an attainable goal for the course, however much talent or inherent ability they may have.

   If process is of interest, the instructor needs to determine some way that it can be measured, both for evaluation and improvement, and build this into the course. Other than personal observation and assistance, dancers or actors might be required to keep a rehearsal log, or artists may be asked to keep a journal listing the dates and reasons for major breakthroughs in the project. Instructors might give quizzes on readings or require students to turn in rough drafts, plans, or outlines as ways of documenting process.

2. *Responding to student projects*. When giving feedback, it is important to do so constructively, especially when a student may have a good deal of emotional investment in a creative project. It is imperative to restrict criticisms to things that students can do something about and to help them overcome the barriers that appear insurmountable. It is the teacher's job to pull talent out into the open and not to make snap judgments. Some students will be obviously talented in the studio areas while others will have abilities that have not yet surfaced.

3. *Maintaining appropriate teacher-student relationships.* It is especially easy in performance areas for a teacher to take on the role of parent. While nurturing students is obviously important, it is equally important not to be patronizing about their achievements. Similarly, although students may be fellow artists at a difficult point in their careers, it is crucial to retain as much objectivity as possible when it comes to their performances and not to become too emotionally or personally invested in their creative growth.

Teaching Online

Online courses require diligent planning to be successful. Course goals and objectives, learning materials, student activities, and assessment procedures should always be carefully designed and clearly described so that students can plan their learning strategies and discover their own intrinsic motivation for learning. Planning for frequent, meaningful interactions among the course participants is another important consideration in designing an effective online learning environment. Without the personal contact that exists in a face-to-face classroom, online students can often feel isolated. To emulate the personal contact and to build strong learning communities, instructors can utilize group projects, discussion threads, chat sessions, and other activities to increase the interactivity in the course. Although the instructional planning of an online class may be more time consuming than in a traditional face-to-face offering, the results will be a quality course that pleases the students and the instructor and minimizes the frustration of both.

Working with Students in the Field

Here are some tips for working with students in the field.

1. *Choosing a field contact.* When students are working in the field (as student teachers or as interns, for example), the instructor is likely to see them only rarely. The number one point of contact for the students will be the person who is directly cooperating with them in their external activity. Selection of this important person needs to be made with great care, and it is crucial to enlist his or her full cooperation and to open the lines of communication before the student is sent out. The field contact should be made fully conversant with what is expected from the student, the present level of the student's ability, what methods of evaluation will be employed (and who will be responsible for them), and other details of the field experience.

2. *Preparing the student for the field.* Once again, it is particularly important to communicate course objectives and methods of evaluation to students. It is good to let them know how often someone will be coming to see them (although perhaps not when) and what will be noted. The instructor should remind the student that he or she can seek help and advice from the field contact person. Additionally, students with serious problems should know that they can contact their instructor at any point in their assignment without the contact being taken as an admission of failure.

3. *Making field visits.* It is appropriate for the instructor to initiate some contact with students in the field from time to time. Doing so could diminish the sense of isolation that they may be feeling.

   If the aim of a field visit is simply to watch the student in action, the observer can try to minimize the effect of his or her presence as much as possible. Inevitably, the student will be nervous, and those participating in the experience may also change their typical behavior. It is a good idea for instructors to tell students that they understand that this will likely happen. If the student is in the field for an extended period, there will be opportunities to make several visits, thus making it easier for the observer to encounter a typical student experience.

   One also needs to be wary of *creating* a difficult climate. For example, two evaluators who talk a great deal to each other during the field exercise can be extremely distracting to everyone who is participating. Similarly, there is a danger of undermining the authority of the persons working in the

field (once that has been destroyed, it is often impossible to recover). Criticisms, for the most part, are best delivered away from the field environment.

SUMMARY

The particular learning strategies and activities that are selected for engaging students actively will depend on the context of the specific course and on student preparation. Given the wide variety of strategies available, however, there are ways to introduce opportunities for active learning into every course. In addition to increasing motivation and providing feedback at crucial points, strategies that actively engage students help to develop the competencies of reading, speaking, writing, critical thinking, and problem solving that are marks of the well-educated person.

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5 CONSTRUCTING TESTS

One of the most important aspects of a successful learning experience is the opportunity for learners to play back to teachers their growing understanding of the facts or processes they are learning. Through this opportunity, they can articulate their growing knowledge and receive correction, if needed, from the teacher. At the same time, teachers can learn how effective they have been in facilitating learning for their students and can use this information to revise their instructional practices.

Different kinds of tests are appropriate in different settings. Performance testing is very important where the learning goals involve the acquisition of skills that can be demonstrated through action. In such areas as music, theater, art, dance, medicine, and physical education, much of the learning will be evaluated through assessment of actual performance. The more common type of test in college settings, however, is the pencil and paper test, about which much has been written.

Another kind of testing that can be helpful is diagnostic testing. As Svinicki (1976) points out, there are at least two kinds of occasions when testing for diagnosis is important. One is at the beginning of a course or a given segment of a course, when it is appropriate to assess what the learners already know about what is to be learned. At these times, a pretest can help the instructor to know the strengths and weaknesses of the learners and can suggest ways to modify learning activities accordingly. Another use of diagnostic testing is the administration of frequent short self-tests to enable students to judge their performance while they are learning. If constructed in such a way that they force students to become more aware of the thinking process they use, diagnostic tests can help students develop their skills. These tests can also provide the kind of rapid and frequent feedback that is so important to learning.

This section will first discuss general testing considerations, then give some guidelines for performance testing, and finally will focus on the paper and pencil test as it is used most routinely—for the purpose of assessing learning at the end of an instructional segment.

GENERAL TIPS ABOUT TESTING

- *Integrate test construction with course planning.* When designing a test, instructors should make sure that test items will measure progress toward the course objectives. In areas where written tests are used, instructors can compose test items as they plan each unit, rather than all in one sitting. Doing so helps to avoid fatigue later on and will result in items that are presented closer to the way in which the information was discussed in class.

- *Mix testing strategies.* It is often advantageous to mix multiple choice with true/false and/or essay questions on a written exam or to mix types of exams (a performance component with a written component). Weaknesses connected with one kind of item or component or weaknesses in students' test taking skills will be minimized.

- *Use practice tests.* It is helpful for instructors to test early in the term and to consider discounting the first test if results are poor. Students often need a practice test to understand the format each instructor uses and to anticipate the best way to prepare for and take particular tests.

- *Test frequently.* Frequent testing helps students to avoid getting behind, provides instructors with multiple sources of information to use in computing the final course grade (thus minimizing the effect of "bad days"), and gives students regular feedback.

- *Test appropriately.* It is important to test various topics in proportion to the emphasis they have been given in class. Students will expect this practice and will study with this expectation.

- *Be cautious about using tests written by others*. Often, items developed by a previous instructor, a textbook publisher, etc., can save a lot of time, but they should be checked for accuracy and appropriateness in the given course.

- *Develop a test bank*. If enough test items are developed and kept out of circulation between tests, it is possible to develop a test item bank from which known effective items can be reused on multiple versions or offerings of a test.

- *Avoid linked questions*. Generally, on either a written or performance test, it is wise to avoid having separate items or tasks depend upon answers or skills required in previous items or tasks. A student's initial mistake will be perpetuated in succeeding items or tasks, penalizing the student repeatedly for one error.

- *Try to reduce test anxiety.* Instructors have found that using a little humor or placing less difficult items or tasks at the beginning of an exam can help students with test anxiety to reduce their preliminary tension and thus provide a more accurate demonstration of their progress.

- *Check the test for mistakes*. Tiny mistakes, such as misnumbering the responses, can cause big problems later. It is important to proofread exams carefully and, when possible, have another person proofread them. Another good way to detect test errors in advance is by pilot testing the exam. Instructors can take the test themselves or ask colleagues and/or former students to critique it. Collation should also be checked carefully, since missing pages can cause a great deal of trouble.

- *Anticipate special needs*. The instructor should anticipate in advance the special needs of learning disabled students and nonnative speakers and decide whether students will be allowed the use of dictionaries, extra time, separate testing sites, or other special conditions.

- *Bring plenty of copies.* Instructors can avoid problems by bringing more copies of the exam than they think they will need. Having too few copies of a written exam can be a disaster.

- *Minimize interruptions during the test.* Instructors can minimize interruptions during the exam by writing on the board any instructions or corrections that need to be made after the exam has begun and calling students' attention to them. Before the exam, students can be informed that they should check the board periodically for instructions or corrections.

PLANNING THE TEST

A good test reflects the goals of the course. It is congruent with the cognitive or psychomotor skills that the instructor wants the students to develop and with the content emphasis that has occurred during the instruction. If, for example, the instructor has been mainly concerned with having students memorize a body of factual material, the test should ask for recall of this material. If the instructor has been trying to develop analytic abilities in the students, a test that asks for recall is inappropriate and will cause the students to conclude that memorization is the instructor's true goal. Similarly, if the instructor has focused on the War of 1812 in the majority of the class sessions and activities, this emphasis should be reflected in the test. A test that covers a much broader period will be regarded as unfair by the students, even if the instructor has told them that they are responsible for material that has not been discussed in class. Students go by instructors' implicit values more than their stated ones.

To plan a test consistent with their cognitive goals and their content emphasis, many instructors use a test matrix

or blueprint such as the one illustrated in Figure 1. Arrayed down one column are the learning objectives that the test is to test, and arrayed across the columns are the concepts or content element to be covered on the test. The instructor uses the matrix by checking those points of intersection that reflect the cognitive and content goals of the course or instructional unit and writing items or tasks accordingly. The matrix is sometimes used after the initial draft of a test has been written or composed to determine whether it is unbalanced in its emphasis and needs to be revised.

Figure 1

Sample Test Item Matrix

Topic Coverage										
	3rd French Republic			Victorian England			German Empire			
Item Number										
	1	2	3	4	5	6	7	8	9	10
Objectives Recall Facts	X	X		X		X	X	X		
Apply Theories									X	
Analyze an Argument					X					
Synthesize Information			X							X

While developing the test, the instructor arrays the items on a grid to check content coverage and testing of objectives. This grid shows that approximately equal attention is given to the three content areas and that 60% of the items ask for recall. The instructor should review thse findings in light of the intended goals for the unit and revise the test if inconsistencies are found.

Planning Performance Testing

Across the various fields in which performance testing is the most appropriate way to judge student progress, different kinds of tests will be appropriate, but some general guidelines are listed below.

- *Base tests on skills and competencies the course promotes.* A course in family therapy, for example, might include performance tests on various aspects covered in the course, such as recording client data, conducting an opening interview, and conducting a therapy session. Developing a performance test involves isolating particular demonstrable skills that have been taught and establishing ways in which the level of skill can be assessed for each student. One might, for example, decide that the best way in which a student can demonstrate counseling skills such as active listening would be to have the student play the role of therapist in a simulated session.

- *Define the task as clearly as possible*. Rather than simply alerting the students to the fact that their performance will be observed or rated, it is helpful to give more precise instructions on how the test will be structured, including how long they will have, the conditions under which they will perform the task, and other factors that will allow them to anticipate and prepare for the test. If possible, it is best to ask a student or colleague to do a trial run before using the test with students so that unanticipated problems can be detected and eliminated.

- *Identify evaluation criteria*. Good performance tests identify in advance criteria on which successful performance will be judged. For curriculum areas such as swimming in which it is possible to clearly define mastery, it is desirable to do so, e.g. , "The student will be able to tread water for five minutes." In most areas, however, effective performance is a complex blend of art and skill, and particular components are very subtle and hard to isolate. In these cases, it is often useful to try to highlight some observable characteristics and to define what would constitute adequate performance. In a test of teaching, for example, students might be expected to demonstrate clarity, organization, discussion skills, reinforcement of student responses, and the like. Operational definitions for specific components to be evaluated may be phrased like the following excerpt from a teaching observation checklist: "Praises student contributions - The teacher acknowledges that he or she values student contributions by making some agreeable verbal response to the contributions. The teacher may say, 'That's a good point,' 'Yes, thank you,' 'Thanks for raising that,' 'Right, well done,' or the like." Such information is helpful to the student as well as to the instructors who will be rating the performance.

- *Give all students the same kind of test*. When possible, it is best to arrange uniform conditions surrounding a performance testing situation. Students can be given the same materials to work with or the same task. Often, however, particularly in professional practice situations, it is hard to control the context of a performance testing situation. One nursing student may be evaluated while dealing with an especially troublesome patient while another will be working with a helpful patient. In these situations, documenting and allowing for the contextual influences on the performance is an extremely important part of the evaluation.

  In summary, the effectiveness of performance testing is directly related to how appropriate the test is, given the course objectives; how clearly the tasks are defined; how well the criteria for successful performance have been identified and conveyed; and how uniform the testing is for all students involved. For further information on evaluating students in performance settings, see chapter six.

Planning Pencil and Paper Tests

In courses in which pencil and paper tests are appropriate, the following guidelines may be helpful.

Limited-Choice vs. Open-Ended Items

Instructors often ask, "Are essay tests better than objective tests?" The answer, of course, depends on the circumstances and on the goals of the test. The advantages and disadvantages of two main types of items—limited-choice and open-ended— are discussed below in terms of the various issues that will often be considered when a test is being developed.

The term "limited-choice" will be used here to describe test questions that require students to choose one or more given alternatives (multiple choice, true/false, matching columns), and "open-ended" will be used to refer to questions that require students to formulate their own answers (sentence completion, short answer, essay). This avoids the faulty assumption that one type of question is automatically "objective" and the other necessarily "subjective." Following are issues that should be considered when comparing the two types of items.

- *Consider the level of learning objective*. In principle, both limited choice and open-ended items can be used to test a wide range of learning objectives. In practice, most people find it easier to construct limited-choice items to test recall and comprehension and open-ended items to test higher- level learning objectives, but other

possibilities exist. Limited-choice items that require students to do such things as classify statements as fact or opinion go beyond rote learning, and focused essay questions can easily stay at the recall level.

- *Consider content coverage*. Since more limited-choice than open-ended items can be used in exams of the same length, it is possible to sample more broadly over a body of subject matter with limited-choice items. A small number of open-ended items that are broad in scope and call for the inclusion of many specifics can also test subject matter comprehensively, however.

- *Consider the role of reading and writing skills*. A long-term goal of many learning tasks in higher education is the cultivation of students' reading and writing skills. Limited-choice items give virtually no practice in writing, while open-ended exams, particularly short-answer and essay, provide opportunities to improve writing. On the other hand, open-ended exams give students with good writing skills an advantage over those who do not have these skills, and limited- choice exams do not favor students who write well. Limited-choice exams do, however, favor students who read well, since these students have the skills to attend to key words, recognize logical qualifications and cues, and discriminate among close choices.

- *Consider the role of creativity and divergent thinking*. Open-ended items, especially essay questions, can provide far more opportunity for creative or divergent thinking than limited-choice items. However, this depends on how the item is written since an essay question can call for convergent thinking, such as reaching a set solution to a problem situation. An argument often made about limited-choice exams is that they not only fail to foster, but actually penalize, divergent thinking.

- *Consider the feedback to teacher and student*. Limited-choice exams allow faster feedback than open-ended exams. Open-ended exams, however, usually are more revealing to the teacher about specific student strengths and weaknesses in processes such as comprehension and reasoning and can occasion more dialogue if teacher and student use this possibility.

- *Consider the amount of time for the exam*. Many limited-choice items can be answered in the amount of time it takes to answer one open-ended item, particularly essay questions. Limited-choice items or the briefer type of open-ended items (sentence completions, short answers) thus are more appropriate for short quizzes and exams than are essay questions.

- *Consider the size of the class*. Unless graders are available, it is difficult to give frequent open-ended exams and provide timely feedback in a high-enrollment course. Exams that consist mainly of limited-choice items are usually more practical under these circumstances.

- *Consider reliability in grading*. Open-ended exams are much harder to grade consistently than are limited-choice exams. However, to enhance reliability, one can use such methods as establishing model answers, scoring holistically, and working toward interrater agreement with multiple graders (see chapter six).

- *Consider exam construction and grading time*. While it takes time to construct open-ended items well, it generally is much more time consuming to construct limited-choice items both because many more items are needed for the average exam and because it is extremely difficult to write good items. Experienced test constructors report producing as few as one to three "good" limited-choice items per hour. While it is easier to generate open-ended items, it is much more time consuming to grade them than limited choice items. One exam consisting of only open-ended items may take as long to grade as an entire set of exams made up of limited-choice items. If the limited-choice exams are mechanically scored, the differences are even more extreme.

- *Consider the reusability of the exam*. In general, exams consisting of a large number of limited-choice items are easier to reuse than those consisting of only a few essay questions since it is harder for students to remember and transmit all of the limited-choice questions to others who will take the exam after them (if the printed

exam does not get into circulation). If a large item bank is built and different exams can be randomly generated from the same pool of questions, limited-choice items are highly reusable.

- *Consider how to foster academic honesty.* Limited-choice exams provide more opportunities for academic dishonesty than open-ended exams, since single letters or numbers are far easier to see or hear than extensive text. Opportunities for academic dishonesty can be minimized by methods such as giving alternate test forms and controlling seating.

DESIGNING TEST ITEMS

Once the basic format for the test has been chosen, the next step is designing individual items. Below are suggestions for constructing different kinds of items.

NOTE: In the discussion of limited-choice items below, the term *stem* is used to refer to the part of the item that asks the question. The terms *responses*, *choices*, and *alternatives* are used to refer to the parts of the item that will be used to answer the question. For example:

Stem — Who is the author of Jane Eyre?

Responses
A) Emily Brontë
B) Charlotte Brontë
C) Thomas Hardy
D) None of the above

Designing Multiple-Choice Items

Multiple-choice items are considered to be among the most versatile of all item types. They can be used to test factual recall as well as level of understanding and ability to apply learning. Multiple-choice items can also provide an excellent basis for post-test discussion, especially if the discussion addresses why the incorrect responses were wrong as well as why the correct responses were right. Unfortunately, they are difficult and time consuming to construct well. They may also appear too discriminating (picky) to students, especially when the alternative responses are well constructed, and are open to misinterpretation by students who read more into questions than is there.

Suggestions for constructing multiple-choice items. Here are some guidelines for constructing multiple-choice items:

1. Use the stem to present the problem or question as clearly as possible.

2. Use direct questions rather than incomplete statements for the stem.

3. Include as much of the item as possible in the stem so that alternatives can be kept brief.

4. In testing for definitions, use the term in the stem rather than as an option.

5. List alternatives on separate lines rather than including the options as part of the stem so that all options can be clearly distinguished.

6. Keep all alternatives in a similar format (i.e., all phrases, all sentences, etc.).

7. Make sure that all options are plausible responses to the stem. (Poor alternatives should not be included just for the sake of having more options.)

8. Check to see that all choices are grammatically consistent with the stem.

9. Try to make alternatives for an item approximately the same length. (Making the correct response consistently longer is a common error.)

10. Use misconceptions students have indicated in class or errors commonly made by students in the class as the basis for incorrect alternatives.

11. Use "all of the above" and "none of the above" sparingly since students often choose these alternatives when they do not know the answer.

12. Use capital letters (A,B,C,D,E) as response signs rather than lowercase letters ("a" gets confused with "d" and "c" with "e" if the type or duplication is poor).

13. Try to write items with equal numbers of alternatives to avoid asking students continually to adjust to a new pattern caused by different numbers.

14. When using a statement rather than a direct question, put the incomplete part of the sentence at the end rather than at the beginning of the stem.

15. Use negatively stated items sparingly. (When they are used, it helps to underline or otherwise visually emphasize the negative word.)

16. Make sure that there is only one best or correct response to the stem.

17. Keep the number of alternatives at four or five. Too few alternatives increase the likelihood of getting the correct answer by guessing. Too many alternatives create confusion and problems in offering believable choices.

18. Randomly distribute correct responses among the alternative positions so that there are no discernible patterns to the answer sequence (ABBABBABB, etc.) and a nearly equal proportion of As, Bs, Cs, etc.

DESIGNING TRUE/FALSE ITEMS

True/false items are relatively easy to prepare since each item comes rather directly from the content. They offer the instructor the opportunity to write questions that cover more content than most other item types since students can respond to so many in the time allowed. They are easy to score accurately and quickly. True/false items, however, may not give a true estimate of the students' knowledge since half can be answered correctly simply by chance. They are poor for diagnosing student strengths and weaknesses and are generally considered to be "tricky" by students. Since true/false questions tend to be either extremely easy or extremely difficult, they do not discriminate between students of varying ability as well as other types of questions do.

Suggestions for constructing true/false items. Here are some guidelines for constructing true/false items:

1. Keep language as simple and clear as possible.

2. Use a relatively large number of items (75 or more when the entire test is T/F).

3. Avoid taking statements verbatim from the text.

4. Be aware that extremely long or complicated statements will test reading skill rather than content knowledge.

5. Require students to circle or underline a typed "T" or "F" rather than to fill in a "T" or "F" next to the statement, thus avoiding having to interpret confusing handwriting.

6. Avoid the use of negatives, especially double negatives.

7. Avoid ambiguous and trick items.

8. Make sure that the statements used are entirely true or entirely false. (Partially or marginally true or false statements cause unnecessary ambiguity.)

9. Use key words sparingly since they tip students off to the correct answers. (The words *all*, *always*, *never*, *every*, *none*, and *only* usually indicate a false statement, whereas the words *generally*, *sometimes*, *usually*, *maybe*, and *often* are frequently used in true statements.)

10. Use precise terms, such as 50% of the time, rather than less precise terms, such as several, seldom, and frequently.

11. Use more false than true items, but not more than 15% more. (False items tend to discriminate more than true items.)

Designing Matching Items

Matching items are generally quite brief and uninvolved and are especially suitable for who, what, when, and where questions. They can, however, be used to have students discriminate among and apply concepts. They permit efficient use of space when there are a number of similar types of information to be tested. They are easy to score accurately and quickly. However, there are significant drawbacks to using matching items: they are difficult to use to measure learning beyond recognition of basic factual knowledge; they are usually poor for diagnosing student strengths and weaknesses; they are appropriate in only a limited number of situations; and they are difficult to construct since parallel information is required.

Suggestions for constructing matching items. Here are some guidelines for constructing matching items:

1. Use only homogeneous material in a set of matching items (e.g., dates and places should not be in the same set).

2. Use the more involved expressions in the stem and keep the responses short and simple.

3. Supply directions that clearly state the basis for the matching, indicating whether or not a response can be used more than once and stating where the answer should be placed.

4. Make sure that there are never multiple correct responses for one stem (although a response may be used as the correct answer for more than one stem).

5. Avoid giving inadvertent grammatical clues to the correct response.

6. Arrange items in the response column in some logical order–alphabetical, numerical, chronological—so that students can find them easily.

7. Avoid breaking a set of items (stems and responses) over two pages.

8. Use no more than 15 items in one set.

9. Provide more responses than stems to make process-of-elimination guessing less effective.

10. Number each stem for ease in later discussions.

11. Use capital letters for the response signs rather than lower-case letters.

Designing Completion Items

Completion (fill-in-the-blank) items are especially useful in assessing mastery of factual information when a specific word or phrase is important to know. They preclude the kind of guessing that is possible on limited-choice items since they require a definite response rather than simple recognition of the correct answer. Because only a short answer is required, their use on a test can enable a wide sampling of content. Completion items, however, tend to involve only rote, repetitive responses and may encourage a fragmented study style since memorization of bits and pieces will result in higher scores. They are more difficult to score than forced-choice items, and scoring often must be done by the test writer since more than one answer may have to be considered correct. On the whole, they have little advantage over other item types unless the need for specific recall is essential.

Suggestions for constructing completion items. Here are some guidelines for constructing completion items:

1. Paraphrase statements from the text rather than using them verbatim.

2. Provide clear and concise cues about the expected response in the statement. For example: "The Gettysburg Address was delivered on _____ (specify month, day, year)."

3. Use vocabulary and phrasing that comes from class presentation.

4. When possible, provide explicit directions as to what amount of variation will be accepted in the answers.

5. Give more credit for completion items than for T/F or matching items.

6. Avoid using a long quote with multiple blanks to complete.

7. Require only one word or phrase in each blank.

8. Facilitate scoring by having the students write their responses on lines arranged in a column to the left of the items.

9. Make sure the required responses are important terms or expressions.

10. Avoid providing grammatical clues to the correct answer by using a/an, etc., instead of specific modifiers.

Designing Essay/Short Answer Questions

The main advantages of essay and short answer items are that they encourage students to strive toward understanding a concept as an integrated whole; permit students to demonstrate achievement of such higher level objectives as analyzing and thinking critically; allow expression of both breadth and depth of learning; and encourage originality, creativity, and divergent thinking. Written items offer students the opportunity to use their own judgment, writing styles, and vocabularies. They are less time consuming to prepare than any other item type. Unfortunately, tests consisting only of written items permit only a limited sampling of content learning due to the time required for students to respond. Essay items are not efficient for assessing knowledge of basic facts and provide students more opportunity for bluffing, rambling, and "snowing" than do limited-choice items. They favor students who possess good writing skills and neatness and are pitfalls for students who tend to go off on tangents or misunderstand the main point of the question. The main disadvantages, however, are that essay items are difficult and time consuming to score and are potentially subject to biased and unreliable scoring.

Suggestions ***for constructing essay items.*** Here are some guidelines for constructing essay questions:

1. Use novel problems or material whenever possible, but only if they relate to class learning.

2. Make essay questions comprehensive rather than focused on small units of content.

3. Provide clear directions as to the expectations.

4. Allow students an appropriate amount of time. (It is helpful to give students some guidelines on how much time to use on each question and on the desired length and format of the response, such as full sentences, phrases only, outline, and so on.)

5. Inform students, in advance of answering the questions, of the proportional value of each item in comparison to the total grade.

6. Require students to demonstrate command of background information by asking them to provide supporting evidence for claims and assertions.

TESTING THE TEST

After a test has been administered, a good way to judge its quality, particularly in the case of a limited-choice test, is to perform an item analysis. It is especially important to do this when test items will be reused or when there is sufficient doubt about the test results to consider dropping some items as invalid when computing the final grade. If machine scannable test forms are used, the instructor will receive a printout with item analysis results already computed. If the instructor is scoring the test, software packages are available for doing item analysis. It is possible to perform an item analysis without a computer, however, especially if the test is short and the class size is small.

Procedures for Computing Difficulty and Discrimination Indexes

The information below describes how to compute the two most common item analysis statistics and describes the principles of these as well.

Computing Difficulty Index

The difficulty index will reveal the level of difficulty of each item. Calculate the difficulty index by using the following process.

1. Score each test by marking correct answers and putting the total number correct on the test.

2. Sort the papers in numerical order according to the total score.

3. Determine the upper, middle, and lower groups. One way to do this is to call the top 27% (some people use the top third) of the papers the upper group, the bottom 27% (some people use the bottom third) the lower group, and the remaining papers the middle group.

4. Add up the number correct and number wrong in each group.

5. Calculate the difficulty index for each item by adding the number of students from all groups who chose the correct response and dividing that sum by the total number of students who took the test. The difficulty index will range from 0 to 1, with a difficult item being indicated by an index of less than .50 and an easy item being indicated by an index of over .80.

Computing Discrimination Index

The discrimination index will show which items are most useful in distinguishing between students who are learning the course material well and students who are having difficulty in the course. This index will also reveal which items may be flawed because students who did well in the test overall consistently gave incorrect answers on that item.

Calculate the discrimination index by using the following steps.

1. First calculate for both the upper and lower groups of students the percentage who answered each item correctly.

2. Subtract the percentage of lower group students from the percentage of upper group students to get the index. The index will range from -1 to +1, with a discrimination over .3 being desirable and a negative index indicating a possible flawed item.

Figure 2 illustrates item analysis for a simple set of scores for 37 students on a 10-item test. The names of the 10 students (approximately 27% of the total students) with the highest scores are listed as the "upper group"; the 10 students with the lowest scores (again, approximately 27%) are listed as the "lower group"; and the remaining 17 are listed as the "middle group." On item 1, for example, the difficulty index was calculated by totaling the correct responses and dividing by the number of students (19/37=.51). The item appears to be on the difficult end of the range.

The discrimination index for the same item was obtained by first calculating the percent correct for both the upper and lower groups–20% and 90% respectively–then subtracting the percentage for the lower group from that of the upper group (.20-.90=-.70). This negative discrimination index indicates that the item is probably flawed. Note that the students who scored poorly on the exam as a whole did well on this item, and the students who got the top total scores on the exam did poorly—the reverse of what one would expect. A mistake in the answer key or some error in the question that only the more discriminating students would catch might be the cause.

Figure 2

Sample Test Grid for 10 Items

		Item Numbers									
		1	2	3	4	5	6	7	8	9	10
UPPER GROUP	ELLEN	C	C	C	C	C	C	C	C	C	C
	JOHN	C	C	C	C	C	C	C	C	C	C
	ALBERT	W	C	C	C	C	C	C	C	C	C
	JOANNE	W	W	C	C	C	C	C	C	C	C
	MARIA	W	C	C	C	C	C	C	C	C	C
	ANNE	W	C	C	C	C	C	C	C	C	C
	DORIS	W	C	C	C	C	C	C	C	C	C
	JOSHUA	W	C	C	C	C	C	C	C	C	C
	BARBARA	W	C	C	C	C	C	C	C	C	C
	MICHAEL	W	C	C	C	W	C	C	C	C	C
	NUMBER CORRECT	2	9	10	10	9	10	10	10	10	10
	NUMBER WRONG	8	1	0	0	1	0	0	0	0	0
MIDDLE GROUP	NUMBER CORRECT	8	12	12	13	12	13	11	11	12	12
	NUMBER WRONG	9	5	5	4	5	4	6	6	5	5
LOWER GROUP	LUCILLE	C	C	C	C	W	C	W	C	W	C
	JOSEPH	C	C	C	C	W	C	W	C	C	C
	CHARLES	W	W	C	C	C	C	W	C	C	W
	JEROME	C	C	C	C	C	C	W	C	C	C
	LESLIE	C	C	C	C	C	C	W	C	C	W
	NANCY	C	C	C	C	C	C	W	W	C	W
	JUDITH	C	C	W	C	C	C	W	W	W	W
	RALPH	C	W	W	W	C	C	C	W	W	W
	BETH	C	C	W	W	W	W	W	W	W	C
	DONALD	C	W	C	C	W	C	W	W	W	C
	NUMBER CORRECT	9	7	7	8	6	9	1	5	5	5
	NUMBER WRONG	1	3	3	2	4	1	9	5	5	5
	DIFFICULTY INDEX	.51	.76	.78	.84	.73	.86	.59	.70	.73	.73
	DISCRIMI-NATION INDEX	-.7	.2	.3	.2	.3	.1	.9	.5	.5	.5

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6 EVALUATING STUDENT LEARNING

Grading is a controversial, complex, and crucial part of higher education. It is a form of communicating an evaluation of the work of a specific student to three distinct groups: the student who is being evaluated, other instructors, and prospective employers and educators. For these individuals, grading can be a vital source (often the only source) of information with which decisions are made concerning future performance and courses of action. McKeachie (1986) has identified the purposes for which grades are used by the interested groups as follows:

Students want to be able to use grades to assist them in decisions such as the following:

1. Will I do well if I take additional courses in this field?

2. Should I major in this field?

3. Does it represent a field in which I might have a successful career?

4. How can I improve my performance in this area?

Instructors advising the student or determining admission expect the grade to answer the following questions.

1. Does this student have the motivation, skills, knowledge, and ability needed to do well in advanced courses?

2. What does the pattern of grades tell us about this student's ability and work habits?

Prospective employers and educators want to use grades to assist in decisions about whether or not the student will do well in future endeavors. They want answers to questions like the following.

1. How well will the student be able to solve problems and/or proceed with further studies related to the area of his or her coursework?

2. Does the overall pattern of grades indicate that this is the sort of person who will do well in our program or organization?

UNDERSTANDING THE ELEMENTS OF EFFECTIVE EVALUATION

Many different types of evaluations may be effective depending on the design of specific course materials and goals. However, good grading methods are characterized by the following attributes.

Validity

It is of paramount importance that whatever method of evaluation is employed accurately measures the skill or knowledge that it seeks to measure. It is also important that evaluations exhibit what is known as "face validity."

Face validity refers to the degree to which the format of the evaluation appears to be related to course objectives. It is a common student complaint that no connection was perceived between the methods of evaluation and course objectives. It is therefore necessary not only that the instructor make a connection between the evaluation and the course but also that he or she communicate those connections to the students.

In addition to face validity, evaluations must have content validity. Regardless of the format of the evaluation, it must conform closely to course objectives. If a course objective states that students will be able to apply theories of practice to case studies, then an evaluation should provide them with appropriate cases to analyze. Finally, effective methods of evaluation have certain predictive characteristics. A student who performs well on an evaluation concerning a certain skill might be expected to perform well on similar evaluations on related skills. Additionally, that student would be expected to score consistently when evaluated in the future.

Reliability

The concept of reliability is closely related to (and often confused with) validity. A reliable method of evaluation will produce the same results (within certain limitations) for the same student across time and circumstances. While it is understood that performances will vary, the goal is to eliminate as many sources of error as possible. It has been noted that the three biggest sources of error in reliably evaluating students are: (a) poor communication of expectations, (b) lack of consistent criteria for judgment, and (c) lack of information about performance (Svinicki, n.d.). It is imperative that the student understand the question or the task assigned. Poor student performance can be the result of a failure to provide clear instructions. Therefore, assignments should always be written to avoid any verbal misunderstanding. Lack of consistent criteria for judgment exists where the basis for making the judgment is not clear. Where there are not consistent criteria, identical tasks can be evaluated differently by the same grader at a later date or by a different grader concurrently. However, if a specific set of criteria is established prior to the evaluation, error in this area can be diminished. A third source of error in evaluating students occurs when the instructor does not have sufficient information. It is important that this information reflect a student's performance in a variety of formats. Clearly, using a single paper submitted at the end of the quarter to determine the entire course grade would violate this principle.

Communication of Evaluation Plan

A major student complaint has been that the basis for their evaluation has been unclear to them. Students' ability to "guess" what topics will be presented as a part of their evaluation and in what form is hardly indicative of their mastery of course content. For this reason, day-to-day class activities and assignments should be of the same nature and scope as questions employed for evaluative purposes. This is not to say that the evaluation must be a "regurgitation" of classwork and readings but rather that it should be within the same general framework. Trial tests given early in the quarter, which are ungraded, can be useful tools both to alert the instructor as to the students' abilities and to provide the students with an understanding of the method of evaluation that will be used.

Realistic Expectations

As has been previously noted, the more information available to the instructor, the more reliable the evaluation. However, consideration must be given to the fact that students are also enrolled in several other courses that demand their time and attention. Instructors are also limited in the number and types of evaluations they can develop and administer in any individual course, while still grading and returning work in a reasonable time. Ideally, these constraints can be recognized and the best possible system of evaluation can be generated within these parameters.

CHOOSING EVALUATION METHODS

Before selecting an evaluation method, instructors should weigh the relative advantages and disadvantages of the two basic methods, letter grading and pass-fail grading. In addition, it is always advisable to check for any departmental or course policies.

Final grade options at Wright State University are A, B, C, D, F, P (Passing), U (Unsatisfactory), I (Incomplete), X (student did not officially complete the course or withdraw).

Letter Grading

Letter grading consists of assigning a letter of the alphabet, sometimes in conjunction with a plus or a minus, to students' performance.

Advantages

1. Letter grades may be the most effective means of communicating to students, educators, and prospective employers the level of competence achieved in the course.

2. Letter grades provide feedback.

3. Letter grades provide incentive for competitive students.

Disadvantages

1. Letter grades can divide students into discriminatory and often competitive groups.

2. Letter grades can foster dependent, conforming, unimaginative behavior in students.

3. Letter grades can create pressure on students that may have an adverse effect on learning.

4. Letter grades can be difficult and time consuming for the teacher to calculate.

Pass-Fail Grading

Pass-Fail systems are based on one cut-off point that determines whether the student has successfully completed the course.

Advantages

1. This system can be more relaxed and less competitive.

2. Since students may feel less competitive; they may feel less pressure to engage in academic dishonesty.

3. Students may be willing to take risks in their work.

4. Some students do more work when freed from pressures.

Disadvantages

1. A passing grade does not distinguish among levels of competence.

2. The teacher may have difficulty establishing and communicating what the criteria for passing the course will be.

3. Students may work less.

4. A failing student is still under pressure.

CONSIDERING INNOVATIVE APPROACHES TO GRADING

Once the basic evaluation method has been chosen, the instructor might consider using an innovative approach to arriving at the letter grade or pass-fail grade. Two possible alternatives are listed below along with some of their relative advantages and disadvantages.

Contract Approach

A contract approach to grading involves the development of a written contract between the student and the instructor that specifies precisely what will be required to achieve any given grade. The teacher may develop the requirements for each grade or negotiate those requirements with the student.

Advantages

1. The contract can reduce anxieties since the student knows what is expected.

2. The contract can reduce the role of personal judgment in grading.

3. The contract may encourage self-set goals.

Disadvantages

1. There is a potential for overemphasis on the quantity of students' work, rather than on quality.

2. There can be difficulty in measuring diverse student activity.

3. Ambiguity may exist in qualitative distinction between grades.

Self-Evaluation System

A self-evaluation approach to grading requires students, in conjunction with their teachers, to set their own goals and evaluate their progress toward those goals. Self-evaluation can be the sole method of grading for the course, or it may serve as one of the components of the final course grade.

Advantages

1. Self-evaluation can be more meaningful for students since it requires that they engage in reflection and self-examination.

2. Students are generally fair, objective, and demanding of themselves.

3. Self-evaluation encourages students to take responsibility for their performance in the course.

Disadvantages

1. Self-evaluation can be taken less seriously as the novelty wears off.

2. The effectiveness of self-evaluation depends exclusively on the student's ability to be fair and objective.

3. Self-evaluation can be abused under extreme pressure for grades.

DOING THE MATH

There are three basic types of grading systems, *criterion-referenced* systems, *norm-referenced* systems, and *hybrid* systems (combination of *criterion- and norm-referenced* systems). Most simply stated, norm-referenced systems (often referred to as "grading on a curve") evaluate students' performance in relation to one another and rest on the underlying assumption that relative levels of student ability do not vary much from quarter to quarter and that student evaluations are normally distributed. If using norm-referenced systems, there is a danger that the instructor will inappropriately use the grading curve to compensate for poorly constructed tests. Criterion-referenced systems, on the other hand, apply an absolute scale against which individual student performances are measured. The setting up of such a grading scale ideally requires some knowledge of the levels of student ability likely to be present in the class. With the criterion-referenced system, it is theoretically possible for all students to receive an "A" or for everyone to fail the course. Hybrid systems, probably the most common grading schemes used at many universities, contain aspects of both systems.

Norm-Referenced Systems

Here are two examples of norm-referenced systems.

The Simple Curve

In this system, the instructor determines beforehand that a certain percentage of students will receive As and a similar percentage will receive Fs. The same holds for Bs and Ds. The remainder receive Cs. Cut-offs are based on the number of students in the class and are figured by counting down the distribution of grades until that number is reached. Since this system involves nothing more sophisticated than counting and division, it is easy to use.

The Normalized Curve

This is a more complex system in which the actual score a student earns is converted into what is called a standard score based on the class average and the distribution of the scores. Then, using standard tables, the instructor converts these standard scores into percentiles based on a normal curve. Students' scores are reported according to predetermined percentiles representing each of the letter grades. Computing and Telecommunications Services provides this information on all machine scored tests scanned by their office. Percentile scores have some real advantages when it comes to comparing grades from a wide range of activities, but their computation and interpretation can be confusing.

Criterion-Referenced Systems

Examples of two criterion-referenced systems follow.

Percentage of Total Points Possible

In this system, there is a fixed number of points available to be earned. Earning 90% (or some arbitrary percent) of those points will result in an A, while 80% will result in a B and so on. Students are being evaluated against a preset criterion, hence the name, and not against their peers. It does not matter how many students reach a given level. Everyone can earn an A or an F. This system allows teachers to assign varying weights to different assignments.

Mastery or Pass/Fail

In this case, there is only one preset level of achievement, usually based on a set of specific objectives that must be passed. If these are passed, the student moves on; if not, the student must repeat the evaluation or fail the course. Sometimes the specific requirements for the assessment of mastery refer to a given percent of the total possible rather than to achievement of all given skills.

Hybrid Systems (Combination of Criterion- and Norm-Referenced Systems)

Below are two examples of hybrid systems**.**

Percent of Maximum Obtained

This system uses a predetermined set of cut-off percentages for each grade, as in a criterion-referenced system. However, the grade for each test or assignment is based on the possibility for earning 100%, and all assignments are equally weighted and are averaged at the end of the term. This latter characteristic makes the grades somewhat comparative as in a norm-referenced system. However, the number of students who can earn each grade is not restricted as in the norm-referenced systems. Except on the grossest level, the students are not in competition with one another. This system gives us neither absolute nor relative performance information, but it is easy to compute and easy for students to understand.

Gap System

This could be labeled the interocular system since it involves laying out the score distribution and looking for gaps in the distribution. These breaks then determine the cut-off scores for the various grades. One advantage of this system is that the instructor has a practical reason for setting the grade cut-offs where they are. The idea is to identify real differences in performance that will then be reflected in the grades. Under this system, "A" performance really appears to be different from "B" performance because the two groups of students have a gap separating them. All other systems are based on more or less arbitrary cut-offs, even though they may have a sound statistical basis. Like norm-referenced systems, the gap system gives us relative but not absolute performance information. It is also easy to compute and explain.

EVALUATING WRITING

The two most prominent ways of evaluating student writing are *analytic* and *holistic* scoring. The analytic approach to grading considers writing to be made up of various features, such as creativity, grammar, succinct expression of concepts, and punctuation, each of which is to be scored separately. An analytic writing score is made up of a sum of the separate scores and is often a weighted sum developed after multiplying each score by numbers representing the relative importance of the features the instructor wishes to emphasize. Holistic scores are arrived at by comparing individual student essays to model essays representing good, fair, and poor responses to the assignment. A third variation is a type of "global scoring," which assumes that writing is the sum of various features, but assigns the final score without the use of a scale. This method, which is most frequently used in casual approaches to grading writing, tends to result in less precise evaluation.

Analytic Scoring

Analytic scoring has been the traditional approach to grading writing. Instructors who use analytic scoring view writing as a demonstration of many isolated skills that when graded separately and added together will come up with an appropriate evaluation of the piece.

Many instructors choose to use analytic scoring because of its *strengths*, some of which are as follows:

1. It helps instructors keep the full range of writing features in mind as they score. For example, an essay that is poorly punctuated may present a good analysis of a problem and/or strongly state a position. Without analytic scoring, the punctuation may overwhelm the instructor to the degree that he or she fails to notice the achievements in the essay and thus grades it too low.

2. When accompanied by written comments and a breakdown of the final score, analytic scoring allows students to see areas in their essays that need work. Its diagnostic nature provides students with a road map for improvement.

Some of the *weaknesses* of analytic scoring are as follows:

1. It is time consuming. Teachers who score analytically usually are required to make as many as 11 separate judgments about one piece of writing. Furthermore, not all students actually make their way through the analytic comments so painstakingly written on their papers, nor will they all be able to make profitable use of those comments on succeeding writing assignments.

2. As with other kinds of scoring, negative feedback can be pedagogically destructive. Teachers who combine analytic scoring with confrontational or unclear comments–especially about issues of grammar–may actually inhibit student growth.

The following guidelines may be useful to maximize the effectiveness of analytic scoring:

1. A written analytic scale, such as the one that follows, helps to clearly define grading criteria and, if shared with students, can foster an understanding of what is expected and how it will be evaluated.

2. Criteria are weighted according to their relative importance. For instance, if the goal of an assignment is the assimilation of course materials, then logic, ideas, arrangement, and resourcefulness would be rewarded more than grammar and mechanics.

3. Feedback in the form of marginal and end comments is most effective when teachers balance positive comments and suggestions for improvement. Writing is tough to do, and most students feel inadequate about their writing skills.

4. Instructors can reduce the possible negative effects of grading by not using sarcasm in their comments and by not rewriting or over-correcting students' work.

Example of an Analytic Scoring Scale

Criteria	4	3	2	1	0	Weight
1. Recognition of main points	(accurate)				(inaccurate)	30%
2. Ability to summarize	(succinct)				(too much or too little)	10%
3. Ability to distinguish and analyze the differences between the two approaches/ viewpoints/analyses	(clear, insightful)				(vague)	20%
4. Ability to state a position	(clear)				(wishy-washy)	05%
5. Ability to support a position with information derived from the articles	(adequate, logical, refers to articles)				(inadequate, illogical, does not refer to articles)	15%
6. Organization	(clear)				(confusing)	10%
7. Readability: Language use and mechanics	(appropriate, correct, contributes to communication)				(inappropriate, incorrect, interferes with communication	10%
						100%

This scoring guide is from Farris (1987).

Other Suggestions for Grading Writing

1. Peers can provide useful suggestions on their classmates' papers before they turn in the final draft. To help students learn what to look for, examples of old essays (with authors' names deleted) that have been marked showing common problems can be provided.

2. More than one draft of a single paper may be useful for learning. Requiring students to revise encourages them to work through problems before submitting the final draft.

3. How instructors comment can be as important as what they comment on. Writing specialists recommend that comments on content problems be phrased as questions. For example, rather than writing "Confusing" in the margins, one might say, "I was with you until you began discussing 'active learning.' What do you mean by 'active learning?' Why is 'active learning' an important point here?" It is best not to use editor's shorthand when commenting on student papers, e.g., "Awk" for "awkward." While convenient for the instructor, this type of comment lacks explanatory power for the student. If a passage is awkward or a word choice incorrect, it is more informative to let the student know why.

4. Instructors need not feel as though they must find every error in a student paper. Writing specialists recommend putting a check mark in the margins next to a line containing a misspelling or other minor error. This places the burden back on the student to discover the error.

5. Not all writing assignments need to be graded. For example, instructors who assign journals often evaluate only a small percentage of the journal entries students have been assigned to write. The rest of the entries are simply counted to make sure that students are keeping up with their work.

6. Occasionally, an instructor will have students who need additional help with their writing. The University Writing Center provides free tutorial services for students.

EVALUATING STUDENTS IN PERFORMANCE SETTINGS

In settings such as laboratories, studios, or the field, evaluation refers to information describing students' performance. Feedback should involve offering insights into what students actually did, as well as insights into the results of their actions. Insights gained through feedback highlight the difference between the intended result and the actual result, thereby providing motivation for change.

In spite of the fact that feedback is a key step in the acquisition of skills, evaluation is often omitted or handled casually. There are many explanations for the problems associated with evaluation in performance situations. The first and most obvious explanation is the failure to make firsthand observations of students' performances. Without observations, the process becomes "feedback" in name only.

However, even if the data are at hand, other factors can confound the feedback process. A central concern about feedback is that it will have effects beyond its intent. The capacity of evaluation to elicit an emotional reaction from both the student and the teacher is self-evident. Experiences with feedback that was handled poorly may inhibit giving or receiving feedback in the future. The teacher may be concerned that the student will be hurt by negative feedback, that it will damage the student-teacher relationship or the teacher's popularity, and that it will result in more harm than good. The student may view feedback as a statement about his or her personal worth or potential. Students may ostensibly want information about their performance but only insofar as it confirms their self-concept.

Such concerns and misconceptions often result in what is called in the field of personnel management "vanishing feedback." Anxious about the impact of the information on the student but committed nonetheless to the need for feedback, the well-intentioned teacher may talk around the problem or use such indirect statements as to obfuscate the message entirely. The student, fearing a negative evaluation, supports and reinforces the teacher's avoidance. The result is that despite the best of intentions, nothing of any real value gets transmitted or received. Even worse, concerns about the impact of feedback may lead to little or no feedback during the course, precisely when the students have the opportunity to improve their performance.

Following are some useful guidelines for evaluating performance that have been identified by Stritter, Hain, &

1. The most effective evaluations are specific and descriptive. The instructor should describe the behavior in clear terms rather than in interpretive or general terms. Attempts to report what is observed rather than making assumptions about students' intent are most valuable.

2. Evaluation is most effective when it is timely. It is best to provide feedback as soon as possible after the performance of the tasks. If the behavior is distant in time to the performance, the student is more likely to discount it as inaccurate.

3. Evaluations should contain information about changeable behaviors that will be beneficial to the student. Feedback concerning students' personalities is inappropriate and is unlikely to produce results.

4. Evaluation is most useful when the students and the instructor clearly understand precisely what skills or tasks are expected to be mastered and exactly how their performances will be evaluated.

SOME COMMON QUESTIONS ABOUT GRADING

How can instructors protect themselves legally when grading?
Documenting decisions as carefully as possible and being consistent are helpful in avoiding legal complications. Keeping grade books secure and retaining them for some time after the course is over is also required by some departments. Instructors are advised to check with their departments for specific schedules concerning the maintenance of these records. Some instructors also protect themselves by keeping lines of communication open and taking the opportunity to prevent academic dishonesty when possible by making it difficult to copy answers during exams, making it difficult to change corrections on returned papers, being careful to check off completed assignments, etc.

What should instructors do when they think someone else has written a student's paper?
If instructors do not have any out–and–out proof of plagiarism or ghostwriting, their choices are quite limited. In order to determine if their suspicions are warranted, instructors might talk with the students in question and ask them how they decided on the topic or found references. But unless this provokes a confession, it is difficult to take further action. Simply letting the student know that the instructor pays close attention, however, may encourage the submission of original work in the future. Some instructors attempt to avoid this situation by designing new assignments each quarter or by tailoring assignments toward a course theme. If the same term paper has been assigned in Psychology 110 for five years in a row, some "oldies" with new names are likely to surface. Also, if a topic is very broad—a paper on anything in history—it's easy to find something to submit that may not be original nor intended for that course.

How can instructors grade on effort, attendance, or participation?
In all cases, instructors should specify in advance if they will be considering these factors in the final grade. It is essential to make it clear which behaviors are being targeted and what the expectations of the instructor are. Attendance is pretty straightforward to measure, but instructors should be prepared to define "excused" vs. "unexcused" absences. Instructors who choose to grade on effort will be pressed to justify decisions, so it might help to have specific criteria or tasks that will be related to the grade. Pop quizzes or assignments based on required readings may be used to motivate and document student preparation and attendance. On participation, some instructors keep a running record of contributions during discussions or ask a student to do so. In order to avoid putting shy or inarticulate students at a disadvantage, an instructor might ask for written comments or questions to be submitted or offer to be available for personal talks at other times.

SUMMARY

The grading system as well as the actual evaluation are closely tied to an instructor's own personal philosophy regarding teaching. Therefore, it may be useful in advance to consider what factors will influence instructors' evaluation of students. Teachers should consider how assignments will be weighted; to what degree effort, class participation, and attendance will be valued; whether to offer extra credit; and whether to engage students in the evaluation process. These and other issues directly affect the instructor's evaluation of students' performance. Therefore, a thoughtful examination of one's own personal philosophy concerning these issues should be useful.

USEFUL SOURCES ON GRADING

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7 EVALUATING TEACHING

A key element in the process of teacher growth is feedback. As with all learning, getting information on one's actions is essential to continuing improvement. Most teachers get feedback on their teaching by scanning faces in class for signs of interest or confusion. While these are important strategies, they are highly inferential. The most effective teachers employ more systematic ways of obtaining feedback. Several ways are described below.

STUDENT FEEDBACK

There are a variety of ways in which instructors can obtain written information on their teaching from students. They may use one of several standard teaching evaluation forms with rating items that have been tested for their validity and reliability. Since the items on these forms are often global and frequently call for ratings without explanations, many teachers choose to supplement them with other types of student feedback, like observations and interviews.

The SET Instrument

One instrument used for student ratings is the Student Evaluation of Teaching (SET). In addition to basic multiple choice questions, students are asked to write comments on the forms. The instrument is intended to foster instructional improvement, but many instructors also use it for documenting their teaching performance to others.

CAT, MAT, and TCEP

More specific feedback from students can be obtained on "tailored" forms developed by the instructor. Some of these include Classroom Assessment Technique (CAT), Midterm Analysis Technique (MAT), and Teaching Course Evaluation Process (TCEP). It is often helpful to administer such forms at mid-quarter, since students are able to assess which teaching strategies are facilitating their learning while there is still time for the teacher to make changes.

The "Minute Paper"

Instructors can gather written feedback frequently during the quarter through an informal activity called the "minute paper." Students are asked during the last minutes of class to write about the previous class or the course in general, suggesting whatever changes they feel would improve the course. Instructors using a new technique or varying the content or structure of a course might ask students to comment on the particular change that is occurring as it happens. Written comments gathered in this way provide specific information that instructors can use as they assess the effects of their practices.

Class Interviews

Usually conducted by a person other than the instructor, class interviews can serve as another good source of feedback for the improvement of teaching. According to Joseph Clark's procedure, Small Group Instructional Diagnosis (SGID) , the interview is conducted by a teaching consultant who works with students in groups to answer three questions: *What do you like best? What do you like least?* and *What suggestions do you have for the instructor?* The consultant tries to probe when there are areas of uncertainty or disagreement. Following the class, the consultant reports back to the instructor; and the two discuss the students' perceptions of the teacher's strengths and identify areas for improvement.

Teachers can also use other interview methods. For instance, they might ask a student to conduct interviews with the class to identify some specific area of concern, or instructors might interview individual students themselves.

Class Committees

At the beginning of the term, some instructors appoint a class committee charged with gathering and providing feedback on the students' perceptions of the course and the teacher's performance. The committee may devise its own survey form, collect information informally through conversations with members of the class, or hold periodic "meetings" to discuss class issues. The committee meets at intervals with the instructor to discuss the information it has obtained.

PEER FEEDBACK

While no feedback is more indispensable than that of students, many teachers value the expert feedback of their peers. Listed below are several suggestions for gathering and using feedback from colleagues.

KUDOS: A Program for Improving Teaching and Learning

Faculty development research strongly supports the need for faculty to explore a formative self-assessment process in a well-planned, safe, and supportive environment. The Center for Teaching and Learning offers a self-assessment program known as KUDOS. KUDOS stands for

Knowledge of course content
Understanding of learning styles
Dedication to the values of teaching
Obtaining of essential teaching skills
Service to students

KUDOS unites faculty as they work together, selecting various methods for self assessment, analyzing feedback, and discussing teaching strategies. Participants complete a day-long training session in which they are introduced to a variety of self-assessment techniques, some of which are described below. Four-person KUDOS groups are formed, and each participant has a partner within the group. Groups work together for a minimum of one year.

In the KUDOS program, the instructor controls the entire self-assessment process. The instructor determines how she or he will collect and use the feedback, and all information is confidential.

In-Class Observation

Inviting a colleague or teaching consultant to observe class is another way in which instructors can receive helpful feedback on teaching. The instructor might identify in advance some specific things for the observer to note. For example, an instructor concerned about whether he or she creates enough opportunities for participation might ask the observer to pay close attention to this question as the class is observed. Depending on the particular focus of the observation, observers may use a preestablished rating or frequency count form for recording information or they may use a narrative format. Observation can be improved through the use of skillful observers and multiple observations. Following an observation, it is important for the instructor and observer to meet to exchange information and to discuss specific ways for improving the instruction that was observed.

Discussion Mapping

Discussion mapping is a particular type of in-class observation that can be used to assess why some class discussions are more productive than others. This technique leaves the instructor free to continue his or her role as facilitator while a colleague or teaching consultant observes various aspects of the discussion, including

- whether patterns of participation are associated with age, gender, or cultural differences
- whether comments are supportive, argumentative, topical, or discursive
- whether students are active and respectful listeners

- whether discussion focuses on theoretical or practical aspects of course content
- whether students engage in the processes of synthesis, analysis, and evaluation
- whether the instructor's chief role is to guide, monitor, or to participate in some other way

Syllabus and Materials Review

When instructors would like information and opinions about the goals of the course, the way in which it is structured, the appropriateness of the activities and examinations, and the accuracy and quality of the printed materials that are distributed, they can ask colleagues who have knowledge of the discipline to review course documents. While students or a teaching consultant may offer some feedback on examination items or the clarity of explanations in printed notes, often the only good judge of content accuracy will be the colleague who has disciplinary expertise. A review of materials should be followed by a conversation during which the reviewer provides feedback to the instructor.

SELF ASSESSMENT

Finally, teachers should not overlook themselves as a source for feedback. The following are a few ideas teachers may use for assessing their own performance.

Videotaping

Videotapes, recorded either in the actual class setting or in a simulated environment, are a very powerful means of feedback for assessing presentational skills. The videotape can be analyzed by the instructor with or without assistance from a consultant or colleague to explore nonverbal behavior, voice tone, diction, clarity, organizational and other qualities. Often, viewing oneself provides an immediate message that creates a strong awareness of one's strengths and areas for improvement as a teacher. (Videotaping services are available through The Center for Teaching and Learning.)

Classroom Research

Instructors with questions related to student learning or teaching strategies can use the classroom as a natural laboratory for descriptive or experimental studies. Often, these may be very informal, such as assigning one paper with a given format and assigning another with a different format to see which format is associated with better achievement of objectives. Studies may involve such things as having students take learning style inventories so that the instructor knows more about the range of learning preferences in the class. The studies must be conducted in a way that does not jeopardize student learning, but can provide solid information for making good teaching choices. Classroom research is a more systematic way of conducting the ongoing inquiry into teaching practice that is so essential to teacher growth.

Students' Exams, Written Work, or Other Products

Although instructors generally keep a careful record of grades, few devote much attention to teaching factors associated with the results. In order to learn more about the effects of specific teaching practices, instructors can do such things as examine a set of graded papers for common error patterns, talk with students about how prepared they felt for a given examination, or look to see if certain key concepts or skills they tried to convey are reflected in the students' tests, papers, or products.

All of the feedback methods suggested above are aimed at providing information for the improvement of teaching and fostering of growth.

HANDLING STRESS

Teachers who challenge themselves to continually improve their instructional techniques may find it difficult to make time for their own research, service activities, and personal lives. Often, instructors feel caught among all these pursuits and have the sense that they aren't performing up to their personal standards. Severe stress can result.

Experts in the field suggest several ways in which stress can be controlled. Psychologist Anthony Grasha (1987) lists the following:

1. *Be more assertive about refusing requests*. He suggests that instructors avoid feeling that they must please others at personal expense to themselves. He cautions that it is not necessary to provide a reason for refusing requests.

2. *Set priorities*. Grasha advises that instructors look at their calendars before each week begins with the following questions in mind:

   - Does the task have to be completed as scheduled?
   - Can completion of the task be delayed for a period of time?
   - Is the task something that can be delegated to others?
   - Is it really necessary to do this task at all?

   After using the questions to eliminate some tasks, the instructor should schedule social and recreational time as well as uninterrupted "work" time for writing or for extended projects and take these as seriously as scheduled meetings.

3. *Use quick relaxation techniques*. Grasha suggests that tensing the body for a count of ten and then breathing deeply in and out to a count of four for a period of three to five minutes is especially effective after a tension-producing event. He also suggests that keeping a personal journal or writing angry letters that are not mailed can help during extremely stressful periods.

4. *Positive thinking*. Citing William James, Grasha points out that stress often occurs when people feel that they cannot perform to self-expectations. He advises that people reevaluate their expectations, seek small wins, focus on achievements rather than deficiencies, and seek social support.

SUMMARY

As a recent report in *Higher Education Research Program* says, teaching is "the business of the business," the main purpose for institutions of higher education. Good teaching involves more than the simple transmission of information and includes motivating students and creating a positive classroom environment as well. Instructors who take this responsibility seriously strive continually to be more reflective about their practice and to improve as their careers progress. When coupled with the many other responsibilities a university instructor has, however, efforts to teach well can lead to stress and burnout. Maintaining realistic expectations and exercising time management are ways in which instructors can help to avoid unproductive stress.

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