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Introduction

The Second Annual Symposium on Teaching Effectiveness, College of Career Education, Embry-Riddle Aeronautical University is presented by the University Faculty as a part of the Faculty's effort toward providing high quality educational experiences for our students. Papers presented at this symposium are by faculty, both adjunct and full-time, of the University.

In the Proceedings are the papers selected for presentation during the symposium and a selection of other papers submitted for the symposium. The papers presented herein are the products and responsibility of the individual authors. They do not necessarily represent the views of the University. Only editing of obvious typographical and formatting errors have been undertaken by the editor.

The selection panel for this symposium was composed of the elected Officers of the Faculty and the members of the Faculty Development Committee. It is hoped that these papers will assist individual faculty in discovering and perfecting techniques and ideas aimed at continuous improvement in instructional quality.

Officers of the Faculty
Dr. Paul Bankit, Speaker
Dr. Steven O'Brien, Vice Speaker
Dr. Alan Bender, Secretary

Faculty Development Committee
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Dr. Frank VanderWert
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TOWARD IMPROVING THE LEARNING PROCESS

by

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Brilliant, motivated students are fun to teach. They love to work, want more of it, and sometimes even overwhelm you with their enthusiasm for learning. But today's classes are not overcrowded with such paragons. Often unmotivated or distracted students, who don't learn even when we are at our scintillating best, sit in our classes. Professors may exhort them to try harder, but if exhortation fails, what can lead to success?

Research and theory in cognition and motivation offer some practical applications that can help students perform more effectively in college. Cognition deals with how people think and with the complex stages of thought that children and adults pass through. Motivation deals with the driving forces behind human behavior and with people's thoughts about themselves.

Research in these areas has produced a portrait of the underachieving student. According to this research, poor students often do not process educational material well. They are distractible, often anxious, unable to schedule or organize their work, and they have poor test strategies. Often, they do not find the work intrinsically interesting. And their beliefs about themselves discourage attempts at excellence.

These students are not educational mysteries. Enough is known about them to improve their educational performances. Research at the University of Michigan (McKeachie et al., 1986) has shown that students can readily learn to change their methods of study and raise their educational achievements. The task is to teach students specific skills and ways of thinking that will address their cognitive or motivational problems.

These strategies for learning work best when they are direct and explicit. One must pinpoint targets--for example, a student's anxiety while preparing for tests--and tell students precisely what to do to cope with each problem. Research has shown that people can change problematic behaviors if they are given clear instructions on how to do it (Watson & Tharp, 1985). Other improvements can result from specific changes in the class environment or course structure. This paper focuses on both direct and indirect tactics professors can use to help students develop college-level cognitive skills and motivation.

Many professors are already overloaded with material to cover, and one hesitates to recommend anything else. But helping students develop college skills and motivation is the best way to ensure that teaching is complemented by skills and attitudes that enable students to absorb the material. These procedures really work: try them out before evaluating them. Some of the techniques suggested will require extra class time to present and discuss, but

others can be incorporated into the regular curriculum immediately.

Assisting Students in Processing Information

For many students "studying" takes the form of marking up a textbook with an overliner, yellow or orange, or underlining passages the old fashioned way. While this approach is a boon to publishers because it destroys the used value of the text, it does very little to help learning because it does not help organize or integrate ideas. Yet this integration is the basis for the complex thinking we hope to instill in college students.

Of course, some students do integrate ideas, but others do not. Recent reviews of the literature suggest that an important difference between these two types of students may simply be the learning strategies they employ (McKeachie et al., 1986). Some students habitually use methods of learning--for example, overlining--that access only the surface of the material. The reader gets the words and first-level ideas, but overall organization, relationships, and deeper points are missed. If the student learns at a deeper level of understanding, he or she is more likely to remember and use the ideas later.

It would be too easy to assume that lack of complex understanding by a student is due to an innate lack of intelligence or developmental readiness for certain kinds of thought. A good deal of recent research suggests that through acquiring a knowledge base in a specific field and by organizing and reorganizing that knowledge, one develops more complex thinking capabilities (Schoenfeld & Hermann, 1982; Bransford et al., 1986).

For example, suppose in the middle of a lecture a graduate assistant walks in and announces: "I have just finished my thesis research, and I have discovered that . . .." Then he or she cites some important fact, principle, or study. Who will more likely remember this fact correctly a week later, the professor or the students? Most likely, the professor. Why? Not necessarily because he or she is smarter. Through education the professor has formed a mental map, a filing system, a computer program--choose your metaphor--for a large knowledge base in his or her field. And into that filing system the new information can be placed, related to other information, and even assimilated. The students, on the other hand, have no such knowledge base. For them, the graduate assistant's discovery is an isolated piece of information.

Learning brings with it a system for organizing material and holding it in memory. It is this idea and ability that students need to learn: to retain material, they need to organize it and perceive its organization. Francis Robinson's (1970) SQ3R method of studying enables students to learn more deeply and efficiently. Research has shown that students who learn and employ the method perform better academically (Pauk, 1984).

Of course, some students have a tendency to dismiss any proposed changes in their study procedures, so in teaching the SQ3R method the instructor should ask students to try it, then evaluate it. If it doesn't work for them, they can always go back to their old methods. Further, the SQ3R method is more likely to benefit students if they understand why it will help

their learning. Thus, it helps to explain the idea of looking for relationships, not just memorizing independent facts.

Under the SQ3R method, students break material to be studied into units convenient for them, for example, a five-page segment of a text. For each unit, they carry out the SQ3R procedure. The letters stand for Survey, Question, Read, Recite, Review.

Survey. First, students spend about two minutes reviewing or creating an outline of the material to form a framework in their minds.

Question. They ask themselves one or two questions about the material to create interest.

Read. Then they read, taking only a few notes of important points and hardly overlining at all.

Recite. The student closes the text and recites, out loud or on paper, the main points of the text. This recitation is the point at which actual learning occurs, in which material is organized and stored in memory.

Review. They check their recitations against the text and read and recite again if they made errors.

This procedure may seem cumbersome at first. But if students build it into their study habits one step at a time, it can have profound effects on their school performance. Students should also be alerted to the fact that some materials can be studied quickly, while others will require several passes with the SQ3R procedure.

The instructor should teach, illustrate, and reinforce these strategies in class presentations, beginning by putting the outline for the lecture on the board.

There are several other ways students can be helped to learn more effectively. Do they prepare for classes beforehand? Do they test themselves to see if they know important material?

One doesn't want to badger students, but telling them how to be good students is hardly badgering. After all, professors review material before class.

The instructor should also encourage students to be active learners and translate new information into their own experience, using their own words. When material can be personally related to a student's personal experiences, it is more easily learned and better retained.

For example, taking notes in one's own words produces better learning. Once a concept has been explained to students in the usual way, ask them to recapitulate the concept in their own words. Through examples and direct instruction, they should also be encouraged to think about how new material relates to material they have already learned. An instructor can develop a model for this approach by asking students, "How does this new idea, Y, fit in with what we learned earlier of Z?"

Teaching Students to be Better Organized and Less Distractible

Many students know they would be more efficient if they scheduled study time and that cramming for tests at the last minute is not the best way to learn. But there are many temptations to interfere with scheduled studying. "I don't have the self-control for it" is a common student complaint, as well as, "It's boring, so when something more interesting comes up, I do it instead."

Research in the development of self-control has shown that it is possible to teach students to have greater self-control when it comes to studying. This kind of research has been conducted for many years, and there are several steps known to be effective in developing self-control (Watson & Tharp, 1985).

First, goals must be specific. Not, "I'm going to study more," but, "I'm going to study on Thursday nights from 8:00 till 9:00."

Second, the student should keep track of time on target. That is, in the period from 8:00 till 9:00, how much time was actually spent studying, versus daydreaming, watching TV, and so on? Poorly performing students spend much less time on target than do better students. Time on target should be gradually increased.

Third, there has to be a plan for coping with temptation. Suppose a friend calls or one suddenly has an urge for a beer? One, students can use self-instructions: They tell themselves not to give in to the temptation. "I'm not going to call John right now, not until I finish my study time" (Don't laugh, this really works.) Successful students sometimes write down instructions to themselves--reminders of their goal to do better in college, or instructions not to give in to particular temptations. Two, temptations can be used to reward the act of studying. First study, then go get a beer. Anything that tempts one can be used to reward performing something else first.

Fourth, concentration is much easier if the student studies at the same, quiet place most of the time, without socializing with friends. A fully specific goal, therefore, would be, "I'm going to study on Thursday nights at the library at my favorite table from 8:00 till 9:00."

Fifth, all steps aimed at improving study habits should be developed in a series of successive approximations. The SQ3R study method, for example, is much more likely to be used if the student tries to implement it one step at a time. One of the greatest reasons for failure to increase study time is that the student who has been studying, say, two hours a week suddenly makes plans to study 10 hours per week. This almost always leads to failure, and the student lapses back into bad study habits with no improvement at all. This can easily be avoided by following two rules: Start at a much lower level than the final goal, and move up toward the goal in small steps. The student should start just above his or her present level of performance. The two hour per week person should start at two and a half hours. Students who can only concentrate for 20 minutes should begin by asking themselves to concentrate 22 minutes. The importance of this concept cannot be overstressed: Most failures in self-control are due to asking too much of oneself too soon.

Coping With Anxiety

Many students perform poorly because of anxiety about tests and evaluations. Indeed, fear of failure may be one of the major reasons students drop out of college (Blumenstyk, 1991). Signs of anxiety include tenseness, worrying, or being easily discouraged. Students who are overly anxious actually spend less time thinking about the material during a test than do those who are less anxious (Dweck,

1986). And they spend more time worrying. They also study less, for worrying about failure makes them tense, and this unpleasant emotion can be avoided by avoiding the work.

Early theories in psychology emphasized the role of emotion in producing thoughts, and later theories emphasized the role of thoughts in producing emotions. Today, it is thought that the process works both ways. This means that whatever the original impetus to anxiety, it is possible to control it with tactics aimed both at the emotion and at the thoughts.

Pressuring students who are test anxious to prepare better will probably not lead to better preparation. It's not simply that they are anxious because they are not well prepared. Whatever the initial cause of their anxiety, it now has become conditioned and is the first cause of their poor performance. Poor performance, of course, will lead to further anxiety, so a vicious circle has been established.

There are things an instructor can do to be helpful (Hill & Wigfield, 1984). First, test-anxious students perform much better on tests that are not timed, so whenever possible give untimed tests. Test-anxious students prefer to perform slowly and cautiously. Second, use instructions for tests that minimize the evaluative or competitive nature of the test. Introducing a test by saying, "Today we separate the men from the boys," may merely separate the anxious from the relaxed. Third, it is true that one good way to overcome anxiety is to be well prepared, so teaching better study habits helps. Typically, highly test-anxious students do not employ good study skills. Fourth, if one can evaluate students on their effort as well as their achievement, test-anxious students will try harder and some will begin to show more achievement. Fifth, giving a practice test helps particularly if the type of material is somewhat new to students. Sixth, giving several major tests and a number of quizzes during the term takes the pressure off each individual test and reduces test anxiety. Seventh, teach "thought stopping" (Watson & Tharp, 1985). In an exam, test-anxious student's thoughts usually are directed at their anxiety, rather than the material. Thoughts, however, are somewhat controllable. A relatively new mental technique called thought stopping has been shown to be effective in enabling people to stop obsessive ruminations or panicky thinking. The person simply shouts "Stop!" in the mind, takes some deep breaths to relax, tells himself or herself to concentrate on the material at hand and to go back to work. It will take a few practice sessions to perfect this, but it really does work.

Eighth, teach test-taking strategies. Research (McKeachie et al., 1986) has shown that test-anxious students perform better on tests if they are taught these tips: Tell yourself to relax before the test begins, and use thought stopping if you are dwelling on thoughts of failure; pay attention to the instructor, and read instructions slowly and carefully; do the parts of the test you know first; if you finish a section early, check your answers again; don't worry if you can't do some of the problems, as many tests have some very hard problems; if you can't answer a problem and it is taking too much time, move on to the next; don't rush, but work at a moderate rate; pay close attention to the work--don't think about other things;

keep track of where you are on the page by keeping one hand on the spot. Teaching these ideas to students has been shown to improve their test performance.

Motivating Students

Theorists such as Freud, Maslow, and the humanists thought of motivation as primarily internal, standing separate from thought, perhaps even energizing thought. And many of us think of motivation as some form of energy or drive, something that springs internally from the person. People may differ in their ideas of the source of this drive--the unconscious body chemistry, past history, or emotions--but the energy that drives the machine clearly lies within a person. This implies that attempts to increase motivation must be attempts to increase the energy level of the machine. Or, we can attempt to induce the machine to direct its already existing energy in certain ways.

Just as the old, static concept of intelligence gives little hope of changing students' cognitive structure, the solely internal conception of motivation also gives little hope of changing it. One can try to arouse motivation, or hope to direct it, but it remains a mysteriously developed mental drive that one only wishes students had to a greater degree. But this is only one way to think about human motivation, and it is not based in the most recent theory and research, which reveals a closer connection between thought, motivation, and the environment.

Changing Motivation by Changing the Course Structure

The kind of course structure and class environment provided by an instructor affects students' motivation. This does not refer to whether the professor smiles or not, or learns the students' names or not, though being warm in those ways will increase the chances they will want to learn the course material (McKeachie et al., 1986). I am talking about how active students are in the learning process, and how much control they feel they have over the process.

These factors affect whether the students' motivation is primarily extrinsic or intrinsic. The dichotomy between extrinsic and intrinsic motivation can be overdone, for one blends into the other. But the basic separation of concepts is worthwhile, for it points out a difference in educational approaches that can have important effects.

A student who is extrinsically motivated is oriented toward achieving success as measured by external circumstances. He or she is geared toward competitive grades, distribution requirements, a teacher's praise, or a good job. Intrinsic motivation can be seen as based within the person, centered in each person's needs to feel self-determining and competent. Students who are intrinsically motivated prefer challenging tasks to easy ones, are more likely to work primarily to satisfy their own interests, and evaluate their success or failure by internal standards rather than those of others. Intrinsically motivated students show more persistence in their work, have less fear of failure and test anxiety, show more curiosity and creativity, think more complexly, and readily transfer their learning to new situations (Deci & Ryan, 1985). These are the qualities professors want to develop, so the challenge is to produce intrinsically motivated

students.

There are several steps an instructor can take to increase the intrinsic motivation of students. One should continuously show how the material is related to what the students already know and to life outside the classroom. A teacher might have students discuss the historical, economic, ethical, or social implications of what is being learned, or simply make comparisons between the subject matter and events outside the class.

Structure the class work so that students actively participate in their learning. For example, research shows that students who learn material in order to teach it to others have a better grasp of the material, enjoy the learning process more, and are more motivated to continue learning (Pintrich et al., 1986). Participating in discussions, trying to synthesize ideas, teaching each other, doing projects outside class, working with each other on projects or cases--all these will increase intrinsic motivation.

Students are more likely to develop intrinsic motivation if they feel they have some control over their learning. For example, the way grading is handled is important. Grades can be used in a controlling, carrot-and-stick manner, in which the instructor tries to motivate through offering rewards for good work and punishment for bad. To students this often appears an effort to control their behavior. The biggest problem with this approach is not merely that the instructor will not always be present to goad or reward the students, but that it destroys intrinsic motivation. Students may comply and do the required work, but their motivation is primarily extrinsic. When the carrots and sticks are taken away--when the students are no longer in the course--they will no longer be interested in the material even if their interest was originally strong (Deci & Ryan, 1985).

If, on the other hand, grades are used primarily as feedback about the student's level of performance, the students tend not to perceive this as an attempt to control their behavior, but simply the instructor letting them know at what level they are performing. They are more likely to want to learn the material and to use it beyond the end of the course.

There are concrete ways to help students see evaluation as feedback rather than control. Discuss test questions fully upon returning them, make informative or questioning comments rather than "good" or "poor" on papers, return papers and exams quickly so the students can make immediate use of the feedback. Using a flexible grading curve based at least partly on predetermined standards, rather than just a certain percent of A's or C's, will lead to greater student focus on learning and less on "beating" a certain percentage of the class.

There is also evidence that simply reminding students of their intrinsic interest makes it more likely they will be motivated by curiosity or desire to master the material (Porac & Meindl, 1982). Asking them what part of an assignment they found most interesting, telling them they will feel good when they master a certain concept, and setting an example of the curiosity and excitement you feel can help to keep intrinsic reasons for learning--rather than grades--in their minds.

Students' Thoughts About Their Performance Affect Later Performance

What is it like to receive a C--or worse, an F--for one's work? Instructors may have to think a minute: What does one think about oneself after receiving a negative review of one's work? Of course, the student feels bad. Beyond this, people typically try to explain unwanted or unexpected outcomes to themselves.

Research into people's explanations of their own and others' behavior reveals several dimensions that can be used to explain unexpected or bad outcomes (Weinger, 1986). One dimension is that of internal or external causation. ("It's my fault," or "It's not my responsibility.") A second is the stable-unstable dimension--something that can or cannot change over time. A third is the controllable or uncontrollable dimension ("I can or cannot do something about it"). Typically people will use one or the other of these kinds of explanations to rationalize their own behavior: "I failed because I don't have the ability" (internal, stable, uncontrollable), or "I failed because I didn't try hard enough" (internal, unstable, controllable), or "I failed because the professor grades too hard" (external, stable, uncontrollable).

Many students entering college today have been used to easy success in high school. In some cases their secondary schools did not train them for the effort necessary for college work. Faced with college standards, they perform poorly for the first time in their lives. Because they have always explained their good performance by their innate ability, they now explain their relative failures the same way. The danger is that they see no alternative explanation. Because they think the tests they fail measure innate, not developed ability, they believe their efforts have been enough. And they can come to believe that they lack ability or have relatively low intelligence.

Other students may know that they have the ability, but blame their failures on circumstances outside of their control, such as the instructor's overly high standards, or a roommate's interference. These failing students do not recognize that their effort may be the crucial factor and that it is a controllable factor.

In my experience, college students making a grade of C or below seriously underestimate how much studying time was put in by students making an A. They thought the A student's grade must be due to superior ability. They couldn't believe that the A students were studying three times as much as they were.

If students habitually believe that their failure is due to something out of their control, then there is little point in exerting more effort. Beyond this, these same students often see success as just good luck--an easy test (and uncontrollable)--so that when they have tried hard, they don't reward themselves for their effort. Their failures reveal their inadequacies, their successes, their luck. (In thinking about how these students think, one has to realize that they do not think about success the same way someone as successful as an instructor does.) These students eventually learn to avoid all academic challenges for fear of failure.

There is no reason to allow these students to continue in what may be

erroneous beliefs. One can routinely suggest to students who are not doing well that perhaps they need to put in more effort and that the ability develops as one works on a task (Dweck, 1986). If they feel they are trying, find out how much time they spend studying. In my experience, many students who say they are working enough are not, at least not when compared with other students. It's hard for them to get started when studying, and when they do, they quit too soon. It is also likely that their study skills need developing, that they are inefficient in their approach to learning.

The major point is that changing the way students think about their own successes and failures--their explanations--affects their future performance (Fostering, 1985). If a student believes he or she has no ability, or that luck is against him or her, there is little point in trying. But if students think they just didn't try hard enough, there is room for trying again. The instructor can aid students just by pointing this out and by helping them develop strategies for success. Their increased effort, for example, should be directed at a goal that they have a good chance of attaining. If the task is structured for them, it helps them gain the experience of success, which will reinforce the increased effort required to perform the task. This does not mean that one should provide constant success or tasks that are too easy. The student needs to learn to face challenges with the new attitude, not simply to succeed.

The Professor's Motivation to be Helpful

Motivation is situational. The decision to undertake and persist in any activity involves both the expectation that one can succeed and the value that it is worth the effort and risk. This analysis applies to instructors as well as students (Bess, 1982). But do instructors really think they can change students' skills and motivations, and do they value that goal? If instructors think poor students lack innate capacity or are not cognitively developed enough to master challenging material, they encourage students' expectations of failure. If an instructor assumes that a student's lack of curiosity about the material is due to apathy or overemphasis on vocational success, then he or she will not try to change the student's values about learning. On the other hand, if an instructor heeds what research shows on the capacity of people to change, then specific actions can be taken to help students develop the skills and attitudes that promote learning.

A few years ago I began doing some of the things I suggest here. I stopped simply exhorting students and began to teach them how to improve their study skills and motivation. Since that time, I have spoken to a number of students who have told me that they have improved their performance by using the learning skills discussed in this paper. If you want to change some lives, try out these ideas. If you don't like them, you can always drop them.

BIBLIOGRAPHY AND REFERENCES

Benware, C. A. & Deci, E. L. (1984). Quality of learning with an active versus passive motivational set. American Educational Research Journal 21, No. 1, 755-765.

Bess, J. L. (Ed) (1982) . Motivating Professors to Teach Effectively. San Francisco: Jossey-Bass.

Blumenstyk, G. (1991, July). Colleges are urged to pay more attention to undergraduates and teaching. Chronicle of Higher Education, pp. A14, A16.

Bransford, J., Sherwood, R., Vye, N. & Rieser, J. (1986). Teaching thinking and problem solving: Research foundations. American Psychologist 41, No.10, 1078-1089.

Deci, E. L. & Ryan, R. M. (1985). Intrinsic Motivation and Self-Determination in Human Behavior. New York: Plenum.

Dweck, C. S. (1986). Motivational processes affecting learning. American Psychologist 41, No. 10, 1040-1048.

Edgerton, R., Hutchings, P., & Quinlan, K. (1991). The teaching portfolio: Capturing the scholarship in teaching. Washington, D.C.: American Association of Higher Education.

Entwistle, N. (1981). Styles of Learning and Teaching. New York: Wiley.

Forsterling, F. (1985). Attributional retraining: A review. Psychological Bulletin 98, 495-512.

Hill, K. T. & A. Wigfield (1984). Test anxiety; a major educational problem and what can be done about it. The Elementary School Journal 85, No.1, 105-126.

Irvine Group (1990). Renewing undergraduate education: Recommendations from the Irvine Group. Irvine, California: Irvine Group.

Lawrence, J. H. (1988). Faculty motivation and Teaching. In J. S. Stark & L.A. Mets Improving Teaching and Learning Through Research. New Directions for Institutional Research, No. 5 (pp. 53-64). San Francisco: Jossey-Bass.

McKeachie, Wilbert J. (1986). Teaching Tips: A Guide for the Beginning College Teacher. Lexington, MA: D. C. Heath. 8th ed.

McKeachie, W. J., Pintrich, P. R., YiGuang Lin, and Smith, D. A. F. (1986). Teaching and Learning Strategies: A Review of the Research Literature. Ann Arbor, MI:

National Center for Research to Improve Postsecondary Teaching and Learning. School of Education, University of Michigan, Ann Arbor, MI.

Murray, H. G. (1988, October). Effective teaching: Looking at the behaviors. The Teaching Professor, 2(10), 1-4.

Pauk, W. (1984). How to Study in College. 3rd ed. New York: Houghton, Mifflin.

Pintrich, P. R., Cross, D. R., Kozma, R. B., McKeachie, W. J. (1986). Instructional psychology. In M. R. Rosenzweig & L. W. Porter (Eds.) Annual Review of Psychology 37, 611-651.

Porac, J. F. & Meindl, J. (1982). Undermining overjustification: Inducing intrinsic and extrinsic task representations. Organizational Behavior and Human Performance 29, 208-226.

Robinson, F. P. (1970). Effective Study. New York: Harper & Row.

Schoenfeld, A. H. & Hermann, D. J. (1982). Problem perception and knowledge structure in expert and novice mathematical problem solvers. Journal of Experimental Psychology: Learning, Memory and Cognition 8, No. 5, 484-494.

Shulman, L. (1987, February). Knowledge and teaching: Foundations of the new reform. Harvard Educational Review, 57(1), 1-22.

Shulman, L. (1986, February). Those who understand: Knowledge growth in teaching. Educational Researcher, 15, 4-14.

Watson, D. and Tharp, R. (1985). Self-directed Behavior: Self-modification for Personal Adjustment. Monterey, Ca: Brooks/Cole. 4th ed.

Weimer, M. G. (1990). Improving college teaching: Developing instructional effectiveness. San Francisco: Jossey-Bass.

Weiner, B. (1986). An Attributional Theory of Motivation and Emotion. New York: Springer-Verlag.

INSTRUCTIONAL EFFECTIVENESS THROUGH ASSESSMENT OF STUDENT PERFORMANCE

by

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Abstract

Effective instruction requires effective assessment. Three elements combine to make effective assessment possible: course objectives, learning activities, and performance measures. Course objectives that are meaningful, measurable, and achievable provide a foundation for the development of learning activities. Learning activities that are varied, progressive, and skill-building develop competencies assessed by performance measures. Performance measures that assess practical knowledge and skills in the context of a realistic setting provide the student and instructor with the clearest assessment of current abilities and identification of strengths, weaknesses, and areas for growth. The systematic development of instruction (beginning with the identification of critical job tasks through the design of related course objectives, learning activities, and performance measures) makes the assessment of instruction and learning a natural consequence.

INSTRUCTIONAL EFFECTIVENESS THROUGH ASSESSMENT OF STUDENT PERFORMANCE

by Dennis C. Hribar

Instructional effectiveness relies on the frequent assessment of student performance. Assessment consists of evaluating a variety of student activities and products over a long time to determine the level of competency in the performance of critical classroom objectives. Objectives should reflect real-world knowledge and skill requirements that students must master to be successful after graduation. The criteria used to measure student performance also form the basis for the diagnosis, improvement, and evaluation of instruction. Assessment answers the questions: "How am I doing?" and "How can I do better?" for both the student and instructor. Assessment enables the instructor to continually adjust the manner and content of instruction to meet the needs of the students and achieve the objectives of the course.

Unfortunately at many colleges and universities, an emphasis on non-teaching activities, along with a tradition of academic freedom, tend to minimize interest in assessment. Instructors find teaching to be only one of many activities that compete for their time and attention. Other activities (such as research, consulting, grant work, and administration) sometimes take precedence. Instructors aspiring for tenure often devote considerable effort to non-teaching activities. Also, academia's tradition of academic freedom tends to minimize interest in the monitoring of instruction. In higher education the assessment of instruction and student performance receives relatively little interest compared in comparison to its importance in secondary schools and especially in elementary schools.

Given the importance of the initial years of formal education, teachers of the elementary grades frequently collaborate to plan instructional and assessment activities. These teachers' foremost concern is often the assessment of their students' development. In contrast, secondary-school teachers tend to plan more independently and structure their content-centered instructional activities around the textbook and its related materials. Textbook tests frequently become the measures of student performance rather than the broader measures of student assessment. Another reason for the reduced interest in assessing older students is the belief that as students progress through school and college, the responsibility for student learning becomes increasingly the responsibility of the student. Therefore, instructors of older students feel less compelled to perform assessment activities.

Extending this trend of increased interest in subject matter and decreased interest in student development at the higher grade levels, college and university instructors often focus so intently on their subject matter that the study of teaching,

instruction, and learning, which forms the basis for assessment, is frequently neglected. Also a "learning by doing" approach to the training of college instructors tends to minimize any formal instructor development. Given this situation (along with the importance of non-teaching activities, the tradition of academic freedom, and the belief that learning is the students' responsibility), is it surprising that assessment is used least at the college level?

Need for Assessment

The public's demand for educational accountability, which initially focused on the elementary-school level, is now pressuring colleges and universities to adopt new educational practices, such as competency testing. At the 1991 Assessment in Higher Education conference, sponsored by the American Association for Higher Education (AAHE), B. Wright, director of the AAHE Assessment Forum, discussed a survey of 368 colleges and universities. The study revealed that 80% of the schools did some assessment. This consisted mostly of classroom assessment conducted by instructors to evaluate their own teaching and make adjustments for student learning. Only 33% used a comprehensive program (which included classroom assessment, surveys, interviews, and testing) to measure student learning and development. Of these, 94% assessed basic skills, 67% assessed general subjects, and 62% assessed major subjects.

National Education Goals

Why should college and university instructors be concerned with creating competence in their students? In 1993, the National Education Goals Panel (NEGP) identified the problem:

> This year's Goals Report presents new data showing that Americans actually do not read and write well, despite their self-perceptions. Even college graduates, on average, have only middle-level literacy skills. More alarming is the finding that the average literacy skills of young adults are lower than they were seven years ago.
>
> These data do not bode well for American business. Overseas competitors are showing us that greater productivity depends upon higher worker skills and the creation of a high-performance work environment. Still, the American public is not sure how higher literacy relates to their own standard of living. They are worried about the economy and our competitiveness, but often they fail to see the link between further adult learning and either their own security or that of the country. New information shows how direct those links are. In 1992, adults scoring at the highest levels of literacy were much more likely to have been employed than those scoring at the lowest levels; their weekly wages were more than double those of adults with the lowest literacy levels. (p. 114)

Goal 5 of NEGP's six National Education Goals addresses the role of colleges and universities in keeping the United States competitive:

> By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global

> economy and exercise the rights and responsibilities of citizenship. (p. xi)
>
> NEGP challenges every instructor by the year 2000 to make the following objective of Goal 5 a reality: "The proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially" (p. xi).

Secretary's Commission on Achieving Necessary Skills

In 1992, the Secretary's Commission on Achieving Necessary Skills (SCANS) also expressed the need for competency-based education:

> Teaching should be offered in context. "Learning in order to know" should not be separated from "learning in order to do."

Improving the match between what work requires and what students are taught requires changing how instruction is delivered and how students learn.

High-performance requires a new system of school administration and assessment. (p. 12)

Use of Assessment

Assessment involves an instructor's use of student projects, portfolios of student work, and performance evaluation to form a judgment of the student's performance relative to the entry-level skills and the goal competencies. Assessment requires an instructor's analysis and evaluation of the processes of learning as well as its products.

Instructor Assessment Activities

Herman, Aschbacher, and Winter (1992) list instructor activities that foster effective assessment.

> Ask student to perform, create, produce, or do something.
>
> Tap higher-level thinking and problem-solving skills.
>
> Use tasks that represent meaningful instructional activities.
>
> Invoke real-world applications.
>
> People, not machines, do the scoring, using human judgment.
>
> Require new instructional and assessment roles for teachers. (p. 6)

Herman et al. (1992) summarize what is known about effective testing.

> 1. Specify the nature of the skills and accomplishments students are to develop.
>
> 2. Specify illustrative tasks that would require students to demonstrate these skills and accomplishments.
>
> 3. Specify the criteria and standards for judging student performance on the task.
>
> 4. Develop a reliable rating process.
>
> 5. Gather evidence ofvalidity to show what kinds of inferences can be made from the assessment.
>
> 6. Use test results to refine assessment and improve curriculum and instruction; provide feedback to students, parents, and the community. (p. 8)

Jaschik (1992), Cappelli (1992), and Schilling and Schilling (1993) encourage college and university educators to adopt assessment techniques. The Task Force on Assessing the National Goal Relating to Postsecondary Education is developing a national assessment program. K. P. Cross, director of The Classroom Project

(University of California at Berkeley), has published handbooks and conducted workshops to assist college instructors in identifying student learning problems encountered during instruction (Blumenstyk & Magner, 1990). Schilling and Schilling (1993) describe Miami University's Portfolio Assessment Project, which began in 1990. Striving for continual improvement, Miami University uses written evaluative descriptions from faculty and students, assessments of student portfolios, and student interviews to develop a comprehensive picture of the university's academic environment.

One area that is most under the control of the instructor and will produce the most growth in student competency is the use of curriculum development, instructional methods, and educational assessment. An instructor's effectiveness in these areas can bring the United States closer to achieving Goal 5 of the National Education Goals.

Classroom Assessment

Classroom assessment provides the quickest, most direct feedback to the student and the instructor concerning "How am I doing?" and "How can I do better?" This level of assessment allows the student and the instructor to make immediate effective responses to assessment information to create better, faster learning. Consistent assessments within one class of students or between several classes would alert the instructor to a situation that can then be addressed to maintain the best possible learning environment.

The effectiveness of instruction depends largely upon the instructor's abilities in three areas: curriculum development, instructional methods, and educational assessment. Curriculum development involves the creation of the content and flow of the course activities. Curriculum development products include: the course syllabus; quizzes and tests; assignments for reading, writing, speaking, research, and group work; outline of instructor activities; and assessment instruments (such as assessment questions, survey forms, and evaluation criteria). The remaining areas, instructional methods and educational assessment, relate to the delivery and evaluation of the instruction respectively, in other words, the execution of the syllabus. A poor course plan is difficult to instruct and assess. Hence, improvement in assessment begins with improvement in curriculum development.

Curriculum development is a critical area of instructor activity that, to a large extent, determines the effectiveness of a course. The products of curriculum development address three elements: course objectives, learning activities, and performance measures. The more the instructor can integrate these three elements throughout the course, the more focused and effective the course. The remainder of this article deals with issues instructors should consider when planning their courses.

Course Objectives

Course objectives should be performance-based and measurable. Objectives should derive from tasks that are critical to effective job performance. This linkage between school and jobs allows for long-term assessment using feedback from past graduates to update objectives based on current and projected job conditions. Because of this school-job linkage, objectives should focus on practical

knowledge and skills that will make the student more effective on the job.

Given the job-related objectives related to the course of instruction, the instructor reworks the objectives to make them teachable and measurable. Also, the objectives may best progress in a particular sequence, and additional enabling objectives may need to be written to provide intermediate objectives, which support a more complex, more difficult objective. The result is a series of objectives that promote the development of the student toward job competency. This series of objectives make instruction and assessment more manageable and effective by breaking the course into smaller objective-based blocks.

Another consideration the instructor should be aware of during the preparation or review of objectives is to ensure that the objectives involve a variety of physical activities (such as reading, writing, speaking, and group work) as well as a variety of mental activities (such as recall, analysis, and synthesis). This mix of physical and mental skills supports a central goal of assessment: evaluate the student in terms of long-term complex projects that are realistic and require the student to use a variety of knowledge and skills.

Learning Activities

A progressive list of measurable course objectives, which involve a variety of physical and mental skills, is the starting point for development of the learning activities. Considering the sequence, schedule, and type of course objectives, the instructor develops a sequence of instructor and student activities that support the achievement of these objectives. The learning activities will incrementally develop the student toward job-related competencies. The instructor should ensure that the activities address a range of competencies and that objectives, especially critical ones, involve various types of activities, such as recalling, using, and applying information. Next, the instructor prepares the materials to support the learning activities.

Given the learning activities and the supporting materials for the course, the instructor arranges the learning activities into an order of presentation. Frequently, learning activities related to various course objectives will progress in parallel, so that the students will develop integrated, increasingly complex competencies. The instructor coordinates the arrangement of learning activities with the dates and times of the class meetings to produce the course syllabus. The instructor evaluates the time requirements for the various activities and modifies the syllabus accordingly. The syllabus should reflect a progression of activities beginning with the comprehension of basic information; to using the information in testing, writing, and speaking; to applying the information in case studies, to research involving out-of-class resources and personnel. Formative assessments, those performed during the course, will document the progress of the students through the variety of learning activities. The summative assessment, which is performed at the end of the course, will compare the students' final competencies, in absolute terms, to the course objectives and, in relative terms, to the students' initial level of competency.

Performance Measures

Given the progression of measurable

course objectives and learning activities, the instructor schedules performance measures into the syllabus. The instructor should frequently assess the students to determine how well the students and the instruction are progressing. Performance measures may include quizzes, papers, presentations, examinations, and feedback from students concerning the instruction. The instructor should use a variety of performance measures.

Quizzes should be used frequently. They focus the students on the topic to be discussed and provide assessment information to the instructor and the students. Quizzes may be written or part of a class discussion. The form of the questions may be multiple choice, matching, or short answer.

Papers may be a variety of lengths and written for a variety of purposes, but primarily the student is required to synthesize, summarize, and communicate information. A 1-page paper, either written in or out of class, is used for a response to a specific topic. A 3-page paper contains a more complete treatment of a broader topic, to include an introduction, major points, important concepts and authors, and a summary. A 5-page paper uses the three-page format but includes student analysis and examples to demonstrate student comprehension. A 10-page paper is used to report research, which may include literature searches, interviews, observations, and case studies. During a course the instructor should use a variety of papers to assess student analytical and communicative skills.

Presentations may consist of speaking to the class either individually for 15 minutes, or in a panel discussion lasting 45 minutes. Public speaking develops a critical job-related skill. The purpose of presentations is to develop student confidence, but presentations also add variety and interest to the class, and communicate considerable information. The panel discussion format may be used earlier in the course as an interim step towards individual presentations. Presentation should include an introduction, a presentation of the main points, a summary, and time for questions.

Examinations cover a broad portion of course content and are similar to quizzes, only longer. Examinations may be used as transition points in the course to review and bring to closure a segment of the course. Examinations are important assessment items because of the amount of content addressed and the cumulative nature of examinations. However, examinations should not be the sole assessment item in a student's portfolio.

Feedback from students concerning the instruction may be written or discussed. Instructors should solicit feedback throughout the course, not just at the end. Feedback at the beginning of the course helps determine student expectations. Feedback during the course can identify the activities that are effective and those that are not. Most importantly, the solicitation makes the students part of the instruction and empowers them to recommend changes that may make the instruction more effective.

Curriculum Development Concerns

Instructors should consider the following questions when developing a course syllabus to facilitate classroom assessment:

Which knowledge and skills learned

in this course would make students more effective on the job?

Which course objectives are specific, measurable, and feasible?

Which course objectives could be rewritten to become specific, measurable, and feasible?

When in the syllabus should quizzes occur, and what material will the quizzes address?

When should examinations occur, what material should be addressed, and how will the material be tested?

What other student activities will be assessed?

What type of student papers will be required, and when will they be due?

Will any student presentations be required?

Will group work be required?

Have the learning activities of the course developed the students' knowledge and skills described in the first question? If not, reevaluate the answers to all questions.

Conclusions

The global economic competitiveness of the United States depends on the education of its citizens. Improving education is critical to our economic survival. The public's demand for accountability in education has reached the colleges and universities. Assessment, an essential element in improving education, answers the questions: "How am I doing?" and "How can I do better?" for both the student and instructor.

Frequent assessment of student performance enables the instructor to quickly identify student learning problems. Consequently, the instructor can adjust the manner and content of instruction to meet the needs of the students and achieve the objectives of the course, thereby creating instructional effectiveness. Effective assessment requires course objectives that are meaningful, measurable, and achievable; performance measures that assess practical knowledge and skills in a realistic context; and learning activities that are varied, progressive, and skill-building. Effective assessment leads to effective instruction.

Author Notes

I wrote this article in response to a call for papers from Embry-Riddle Aeronautical University's College of Continuing Education for a symposium on teaching effectiveness. The use of assessment techniques in my college teaching has helped me determine student abilities and instructional effectiveness within the class time available.

I thank my spouse, Georgeanne, for reviewing the article in terms of secondary school teaching and the literature. I thank my associates (Art Oman, Whit Rutter, and Joe Thomas) for their critique of the paper.

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References

Blumenstyk, G. & Magner, D. (1990). An assessment draws new converts, backers gather to ask "what works?". Chronicle of Higher Education, 36(43), pp. A11-A13, A15.

Cappelli, P. (1992). College, students, and the workplace. Change, 24(6), pp. 54-61.

Herman, J. L., Aschbacher, P. R., & Winters, L. (1992). A Practical Guide to Alternative Assessment. Alexandria, VA: Association for Supervision and Curriculum Development.

Jaschik, S. (1992). Washington update: Panel seeks common assessment method. Chronicle of Higher Education, 39(2), pp. A30, A35.

National Education Goals Panel. (1993). The National Education Goals Report (Vol. 1). Washington, DC: Author.

Secretary's Commission on Achieving Necessary Skills. (1992). Learning a Living: A Blueprint for High Performance. Washington, DC: Author.

Schilling, K. M, & Schilling, K. L. (1993). Professors must respond to calls for accountability. Chronicle of Higher Education, 39(29), p. A40.

TOWARDS TEACHING EFFECTIVENESS ASSESSING STUDENT PERFORMANCE

by

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"A grade is an inadequate report of an inaccurate judgement by a biased and inconsistent judge of the extent to which a student has attained an undefined level of mastery of an unknown portion of an indefinite competence."
(Dressel, 1983)

ABSTRACT

Evaluation is a process that is used to measure the depth and breadth of specific knowledge and skills. It is used while the instructional process is taking place to indicate a degree of movement towards a desired performance. It is also used to indicate a level of achievement or degree of competence after the instructional process has taken place. Further, and most relevant to this presentation, is that it gives faculty an indication of the efficacy of their teaching methods.

The intended purpose of the author was to review the literature on how it is that adults learn and how the assessment of student performance should take place. With these as a premise, a survey of 142 faculty members, both full time and adjunct, was conducted to determine how they view (1) the assessment process they personally use and (2) the grading expectations of their respective academic institutions. The surveyed faculty were from six different universities.

The results of the descriptive survey were compared and contrasted with expectations developed from the literature review. The conclusions considered to be most significant were: (1) the meaning faculty gave to the concept that student performance assessments were a reflection of their teaching methods and (2) the preponderance of faculty who hold a personal belief or perceive an institutional expectation, or both, that ratings given for summative evaluations should conform to a "normal curve" distribution.

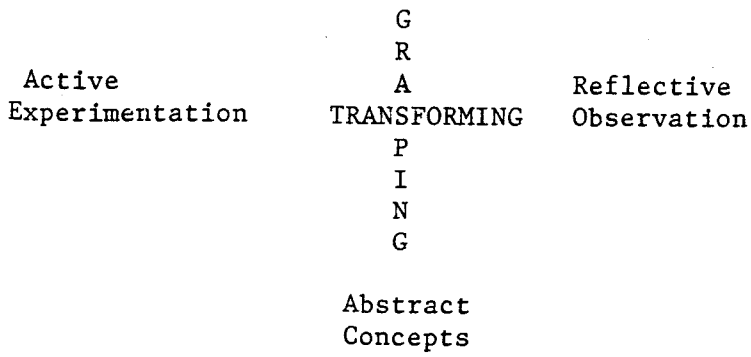
HOW ADULTS LEARN

Introduction

Before delving into the measurement of adults' learning performance, one needs to espouse some concept of how it is that adults learn as a premise for the ensuing discussion. Shockley's andragogical approach is but one of the accepted theories. Presenting it is not to disregard the others and not to ignore the issue of whether there is really any difference between how preadults and adults learn (pedagogy vs. andragogy: Knowles, et al). Shockley's model is but a point of departure.

The importance of espousing a specific learning theory is that it gives one a definitive description of the process the adult student is going through, thus, an infrastructure on which to build a particular instructional process. The collective achievement of some number of individual objectives is the goal of any instructional process. The related literature suggests that an assessment of student performance should be related to that goal and those objectives.

SHOCKLEY'S MODEL



It is Shockley's belief that the adult learner comes to the non-traditional learning environment with certain "constructed experiences" (knowledge, skills, beliefs, etc.) and tends toward having more of these "experiences" and in more depth than does the traditional student.

Shockley presupposes the instructor of this person will have, or will quickly gain, an awareness of the students' "constructed experiences" and will begin the presentation of new "abstract concepts" by using the "experiences" as points of departure. In some other learning theories, a comparable notion is that the premise of this instructional process is to go from the "known to the unknown."

The adult learner, according to Shockley, will subject "abstract concepts" to either "reflective observation" or "active experimentation," or both. This is usually done with some assistance from the faculty member (the facilitator) and, perhaps, fellow students. The usual process would be to emphasize "reflective observation" when dealing with cognitive and/or affective changes and to emphasize "active experimentation" when dealing with what is primarily psychomotor change. They are not mutually exclusive.

The process of presenting "abstract concepts" using the "constructed experiences" as a point of departure and the subsequent "reflective observation" and/or "active experimentation" is recursive/reiterative until new "constructed experiences" are developed. The entire process is then repeated until all of the learning objectives have been subjected to the process.

During the process, formative evaluations can, and should, be used to determine if, and to what degree, progress or movement is being made on the transformation/change. At the end of the process, summative evaluations should be made to determine a level of achievement or degree of competence. How close is the observed behavior to the desired performance/ideal characteristic? Some of the other learning theories suggest different purposes.

ASSESSMENT OF PERFORMANCE

As a lead in to a more in-depth discussion of performance assessment, we might ask a few rhetorical questions. When we assess students' performance are we attempting to find out:

What they know?
What they have learned?
How they learned (reacted to the process)?
How efficient/effective the instructor was?
Or some combination thereof.

Introduction

College teachers are faced with the task of assessing the ability of students to recall specific knowledge or demonstrate certain skills and/or to use that knowledge or those skills in various specific ways (see Bloom's Taxonomy). The assessment of students' performance is broad and far-reaching. It has application in most aspects of university-level education and involves students in intellectual aspects well beyond memorization (rote). In this presentation, we will address both the assessment of students' performance in a somewhat natural, though not traditional setting, the adult learners'classroom, and then reporting on that assessment. Although this presentation and the examples used relate directly to the aviation-oriented, non-traditional, adult-learners' classroom, college teachers of almost all disciplines should find the ideas presented to be generalizable to their own settings and disciplines.

Competence

Evaluation of students should seek to answer one question. "Is the individual competent?" Prior to answering this question, we must answer, "What is competence?" Saying that someone is competent and describing a level of competence is to imply there is a standard of behavior against which an observed behavior can be compared and defined (meets fully; adequate; or a letter grade with implied meaning). College teachers are responsible for judging students' degree of competency according to an agreed upon standard of performance. This is not an easy task.

Control

The evaluation of an adult learner in the non-traditional classroom or, for that matter, in any other setting or for any other type of student is one of the most difficult tasks faced by the evaluator. Its difficulty lies in the attempt to simultaneously measure cognitive, affective, and psychomotor changes, which resulted from learning, and that are not necessarily mutually exclusive. There are difficulties in taking valid and reliable samples of student performance. There is difficulty in controlling the conditions under which the samples of performance are taken. Evaluation of student performance is one of the most complex areas of the teaching/learning process.

To help all those educators who assess student performance, four basic steps of performance evaluation will be discussed:

a. Establish the purpose of the evaluation.
b. Describe the standard's (ideal performance) characteristics.
c. Measure/observe the actual student performance.
d. Define/describe the level of achievement/performance.

Establish the Purpose:

The first step in student performance assessment is to establish the purpose of the evaluation. In the reviewed literature, one finds both similar and divergent thought on the purpose of student performance assessment. The more widespread of these will be presented.

One commonly held view is that there are two types of student evaluations, each having a specific purpose. There are formative and summative evaluations. The formative evaluation should be conducted during the instructional process. Its purpose in assessment is to provide the student with on-going feedback which will improve his or her performance. There are also summative evaluations which are conducted at the end of a particular instructional process. Their purpose is to rate overall student performance. Frequently college faculty only think of this assessment in terms of assigning a letter grade at the end of a course of instruction. Properly done, it too could serve the purpose of improving student performance. Recognition that evaluations can provide students with on-going feedback and ratings at the end of a particular instructional process has many implications for teaching effectiveness and efficiency.

As previously mentioned, the purpose of formative evaluations of student performance is well-timed and on-going feedback. In general, feedback is most useful if given at the earliest opportunity after a specific performance. This feedback should be given openly and it should be descriptive rather than judgmental.

According to one study, correcting adult learners when they are wrong without belittling them was identified as a most helpful and critical teaching behavior.

Propriety does sometimes dictate that feedback be given away from other students. Regardless of when it is given, it should be specific and descriptive rather than judgmental. Furthermore, feedback should be directed at a behavior (performance) the student can do something about. Another rule of feedback is that it must be information that is understood by the student. NORM-REFERENCED SCHEMES FOR ASSESSMENT DO NOT HAVE A PLACE WITHIN FORMATIVE EVALUATIONS. Motivational schemes, that do not objectively compare actual performance to a standard, are questionable. Criterion-referenced schemes provide a standard against which actual performance can be compared and, thus, specific feedback provided.

College faculty are familiar with summative (rating/ranking) evaluations. In the non-traditional setting, because the adult learner relies on the faculty for verifying/certifying their competence, summative evaluations can take on even more importance. Therefore, faculty must be committed to evaluations which are relevant, rigorous, and understandable and to conducting assessments that are reliable and valid and with ratings/rankings that are credible/believable to their students. No wonder the faculty feel the assessment of students is such an overwhelming task! It could be helpful to think of summative evaluations as a collection of evidence that allows faculty to have confidence in their judgement of student competency. The key to this confidence is a multiplicity of objective data sources. The more objective and the more numerous the data sources, the more confident the faculty can be in the summative evaluation they make about the competence of students. Multiple objective data sources will be explored in this presentation under--"Measuring Student Performance."

Describe the Performance Standard's Characteristics

In order to evaluate the performance of students, standards (the ideal characteristics) for the desired performance must be established. These ideal characteristics (standards) are best described as goals and objectives. Goals should serve as manifestations (specific written or spoken statements) of the ideal performance towards which students are moving. Objectives are statements of performance that provide evidence there is movement towards those goals. Objectives describe cognitive, psychomotor, and affective changes that can be either measured, observed, or demonstrated, which indicate movement towards the ideal character- of performance. Cognitive changes can be combined with psychomotor to become "proficiency" objectives. In this same way, "knowing" and "understanding" are interwoven with "applying" when students perform. Thus, both cognitive and psychomotor changes are assessed. In addition, affective changes can be interwoven and assessed.

Objectives constitute evidence of movement towards a goal. Thinking of objectives as evidence precludes thinking of them as ends. They are the means to an end, namely the goal.

Thus, after establishing the purposes of both formative and summative evaluations, we describe the ideal (desired) performance in terms of goals and objectives. The objectives must be both measurable and provide evidence of movement towards goals. Faculty know the objectives are comprehensive when attainment of all of them instills confidence the student has successfully reached the goals.

Measure/Observe Actual Student Performance

Whether evaluating for improvement (formative) or for rating (summative), this step in the assessment process is the most difficult. Faculty are faced with the possible task of measuring cognitive, affective, and psychomotor changes simultaneously. The tools which best address this problem are those that provide concurrent measures. Some of these that will be succinctly presented are checklists, observation records, critical incident records, and anecdotal records. More information on each is available in the reviewed literature.

	SPECIFIC PREESTABLISHED	NON-SPECIFIC NOT PREESTABLISHED
OBJECTIVES	CHECK-LIST	OBSERVATION RECORD
OTHER ASPECTS	CRITICAL-INCIDENT RECORD	ANECDOTAL RECORD

Checklist:

A checklist is the breakdown of a desired performance (change in behavior) into specific steps or more easily measured segments. The usual purpose is to standardize assessments, make observations easier, and documentation less time consuming. Frequently, the seminar/ discussion group leader criticizes the checklist as not suitable for their particular teaching technique. Users of the technique who have used the checklist successfully have used it to keep record of student input, both quantity and quality, and to record demonstrations of the application of, and analyses using specific knowledge and skills. It provides evidence when doing either formative or summative evaluations.

Observations Record:

The primary difference between an observation record and a checklist is nothing more than the observation record being evidence of unpredicted and non-specific, but yet relevant, input from students. Again, we are talking about maintaining a record of student competence for future evaluative purposes.

Critical Incident Records:

Critical incident records can be used unto themselves or as part of the previously mentioned checklist. They would not be part of an observation record in that they are evidence of specific, and critical, learned behaviors. The critical incident record is used for cognitive, psychomotor, and affective change(s) that is(are) absolutely essential to being able to certify learning has taken place. These specific behaviors would likely be the difference between a passing and a failing grade.

Anecdotal Records:

Anecdotal records are unlike the critical incident record as the checklist is unlike the observation record. The anecdotal record will provide evidence of unspecified, unpredicted, but yet relevant, behavior that indicates learning has taken place and/or a level of competence achieved.

The key to feeling confident about judgements of student performance is the use of multiple data sources. Each evaluation tool has both advantages and disadvantages. Faculty need to assess both independent and concurrent changes in cognitive, psychomotor, and affective behavior. They need to do so both during and after the instructional process. They need to make record of the assessment (assign a grade) for the student and other uses, not the least of which is a measure of instructor efficacy.

DEFINE/DESCRIBE THE LEVEL OF ACHIEVEMENT

There are two prevalent methods by which college faculty assign student grades. These are "percentage grading" and "grading on a curve." There are, of course, other methods that are used by a relative minority of college teachers. McKeachie, 1986, one of the most respected assessment/evaluation authors, discusses several of these methods and the more relevant problems associated with them. In this presentation, we shall focus on the two more widely practiced systems with their numerous variants because most instructors fall neatly into the group that practices some variety of "percentage grading" or the group that, by one means or another, grades "on the curve."

Percentage grading systems are, perhaps, the most prevalent methods of assigning college grades. A faculty member announces some "absolute standard" early in a course, which takes the form of a percent of possible points that must be earned to obtain a specific grade. Advocates of such systems espouse the virtue of giving students advance notice of what is "expected of them" in order to earn certain grades. But does an announcement that a student "needs to obtain at least 90 percent to receive an 'A' in this course" really communicate what students need to learn? Does it define the domain of course content? Does it specify the difficulty of the test they will be given? No! to all of the above. This "advance information" concerning the "absolute standard" creates an illusion of informative clarity. It really tells next to nothing.

Most college-level course work falls into large, open, generalities-described content domains that do not lend themselves to meaningful interpretation of student performance using either raw or percent scores. Raw and percent scores are not only functions of content domain and student achievement, but are also artifacts of test difficulty. This size, openness, and lack of definitive description that characterizes most college level course content domains results in uncontrollable test item difficulty. Faculty are apt, whether intentionally or inadvertently, to develop a test on which no student is likely to attain at least a 70% or, just as likely, to develop one on whic almost all students can attain at least 90%. Test difficulty is inherently norm-referenced, so to control for it we must violate the intrinsic nature of the content domains of most college-level course work, which is criterion referenced. Yes, somewhat circuitous!

For the instructor who wants to use the raw or percent score there are some cases where establishing certain content domains will make these grades meaningful. "The domain description must be sufficiently detailed and delimiting to show clearly and definitively what facets of behavior are included, and more importantly, what behaviors are excluded from the domain" (American Psychological Association, 1985). "The fruitfulness of this orientation, content mastery, can only be realized when there is a possibility of defining the domain clearly and incisively so that the range of performance that lies within the domain can be definitively specified and agreed upon" (Thornhill, 1987).

Trying to make raw or percent scores fit content domains that cannot be described as suggested by the American Psychological Association or Thornhill will force one into arithmetical machinations or "adjustments," that are incompatible with the basic rationale of percent grading. They will be used by faculty to get themselves out of messes that a fundamentally illogical system got them into. It would have been better to avoid the predicament in the first place.

Like those who use "percent grading," instructors who grade on class curves usually value advance notice to students regarding what is required to receive one of various grades. they seek to do this with such statements as, "To receive an 'A', you must be among the top 15% of people in the class in total points amassed at the end of the term" ...at mid term"

Class-curve grading does not foster good interpersonal relations within a class. Having to "bump" others and being

"bumped" fosters ill will. Grading on a curve does not encourage group study or cooperative learning. It encourages isolation and exclusion. Curve grading does not motivate students to help one another learn. Quite the contrary, self interests would be 'best' served, in fact, by interfering with the learning of others in the group. A grading policy should not force students to compete with one another for grades. Learning is not inherently competitive. There is no logical reason why one student's success at learning must predispose others to less success or failure.

Other problems with class-curve grading are sample size and representativeness of the sample. One class in any particular course can be made up of many more "better" students than low achievers or the reverse might be true. A student in a class of more "low-achieving" students can all too easily rise to the top; more than a student can in a class with a majority of "better" students. Unless a class is truly representative, in the statistical sense, of the undergraduate or graduate population, to use curve grading is unfair and illogical.

With class sizes of 15 to 25 students, sampling error can be expected to make the difference of one letter grade for several students. Even in class groups as large as 50 students, sampling error can make a grade difference, though to a smaller number of students. The only way this sample-size concern can be abated is by evaluating several hundred students with the same measure (standardized tests). This creates an apparent paradox. The usual class size is too small a sample and lacks representativeness but yet curve grading is espoused by some as the only logical foundation upon which to base grades for typical college courses (Hanna, 1984).

For those faculty who are going to use curve grading and do not have a large enough sample, the answer, it has been suggested, lies in the use of "anchoring." An "anchor" measure is a device with which a faculty member can judge or "take bearings" on the status of a particular class. To provide this "anchorage," a variable need only have the attribute that it correlate with performance in the course being graded. One example provided in the literature was the use of ACT/SAT/GRE scores (assuming they are available) as anchors because they are from a very large reference group and should correlate to performance in most college classes. Standardized tests are among others suggested. The large size of the reference group, it is suggested, will provide stability from sampling error and the correlation to performance will provide an adjustment to the statistical process used to obtain class curves for specific groups.

The concept of "anchoring" provides an answer to the problems of sample size, sampling error and lack of representativeness, but it does not remove the inherent competitiveness from the learning environment; it does not address predisposing one student to success and another to less success or, perhaps, failure; and it does not address the "preordination" of students' grades, regardless of student learning.

Some faculty seek to compromise the virtues and vices of the two major grading systems. Such approaches usually succeed in diluting the vices of each approach but at

the cost of also diluting the virtues of each.

The literature review gives rise to some criteria for judging college grading systems:

If grading is done on a curve, it will be subjected to scrutiny on:

The inherent competitiveness it brings to the learning environment.

The predisposition for success and failure it brings to the grading process.

The referencing/anchoring that is used to give relevance to the norm.

If grading is done on a class curve, it will be subjected to scrutiny on the sampling error attributable to sample size and the lack of representativeness to the sample.

Student cooperation in the learning environment should not be thwarted by a grading system that instills an artificial competition among peers, which, in fact, should be avoided. Grading cannot be a fixed-sum game.

Students should have a sense of control over their learning and over the grade that reports their achievement. They should know that a reported level of achievement reflects a certain degree of competence. The instructor should have a reciprocal sense of efficacy. (see note)

The grading system should be easily defined and interpreted. Its meaning should be communicable and consistent across as broad an academic spectrum as possible.

NOTE: To the instructor's "reciprocal sense of efficacy"

For the faculty member who strives to establish, maintain, and strengthen the relationships between subject matter, instructional objectives, assessments, and reports of achievement, the grade attained by each and every student is an indicator of the degree of success to be enjoyed by the faculty member for achievement towards the optimum complementary relationship. The use of student grades, by a third party, to decide the efficacy of an instructor is questionable, at best. This is not to dismiss the harsh reality of the practice. It is an issue better addressed outside the cogent literature and within common practice.

A DESCRIPTIVE SURVEY

Based on ideas developed from the literature reviewed, a descriptive survey was developed to ascertain the attitudes, perceptions, and beliefs of selected faculty on the purposes of assessing student performance and the uses for the record of their achievement (grades).

A test bank of forty questions was developed and submitted to a panel of experts. This panel included four full time faculty with two different universities, four adjunct faculty with three different universities, and two faculty who retired from full time positions and now teach as adjuncts. Based on their comments and suggestions, a questionnaire was developed that consisted of twenty-five questions. The survey was administered to 38 faculty of the Air Force Institute of Technology for a pilot study. The intent of this study was to address potential process and/or content problems. The pilot study respondents were given the opportunity to make both written and verbal comments along with completing the survey itself. Their replies were not included in the study. However, their replies and comments were used to revise the questionnaire.

In its final form, two hundred copies of the questionnaire were provided to faculty from eight different universities. The copies, fifty of them, sent for distribution to full time and adjunct faculty of two specific universities were lost in the mail. The study was continued without giving them further consideration. Twenty-five copies of the questionnaire were distributed for faculty, both full time and adjunct, of six different universities. There were 142 acceptable questionnaires returned and included in the study.

FIGURE 1

SAMPLE

Dear Respondent,

I will be presenting a paper early next year on the role of student performance assessment in improving teaching effectiveness.

Your responses to the attached survey, if you choose to reply, will provide me with a faculty perspective on the subject, which will be an invaluable addition to the presentation.

I can assure you anonymity throughout the research and presentation to include not showing any specific relationships between academic institution and response.

My thanks in advance for your collegiality.

Wm. Francis Herlehy III, Ph.D.
Associate Professor

P.S. I would be happy to provide you the collective results of the survey and my analysis if you care to have them. Include your request with the reply.

FIGURE 2

SAMPLE

Name (optional):

_____

Faculty Status: Full-time _____ Other _____
Adjunct _____ (explain _____)

Academic Institution

_____

(If more than one, please complete a separate survey for each or just complete one but only consider the institution listed when doing so.)

What do you consider your academic discipline?

_____

How long have you taught at the college level?
Undergraduate _____ Graduate _____

What part of your teaching responsibilities are for:
undergraduate classes? _____ graduate classes? _____ other? ____

What grading system do you use for purposes other than the grades you turn in at the end of the term?

i.e. Letter grades _____
Letter grades w/plus or minus _____
Numerical grades (0-100) _____
Numerical grades (0-4) _____ How many points after the decimal?
Other _____ Explain _____

_____

On what basis do you assign these grades?
i.e. To show student progress he/she has made _____
To reward student for achievement _____
To motivate student _____
To reinforce learning _____
To show what progress student has made relative

to the rest of the class _____
Other (explain)_____

What grading system do you use for the grades you submit at the end of the term?

i.e. Letter grades _____
Letter grades w/plus or minus _____
Numerical grades (0-100) _____
Numerical grades (0-4) _____ How many points after the decimal?
Other _____ Explain_____

On what basis do you assign these grades?

i.e To show what the student knows _____
To show what the student has learned _____
To show how student compares to others in the class _____
To show level of competence _____
To conform to university grading standard _____
To show students contribution to the class _____
To motivate/reward student _____
Other (explain) _____

Does your university have a formal policy for grading?
Yes _____ No _____ How closely are you expected to follow that policy? _____

Do continuing enrollments in your classes play a conscious part in your grading system? Yes _____ No _____ Comment: _____

Do the grades you assign students indicate the effectiveness and/or efficiency of your teaching methods? Yes _____ No _____ If yes, how

How have you changed your teaching methods as a result of your students' grades? _____

In your opinion, how important are grades to your students?
Very important Moderately important Important Not important
_____ _____ _____ _____
Why? _____

How important is the assessment of student performance, to include assigning grades, to you?

Very important ____ Moderately important ____ Important ____ Not important ____

Why? _____

Any additional comment(s) on the survey subject: _____

Thanks for taking the time to respond.
Bill Herlehy

DATA COLLECTION AND ANALYSIS

"Name" was included as an optional item on the questionnaire to ensure anonymity to those who desired it. Providing a "name" was taken as an approval from the respondent to be contacted for further comment and/or elaboration on responses to the survey. Primarily because of time constraints, a minimum amount of personal contact was made.

Of the 142 respondents, 56 were full time and 86 were adjunct. Seven of the faculty reported as adjuncts reported themselves as "other" but the explanation given warranted changing their category.

The academic institutions represented by the respondents were:

Embry-Riddle Aeronautical University
Central Michigan University
Park College
Wright State University
University of Dayton
Xavier University

Coincidentally, this is somewhat of a cross-sectional representation of small to medium colleges and universities in the Midwest United States.

The academic disciplines represented were:

Architecture
Accounting
Marketing
Mathematics
Psychology
English Literature
Communications
Finance
Philosophy
Sociology
Law
Chemical Engineering
Mechanical Engineering
Aeronautical Engineering
Organizational Behavior
Human Resources Management
Operations Management

Again, this is somewhat of a cross-sectional representation.

Teaching at the undergraduate level ranged from three to twenty-seven years with a mean of 10.7 years. All 142 of the respondents have experience teaching at the undergraduate level. Teaching at the graduate level ranged from five to twenty-two years with a mean of 8.2 years. Only 18 of the respondents had no teaching experience at the graduate level. The reason this question was included in the questionnaire was to indicate the respondents "qualifications" to make credible statements in regards to the subsequent questions.

Responses to the "part-of-teaching" question indicate that current teaching responsibilities range from solely undergraduate (30 respondents: 100%) to solely graduate (35 respondents: 100%). As worded, the question does not address whether the stated teaching responsibilities have anything to do with preference.

Re: "Grades during the term" "Letter grades" are used by 38 of the respondents and "letter grades w/plus or minus" are used by 56 of the respondents. "Numerical grades (0-100)" are used by 46 of the respondents but four of them explained that they were not using percentages but rather an achieved number of points against a possible number of points that was not 100 (i.e. 16 out of 20". No respondents reported using "numerical grades (0-4)" and no one reported using "points after the decimal." Two respondents reported using "other" and explained that they used descriptive comments as feedback to the student.

An assumption was made that formative grades are what is used in an arithmetical calculation to determine the summative grade. This assumption is based on the suggestion made by the panel of experts that faculty do not give comprehensive final exams but rather that they give a "final" formative exam and the grade for that assessment is somehow "summed" with the grade(s) for other formative assessments to determine the "final," or summative grade. The actual survey results seem to support this notion but there is an apparent paradox. If the assumption is credible, it is difficult to understand why faculty would use "letter grades," "letter grades w/plus or minus," or "descriptive comments" because there is no readily apparent or obviously meaningful was to "sum" these grades. This concern prompted personal contact with a small number of the respondents who gave a wide range of numbers they assign "in their head" to the different possible grades. Each of them said it "was something that came from experience. Those contacted did indicate that the summative grade reported was derived by arithmetical manipulation of the formative grades, subjective as that system may be.

Re: "On what basis...assign grade" Even though they were not asked to do so, there was an expectation that respondents would select just one "basis" on which they assign grades for formative assessments. Seventy-two percent of the respondents selected at least two and 23 percent of them selected three.

"To show student progress..." was selected as a basis by 140 of the 142 respondents. This basis would certainly reflect the efficacy of the instructor. This is especially interesting because there is no indication that any of them gave a pretest. It seems what these faculty actually wanted to indicate was that their assessment is based on what the student knows or can do but not that it was necessarily learned as part of this particular instructional process. There is nothing inherently wrong with this. It does indicate faculty should rethink just how they consider this "basis" an indication of their effectiveness.

Only a small number of respondents selected the "achievement" (18) or "motivate" (12) basis for grades assigned to their formative evaluations. The other responses given for "basis" certainly indicate a majority view and they resemble each other. These two resemble each other but are quite unlike the other choices. They obviously represent a minority perspective.

However, I am not convinced this is not at least one basis for more faculty than those who did, in fact, select it. I feel that because using either of these as a basis for grades might not be a conscious act, it was not readily selected.

"To reinforce learning" was selected seventy-five times by the respondents. This is assumed to mean that the basis for the grade was to give the student an indication of the part, or parts, of the content domain they know and/or can use competently. We really do not know what knowledge and skills they brought into the instructional process.

For the thirty respondents who selected "...relative to the rest of the class" indications are that the basis on which they assign grades for formative evaluations is a class curve. Even those previously cited authors who are the staunchest supporters of grading on a curve do not support, in fact they recommend against, using a curve to grade on formative evaluations as being contrary to the basic premise of this type of evaluation.

Re: "Grading system...end of term" One hundred and thirty-eight of the respondents indicated they submit "letter grades." Four indicated they submit "letter grades w/plus or minus" but went on to indicate that only the letter is used for the grade report. This was the expected response because usually the academic institution will prescribe the type of grade to be submitted and this is what almost all accredited colleges and universities prescribe. It is not a faculty preference. Nobody opted for any of the other choices available.

Respondents indicated the basis on which they assign the end-of-term (summative) grade as follows:

To show what student knows 124
To show what student has learned.....139
To show how student compares to others in class.....100
To show level of competence.....108
To show conformity with University standard.....77
To show student contribution to class.....62
To motivate/reward student.....8
Other (explain)....."part of the final grade is based on the effort put into the course by the student."

The basis "what student knows" is assumed to mean what part of the material covered in the course the student "knew" when assessed. It does not necessarily indicate what was learned as part of the instructional process because we do not know which knowledge/skills preexisted.

The basis "what student has learned," as previously discussed, can be an accurate basis for the summative grade if the faculty member has a measure of pre-existing knowledge and/or skills to be used for comparison at the end of the instructional process. Assuming that to be the case, grades assigned on that basis can also provide a valid

indication of the effectiveness of the instructor.

"How student compares to others in the class" is usually explained by faculty, who use this for a basis, to mean identifying which students fall where on the "normal curve" they are predisposed or preordained to fit. Some indicate they "adjust the curve" but none indicated any objective system to doing so (i.e. "anchoring" to compensate for sampling error). Again, "experience" was given as the best way for knowing how to adjust the curve.

"Level of competence" was an expected response. No explanations or comments were offered by those selecting this basis. Sixty-six percent of the respondents selected this as at least one basis for their end-of-term grades.

Fifty-four percent of the respondents selected "conformity to a University grading standard" as one basis for their summative grades. This was received with some ambivalence. None of them elaborated on what the standard/norm is. The small number of respondents who were personally contacted indicated their academic institution "expects a grade spread" and that they have developed an "anchor" through experience that seems to satisfy the institution. A common thought was that none of the institutions seemed to check the "spread" very carefully--"a sense of direction without strong enforcement as one respondent put it.

Forty-four percent (62) of the respondents selected "contribution to the class" as one basis for their summative grades. Several of these respondents explained this response to mean "class participation." Of the respondents contacted, none had any means of recording "class participation" (i.e. checklist, anecdotal records,etc). They simply "remembered," Who participated. To what degree they participated. How cogent their participation was.

Each of the eight respondents who selected "motivate/reward" as a basis for their end-of-term grades went on to explain, in some fashion, that "the effort" a student put into the class played a distinct part in determining their final grade.

All respondents to the questionnaire indicated a "formal University standard for grading" that was used, at least, as a general guideline when assigning summative grades for their students. One-hundred and twenty of the respondents indicated they were expected to have a "grade spread."

To "continuing enrollments," forty of the respondents selected "yes"; eighty-two selected "no"; twenty selected neither and made no comment. Two of the respondents who selected "yes" commented that they were "expected to not be too tough."

All 142 of the respondents indicated the grades they assign show the effectiveness of their teaching methods. The respondents did not indicate so, but if I were to assume a cause and effect or causal comparative relationship between the effectiveness of teaching methods and summative grades, I would be foolish to expect any response other than what I got, especially on a self report. This result argues against final grades being a valid/reliable indicator of teaching effectiveness. What faculty member will assign a grade of 'C' or 'D' when doing so indicates a lack of effectiveness to their teaching methods? Let's not get ready to throw out the baby with the bath water! There is a way to use grades for this purpose. It will be discussed under "Conclusions."

Sixty respondents indicated on "changed your teaching" that they would spend more time covering material that an assessment indicated was a problem area for their students. Most of those indicated it would have to have been a problem area for "over some specified" percentage of the class. Only two-thirds of the respondents answered this question. All of the personal contacts stated they would adjust grades if there seemed to be a "problem area" pointed out by the assessment. One of the personal contacts stated she did not answer the question because she felt adjustments to her teaching methods should be made during the instructional process not at the end of it.

One hundred and eighteen of the respondents felt grades were "very important" to their students. Twenty-four of the respondents felt grades were moderately important to their students. None of them opted for the other choices. The essence of the comments provided was that the importance of the grades related to the competitive and over-achieving nature of college level students.

All but six of the respondents indicated assessments and grading were "very important" to them. The six indicated they were moderately important. About half (68) of the respondents gave a reason for their selection. Most of the reasons given centered on a rather simplistic, "to let the students know how they did in the course." This and the comparable other reasons given are just too vague to suggest anything else.

CONCLUSIONS AND RECOMMENDATIONS

> Teaching effectiveness: the degree to which instructors can appropriately deal with individual student differences and instructional objectives in their teaching methods, wisely optimizing both the level of achievement and time it takes to master dimensions. (Hanna & Cashin, 1987)

Assessments are, to use a metaphor, suffering from a great illness. If the patient is to be cured he must admit his illness, so the "ills" of assessment cannot be cured until they are acknowledged. Until the "ills" are cured, the practitioner should question the validity of using assessments (1) to determine relative achievement in any specific course, (2) to determine the degree

of mastery of any competency, or (3) for determining the effectiveness of teaching methods. Of particular interest for this paper is "the effectiveness of teaching methods."

If there is anything that educational psychologists agree upon, it is that individual students differ. Effective teaching helps all students develop their talents to the maximum; it tends to increase their individual differences. In a given amount of time and with comparable effort, the more talented student will learn more than the less talented. EFFECTIVE TEACHING AT THE COLLEGE LEVEL CAN BE REFLECTED IN DIFFERING LEVELS OF ACHIEVEMENT BY DIFFERENT STUDENTS. With the major focus of this paper being on individual differences, attention will be given to providing a framework on which faculty can "appropriately deal with both the level-of-achievement dimension to assessments and the time-to-master-content dimension."

A Prescription:

Subject Matter. There are three types of subject matter content. (1) There is that which is completely specifiable, is masterable, and is essential. (B) There is that which is completely specifiable but either cannot or need not be mastered. (C) There is that which can neither be completely specified nor mastered. The first and third of these need to be translated into instructional objectives. The second type of subject matter could be included in a course content but does not warrant assessment. A first measure of teaching effectiveness is to appropriately identify the subject matter as one of these types.

Instructional Objectives. As suggested by Mager (1975), instructional objectives should (1) state learning outcomes in terms of student behavior, (2) indicate the conditions under which the behavior should occur, and (3) specify the standard or level of achievement a student must attain. In keeping with Mager's criteria, another measure of teaching effectiveness is how well the instructional objectives relate to subject matter content. (i.e. (a) stroking techniques used in tennis can be very specific, completely mastered, and are essential. This calls for a "time to master" dimension to the instructional objectives and for specific teaching methods (demonstration and performance) vs. the "mental game" which is not easily or tightly specified and seldom mastered. This calls for a "level of achievement" dimension to the instructional objectives and possible manifestations of cognitive changes).

Tests. Subject matter described above in (A) and used as an example in (a) should be assessed with a mastery test because the content domain is definitive and essential to learning. This type of subject matter usually calls for only one form of the test because the student will rehearse/practice until they have mastered the subject matter. If the teaching has been effective, the differences in assessment results are most likely attributable to the time dimension. For subject matter described above in (C) and used as an example in (b), content can neither be specified clearly nor completely mastered so assessment should be based on

a demonstrated level of achievement. Teaching methods, which are used for this type of content domain, should emphasize progress checks and feedback. A measure of teaching effectiveness is the degree of relationship established between the subject matter, the instructional objectives, and the tests used for assessing either the degree of mastery or the level of achievement.

Interpretation of Test Scores. When using "raw scores," the instructor who has effectively maintained appropriate relationships between the just-mentioned factors of the instructional process will have a credible indication of their teaching effectiveness. The only concern, not normally addressed in the college-level classroom, that would make this indication of teaching effectiveness questionable is the lack of a measure of pre-existing knowledge and skills to be used for comparisons. These pre-existing knowledge and skills are the "constructed experiences" suggested by Shockley. Thus, they are not only important to accurately determining teaching effectiveness but also to the entire instructional process. It is the point of departure. That concern aside, both mastery and discriminating tests will indicate teaching effectiveness when using raw or percent scores.

Derived scores are obtained by converting raw or percent scores in any one of several ways to permit comparison with others being graded.

Using the reported survey indications, it is usually a raw or percent score that is used for the formative evaluation. By definition, and with the one exception cited, this grade indicates learning effectiveness; by implication, it indicates teaching effectiveness. The expressed purpose of the derived score, which is usually used to report on the summative assessment, is to make "adjustments" for purposes of comparing and ranking those being graded. Thus, derived grades are not the measure one would want to use when seeking to determine teaching effectiveness. As suggested by one respondent, concerns for teaching effectiveness should occur during the instructional process not at the end of it. Raw and percent scores used to report on formative evaluations will give an indication, at the appropriate time, of teaching effectiveness and, if necessary, a signal for change.

References

American Psychological Association. (1985). Standards for educational and psychological testing. Washington, DC.

Anastasi, A. (1982) Psychological testing. New York: Macmillan.

Bloom, B. S. (1976). Human characteristics and school learning. New York: McGraw-Hill.

Cox, W. F. and Dunn, T. G. (1989). Mastery learning: a psychological trap? Educational Psychologist 24, 14-29.

Cronbach, L. J. (1991). Comments on mastery learning and its implications for curriculum development. Boston: Little, Brown.

Dressel, P. Grades: one more tilt at the windmill. Memphis: Memphis State University.

Ebel, R. L. (1986). Essentials of educational measurement. Englewood Cliffs, NJ: Prentice-Hall.

Frisbie, D. A. (1979). Assigning course grades. Urbana-Champaign: University of Illinois.

Guba, E. G. (1981). Effective evaluation. San Francisco: Josey-Bass.

Hanna, G. S. (1984). Coordinating instructional objectives, subject matter, tests, and score interpretation. Manhattan KS: Kansas State University.

House, E. H. (1980). Evaluating with validity. Beverly Hills: Sage Publications.

Mager, R. F. (1975). Preparing instructional objectives. Belmont, CA: Fearon Publishers.

McKeachie, W. J. (1986). Teaching tips. Lexington, MA: Heath.

Milton, O. (1986). Making sense of college grades. San Francisco: Josey-Bass.

Patton, M. W. (1990). Qualitative evaluation methods. Beverly-Hills: Sage Publications.

Thornhill, B. L. (1987). Measurement and evaluation in education. New York: Wiley.

USING THE TEACHING GOALS INVENTORY (TGI)

TO

IMPROVE TEACHING EFFECTIVENESS

by

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USING THE TEACHING GOALS INVENTORY (TGI) TO IMPROVE TEACHING EFFECTIVENESS

by Steven N. Ulosevich, Ed.D.

The national debate about education, which escalated in 1983 with the publication of *A Nation at Risk* by the National Commission on Excellence in Education, continues with a reexamination into the teaching and learning processes employed at all levels of education in the United States. *A Nation at Risk* cited the quality of teaching and learning as the primary issue of concern regarding education. Quality remains the major educational issue and warrants answers to two fundamental questions: (1) How effectively are teachers teaching? and (2) How well are students (a) learning? and (b) able to perform in higher education institutions, in professional schools, and on-the-job?

The first question results from a continuous debate regarding the appropriate balance between research and teaching in academe as well as how to evaluate teaching and appropriately reward faculty members for "good" teaching. Many higher education institutions are beginning to assist faculty members to become more effective facilitators of learning through a linkage of professional initial and continuation training programs.

The second question is being addressed by the assessment movement, which is gaining momentum across the United States. The public is becoming increasingly concerned about being asked to pay higher taxes while not perceiving proportional increases in the performances of students and graduates. Political pressures are being applied to higher education institutions to better prepare teachers for service in elementary and secondary schools. Consequently, a majority of state governments have mandated assessments of higher education institutions. Most colleges and universities have responded by initiating assessment programs to determine the effectiveness of their educational programs. However, Angelo and Cross (1993) found that faculty members are not fully involved in the assessment processes. Consequently, the results of institutional assessments are rarely implemented in the classroom and are not making a discernable difference.

This paper reviews the utility of employing the Teaching Goals Inventory (TGI) to link classroom assessment efforts with teaching goals (Angelo and Cross, 1993). Faculty members of higher education institutions may conveniently use the TGI to enhance teaching effectiveness through assessing student learning.

Angelo and Cross wrote *Classroom Assessment Techniques, 2nd ed.* for use by faculty members of higher education institutions. *Classroom Assessment Techniques, 2nd ed.*, published in 1993 as part of the Jossey-Bass Higher and Adult Education Series, provides a thorough insight into the Classroom Research Project.

Classroom Assessment is a component of the Classroom Research Project.

The basic premise of the Classroom Research Project is teachers can learn how students learn by systematically observing students engaged in various acts of learning. Angelo and Cross introduced the concept that classrooms can be used as laboratories to observe and study students for the purpose of modifying instructional methodologies and techniques to make them more effective.

From a practical perspective, the Classroom Research Project began when Angelo and Cross devised flexible tools, called Classroom Assessment Techniques (CATs), for use by any teacher in any institution of higher education. The tools were designed to provide feedback for use by teachers and students regarding the progress of learning in the classroom. Teachers can modify and adapt the CATs to meet the specific needs of their classrooms.

From 1986 to 1988, the Classroom Research Project, under Cross' direction, was supported by: The National Center for Research to Improve Postsecondary Teaching and Learning (NCRIPTAL), the Harvard Graduate School of Education, and the Harvard Seminar on Assessment. Since 1988, Classroom Research has been funded by the Ford Research Foundation and the Pew Charitable Trusts.

What Is Classroom Assessment?

Through frequent, regular, and detailed observation of students engaged in various learning processes, the collection of student feedback on their learning experiences, and the use of classroom experimentation, faculty members can learn how students learn and, more importantly, how students react to various teaching techniques. Armed with this information, faculty members can then redirect their efforts to teaching students in more effective ways.

Classroom Assessment is designed to assist faculty members to define what students are learning in the classroom and how well they are learning. Classroom Assessment is rooted in a recognition of good teaching practice. Angelo and Cross acknowledge that faculty members already collect data on their students' performances and use the information to improve teaching practices.

Furthermore, all true professions are built upon the assumption that practitioners have the knowledge and judgment to be effective in their fields. Classroom Assessment is based upon the assumption that faculty members must enjoy autonomy, academic freedom, and the free exercise of professional judgment. Consequently, under the guidelines of Classroom Assessment, each faculty member is given freedom in deciding what to assess, how to assess, and how to respond to the data collected during any assessment.

Because of the focus on learning, Classroom Assessment requires active participation of students and faculty members. Students integrate efforts at mastering course content with developing self-assessment skills. Faculty members hone their professional teaching skills by searching for answers to these questions: "What are the essential skills and knowledge I am trying to teach? How can I find out whether students are learning them? and How can I help students learn better?"

(Angelo and Cross, 1993, p. 5).

Classroom Assessment is a formative evaluation tool. It's purpose is to improve the quality of classroom learning processes. Classroom Assessments are rarely graded and usually anonymous. They provide faculty members with the data to better prepare students to learn in the classroom and to perform outside the classroom. Lastly, Classroom Assessment is context-specific. Classroom Assessment recognizes that techniques which work in one classroom may not be appropriate for another classroom.

Goals and Assessments

To assess and improve teaching effectiveness, faculty members must know exactly what they want students to learn. Goals must be set. Without setting goals, there is no way to plot an appropriate course of action, determine course deviations, make timely corrections back to course, and to finally decide if the destination has been reached. Classroom Assessment begins with setting appropriate teaching goals.

Angelo and Cross (1993) devised the Teaching Goals Inventory (TGI) to help faculty members identify and clarify their teaching goals. With permission granted by the authors, photocopies of the self-scoring versions of the TGI and its worksheet are included in the appendix to this paper.

In 1986, Angelo and Cross began a literature search as the first step in the TGI's design and development phase. They found that relatively few researchers queried faculty members regarding what the faculty were trying to teach. Angelo and Cross recognized a research opportunity that would result in documenting what faculty members thought students should learn in their classrooms. This recognition represented TGI's genesis.

The initial version of the TGI was completed in 1986. It was administered to 200 randomly-selected full-time and part-time instructors employed by the Miami-Dade Community College. Angelo and Cross chose Miami-Dade for the first TGI pilot study because of its excellent reputation and because the college is one of the nation's largest and most diverse higher education institutions. The results of the study were discussed by Cross and Fideler (1988).

The second TGI pilot study was performed in 1988. Twenty-nine private and public colleges were selected nationwide. Work began on a third edition of the TGI in 1989. By 1990, the TGI was ready for its final test. A total of 2,824 faculty members (2,070 full-time and 754 part-time faculty) from 17 private four-year colleges and 15 public community colleges participated (Angelo and Cross, 1993). The final test succeeded in creating a mechanism for accurately determining teaching goals of higher education faculty.

Completing and Scoring the Teaching Goals Inventory

The TGI consists of 52 items corresponding to 52 distinct teaching goals. Fifty-one of the items incorporate a Likert scale including the following choices: "essential," "very important," "important," "unimportant," and "not applicable." The fifty-second item gives the respondent six choices from which to select the statement

that best describes the teacher's primary role.

The respondent is asked to select one academic course to focus on for the purposes of completing the TGI. The course must be one which the faculty member is currently teaching. The respondent then completes the TGI with respect to: (1) the selected course, and (2) what goals the faculty member intends to have students accomplish during the course.

The self-scoring worksheet provides immediate feedback on how many of the 52 goals the respondent rated as "essential." Many of the college teachers Angelo and Cross worked with were surprised by the number of goals they characterized as "essential." Some instructors subsequently reflected on whether 18 "essential" goals were too many to accomplish in one semester. Other teachers were confronted with the need to determine if three "essential" goals were too few to adequately challenge students throughout a semester.

Angelo and Cross (1993) observed large contrasts in total numbers of "essential" goals within departments and between faculty members teaching parallel sections of the same course. The TGI is credited for documenting these contrasts among colleagues for the first time.

Lastly, another way for faculty members to gain meaningful insights into their teaching goals is to determine the fit between the relative ranking of goal clusters and the primary teaching role selected in item 52. Faculty members may want to reexamine their teaching priorities if their primary teaching roles are not identical with their highest ranked goal clusters.

Since Angelo and Cross (1993) found large, statistically significant differences in the ratings given to the teaching goals given by faculty members of different courses, college departments and divisions would potentially benefit from performing independent analyses of TGI responses. In some cases, Angelo and Cross observed that departments may have targeted a few selected teaching goals to achieve agreement among faculty members. Other departments apparently decided to expose students to various teaching priorities by encouraging diversity among teaching goals.

In summary, the TGI is an excellent tool for faculty members to link teaching goals with improved teaching effectiveness and with enhanced student performance. Once faculty members begin to raise questions about the appropriateness and adequacy of their teaching goals relative to their impact on student learning and performance, a healthy dialogue between colleagues ensues. Angelo and Cross (1993) present research data which clearly indicate that this dialogue potentially results in an advancement in the study of learning processes and the subsequent improvement of teaching effectiveness.

What's Next in Classroom Assessment and Research?

If teaching is to become a true profession, teachers need to hypothesize why students respond the way they do to various instructional methodologies. Teachers need to deepen their understanding of the learning process, and they need to be able to explain how teaching affects learning.

It is recognized that most teachers

have neither the desire nor the time to become educational researchers. Rather, most teachers collectively personify Classroom Research in that they have: knowledge, the desire to teach, and have daily opportunities to observe students over a period of years. These teachers have unarticulated theories about how students best learn in their disciplines.

Therefore, the next step to take is in the realm of learning theory. Angelo and Cross suggest the formation of year-long study seminars that focus on relating or linking the participants' personal theories about learning to formally accepted theories which have been proposed after many decades of research. The participants of each seminar would read and make assigned presentations. Menges and Svinicki (1991) have offered some ideas and references for seminar readings and presentations. This author recommends that the seminars focus on one topic each year and address the topic from the perspectives of affective, behavioral, and cognitive theories.

The value of Classroom Research should be enhanced through the merging of teachers' personal theories with formal theories. The contributions of Classroom Assessment and Classroom Research will help teachers understand the impacts of their teaching on students' learning. This author expects experienced Classroom Assessors will use their skills and understanding to advance the study of learning and improve the practice of teaching.

Exhibit 2.1. Teaching Goals Inventory, Self-Scorable Version.

Purpose: The Teaching Goals Inventory (TGI) is a self-assessment of instructional goals. Its purpose is threefold: (1) to help college teachers become more aware of what they want to accomplish in individual courses; (2) to help faculty locate Classroom Assessment Techniques they can adapt and use to assess how well they are achieving their teaching and learning goals; and (3) to provide a starting point for discussions of teaching and learning goals among colleagues.

Directions: Please select ONE course you are currently teaching. Respond to each item on the inventory in relation to that particular course. (Your responses might be quite different if you were asked about your overall teaching and learning goals, for example, or the appropriate instructional goals for your discipline.)

Please print the title of the specific course you are focusing on:

_____

Please rate the importance of each of the fifty-two goals listed below to the specific course you have selected. Assess each goal's importance to what you deliberately aim to have your students accomplish, rather than the goal's general worthiness or overall importance to your institution's mission. There are no "right" or "wrong" answers; only personally more or less accurate ones.

For each goal, circle only one response on the 1-to-5 rating scale. You may want to read quickly through all fifty-two goals before rating their relative importance.

In relation to the course you are focusing on, indicate whether each goal you rate is:

(5)	Essential	a goal you always/nearly always try to achieve
(4)	Very important	a goal you often try to achieve
(3)	Important	a goal you sometimes try to achieve
(2)	Unimportant	a goal you rarely try to achieve
(1)	Not applicable	a goal you never try to achieve

Rate the importance of each goal to what you aim to have students accomplish in your course.	*Essential*	*Very Important*	*Important*	*Unimportant*	*Not Applicable*
1. Develop ability to apply principles and generalizations already learned to new problems and situations	5	4	3	2	1
2. Develop analytic skills	5	4	3	2	1
3. Develop problem-solving skills	5	4	3	2	1
4. Develop ability to draw reasonable inferences from observations	5	4	3	2	1
5. Develop ability to synthesize and integrate information and ideas	5	4	3	2	1
6. Develop ability to think holistically: to see the whole as well as the parts	5	4	3	2	1
7. Develop ability to think creatively	5	4	3	2	1
8. Develop ability to distinguish between fact and opinion	5	4	3	2	1
9. Improve skill at paying attention	5	4	3	2	1
10. Develop ability to concentrate	5	4	3	2	1
11. Improve memory skills	5	4	3	2	1
12. Improve listening skills	5	4	3	2	1
13. Improve speaking skills	5	4	3	2	1
14. Improve reading skills	5	4	3	2	1
15. Improve writing skills	5	4	3	2	1
16. Develop appropriate study skills, strategies, and habits	5	4	3	2	1
17. Improve mathematical skills	5	4	3	2	1
18. Learn terms and facts of this subject	5	4	3	2	1
19. Learn concepts and theories in this subject	5	4	3	2	1
20. Develop skill in using materials, tools, and/or technology central to this subject	5	4	3	2	1
21. Learn to understand perspectives and values of this subject	5	4	3	2	1

Exhibit 2.1. Teaching Goals Inventory, Self-Scorable Version, Cont'd.

Rate the importance of each goal to what you aim to have students accomplish in your course.	*Essential*	*Very Important*	*Important*	*Unimportant*	*Not Applicable*
22. Prepare for transfer or graduate study	5	4	3	2	1
23. Learn techniques and methods used to gain new knowledge in this subject	5	4	3	2	1
24. Learn to evaluate methods and materials in this subject	5	4	3	2	1
25. Learn to appreciate important contributions to this subject	5	4	3	2	1
26. Develop an appreciation of the liberal arts and sciences	5	4	3	2	1
27. Develop an openness to new ideas	5	4	3	2	1
28. Develop an informed concern about contemporary social issues	5	4	3	2	1
29. Develop a commitment to exercise the rights and responsibilities of citizenship	5	4	3	2	1
30. Develop a lifelong love of learning	5	4	3	2	1
31. Develop aesthetic appreciations	5	4	3	2	1
32. Develop an informed historical perspective	5	4	3	2	1
33. Develop an informed understanding of the role of science and technology	5	4	3	2	1
34. Develop an informed appreciation of other cultures	5	4	3	2	1
35. Develop capacity to make informed ethical choices	5	4	3	2	1
36. Develop ability to work productively with others	5	4	3	2	1
37. Develop management skills	5	4	3	2	1
38. Develop leadership skills	5	4	3	2	1
39. Develop a commitment to accurate work	5	4	3	2	1
40. Improve ability to follow directions, instructions, and plans	5	4	3	2	1
41. Improve ability to organize and use time effectively	5	4	3	2	1
42. Develop a commitment to personal achievement	5	4	3	2	1
43. Develop ability to perform skillfully	5	4	3	2	1
44. Cultivate a sense of responsibility for one's own behavior	5	4	3	2	1
45. Improve self-esteem/self-confidence	5	4	3	2	1
46. Develop a commitment to one's own values	5	4	3	2	1
47. Develop respect for others	5	4	3	2	1
48. Cultivate emotional health and well-being	5	4	3	2	1
49. Cultivate an active commitment to honesty	5	4	3	2	1
50. Develop capacity to think for one's self	5	4	3	2	1
51. Develop capacity to make wise decisions	5	4	3	2	1

52. In general, how do you see your primary role as a teacher? (Although more than one statement may apply, please circle only one.)

1 Teaching students facts and principles of the subject matter

2 Providing a role model for students

3 Helping students develop higher-order thinking skills

4 Preparing students for jobs/careers

5 Fostering student development and personal growth

6 Helping students develop basic learning skills

Source: Classroom Assessment Techniques, by Thomas A. Angelo and K. Patricia Cross.

Exhibit 2.2. Teaching Goals Inventory, Self-Scoring Worksheet.

1. In all, how many of the fifty-two goals did you rate as "essential"? _____

2. How many "essential" goals did you have in each of the six clusters listed below?

	Cluster Number and Name	*Goals Included in Cluster*	*Total Number of "Essential" Goals in Each Cluster*	*Clusters Ranked—from 1st to 6th—by Number of "Essential" Goals*
I	Higher-Order Thinking Skills	1–8	_____	_____
II	Basic Academic Success Skills	9–17	_____	_____
III	Discipline-Specific Knowledge and Skills	18–25	_____	_____
IV	Liberal Arts and Academic Values	26–35	_____	_____
V	Work and Career Preparation	36–43	_____	_____
VI	Personal Development	44–52	_____	_____

3. Compute your cluster scores (average item ratings by cluster) using the following worksheet.

A		*B*	*C*	*D*	*E*
	Cluster Number and Name	*Goals Included*	*Sum of Ratings Given to Goals in That Cluster*	*Divide C by This Number*	*Your Cluster Scores*
I	Higher-Order Thinking Skills	1–8	_____	8	_____
II	Basic Academic Success Skills	9–17	_____	9	_____
III	Discipline-Specific Knowledge and Skills	18–25	_____	8	_____
IV	Liberal Arts and Academic Values	26–35	_____	10	_____
V	Work and Career Preparation	36–43	_____	8	_____
VI	Personal Development	44–52	_____	9	_____

Source: Classroom Assessment Techniques, by Thomas A. Angelo and K. Patricia Cross.

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REFERENCES

Cross, K.P., and Angelo, T.A. (1993). *Classroom Assessment Techniques: A Handbook for College Teachers, 2nd ed.* San Francisco: Jossey-Bass.

Cross, K.P., and Fideler, E.F. (1988). "Assessment in the Classroom." *Community/Junior College Quarterly of Research and Practice,* 12(4).

Menges, R.J., and Svinicki, M.D. (eds.) (1991). *College Teaching: From Theory to Practice.* New Directions for Teaching and Learning, no. 45. San Francisco: Jossey-Bass.

USING ONE-MINUTE PAPERS FOR IMMEDIATE FEEDBACK OF STUDENT COMPREHENSION OF MATHEMATICS IN THE CLASSROOM

by

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USING ONE-MINUTE PAPERS FOR IMMEDIATE FEEDBACK OF STUDENT COMPREHENSION OF MATHEMATICS IN THE CLASSROOM

by Loren L. Vian

Abstract.

A problem in teaching is the assessment of the students comprehension. The earlier the problem areas can be identified, the easier it is to correct the problems and to proceed on to new concepts successfully. The One-Minute paper technique can be used to evaluate the students understanding of the concepts and their ability to apply them. This quick and easy process allows the instructor to alter teaching methods at the earliest possible moment.

Introduction.

Teaching mathematics classes for ERAU at the military base residence centers creates a unique challenge. The condensed terms of 16 class meetings in eight weeks doesn't allow much time to present the material, discuss the applications and to review the trouble areas. The students seem to run short of time to learn to use the concepts and to do sufficient practice. Their military/job/family commitments will cause several to be absent for any given class meeting.

Mathematics is a structured subject in which the students continually build on the preceding concepts they have learned. If they do not have a good foundation of the preceding concepts, the new concepts will not be fully comprehended. This problem is compounded when large quantities of material are presented in a relatively short period of time. The instructor must be more aware of the students comprehension and be willing to make midcourse corrections or changes in teaching methods. To do this, the instructor needs immediate feedback from the students. One way of getting some of this feedback in a non-threatening manner is by using the "One-Minute Paper" assessment technique.

Cross and Angelo (1988) define the "One-Minute Paper" assessment technique as follows:

> "The One-Minute Papers, a technique also known as the Half-Sheet Response, provide a quick and extremely simple way to collect written feedback on student reactions. The teacher stops class a few minutes early and poses one or two questions to which students are asked to react. The students write their reactions on half-sheets of paper, or index cards, the teacher has handed out."
> (pp. 148-150)

An example of my application of this technique follows: Two One-Minute Papers were written for each class meeting. The students were not requested to put their name on the paper. The only information requested was the course name/number, date and comments on the stated question.

The One-Minute Paper that I collected at the start of the period was written at home as part of their assignment. The topic of this One-Minute Paper was "the muddiest concepts of the last class session". As they did their homework, they kept track of the problem areas/concepts. This is not a list of problems they were unable to solve, but the concepts they thinks are involved in those problems. These One-Minute Papers were either left in my mailbox or on my desk before the class started. Prior to the beginning of class, I took a few minutes to review what the students had written in their One-Minute Papers. Their comments were used as the starting point for the class review and discussion.

The second One-Minute Paper was written at the end of the period. The topic

of this One-Minute Paper was "the three most important concepts of the class period". I also wrote a One-Minute Paper at the same time. My paper was compared to the students' papers to see if my presentation emphasized the main concepts so the student could readily follow the discussion.

Project proposal to use the One-Minute Paper technique.

A project was attempted to gather information on the students' weakest areas/concepts at the earliest possible time. It was designed to be able to plot the course of the students comprehension of class activities closer to the time the problems occur. The "muddiest points" and "most important concepts" One-Minute papers were used to keep track of the students' perception of their progress. It was be composed of several parts.

a) Pretest was given at the first meeting of the term (MA-111, College Math for Aviation I).

This test was constructed with questions and problems covering the entire spectrum of the course. It was checked and the scores recorded for comparison at the end of the term. This comparison was made with their scores from the final test and their average for the quarter. Each student was compared only against his/her own scores. The pretest was not used, in any way, for calculating the course grade.

b) Two One-Minute papers were to be submitted each class meeting.

The MA-111 (College Math for Aviation I) class contained 18 students and the MA-112 (College Math for Aviation II) class contained 28 students. I had the MA-111 and MA-112 classes write a One-Minute paper on the "muddiest points of the last class meeting". This can be done at home before they came to class and left either in my mail box or on my desk before class. A few minutes were taken prior to the start of the class to do a quick summary of their comments. The results of the papers were the starting point for that class period.

The other One-Minute paper was written on the "most important concepts of that class meeting" at the end of the class period. These papers were summarized after each class for analysis. While the students were writing their One-Minute papers, I also wrote what I thought were the three or four most important concepts that I would expect the students to list/learn. I used this information to do some comparison between my list and their responses.

The students did not put their name on any of the One-Minute papers. Only the course name or number and date was asked.

c) End of term evaluation.

The final test grade and course averages of each student were compared to the pretest given at the start of the quarter. A matched pair statistical analysis method was be used to compare the students' end of term score to his/her own pretest score.

Results of the Project.

The pretest in MA-111 provided the students with a better idea of what they would be learning during the course. It provided me with some clues about each of the students' background. The pretest scores were poor for the class as a whole. They did show the potential of the students that had taken Algebra and/or Trigonometry sometime in the past. These students would work parts of the problems correctly but couldn't put it all together to get the

problem completely correct.

The pretest was not used for the MA-112 class, since nineteen of the twenty eight were students from the MA-111 class. None of them had any calculus background. The nine additional students also indicated that they had no calculus background.

Both One-Minute papers were used in the MA-111 class. The "muddiest concept" papers that were written while doing their homework soon became a regular part of the students' assignment. They spent minimal time and extra work doing them. With my focusing on the ones that were turned in at the start of the period, the students soon discovered that they could put a "highest priority" on getting their problems addressed by turning in a "muddiest concept" paper. The class organization had a smoother flow from start to finish by taking problems/concepts in sequence in stead of the random order that exists from questions being ask.

The One-Minute papers on the "most important concepts" did not seem to produce any significant results to add to the evaluation of teaching methods or learning style. The students were able to identify the most important concepts without always being able to understand the concepts. The concepts were identified by a name, such as the quadratic formula, or an example used to demonstrate the concept. These papers were discontinued before the term was over.

This immediate feedback helped me discover which teaching methods were the most effective and which were least effective for the ERAU mathematics classes. The collected information helped me revise/improve my teaching methods and increase communication between the students and the instructor in a non-threatening manner. I knew specifically what many of the problems were and when they occurred before test time.

Statistics

All of the paired statistical methods supported the hypothesis that something was done appropriately in the MA-111 class since for every student their final test scores and course averages were above their score on the pretest. The following table lists the scores.

Student Number	MA 111 Pretest Percent	MA 111 Final Test Percent	MA 111 Course Average	MA 112 Course Average
1	54	100	96	94
2	24	92	91	87
3	52	62	84	I
4	60	98	90	82
5	8	70	80	I
6	70	72	84	83
7	46	82	90	83
8	6	64	80	67
9	38	64	84	81
10	10	84	82	82
11	38	88	88	84
12	10	54	61	62
13	2	78	79	84
14	36	90	86	87
15	60	82	90	I
16	10	72	78	74
17	54	84	83	81
18	22	90	86	86
19	42	74	Audit	I
20				66
21				80
22				61
23				90
24				80
25				I
26				I
27				I
28				I
Mean Score	32	79	84	80

The audit was not used in the calculation of the mean for the MA-111 course, but the pretest and final test scores were included in the means.

	MA-111 Pretest Percentage	MA-111 Final test Percentage	MA-111 Course Average	MA-112 Course Average
Mean	31.7	78.9	84.0	79.7
Standard Deviation	22.4	12.8	7.5	9.1

All of the class means and standard deviations, in the above table, were calculated using only the grades of the students receiving a grade of D or better. The F grades were dropped because the primary reason for the failures was the students not finishing the course. The course averages contain both the averages of the homework and the tests. The more than doubling of the mean from the pretest to the final test or course average for MA-111 was expected due to the low scores on the pretest. The MA-112 course average and standard deviation will probably change when the eight incompletes are finished.

Course Starting Dates Location	MA-111 Jan 89 Norton AFB	MA-111 Jan 90 Norton AFB	MA-111 Jan 91 Ft. Lewis	MA-111 Jan 92 Ft. Lewis	MA-111 Oct 92 Ft. Lewis	MA-111 Oct 93 Ft.Lewis
Class Mean	78.1	77.8	76.4	81.7	78.7	84.0
Standard Dev.	15.2	9.6	19.8	5.8	8.6	7.5
Number of Completions	15	8	17	12	10	19
Number of W's and F's	1	4	2	2	3	1

A comparison of the six sections of MA-111 that I have taught for ERAU showed that the method was beneficial to the students. It was the largest MA-111 class I have taught for ERAU with the least number of W's or F's. They also had the highest class mean and one of the better standard deviations. The students at the bottom of the grade scale did a better job in the course.

Course	MA-112	MA-112	MA-112	MA-112	MA-112

Starting Dates Location	Mar 90 Norton AFB	Mar 91 Norton AFB	Mar 92 Ft. Lewis	Jan 93 Ft. Lewis	Jan 94 Ft. Lewis
Class Mean	67.6	80.9	79.1	81.9	79.7
Standard Dev.	24.9	7.1	8.9	8.3	9.1
Number of Completions	10	17	15	15	20
Number of W's and F's	0	2	3	1	8 Incompletes

A comparison of the five sections of MA-112 that I have taught for ERAU showed similar results. It was also the largest MA-112 class I have taught for ERAU with the most completions and no W's or F's. There are currently 8 Incompletes. They also had the median class mean. The bottom four students on the grade scale caused the larger standard deviation. Of these four students, two struggled with their algebra skills (they were not in the previous MA-111 course), a third missed over half of the classes and the fourth was usually about a week behind. These problems limited their ability to take advantage of the One-Minute papers for the extra help.

General observations

The students appreciated the One-Minute paper of the "muddiest concept". The first meeting of the MA-112 class, they asked if "we could continue submitting them at the start of each class meeting". With a show of hands, all nineteen of the MA-111 students who were continuing on to the calculus course supported the process. The remaining MA-112 students soon picked up the process. The process seemed to encourage the students when they discovered that several other classmates had asked the same question. They were not the only one struggling with a particular concept. Some students would use their own paper to write their questions and sign their name while others wanted to remain anonymous by using the form provided. The number of students that would turn in a "muddiest concept" paper was consistently above one-half of the number of students in attendance that class meeting. Since some of the students, after the first two or three meetings, would be an assignment behind due to an absence, it was difficult to tell how many who had worked on the current assignment didn't turn in an One-Minute paper. The general attitude of the students seemed more positive than in previous classes. It left the students with the feeling that I really cared if they learned the mathematics. They still commented on the amount of homework or time required, but they came to class with specific questions to be answered. The class meetings were better sequenced by concept.

As a result of this project, the students benefitted by my improved teaching methods/style in the ERAU mathematics classes. In addition, I hope this assessment process may encourage other ERAU instructors to do similar projects in their classes.

References

Cross, K. Patricia and Angelo, Thomas A. 1988. Classroom Assessment Techniques A Handbook for Faculty. Ann Arbor: The University of Michigan Press.

Triola, Mario F. 1993. Elementary Statistics(5th Ed.). Reading, MA: Addison-Wesley Publishing Company

TEACHER IMMEDIACY BEHAVIOR:

STUDENT LEARNING OUTCOMES AND EVALUATION

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TEACHER IMMEDIACY BEHAVIOR: STUDENT LEARNING OUTCOMES AND EVALUATION

by Mary McLemore and James Cunningham

INTRODUCTION

Is the teaching profession under siege? Are not the evaluators, funders, and beneficiaries of higher education continuing to shake their fingers at the teachers as the primary cause of dropping student performance? What, specifically, can be done in the classroom environment to address and respond to this criticism? The answer to this last question may be enhanced teacher immediacy.

Teacher behavior has been shown to affect the motivation and learning of students (Christophel, 1990). Over 800 articles in 20 leading journals have been published in the last two decades which relate positive verbal and nonverbal teaching behaviors to improved learning outcomes among students. Additionally, many of these same teaching behaviors increase student perceptions of effective teaching, as measured in student evaluations of instruction. Knowledge of course content is, of course, very important, but carefully controlled, empirical research published in leading communication journals (eg. Communication Education, Communication Quarterly, Communication Reports) offer evidence that student attitudes toward classroom environments, assignments, teachers and themselves, depend to a significant degree on immediacy.

IMMEDIACY THEORY

In Silent Messages, his seminal examination of nonverbal communication, Albert Mehrabian defined the immediacy principle:

> People are drawn toward persons and things they like, evaluate highly, and prefer; and they avoid or move away from things they dislike, evaluate negatively, or do not prefer. (Mehrabian, 1971)

Using this approach-avoidance theory as an affect-based construct, teacher behaviors which demonstrate liking (immediacy) for students relate positively to learning outcomes.

Immediacy increases arousal and changes the academic atmosphere which heightens student motivation, responsiveness, and perceptions of teaching excellence (Allan & Shaw 1990). Which non-verbal behaviors make teachers more immediate? Smiles, praises, close proximity, high eye contact, first name familiarity, forward body lean, natural gestures, -- all convey greater immediacy, hence, greater concern and trust in the classroom. Using the Immediacy Behavior Scale developed by Gorham, Richmond and McCroskey in 1987 and 1988 (Figure 1) student observations of teacher behaviors have been correlated, using bivariate statistical analysis and multiple regression analysis. The results are compelling, especially in the six classroom dimensions addressed in this presentation: (1) teacher

and student perceptions of learning; (2) student motivation and learning outcomes; (3) response diversity in multi-cultural classes; (4) student resistance to task demands; (5) affective learning in divergent classes; and (6) the relationship of humor to immediacy and learning.

SIX IMMEDIACY STUDIES: A REVIEW

As noted, a wealth of research has established a number of diverse relationships between teachers' uses of immediacy behaviors and student affective, cognitive, and behavioral learning outcomes. Immediacy behaviors are categorized as low-inference, meaning actions which can be interpreted accurately, without ambiguity. Also, they are as easy to adopt as to smile or to stand closer to the students rather than behind a podium.

The summaries which follow illustrate methods which can move directly from journals to classrooms. The reviews are brief, presenting from each study only what was investigated and what the results indicate.

Study 1: Perceptions of Immediacy and Learning

Gorham and Zakahi (1990) investigated how students' perceptions of teachers' immediacy behaviors and of their own learning outcomes relate to teachers' perceptions of the same variables. They also questioned whether teachers can accurately monitor their own immediacy behaviors. Previous research (Richmond, Gorham, and McCroskey, 1987) had established the use of perception as an accurate tool to monitor immediacy and learning.

Methods in this study required teachers and undergraduate students to complete a series of measures which combined immediacy and learning scales. Results showed that teachers are able to monitor their own immediacy behaviors; also, students' reports of teacher immediacy are significantly similar to teachers' self reports of those behaviors; and that teachers' perceptions agree with students' perceptions in all three learning categories. Another surprising result found no correlation between teacher immediacy and the degree to which a teacher enjoys teaching.

Study 2: Immediacy, Student Motivation, and Learning

Christophel (1990) sought to determine the relationships among student motivation, teacher immediacy, and student perceptions of the three categories of learning (affective, cognitive, and behavioral). She wished to find out how immediacy relates to student motivation and what would be their combined impact on learning outcomes. Methods included separating motivation into two types: trait and state. Trait describes the student's affirmative feeling toward learning in general, and state is the student's attitude toward a specific class. Christophel hypothesized that teacher immediacy could directly impact levels of learning by strengthening student motivation in a course.

Her results show a positive relationship between teacher immediacy and perceptions of student learning and student in-class (state) motivation. The latter also related strongly to perceptions of student learning. These results indicate that teachers can use immediacy to modify student motivation and increase learning at the college level.

Study 3: Immediacy and Perceived Learning the Multicultural Classroom

Recent studies investigating teacher immediacy behaviors and student learning outcomes in multicultural classrooms (Powell & Harville, 1990; Sanders & Wiseman, 1990) found a definite relationship between several teacher immediacy behaviors and White, Latino, Asian-American, and African-American undergraduates' perceptions of learning. These results illustrate that teacher immediacy is an important influence in multicultural classrooms, but the behaviors impact the students differently depending upon their cultural expectations. The researchers emphasize that "for all ethnic groups, positive correlations were obtained between immediacy and perceived cognitive, affective, and behavioral learning" (Sanders & Wiseman).

Another study (Collier and Powell, 1990) underscores the complexity of classroom systems composed of multicultural students. Their results show varied effects for students from different ethnic backgrounds as time passes in the course. They recommend further research focusing on the teaching process as it progresses over time. Discussion in both studies emphasizes the need for continued attention to the cultural differences in students' responses to immediacy behaviors.

Study 4: Immediacy and Student Resistance

For this study, students responded by indicating their likelihood of resisting teacher demands relating to such course tasks as coming to class prepared. Methods included the use of four scenarios: An immediate teacher and a nonimmediate teacher using both prosocial and antisocial behavior alteration strategies. For example, the immediate teacher in the antisocial condition would admonish the student to come to class prepared "because I will lower your grade if you don't." In the prosocial condition, the direction would be, "Come prepared because you will find it a rewarding and meaningful experience."

Results confirmed that students were less likely to resist the immediate teacher who used antisocial techniques. In contrast, students reported greater resistance to a nonimmediate teacher using prosocial strategies. Kearney, Plax, Smith & Sorenson (1988) concluded that immediacy influences both strategy types, but "students may be more willing to comply with teachers they like as opposed to teachers they don't." Thus, a popular assumption becomes, through research, a conclusion supported by evidence.

Study 5: Immediacy and Learning in Divergent College Classes

The subject of scrutiny here is whether the correlations between teacher immediacy and positive feelings toward the teacher and the course (affective learning) would be as strong in a task-centered course such as accounting (T-type) as they are found to be in people-centered courses such as speech communication (P-type). Researchers (Kearney, Plax, & Wendt-Wasco, 1985) hypothesized that it may be mistaken to assume that teacher behaviors judged effective in one type of course would be similarly evaluated in a different type of course.

Although past research (Hager, 1974) had shown that students in T-type classes prefer teachers to be structured and

controlled, results in this study indicate that teacher immediacy influences affective learning outcomes in both P-type and T-type classes.

Study 6: The Relationship of Humor to Immediacy and Learning

Joan Gorham and Diane Christophel (1990) examined how teachers' uses of humor in the classroom relate to immediacy and learning. Humor, a verbal dimension, has been established in extensive previous research as a high impact immediacy behavior (Kane, 1977; Graham & Rubin, 1987). Gorham and Christophel recorded 206 observations by students of teachers' uses of "a sense of humor." These were analyzed and correlated with overall immediacy and perceived learning outcomes.

The results confirm that both the amount and the type of humor influence learning, but that some types of humor are viewed negatively. Also interesting, in contrast with previous results, were the indications that female teachers' uses of humor did not influence students to evaluate them negatively.

RESEARCH EFFICACY

In the complex interaction of classroom communication, isolating effective and ineffective teacher behaviors is difficult; tying those behaviors to student activity or attitudes requires carefully monitored conditions and sophisticated data analysis. Not surprisingly, partial replications within the six studies produced similar results.

Two-tailed tests of Pearson correlation provided strong (.58-.01) statistical support for the conclusions Gorham and Zakahi reached regarding self-perceptions and observation of teacher immediacy and student learning. While similar correlational analyses produced most of the results for Christophel, Powel, Sanders, Collier and Kearney, multiple regression analysis added predictive data to each study encouraging realistic prescriptive classroom applications. A 2 x 2 analysis of covariance (ANCOVA) gave Kearney, et. al. their student "compliance-resistance" results using teacher immediacy/ nonimmediacy and prosocial/antisocial behaviors. Conclusions reached in each of the cited studies rest firmly on correlations and regression results well above minimum levels of significance.

DISCUSSION

Current research affirms that teacher immediacy behavior does affect student performance positively. Students learn more, find lessons clearer and more worthy of remembering, put up less resistance to task compliance, and respond more collegially in the multi-cultural classroom with immediate, dynamic teachers. Seven behaviors in particular, have been found to produce these results, even in an ethnically mixed environment. They are:

1. Smiling and praising student work
2. Maintaining sustained eye contact
3. Shifting the proximity of self to students
4. Encouraging students to talk; soliciting viewpoints
5. Relaxing physically with an accompanying expressive voice
6. Using relevant humor and personal, positive disclosures
7. Recognizing students by first names or accomplishments

Professional rewards for immediate teaching include enhanced student and administrative evaluations of performance. Evaluation responses which address the classroom learning climate (teacher openness to questioning or disagreement; concern for student understanding; enthusiasm, and level of interest generated in the subject) are influenced by teacher immediacy. Supervisors are more impressed with teachers who are more immediate and perceive them as more effective (Allen and Shaw, 1990).

Communication research validates the relational interpretation of immediacy behaviors. Simply put, teachers can respond to society's criticism by exploiting the research findings that teacher immediacy and student affect have a substantial, positive association.

FIGURE 1

IMMEDIACY BEHAVIOR SCALE

For each item, circle the number 0-4 which indicates the behavior of the teacher in your class.

Scale: Never = 0 Rarely = 1 Occasionally = 2 Often = 3 Very Often = 4

Verbal Items:

1. Uses personal examples or talks about experiences she/he has had outside of class.
2. Asks questions or encourages students to talk.
3. Gets into discussions based on something a student brings up even when this doesn't seem to be part of his/her lecture plan.
4. Uses humor in class.
5. Addresses students by name.
6. Addresses me by name.
7. Gets into conversations with me before, after or outside of class.
8. Has initiated conversations with me before, after or outside of class.
9. Refers to class as "my class or what "I" am doing.*
10. Refers to class as "our" class or what "we" are doing.
11. Provides feedback on my individual work thorough comments on papers, oral discussions, etc.
12. Calls on students to answer questions even if they have not indicated that they want to talk.*
13. Asks how students feel about an assignment, due date or discussion topic.
14. Invites students to telephone or meet with him/her outside of class if they have questions or want to discuss something.
15. Asks questions that have specific, correct answers.*
16. Asks questions that solicit viewpoints or opinions.
17. Praises students' work, actions or comments.
18. Criticizes or points out faults in students' work, actions or comments.*
19. Will have discussion about things unrelated to class with individual students or with the class as a whole.
20. Is addressed by his/her first name by the students.

Nonverbal items:

21. Sits behind desk while teaching.*
22. Gestures while talking to the class.
23. Uses monotone/dull voice when talking to the class.*

24. Looks at the class while talking.
25. Smiles at the class while talking.
26. Has a very tense body position while talking to the class.*
27. Touches students in the class.
28. Moves around the classroom while teaching.
29. Sits on a desk or in a chair while teaching.*
30. Looks at board or notes while talking to the class.*
31. Stands behind podium or desk while teaching.*
32. Has a very relaxed body position while talking to the class.
33. Smiles at individual students in the class.
34. Uses a variety of vocal expressions when talking to the class.

*Presumed to be nonimmediate verbal and nonverbal items.
(Christophel, 1990)

REFERENCES

Allen, Jerry L. and Darla H. Shaw. (1990) Teachers' communication behaviors and supervisors' evaluation of instruction in elementary and secondary classrooms. Communication Education, 39, October. 308-322.

Ames, R. (1986) Effective motivation: the contribution of the learning environment. In R. S. Feldman Ed., The Social Psychology of Education: Current Research and Theory, Cambridge: Cambridge University. 235-256.

Andersen, J. F. (1979) Teacher immediacy as a predictor of teaching effectiveness. D. Nimmo Ed., Communication Yearbook 3 New Brunswick, NJ: Transaction Books. 543-559.

Anthony, S. (1978) Immediacy and nonimmediacy factors in communicating interpersonal attraction. Journal of Social Psychology, 93. 141-142.

Armes, N. R. (1980) Communication styles in the classroom. ERIC Document Reproduction Service No. ED. 200-266.

Barker, Bruce & Patrick, K. (1988) Teacher effectiveness via interactive satellite: preliminary findings from observation of three teachers over the TI-IN interactive satellite network. Paper presented at annual conference of National Rural Education Association, Bismark, ND. September.

Berenfield, Boris. (1993) "Linking east-west schools via telecomputing." T.H.E. Journal. January. 59-62

Brophy, J. (1987) Synthesis of research on strategies for motivating students to learn. Educational Leadership. 40-48.

Broome, B.J. (1991) Building shared meaning: implications of a relational approach to empathy for teaching intercultural communication. Communication Education, 40. 235-249.

Burgoon, J. K., Buller, D. B., Hale, J. L. & deTurck, J. A. (1984) Relational messages associated with nonverbal behaviors. Human Communication Research, 10. 351-378.

CCE conducts satellite instruction experiment. (1993) Network Embry-Riddle Aeronautical University. September. 2.

Christophel, D.M. (1990) The relationships among teacher immediacy behaviors, student motivation, and learning. Communication Education 39. 323-340.

Collier, Mary Jane and Robert Powell. Ethnicity, instructional communication and classroom systems. Communication Quarterly, 38. 334-349.

Davis, J. M. & Farina, A. (1970) Humor appreciation as social communication. Journal of Personality and Social Psychology, 15. 175-178.

Distance education interaction and feedback at a glance. (1992) Position Paper. University of Alaska, Anchorage. ED 343575. August.

Estrada, Leobardo. (1988) Anticipating the demographic future. Change. May/June. 14-19.

Giglio, K. & Lustig, M. W. (1987) Teacher immediacy and student expectations as predictors of learning. Paper presented at the annual meeting of the Western Speech Communication Association, Salt Lake City, UT. February.

Gorham, J. (1988) The relationship between verbal teacher immediacy behavior and student learning. Communication Education, 37. 40-53.

Gorham, J. & Christophel, D. (1990) The relationship of teachers' use of humor in the classroom to immediacy and student learning. Communication Education 39. 46-60.

Gorham, J. & Zakahi, W. (1990) A comparison of teacher and student perceptions of immediacy and learning: monitoring process and product. Communication Education, 39. 354-368.

Graham, E. & Rubin, R. B. (1987) The involvement of humor in the development of social relationships. Paper presented at the annual meeting of the Speech Communication Association, Boston, MA, November.

Gudykunst, W. B., Schmidt, K. L., Bond, M. H., Wang, G., Gao, G., Nishida, T., Leung, K., & Barraclough, R. (1990) The influence of individualism-self-monitoring, and predicted outcome values on communication in ingroup and outgroup relationships. Journal of Cross-Cultural Psychology.

Hager, W.R. (1974) An investigation of verbal behavior and learning climate in undergraduate engineering classrooms. Journal of Research in Science Teaching. 11. 121-131.

Hall, E. T. (1966) The Hidden Dimension. NY: Doubleday.

Holmberg, Borje. (1985) The feasibility of a theory of teaching for distance education and a proposed theory. Ziff Papiere 60. Fern Universitat, Hagen, West Germany. October.

Houdek, E. (1990) Managing distance education courses. The Guide Series in Continuing Education. Urbana Illinois: Illinois University Office of Continuing Education and Public Services.

Jordan, F. F. (1989) An examination of the relationship between perceived verbal and paralinguistic immediacy and accommodation to perceived cognitive learning. Unpublished dissertation, West Virginia University.

Kane, T. R., Suls, J. & Tedeschi, J. T. (1977) Humor as a tool of social interaction. In A. J. Chapman & H. C. Foot Eds., T'is a Funny Thing, Humor. Oxford:\ Pergamon Press. 13-16.

Kearney, P., Plax, T.G. & Smith, V.R., & Sorenson. G. (1988) Effects of teacher immediacy and strategy type on college student resistance to on-task demands. Communication Education. 37. 54-67.

Kearney, P., Plax, T. G. & Wendt-Wasco, N. J. (1985) Teacher immediacy for affective learning in divergent college classes. Communication Quarterly, 33. 61-74.

Kelley, D. H. & Gorham J. (1988) Effects of immediacy on recall of information. Communication Education, 37.

Lewis, Chad, T. & Hedegaard, T. (1993) Online education: some issues and some answers. T.H.E. Journal. April. 68-71.

McCroskey, J. C., Richmond, V. P., Plax, T. G. & Kearney, P. (1985) power in the classroom v: behavior alteration techniques, communication training and learning. Communication Education, 34. 214-226.

McLemore, M. & Cunningham, J. (1993) Teacher immediacy behavior: student learning outcomes and evaluation. Selected Papers from the 4th National Conference. Ed.

Jack A. Chambers. Jacksonville: The Center for the Advancement of Teaching and Learning, 131-145.

Mehrabian, A. (1981) Silent Messages: Implicit Communication of Emotions and Attitudes. Belmont, CA: Wadsworth.

Mehrabian, A. (1969) Some referents and measures of nonverbal behavior. Behavioral Research Methods and Instruments, 1. 213-217.

Moore, Charles, E. & McLaughlin, J. (1992) Interactive two-way television: extending the classroom through technology. T.H.E. Journal. February. 74-76.

Nussbaum, John F. (1983 to 1990) Effective teacher behaviors. Communication Education,41, April 1992. Note: This essay reviews literature.

Nussbaum, J. F. (1992) Effective teacher behaviors. Communication Education, 41.

Powell, Robert and Barbara Harville (1990) The effects of teacher immediacy and clarity on instructional outcomes: an intercultural assessment. Communication Education, 39, October. 369-379.

Richmond, V. P., Gorham, J. S. & McCroskey, J. C. (1987) The relationship between selected immediacy behaviors and cognitive learning. In M. McLaughlin Ed., Communication Yearbook 10 Beverly Hills, CA: Sage. 574-590.

Ross, Eugene. (1984) Teaching, technology, and the future. Paper presented at Regional conference on University Teaching,, Las Cruces, NM.

Russell, Floyd K., Jr. (1991) Receive-site facilitator practices and student performance in satellite-delivered instruction. Proceedings of selected research presentations at annual convention of Association for Educational Communications and Technology serIROi5.

Sanders, J.A. & Wiseman, R.L. (1990) The effects of verbal and nonverbal teacher immediacy on perceived cognitive, affective, and behavioral learning in the multicultural classroom. Communication Education, 39. 341-353.

Wheeless, L. R. (1976) Self-disclosure and interpersonal solidarity: measurement, validation, and relationships. Human Communication Research, 3. 47-61.

ASSESSING STUDENTS' WRITING: COUNTERING SOME COMMON MISBELIEFS

by

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Abstract

In their attempt to come to terms with evaluating students' writing, many instructors across the curriculum fall prey to several common misbeliefs, which themselves reflect a paucity of information on the part of evaluators on how to evaluate writing fairly and objectively. Besides being in a quandary about what to evaluate, instructors are not certain either about how to go about assessing students' writing. In this paper, these common misbeliefs are first identified and discussed, after which suggestions are made on how to counter or rectify these types of fallacious thinking. By countering these misbeliefs, instructors can use evaluation as a catalyst to promote better writing skills on the part of the students.

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by

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Introductory remarks

Instructors often balk at grading and evaluating the stacks of papers that accumulate from semester to semester. Besides the almost insurmountable workload that evaluating papers entails, conscientious instructors rack their brains while asking themselves how they can best do justice to a student's attempts at expression while considering content and accuracy and the extent to which the student has demonstrated proficiency in writing skills.

The many questions that surface while evaluating student papers reflect several common misbeliefs or "fallacious thinking" on the part of colleagues. Outside of suggestions for evaluating students' compositions in dedicated writing courses, however, not much has been said about the problems colleagues in other disciplines encounter when confronted with evaluating students' attempts at written expression. Suggestions for rectifying this "fallacious thinking" have not been forthcoming. In fact, "professionals have not reached definitive conclusions about the problem of how to assess writing" (Elbow, 1993, p.187). Thus the question of what should be evaluated is as much a problem for many evaluators as is the question of how to actually go about evaluating student papers and assigning grades. Questions of objectivity and fairness play an equally important role.

In this paper, I identify these areas of fallacious thinking and then suggest ways on how to avoid or rectify them. The misbeliefs I offer as examples of fallacious thinking run the gamut of problems associated with evaluating student writing.

Whether searching for information that has not been explicitly expressed by the student by reading between the lines, or utilizing a "skills approach" to evaluation, it appears that problems abound in evaluators' attempts to come to terms with determining what constitutes the legitimate province for evaluation. These problems are addressed in the "poor-copy" and "hidden-idea" fallacies. How to go about evaluating constitutes the second major nemesis of evaluation. Here evaluators have to come to terms with whether a single reading suffices and, if so, whose reading, the instructor's or the student's? These problems are addressed in the "one-pass" and the "hierarchical or mono-perspective" fallacies. Ranking (or grading) objectively, if at all possible, is discussed in the "grade obsession" and "objectivity-impossible" fallacies. The use of alternate means to evaluate student writing is discussed in the "there's nothing we can do about it" and

"grade obsession" fallacies.

I feel thus that with regards to evaluating students' writing several types of fallacious thinking have become firmly entrenched throughout our ranks. It is the intent of this paper to expose and explore, but also to offer solutions on how to avoid and rectify, these fallacies.

FALLACY ONE: *"The poor-copy fallacy"*

In this fallacy, instructors feel that evidence of a lack of proficiency in manuscript skills is to be equated with a lack of knowledge of the subject matter. Good writing is considered by these instructors to be writing that is error-free. Since instructors who share this philosophy usually cannot be swayed to examine the ideas present, students who have not mastered mechanics are victimized by the system (one might argue that they victimize themselves by not paying attention to "details").

But, is it true that good writing is reflected solely in error-free writing? It is my contention that we can't do justice to students' writing when we utilize a "skills" approach to writing evaluation, i.e., ensuring compliance with certain writing standards without simultaneously evaluating the students' ability to argue, reason, employ logic, and simply write convincingly about the topic at hand. And we can do just this in evaluating students' writing and in assessing grades. As Odell maintains,

> it [is] important to establish evaluation as part of a larger epistemic process. If teachers in any discipline want students to engage in meaning making, the students will surely benefit from evaluations that help them understand that process more fully...if the writing-across-the-curriculum movement is to flourish, we must persuade both colleagues and students that judgments about the quality of writing cannot be separated from judgments about the quality of meaning making reflected in that writing...If we persist in separating ways of writing from ways of knowing, we shouldn't be surprised if students persist in writing well about nothing (p. 98).

The skills approach to evaluation distracts us from what we really should be looking for. Instead of looking for a well-focused topic that is organized, coherent and well written, many colleagues try to determine the extent to which the student has upheld written conventions and turned in what some would consider "clean copy" or well-written prose.

Instead of trying to discern whether the student has presented the material in a way that indicates that s/he understands the topic being explored, skills-oriented evaluators maintain mental lists of things that can go awry in a student paper and search the papers for these flaws, while losing sight of the purpose of writing. Areas that are typically explored in determining the "efficacy" (or skills quotient) of a given writing sample include spelling, grammar, punctuation, usage, diction, style, logic, manuscript mechanics, and effective sentence structure. Oftentimes these areas are given more emphasis than is the extent to which the student has resolved the problem being explored, or the extent to which the writing reflects sound organizational patterns (structure) and the

extent to which the student has focused on a well-defined topic or delivered on the initial promise. We are blinded and benumbed by the number and severity of errors committed and lose sight of the reasoning and meaning making that the student has employed.

In attempting to do justice to students' attempts at written expression, we should devote more time to giving students meaningful written assignments so that we can better determine how their knowledge of a subject is reflected in their written responses. This very same emphasis must be reflected in our evaluation schemes. We have to strive for a shift away from a "skills" approach to evaluation.

FALLACY TWO: *"The hidden idea-fallacy"*

Here instructors feel that it is their responsibility --as mentioned above-- to look for the meaning-making strategies, organizational patterns and logic in a student's paper by reading between the lines rather than by evaluating the copy presented. It is imaginable that instructors go so far as to reflect on what a given student might have meant--even if not explicitly expressed-- based on what the instructor feels this student is capable of.

In searching students' copy for ideas that might have been intended by reading between the lines, these evaluators try to make connections between disparate ideas, mentally reformulating the ideas that are perhaps partially apparent in the students' writing, while embedding these in more complex contexts, which were most likely not apparent to the student. These evaluators are not doing justice to students' attempts at verbal expression; they allow students to believe that the ideas and concepts themselves--no matter how poorly formulated and even when expressed in isolation--account for the communication of ideas, without being aware of the meaning-making strategies required for the accurate dissemination of information within a discipline.

Instead of seeking particular bits of fragmentary information in students' papers, we should explore the ways in which students have presented their ideas. The focus should be on a student's ability to formulate ideas and defend them, to make connections that provide insights into the subject matter, as well as into the student's ability to synthesize information.

There are several ways to assess how well a student has dealt with an assignment. Since we are emphasizing the written expression of ideas, we are, above all, trying to determine to what extent a student has grasped the subject matter, how s/he is able to express these ideas in a standard readily understandable language and to what extent, perhaps, the student has expressed an in-depth knowledge in transcending the bounds of the subject s/he's exploring and even disciplinary bounds.

A piece of writing that reflects but stock responses in short, disjointed periodic sentences is probably not on a par with a piece of writing that shows the interrelationships, as well as the hierarchy of ideas as reflected in a tight focus, a sound structure and the auspicious use of transitional expressions. A student writer, on the other hand, who is able to assume the discourse of the discipline in which s/he's writing, especially if this discourse is

instrumental in enabling the student to express his knowledge of the subject, should be graded accordingly.

FALLACY THREE: *"The one-pass fallacy"*

In this case, evaluators do not subject students' writing to more than one reading. Instead, evaluators feel that content and correctness are inextricably linked. As in the "poor copy-fallacy," students who have not become proficient in manuscript mechanics are at a disadvantage. These students are not "writing well about nothing" as Odell warns us, but writing well, without having mastered the several skills required to produce "perfect" copy. Elbow (1993) warns us that "evaluation requires going beyond a first response that may be nothing but a kind of ranking...to mak[ing] distinctions between parts or features or criteria" (p.188).

One way to evaluate student writing fairly is to practice multiple evaluative readings. This entails our reading first for substance or content, before concerning ourselves with sentence structure, grammatical errors, punctuation, orthography, etc. This enables us to concentrate on essentials without becoming lost in the deluge of errors often encountered while evaluating student papers. Subsequently, we can read for sound structure and organization. A third reading would concern itself with style; the final evaluative reading would focus on correctness.

When we read for content or substance, we are looking for more than just the information presented; we have to focus on the thinking that is evidenced in the student's writing. We cannot fall prey to the "formalist view of writing [that makes] a distinction between writing and content that separates the evaluation of writing from students' understanding of the subject...." Instead, we have to take "...an epistemic approach to evaluation that begins by identifying the ways of knowing that are valued for particular writing tasks" (Herrington and Moran, 1992, p. 46).

We are evaluating whether the intent of the writing assignment has been clearly expressed in the student's paper; we are controlling to what extent the paper is focused on a single, controlling idea. We are determining whether there is enough information and evidence to support the initial contention. At the same time, we are interested in discovering gaps or missing material, or even unnecessary repetition or extraneous material. We are questioning, too, whether the body and terminal sections of the paper keep the promise made to the reader in the introduction (thesis statement).

When reading through for information, we are also checking to see whether faulty reasoning has been allowed to creep into a student's paper through the use of opinionated adjectives or due to the student's falling prey to logical fallacies.

A second reading should concern itself with organization, or structure. We have to determine whether the composition has an introduction, a body, a conclusion. We ascertain whether the introduction states the controlling idea and announces, when necessary, the major parts.

We discover whether paragraphs are in a logical order and whether each paragraph completely develops its topic.

We discern whether transitions and summaries are used to aid the reader where appropriate. We question the conclusion's validity: does it return to the controlling idea and summarize, when necessary, the major parts?

These considerations are, of course, not exhaustive. They are intended merely as guidelines to follow when analyzing students' writing in multiple evaluative readings. In this regard, the four evaluative readings mentioned here are not to be considered mutually exclusive. Of course, there is substantial overlap, depending on the evaluator's views on "putting ideas on paper."

After determining the validity of the content and organization of a paper, we can direct our attention to stylistic matters. We can explore, for example, whether the student has used coherence to bind the individual sentences within paragraphs and from paragraph to paragraph. Has the student used coordination, parallelism, subordination, emphasis and variety in building sentences?

We can establish whether the language level is suited to the reader. We can look at sentence and paragraph length. We can examine word choice and see if active verbs predominate.

Only after we have subjected the composition to these first three consecutive readings should we pay attention to problems of grammar, spelling, punctuation, and format (correctness).

By evaluating these elements last, there is a manifold positive effect: first, we are not immediately swayed to give a student a poor grade based on what we perceive initially as poor work due to spelling and other errors without first evaluating the paper according to the more significant criteria outlined above; second, we force ourselves to weigh the merit of a composition by determining how well it communicates and delivers on its promise to explain; and third, we are able to assess a grade based primarily on how well a student reveals to us that s/he has grasped the assignment and has been able to put his or her individual response into written communicable language.

By making multiple sweeps of students' writing, each time with a different emphasis, we can learn to appreciate how students enter into heuristic processes and use language to express themselves. We can also become aware--and better justify our assessment criteria of faulty reasoning and logic as evident in poor writing by momentarily isolating our focus while we evaluate the finished product. It is a way to justify our reluctance to "read between the lines," to look for connections that haven't been made, to seek logic where it isn't apparent, because the student himself has not organized his thoughts and thus cannot find adequate expression for these thoughts--if they indeed exist-- in language (cf. fallacy two!).

FALLACY FOUR: *"The hierarchical or mono-perspective fallacy"*

Too many instructors work under the assumption that they alone are capable of evaluating students' papers. Nothing could be further from the truth. This type of thinking discounts the use of other sources, including the students themselves, as potential evaluators.

In mono-perspective evaluation, the same individual who is the source of the information (the instructor) is also the individual who is evaluating. Evaluators who require that students regurgitate almost verbatim what they've read or acquired in class are guilty of this fallacy. This type of thinking encourages students to acquire a single perspective: that of the instructor. These evaluators are not aware of the potential of writing to enable students to explore areas outside conventional (disciplinary) boundaries. They are not aware that writing can be a tool to learn, not only in the sense of ordering and prioritizing random impulses, but, too, in terms of exploring remote, yet still related areas.

We should instead allow students to co-evaluate their own writing. Instead of looking for our own ideas reflected in the students' writing, we should swap roles and learn from the students as a source of information, since these are exploring ideas and giving these expression in writing. In any event, we should not view our own concepts of writing as a recipe to be religiously followed by our students. We shouldn't look for replication rather than reasoning in students' writing, but we should foster critical thinking and making connections on their part (Langer, 1992).

Since writing deals with learning and learning comes about by exploring the ways in which various disciplines deal with epistemic processes, including meaning-making and using particular discourses, then students who act as evaluators can benefit not only from the content of a paper they share with a classmate, but from the meaning-making strategies and from the specific language used, as well.

Preliminary, non-binding grades could be assessed, too, by peer groups. Students who would have to assess a grade based on what they considered valid argumentation, proper focus, etc. would be more apt to think about good writing principles and meaning-making strategies when composing their own papers. Of course, this could work only if we required that these peer groups substantiate why they assessed a given grade.

Peer groups can learn as much ex negativo from fallacious thinking as it's reflected in a classmate's writing as they can from the reflection of logical thought processes. In both cases, however, students are learning.

In all cases, it is essential that we show flexibility in determining how best to assess how well a student has tackled a given written assignment. Our flexibility might include using other sources to help evaluate students' writing: we can solicit the help of colleagues and graduate assistants to make a "first pass" evaluation; we can under the cover of anonymity conduct group evaluations of essential parts of papers during classroom sessions by projecting (parts of) these on transparencies; we can even use newly developed software that allows an electronic interchange to provide almost immediate feedback while "blue-penciling" corrections.[2]

FALLACY FIVE: *"The grade obsession-fallacy"*

Although it is considered a "given" by most colleagues, evaluation does not have to be equated with assessing grades. If

writing is a tool to learn, then students should be given meaningful writing assignments that are evaluated and discussed, but not graded. By eliminating the pressure associated with grades, students will write more and, in so doing, learn more by writing, once the pressure of grading is eliminated.

According to Elbow, ranking or grading is "woefully uncommunicative" (1993, p.189). It is just as meaningful to give writing assignments to nudge students to explore uncharted territory within or without their disciplines even when these assignments will be read and discussed, but not graded.

This is the type of evaluation (and writing) fostered by advocates of writing-across-the-curriculum programs. It is manifested in journal writing and exploratory writing, writing that is accomplished to put ideas on paper for the sake of making and "seeing" connections but without the fear associated with grades.

If a grade must be assessed, then the evaluator evaluates the sum of papers (portfolio) turned in during the semester. In this case, we are not apt to penalize a student for a "false start" or a "one-time transgression," but rather apt to look at the entire product of the student's efforts. In so doing, we are more apt to measure progress--the result of delving into heuristic processes by writing.

Elbow offers several ways to use "less ranking and more evaluation in teaching." He encourages us to use portfolios even when "conventional institutions oblige us to turn in a single quantitative course grade at the end of every marking period." Even then "it doesn't follow that we need to grade individual papers" and to think

> that evaluation always translates into a simple number...Portfolios permit [the evaluator] to refrain from grading individual papers and limit [himself] to writerly evaluative comments...and help students to see this as a positive rather than a negative thing, a chance to be graded on a body of their best work that can be judged more fairly (1993, pp. 192-193).

Besides portfolio assessment, instructors can use an analytic grid for evaluating and commenting on student papers. An example is given in Figure 1.

Grids enable us to provide a response to students' writing and account for a number of potential errors without being obsessed with correlating faulty writing with a grade, although the grids can satisfy a student's hankering for ranking. By establishing the criteria by which an assignment will be evaluated (not graded!) and then determining the extent (strong, weak, ok) to which the student has fulfilled these criteria, evaluation takes place and the students are provided with valuable feedback, but the negative aspects of ranking or grading are avoided.

FALLACY SIX: *"There's nothing we can do about it-fallacy"*

Too many instructors are resigned to believing that there is not much they can do to improve students' writing skills --especially at the post-secondary level-- and that there is no viable tool to give the students by which they can "self-evaluate"

their writing efforts prior to submitting finished manuscripts.

This assumption ignores the possibility of communicating to the students what we expect of them. One way of communicating with students is by using checklists.

Checklists can be likened to the grids mentioned under fallacy five: criteria for completing an assignment can be brought into synch with the criteria used for its subsequent evaluation. The use of checklists helps the student recall the multitude of items for which s/he is responsible and keep a tab on the steps involved in the writing process. Analogous to the mandatory use of checklists in the cockpit environment, checklists governing the writing process provide a ready reference to ensure compliance with standards, completeness and serve to jar frozen memories.

Checklists outline the activities instructors expect students to engage in and the points they want students to consider while writing and proofing their copy. Checklists serve, too, to help the students through the process of self-evaluation so as to avoid a mono-perspective evaluation and they allow students to share the same checklist an instructor uses when evaluating student papers or even writing himself.

There are actually four types of checklists: one, a checklist of the writing process to ensure the essential parts of the writing process are considered (see Figure 2); two, a checklist for checking the rough draft to ensure that the writing is complete and accurate and logical in terms of information, organization, and style (see Figure 3); three, a checklist, against which the writer can check the finished product to ensure compliance with a myriad of writing conventions, from spelling to commas, from variety to emphasis (see Figure 2, "revising"); and four, a checklist (see Figure 4) developed by the instructor for a particular writing assignment "outlining the activities [he] expect[s] students to engage in and the points [he] want[s] students to consider as they write" (Tompkins, 1992, p. 244). This last type of checklist can be formulated in conjunction with the students; thus, what is expected of a student in a given writing assignment will not be misunderstood.

FALLACY SEVEN: *"The objectivity-impossible fallacy"*

Colleagues who maintain that it is almost impossible to evaluate student papers fairly and consistently in concert with standards perhaps imposed on them by a department head are under the false impression that grading is necessarily a subjective pursuit.

If evaluators were to adopt the "multiple evaluation scheme" mentioned under FALLACY THREE above, they could improve their chances of assessing more fairly and objectively than hitherto possible by bringing grading criteria into synch with the considerations discussed in FALLACY THREE.

If we determine a partial grade after each evaluative reading, we are perhaps doing more justice to the total achievement of the student. At the same time, by separating the grade into several parts, we can provide positive motivation by first indicating to the student what s/he has achieved without regard to proficiency in

certain writing skills, and, secondly, by indicating to what extent the student has jeopardized an otherwise good grade by not paying attention to spelling, punctuation, etc.

For these errors, I would establish a system by which an initial grade would be established. From this, I would deduct points respectively for major deviations in each of the categories discussed above. Thus, a student who received an A- (90-93) for content might have 1-3 points deducted for serious stylistic or structural errors within the range of an A-, i.e., s/he might receive a "91" instead of a "93." If that same student were docked 5 or more points 3 for numerous spelling, punctuation, andgrammatical errors, that "91" could easily translate into a grade between "80" and "85" or even lower.

It would become clear to a student that s/he could compromise an otherwise good grade by not paying attention to these areas of correctness, with which we teachers are so concerned. This tripartite grading system would, I believe, motivate students to turn in clean copy. Another positive benefit is the shift of emphasis. The emphasis according to this grading scheme is on the presentation of ideas; yet, there is still adequate motivation to respect writing norms.

Yet, the grading scheme sketched above does not account for one of the most useful tools we have at our disposal when evaluating students' attempts at written expression. More meaningful to the student than a numerical grade are the written comments we should be making. We should strive to identify all well-written as well as faulty areas: gaps in or erroneous information, faulty structure or organization, poor manuscript mechanics. These areas of concern parallel those areas discussed above under multiple evaluative readings. As we complete each of the 3-4 readings, we should substantiate why we consider the student's paper meritorious or not in each of the given rubrics.

Final Remarks

By becoming aware of and rectifying the fallacious thinking identified in this paper, evaluators can ensure that they are not remiss when trying to do justice to students' writing.

They can learn to evaluate fairly and objectively while shifting the emphasis from a skills approach to evaluation to one that emphasizes assessing the ideas and the meaning-making strategies evident in the student's writing, without first having to connect loose ends and reconstruct what the student might have meant.

Evaluators will thus learn to subject students' writing to several evaluative readings rather than to one perfunctory reading that perhaps concerns itself more with the number of errors made than with content.

Evaluators can learn to accept students as co-evaluators, both parties profiting from this implied mutual learning experience.

Another lesson to be learned is that there are many ways to evaluate without being obsessed with grades and other types of "ranking." Whether by using portfolios to assess the total product of a student's efforts throughout a marking period or by using checklists to ensure completeness and

compliance with objectives established by both evaluator and evaluee without assigning a grade, well-thought-out evaluation facilitates learning through writing.

Since "constant evaluation by someone in authority makes students reluctant to take the risks that are needed for good learning--to try out hunches and trust their own judgment," entering "evaluation-free zones," as Elbow labels these non-assessment evaluation schemes (1993, p. 197), is one means to promote learning through experimentation. At the same time we can suppress the urge to rank or evaluate.

If our evaluative criteria for student writing are to test not only students' ability to think on paper, but too their ability to assess how they are able to synthesize knowledge and express the resultant product, we must be creative and open to new ideas about "gauging" evaluative criteria. As Odell maintains, "...different ways of knowing have heuristic and epistemic significance: each can be a useful strategy for reflecting on one's subject matter..." (1992, p. 92). The knowledge we seek and transmit to our students when we assess their writing should require that students delve into heuristic processes.

Students will learn new ways of knowing and methods of thinking if we are able to assess with as much aplomb as they are able to deal with topics within their respective disciplines and with topics which transcend typical disciplinary boundaries.

Worthwhile criticism exercised in concert with the evaluative criteria outlined here can help motivate students to deal propitiously with--while assuming-- the discourse of their respective disciplines.

References

Elbow, P. (1993, February). Ranking, evaluating, and liking: sorting out three forms of judgment. College English, 55, 187-206.

Goldstein, J. (1993). Utilizing writing-across-the-curriculum principles in the traditional classroom: rethinking teaching strategies and evaluation criteria. In Embry-Riddle First Annual College of Continuing Education Faculty Symposium on Teaching Effectiveness. Daytona Beach, Florida.

Herrington, A. & Moran, C. (Eds.). (1992). Writing, teaching, and learning in the disciplines. New York: The Modern Language Association of America.

Langer, J. (1992). Speaking of knowing: conceptions of understanding in academic disciplines. In A. Herrington & C. Moran (Eds.), Writing, teaching, and learning in the disciplines. (pp. 69-85). New York: The Modern Language Association of America.

Odell, L. (1992). Context-specific ways of knowing and the evaluation of writing. In A. Herrington & C. Moran (Eds.), Writing, teaching, and learning in the disciplines. (pp. 86-98). New York: The Modern Language Association of America.

Tompkins, G. (1992, November). Assessing the processes students use as writers. Journal of Reading, 36, 244-246.

Figure Captions

Figure 1. Sample use of a grid to establish non-ranking evaluative criteria.

Figure 2. Checklist of the writing process.

Figure 3. Checklist for revising the rough draft.

Figure 4. Assignment-specific checklist designed for co-development and -assessment by student/evaluator

EVALUATION GRID

Strong OK Weak

			INFORMATION: focus, insights, gaps, links
			STRUCTURE: reader orientation, organization
			STYLE: usage, syntax, voice, sent. structure
			MECHANICS: spelling, grammar, punctuation
			OVERALL ASSESSMENT

Figure 1. (Adapted from Elbow, 1993)

CHECKLIST OF THE WRITING PROCESS

A. PREWRITING:

Establishing your objective
Identifying the reader
Determining the scope and form

B. GATHERING:

Taking notes
Conducting library research
Interviewing
Creating and using a questionnaire

C. SHAPING:

Choosing best method of development
Outlining
Illustrations

D. WRITING THE DRAFT:

Choosing a point of view
Developing topic sentences
Writing paragraphs
Writing an introduction
Writing an opening
Writing a conclusion
Choosing a title

E. REVISING:

Checking for completeness (revision)
Checking for accuracy (revision)
Checking for unity and coherence
Achieving effective transition
Checking for consistent point of view
Emphasizing main ideas (emphasis)
Subordinating less important ideas (subordination)
Adjusting the pace

Checking for clarity
Defining terms
Eliminating ambiguity
Checking for appropriate word choice
Eliminating affectation and jargon
Replacing abstract words with concrete words
Achieving conciseness

E. REVISING:

Eliminating clichés and trite language
Making writing active (voice)
Changing negative writing to positive writing
Checking for parallel structure
Checking for sentence construction and achieving sentence variety
Eliminating awkwardness
Checking for appropriate tone
Eliminating sentence faults
Checking for agreement
Checking for proper case
Checking for clear reference of pronouns
Eliminating dangling modifiers and misplaced modifiers
Checking for correct punctuation
Checking for mechanics:
- spelling
- abbreviations
- capital letters
- contractions
- dates
- indentation
- italics
- numbers
- symbols
- syllabication
- footnotes
- bibliography

Checking for correctness of format and illustrations

Figure 2.

CHECKLIST FOR REVISING THE ROUGH DRAFT

It is advisable to revise the rough draft by carrying out three separate readings with a different objective in mind each time.

A. Read through for INFORMATION
   1. Repetition?
   2. Gaps or missing material?
   3. Extraneous material?
   4. Do the body and terminal sections keep the promises made to the reader in the introduction?
   5. Should some of the material go into the appendix?
   6. Would additional illustrations reduce the text content or provide for clearer understanding?
   7. Did you say what you meant to say? Or, did you depend upon your own experiences--or the reader's--to fill in the gaps?
   8. Have you checked computations, quotations, citations, cross-references, formulas, dates, equations?
   9. Have you allowed a biased attitude to creep into your report through the use of opinionated adjectives?

B. Read through for ORGANIZATION
   1. Does the structure of the report suit reader requirements?
   2. Are paragraphs in logical order?
   3. Does each paragraph contribute to the general structure of the report?
   4. Does each paragraph completely develop its topic?
   5. Have you used transitional devices?
   6. Have you inadvertently shifted your point of view?

C. Read through for STYLE
   1. Is language level suited to reader?
   2. Eliminate gobbledygook, jargon?
   3. Examine sentence and paragraph length?
   4. Check variety in sentence construction?
   5. Have you missed opportunities for parallel construction?
   6. Is your grammar correct?
   7. Have you used any abstract words that can be replaced with concrete words?
   8. Do active verbs predominate?
   9. Most frequent grammatical errors:
      a. disagreement between subject and verb
      b. faulty pronoun references
      c. incomplete sentences
      d. improper use of subordinating conjunctions
   10. Check for punctuation and spelling.

Figure 3.

ASSIGNMENT-SPECIFIC CHECKLIST

Use the following questions to 1) guide you through the assignment step-by-step, 2) help you determine how well you have understood and met the objectives of the written assignment, and 3) allow you to co-determine how your grade for this assignment will be assessed.

MOCK ASSIGNMENT: *Describe the aerodynamic factors affecting rotorwing aircraft approaching transonic flight. If you consider one aspect of this topic particularly noteworthy, feel free to focus on that one aspect alone. Similarly, if you feel it's warranted to tie this topic into a related field for the purpose of elucidation, do so! Although I will refrain from demanding a predetermined length or scope for this assignment, think in terms of writing 2-3 typewritten pages (this restriction is intended to help you determine the actual focus of your topic. If you decide to write more, then adjust the focus accordingly).*

1. Is the focus you have established adequate to solve the problems you are addressing here? Or is it too narrow or too broad? What promise have you made to your perceived audience? Can you fulfill it within the scope of this paper? Have you determined what aspects of transonic flight pertain directly to the point-of-view you want to pursue here? Have you linked these to specific aspects of rotorwing flight: controls, rotorblades, powerplant, instrumentation, etc.?
2. Can you relate (aspects of) this topic to other topics you've explored? Or to areas of expertise in other disciplines (perhaps compressibility and heat transfer as they were discussed in a physics class) ?
3. Have you based your supporting data on personal observations or brainstorming or have you used other information-gathering tools (computer searches, questionnaires, interviews)? Have you substantiated and annotated all such information? If you decide to use secondary literature, have you first determined your own position, i.e., have you developed a tight focus mirrored in a well-formulated thesis statement?
4. If you are using highly technical jargon or a slew of acronyms, have you taken your audience into consideration? Is there a need to write a glossary?
5. If you decide to discuss transonic aerodynamic forces as they affect rotorwing aircraft on a highly theoretical plane, have you again taken your audience into consideration? Have you defined terms or used analogy to express highly technical applications in layman's terms?
6. Would illustrations or diagrams aid the reader in comprehending this complex topic?
7. *Additional aspects of this assignment considered significant by evaluator and evaluee.*

Figure 4.

Footnotes

[1] Some of the ideas presented in this essay derive from a paper I presented at the 1st Faculty Symposium on Teaching Effectiveness in April 1993. The suggestions I present here to rectify common fallacies in the evaluation of student papers are intended for instructors in all disciplines--primarily at the undergraduate level--but not exclusively those instructors who teach writing skills in the English or allied departments. Most of what is presented in this paper is compatible with writing-across-the-curriculum programs.

[2] Elbow (1993) uses "peer groups not only for feedback, but for other activities, too, such as collaborative writing, brainstorming, putting class magazines together, and working out other decisions" (202).

[3] For each minor error made in spelling, capitalization, punctuation, etc., I would deduct 1/2 point. For more serious errors such as basic sentence faults (comma splices, fragments, run-on sentences), I would deduct a whole point.

IMPROVING ORAL AND WRITTEN COMMUNICATION

by

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IMPROVING ORAL AND WRITTEN COMMUNICATION

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Recent research indicates that reading and writing ability seem more related than previously thought, that writing ability can be effectively evaluated through analysis of student writing samples, and that analytical abilities should be measured through discussion, questioning and examination of expository writing (Cashin and McKnight, 1986; Kozol, 1985). The common premise of recent linguistic research seems to be that reading and writing are natural extensions of oral language. Reading is a "meaning-getting" process, and writing is a "meaning-giving" process. Comprehension results from the interaction of the mind of the reader and the text; composition results from the interaction of the mind of the writer with his or her language in the production of text (Hall, 1976; Wangberg and Willekens, 1981-82). Still more recently, as linguistic research has continued, the term "whole language approach" has begun to be used to describe an integrated approach to the teaching of communicative skills (Shuy, 1981; Smith, 1982; Tierney and Pearson, 1983). The key purpose of this essay is to sensitize an academic audience to the uses of discussion and questioning in the classroom and to reflect briefly on the development of student writing skills.

PURPOSES OF TEACHER QUESTIONS

A teacher might be able to accomplish most instruction through pedagogical techniques other than questioning. Asking questions, however, is a direct, sensible approach focused on the topic at hand (Hyman, 1982). The following list illustrates some of the purposes teachers have in mind when posing questions:

1. diagnose a student's degree or level of understanding of a concept or topic.

2. involve the student, help keep the student alert, and/or provide an opportunity for the student to demonstrate knowledge.

3. test a student's knowledge and understanding and/or determine the extent to which supplied data can be used to reason and solve problems.

4. review, restate, and/or summarize fundamental points from previous sessions.

5. provide a springboard for discussion, stimulate creative imagination, and/or obtain ideas to which class members can react.

Obviously, one question may serve two or more purposes simultaneously. A teacher may not be aware of all of his/her aim in asking a particular question, and the results of the question may not be clear until the responses are analyzed in the context of the lesson. Student thinking is generally concentrated on the context of the teacher's question. Consequently the student is not always aware of its multiple purposes.

Since questioning is an essential teaching tool, it makes sense to use it to best advantage by learning about different types of questions, effective tactics for asking questions, strategies to guide question asking, methods for fielding student responses, and approaches for fielding student questions.

Types of Questioning

The research literature on questioning offers several basic systems for categorizing questions according to the cognitive processes which the questions require the respondent to perform. One very useful system for categorizing questions in the college classroom is the one devised by Rodney P. Riegle (1976). Riegle specifies three main types of questions:

1. Interrogative questions, those requesting information regardless of form.

2. Rhetorical questions, those with an interrogative form but not an interrogative function (i.e., they do not request information).

3. Ambiguous questions, those that are functionally ambiguous (not clear whether they are interrogative or rhetorical) or semantically ambiguous (not clear which of the interrogative subcategories is appropriate).

Using Riegle's categories it is possible to monitor and reflect upon the types of questions a teacher and his/her students ask. For example, a teacher's questions may fall into a narrow range of categories if the instructor is interested in developing in the students the ability to perform a wide range of cognitive processes. Then the instructor will prepare and ask a variety of questions. Suppose a history teacher finds he/she generally asks for causal explanations and only rarely for teleological, functional or chronological explanations. Once aware of this pattern, the teacher can begin to ask noncausal questions aimed at obtaining noncausal explanations

from the students.

Examination of an instructor's questions may reveal ambiguity in wording or intent. For example, a teacher may tend to elicit different types of explanations, but may phrase questions in such a way that the students do not know what type of response is sought. Suppose the teacher asks: "Why did Argentina invade the Falkland Islands in the spring of 1982?" It is not clear whether the teacher seeks a causal, functional, or chronological explanation of the Argentine action. Specifying the category of question contributes to its effectiveness.

A teacher may be asking a broad range of questions and yet find that student questions are focused almost entirely on obtaining concrete examples of the items under study. This could indicate that students find the teacher's remarks abstract, difficult to understand, or lacking in the specifics they need for comprehension.

Examining student questions might show that students seldom ask about relationships. The instructor may thus need to take time to familiarize students with the variety of possible questions, provide models, and encourage practice so that students learn to broaden their questions during discussion.

Tactics for Questioning

The current literature suggests several tactics which may assist teachers in improving the use of questioning in their teaching (Stauffer, 1970; Hyman, 1982; Napell, 1978).

1. After asking a question, wait for a response. Do not answer the question yourself, repeat it, rephrase it, modify it, or replace it with another question until you have waited at least three to five seconds. Students need time to think about the question and prepare their responses. The research indicates that with a wait-time of three to five seconds, students respond more, increase the length and number of their responses, use complex cognitive processes, and begin to ask more questions. Sometimes when teachers reword questions because they believe that the initial question is unclear, the result is greater student confusion. Students may not know which question they should respond to.

2. Ask only one question at a time. Do not ask a string of questions one after the other in the same utterance. A series of questions tends to confuse students. They may not be able to determine what the teacher is requesting of them. Even if one believes a question to be unclear, one should wait for a response. One may find that students do indeed understand the question. By attempting to clarify, one may change the meaning of the question, thereby adding to the confusion.

3. When student questions are desired, request them explicitly, wait, and then acknowledge student contributions. For example, a teacher may wish to solicit questions about certain material by saying: "Are there any questions or clarifications of points we have raised?" Indicate to students that questions are not a sign of stupidity but rather the manifestation of concern and thought about the topic. One must, of course, be careful not to subtly or even jokingly convey the message that a student is somehow stupid by asking for a clarification or restatement of an idea already raised in class or in the text.

4. Use a variety of probing and

explaining questions. One should ask questions that require different approaches to the topic, such as the causal, functional, or chronological questions specified earlier. One way to begin is to avoid the words "why" and "explain" and to phrase questions with words that give stronger clues about the type of explanation sought. Thus for chronological explanation, instead of asking "Why did we have a depression in the 1930s?" one might consider: "What series of events led up to the stock market crash of 1929 and the high unemployment of the 1930s?"

Strategies for Questioning

Beyond the tactics described above, questions need a strategic context or framework to enhance their meaning. An isolated question does not have the power that the same question has as the culmination of a sequence. For example, consider the first illustrative questions about the Falkland Islands. Suppose the instructor has asked and dealt with the responses to the following questions. "According to Argentina, what is its historic claim to the Falklands?" "What previous attempts did Argentina and Britain make to settle their dispute?" "Who did Argentina believe would support its action?" "What did Argentina believe would be Britain's reaction to the invasion?" Now, suppose one asks, seeking a functional explanation "What function, then, did the invasion serve for Argentina?" This question has impact because it is an outgrowth of the previous four questions. There is synergistic and cumulative effect when the five connected questions are asked together. The students need to consider the responses to the previous questions when they offer their explanation of the Argentine invasion of the Falklands. Their explanation is enhanced by accounting for the data presented in the previous responses. Their cognitive processes are stimulated as they grasp the direction the series of questions is taking.

The best context for a given question is a questioning strategy. A questioning strategy is a carefully planned sequence of major questions designed to achieve a teaching goal. The careful planning eliminates confusing gaps between questions and assures the inclusion of complementary questions that provide helpful insights and variety to the discussion. By planning ahead the instructor can better determine the progression of questions which serve as a model of logical thinking for the students.

Tactics for Fielding Student Responses

Of course, a natural outcome of teacher questioning is student responding. It is important to attend to student responses. The ways in which the instructor fields student responses will influence future responses. Many options are open to the teacher after a student response and there is no pedagogical rule mandating what the teacher is to do. Nevertheless, one should realize that it is helpful to reinforce good responses. Students look to the instructor for guidance and support. If the instructor ignores them or shows virtual indifference, student behavior may be inhibited. Chastised students, and especially those who feel humiliated, may become so angry or fearful that they will refuse to respond in the future.

The goal then is for the instructor to field responses in such a way that the quality

and quantity of future responses are enhanced. The following are several tactics for fielding responses.

1. Praise the student in a strong, positive way for a correct or excellent response. One might use such terms as "excellent answer," "quite correct" or "bingo." These terms differ from the common mild phrases teachers often employ such as "OK" and "alright." Especially when the response is long, the instructor should try to find at least some part that deserves strong praise and then comment on it.

2. Make comments pertinent to the specific student response. For example, suppose that a student has offered an excellent answer to the question "What function did the invasion serve for Argentina?" The instructor might say "That was excellent. You included national political reasons as well as mentioning Argentina's psychological drive to become the South American leader." Such a response gives an excellent rating to the student in an explicit and strong form. It also demonstrates that the instructor has listened to the student's response by supplying comments specific to the student's ideas.

3. Make no comment after each, specific response within a series of responses to a single question: make a general comment after the series of responses is complete. There are at least two good reasons for employing this tactic to field multiple responses. First, the teacher's comments tend to shift the focus of discourse back to the teacher. By nodding or pointing to the next student the instructor keeps the focus on the student response. Second, and more important, if the instructor praises one student immediately, another student is likely to pick up the message that the teacher expects an answer similar to the previous one. The second student may hesitate to take another tack, even though it may be a good one.

It is important that the instructor keep track of the responses in the series so that they can be reinforced at the end. Fielding the responses in this way encourages each student's own particular response. It also helps students to learn that they do not need to have the instructor's comments after each of their responses.

4. Build on the student's response. If the instructor continues to discuss a point after a student response, he/she should try to incorporate the key elements of the response into the discussion. By using the student's response, the instructor shows that he/she values the points made. By referring to the student explicitly by name, the instructor gives credit where credit is due.

5. Avoid the "Yes, but..." reaction. Many instructors use "Yes, but..." or its equivalent when a response is incorrect or at least partly incorrect. The overall impact of these phrases is negative and deceptive even though the instructor's intent may not be. "Yes, but" indicates the response is correct or appropriate with one breath and then takes away the praise with the next breath. Some straightforward alternatives can be recommended.

a. Wait to a count of five with the expectation that another student will volunteer a correct or better response.

b. One might inquire "How did you arrive at that response?"

c. One might say, "You're correct

regarding X, but incorrect regarding Y. Now we need to correct Y so we can get everything correct.

d. Another possibility is: "Thanks. Is there someone else who wants to respond to the question or comment on the response we've already heard?"

These four alternatives are obviously not adequate to fit all cases. Indeed, it is generally difficult to field incorrect or partially incorrect responses because students are sensitive to instructor criticism. Nonetheless, with these four alternatives as examples, an instructor will probably be able to generate others as needed.

Tactics for Fielding Student Questions

Unfortunately, many college teachers are ill at ease when students ask them questions. Having relied too heavily upon lectures, many have simply not learned to field questions. Fielding is in fact a broader concept than responding: responding to a question is but one fielding option. The skill of fielding students questions is vital for an instructor who wants students to think about the topic under study. One result of student thinking is student questioning (Cashin et al., 1976).

If there are few student questions, this is often a bad sign. It usually means students are not attending to the instructor's remarks and not thinking about the topic at hand. Alternatively, students may have reservations about asking questions because they fear they will be put down. It is also possible that students do not wish to ask questions because they believe, rightly or wrongly, that the instructor doesn't want them to ask questions. That is, the instructor somehow discourages students from asking questions. Generally, discouragement is implicit and springs from the negative way an instructor fields student questions.

It is difficult to explain why instructors discourage student questions, but some tentative reasons might be offered. Instructors feel the need to be in control both of the content and procedures in the classroom. They feel pressured to "cover" the established course content. Instructors feel pressured by time and there is never enough of it to cover the material. Thus, they discourage student questions because the questions may lead them away from their material. Instructors also want to appear knowledgeable to their students. Student questions may embarrass the instructor who is unable to respond adequately. In short, instructors fear they may lose control or lose face if students ask questions.

The potential for loss of control as well as loss of face is real. It surely is possible for an instructor to go off track and to appear to lack knowledge. Nonetheless, the fear of this happening is overdrawn and the probability for it to occur is low. The instructor must weigh the advantages gained by permitting and encouraging questions against the need to maintain tight control in order to be sure to cover the material and to appear knowledgeable.

Some tactics for fielding student questions in a positive way are in order. These tactics do not suit all cases, but are simply examples of the options available.

1. Praise the student for asking a question. For example, "Thanks for asking that," or "That is a good question," or "That is an insightful question everyone should consider." These are simple reactions and

yet few instructors reinforce students for asking questions. College students need this reinforcement because their previous experience has usually led them to the conclusion that student questions are not valued.

2. Answer the student's question directly as often as possible. Students ask questions because they legitimately seek a response. They seldom ask questions to be cute or disruptive. Moreover, they want a response from the instructor. One should never play games with the student by asking a question in return or by stalling. By responding directly the instructor indicates the question is worthwhile.

Too often, instructors deflect questions to other students or to the class in general. Students generally want the instructor to respond directly. If the instructor wants to hear first what other students have to say, the "deflecting move" can be prefaced with something like, "After we hear what some other students have to say, then I'll offer my answer also," or "I'll ask Joe to respond specifically since he is versed on this particular topic. If you still want my response when Joe is finished, just let me know." This way, the questioner is informed of the instructor's strategy and does not assume that the question is being avoided or discounted by the deflection to another student.

3. Let the student know if the question leads into a new area. If a student question prompts an instructor to launch into a new topic, the plan should be indicated to the class. For example, "That is an excellent question and deserves further exploration." While this might not always satisfy the student with an immediate and direct response, the instructor does indicate that the question is valued both explicitly through praise and implicitly by involving the respective student in instructional plans.

NURTURING CLASSROOM DISCUSSION

Although learning does take place during a lecture, it is more likely to occur in discussion classes where there is give-and-take (Barnes-McConnell, 1978). Defining or describing good discussion is itself challenging. Here I will use "discussion" to include a variety of instructional approaches with focus on two-way, spoken communication between the teacher and the students as well as among the students themselves.

Strengths of Discussion Approaches

Discussion approaches are well suited to a number of course goals.

* Discussions provide the instructor with feedback about student learning. A serious limitation of the lecture mode is the lack of information about what the students are learning. Discussions overcome this by using both instructor and student questions, student comments, elaborations and explanations. These interactions allow the instructor to plumb the depths of student understanding.

* Discussions are appropriate for higher-order cognitive objectives: application, analysis, synthesis, evaluation. Discussions permit and encourage the student to introduce, explore, and refine ideas in ways which are impossible in a lecture.

* Discussions are appropriate for affective objectives: to help students develop

interests and values, to change attitudes. Discussions can do more than change minds; they can change hearts, the way we feel about an issue and our appreciation of it.

* Discussions allow students to become more active participants in the learning process. This increases their motivation to learn and renders learning more interesting.

Problems with Discussion Approaches

As with virtually everything else in life, discussions in the classroom have not only advantages, but disadvantages as well (McKeachie, 1986).

1. It may be difficult to get student participation. First, discussions can be threatening to students. In lectures the student's ignorance can go undiscovered. To participate in a discussion means to run the risk of being both incorrect and being found out. Also, unfortunately, there is often peer pressure not to excel. Further, in some cultures it is considered inappropriate for the individual to stand out.

2. Discussions are more time consuming. The pace might seem slower, and often not much may appear to be happening.

3. Discussions are not well suited to covering significant amounts of content. As instructors, we must wrestle with the issue of how much of the content we cover versus the depth of student learning.

4. Effective discussions require more forethought than do lectures. They are not opportunities for the instructor to take a break. Yet preparation cannot ensure that the discussion will follow the anticipated direction. After a few bad experiences, the instructor may take refuge in the more predictable refuge of lecturing.

5. In discussions the instructor has less control. To some extent we must go where the students' questions and interests take the group. We must allow the students to speak.

Recommendations Regarding Cognition

Here I will venture to offer some recommendations regarding certain aspects of discussion.

1. Define the topic. The topic for discussion should be relatively clear, that is, limited enough to focus the students' attention. "Relevant" discussions rather than abstract or academic ones are much more likely to engage the students. It is desirable to furnish students with the topic a class or two before the discussion in order that they prepare. Often, assigned readings and study questions help.

2. The instructor must be prepared. An effective discussion often requires more preparation than an effective lecture. It is often for this reason that instructors avoid classroom discussions. In a lecture the instructor can decide what he or she will cover. In a discussion one must be prepared to explore any issue reasonably related to the discussion topic. This means one must know the topic very well. It is advisable for an instructor to list possible issues or questions which the students might bring up and to outline possible answers or responses and if necessary, do some more reading or studying.

3. Use a common experience. Discussions are likely to be more focused and therefore more productive if they deal with something the students have all experienced. Choosing something from the

students' "real life" is one tactic. Providing a common experience by means of readings, a film, or slides is another. One must ensure that the students have sufficient information to make the discussion productive--simply sharing ignorance is in no one's best interest. During the discussion the instructor may have to provide additional information if lack of data is hindering or sidetracking the discussion.

4. Acting as a facilitator is the instructor's primary role in a discussion. Most of the content should be covered before the discussion, either in previous lectures, readings, films, slide shows, or other sources. The following tend to be facilitative: listening, posting and verifying, requesting examples or illustrations, encouraging and recognizing students' contributions, providing summaries.

Recommendations Regarding Participation

The following are some suggestions about what one might do to increase student involvement and interaction in discussions.

1. Create the expectation of participation. Arrange the seating so it is easy for everyone to see another, i.e., around a table or with a circle of chairs. The instructor should be part of the group, i.e., not behind a desk, and should make every effort to encourage students to talk.

2. Clarify how participation will influence grades. This should be done early on in the course and clearly.

3. Help the group to clarify its goals. Even if the goals are primarily the instructor's, it is always helpful to make them clear. In more flexible groups where the students have a major voice in determining the goals, such clarification become essential.

4. Keep the group on track. Often this can be accomplished simply by calling attention to the fact that the individual or group is getting off the point.

5. Solicit responses from the "nontalkers." One should be alert to nonverbal cues indicating students have something to say. "Would you like to say something?" or "Let's hear from some of you who haven't said anything yet."

Too many academics tend to conceive of college as primarily, if not exclusively, an intellectual or cognitive experience. Such a conception of the university ignores at least two considerations. First, individual students often bring to college feelings, interests, and values that hinder their learning or understanding of content which we may consider objective. Second, the university is about values, at least values like logical thinking, clear expression, knowing the data or literature, and even appreciating the subject and being responsible for one's own work. At a more profound level, the university is also about what kind of person one aspires to be, what kind of world the students want, and what life is about. Teaching is thus value-laden, and appropriately so. Discussion approaches are well suited to many of these concerns about feelings, interests, and values.

NURTURING WRITING ABILITY

Finally, as part of this aggregate approach to communicative skills and the articulation of ideas, I will offer a few reflections about expository writing. To begin, let there be no mistake about it, research and writing entail demanding work,

even (especially?) for the professional. One will not hear writers and scholars boast about the easiness of their craft. No matter how much they love it, and they often love it more than anything else, they find it demanding, exacting, lonely, and often painful. "Writing at its best," writes Ernest Hemingway, "is a lonely life."

In selecting a term paper topic, one must conduct a search for something worthy of study. The instructor should suggest to students that perhaps something has been puzzling them, or a topic has been inadequately covered in an earlier course or paper assignment. Curiosity is the source of many topics--the urge to understand something better, to resolve a paradox or dilemma. One must ask oneself questions about a research topic. What is the problem? What is the main idea or source of confusion? The writer must always be as clear as possible about what he/she wants to discover, prove or disprove. One should ask in what way do differing schools of thought define the problem differently, and why.

The instructor should expect students not just to describe a problem and raise off-handedly some possible solutions. Students should prepare a list of likely solutions or likely answers to research questions. They should be clear about cause-and-effect relationships. Logical reasoning is, of course, important at this point. Students should want to test, as systematically as possible, the plausible explanations they have raised.

It is essential for the writer to have a map of where he/she is going. No wind is the right wind if one doesn't know where one is headed. If one doesn't know where one is headed, one just might end up there, in fact. The moral is important. In the past you might have sat down and typed out a first draft, throwing together by cutting and pasting odd descriptions and definitions and tagging on a rough conclusion. This is hardly conducive to developing expository skills, however.

The writer should always ask crucial questions. What is the main theme? How clear is my thesis? Have I presented it clearly and forcibly in the first few pages? Will the paper persuade the readers? Have complicated terms and concepts been explained in clear English? Have I brought a freshness to the analysis that both informs and enlightens?

One must write, write, write--then revise, revise, revise. No writer can expect to get the words or flow exactly right on the first try. One must concentrate on writing it down and getting the ideas on paper in any way one can. One must focus on the main ideas and revise afterwards.

In evaluating student writing style, I recommend the personal narrative writing scale developed by C. R. Cooper (Cooper, 1976). Cooper describes the values for syntax like this:

> HIGH The sentences are varied in length and structure. The author shows a confident control of sentence structure. The paper reads smoothly from sentence to sentence. There are no run-on sentences or sentence fragments.
>
> MIDDLE The author shows some control of sentence structure and occasionally writes a sentence which is awkward or puzzling. There are almost no run-ons or s e n t e n c e fragments.

LOW There are many problems with sentence structure. Sentences are short and simple in structure, somewhat childlike and repetitious in their patterns. There are many run-on sentences and fragments.

The instructor should not only employ this scale for purposes of evaluating composition, but should explain to students that it is being used and how its is being used.

The most common student writing deficiency is an overly casual approach to the use of words. One should ask oneself: why am I using this word? Is there a more appropriate word? Shorts words, short sentences and short paragraphs are preferable to their opposites. The challenge for the writer is to avoid oversimplification as well as mindless complexification. Carefully selected nouns and verbs seldom need a string of adjectives and adverbs to amplify their meaning. When in doubt, one might consult stylist E. B. White, who advised: "Write with nouns and verbs; do not overwrite; do not overstate; avoid the use of qualifiers; do not explain too much; avoid fancy words; prefer the standard to the offbeat; make sure the reader knows who is speaking."

In the longer run, learning to conduct research and to write well correlate with extensive reading of the best writers and the most carefully executed research projects. One should thus adopt some of the best writers as remote mentors. One should discover why they are so good. How do they outline? How do they marshall evidence? What do they do to simplify, clarify, convince and persuade?

References

Barnes-McConnell, P. W. (1978). "Leading Discussions" in O. Milton (ed.). *On College Teaching: A Guide to Contemporary Practices* San Francisco: Jossey-Bass, pp. 62-100.

Cashin, W. E., Brock, S. C. and Owens, R. E. (1976). *Answering and Asking Questions.* Manhattan, KS: Kansas State University, Center for Faculty Evaluation and Development, 17pp.

Cashin, W. E. and McKnight, P. C. (1986) *Improving Discussions* Manhattan, KS: Kansas State University, Center for Faculty Evaluation and Development, 5pp.

Cooper, C. R. (1977). "Holistic Evaluation of Writing" in C. R. Cooper and L. Odell (eds.). *Evaluating Writing: Describing, Measuring, Judging*. New York: National Council of Teachers of English.

Hall, M. (1976). *Teaching Reading as a Language Experience*. Columbus, OH: Merrill.

Hyman, Ronald T. (1982) *Questioning in the College Classroom.* Manhattan, KS: Kansas State University, Center for Faculty Evaluation and Development, 6pp.

Kozol, J. (1985). *Illiterate America*. New York: Anchor Press/Doubleday.

McKeachie, W. J. (1986). *Teaching Tips: A Guidebook for the Beginning College Teacher.* (8th ed.) Lexington, MA: D. C. Heath, pp. 27-52.

Napell, S. M. (1978). "Using Questions to Enhance Classroom Learning," *Education*, 99, pp. 188-97.

Shuy, R. W. (1981). "A Holistic View of Language," *Research in the Teaching of English,* 15, pp. 101-11.

Smith, F. (1982). *Writing and the Writer.* New York: Holt, Rinehart and Winston.

Stauffer, R. G. (1970). *The Language Experience Approach to the Teaching of English.* New York: Harper and Row.

Tierney, R. J. and Pearson, D. P. (1983). "Toward a Composing Model of Reading, " *Language Arts,* 60, p. 80.

Wangberg, E. G. and Willeken, A. G. (1981, 1982). "A New Start for Teaching Adolescents and Adults," *Journal of Language Experience,* 4 (1 and 2), p. 45 and p. 52.

A PILOT STUDY TO ASSESS THE EFFECTS OF HUMOR IN RELATIONSHIP TO TEACHING EFFECTIVENESS

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In a 1968 work entitled, "A Teacher is Many Things", Drs. Earl Pullias and James Young elaborated on the many qualities or roles often required by an instructor at the college/university level. A litany of these roles include qualities such as: guide, teacher, searcher, counsellor, creator, evaluator, knowledge authority, emancipator, learner, facer of reality, and culminator, to name a few. Two of the roles mentioned in their book, "storyteller and actor", might appear to be unnecessary, or even questionable in their suitability for such a list. How does storytelling and acting relate to being an effective teacher? According to Pullias and Young, storytelling provides the student with a sense of place and identity and the ability to discover "...how others have solved problems similar to their own, ...learn to appreciate their own lives...feel inferior...superior...be repelled or inspired" (1968, p. 161). As an actor, the individual plays the role of a teacher, developing ways to carefully stage the learning moment for the class, a role the individual maintains throughout the time he/she is on stage before his/her students. Thus, the classroom professor assumes the role of an "edutainer (Zemke, 1991). The professor functions both as an educator and entertainer on the learning stage.

But how does storytelling and acting relate to the concept of humor in the classroom? Just as there are appropriate circumstances for many, if not all of the qualities mentioned in the Pullias and Young book, the use of humor in the classroom may contribute to the process, both as a learning tool, or as a method of placing the students in an enhanced psychological mindset, which will, in turn, assist in facilitating the learning process. Hill (1988) suggests that humor can enhance comprehension of new material when jokes or stories provide examples. Costello (1991) portends that laughter stabilizes blood pressure and stimulates circulation, ultimately relaxing the whole system. Students relax and become listeners when teachers reveal and apply their sense of humor (Hill,1988). Additionally, humor opens communication channels and develops rapport between student and teacher. A sense of belonging (Duncan, 1990) or 'connectedness' can result from humor or sharing a laugh (Feigelson, 1989). Lefcourt and Martin (1986) suggest that humor and laughter represent an important mechanism for coping with many psychosocial stressors that humans encounter in their daily lives (p.1). They further point out that humor focuses on relieving interpersonal tensions. Additionally, humor can be viewed as a "moderator or minimizer of the serious" (Lefcourt & Martin, 1986, p.123).

As an educator, armed with

knowledge, and given the responsibility to see that it is transferred to students, one must maintain the competitive edge for insuring student attention in order to allow the learning to cross the barriers that might be in place. Many of us will recall the movie and television series "The Paper Chase" where the late John Houseman played the role of Professor Kingsfield, a fictional Harvard law professor. The humorous side of Professor Kingsfield was rarely seen, and when it was, it was only outside the classroom environment. But for many of us, the style and personality portrayed by John Houseman in the Paper Chase would not prevail in reaching the type of students found in today's college and university classrooms.

Today many students are not afforded the luxury of a solitary educational focus, rather students have ongoing careers, family obligations, second jobs, and organizational or community commitments that absorb much of their time. Additionally, students may be confronted with deadlines for completing degrees, mobility concerns that impinge upon any long term time investment in educational programs, or even possible deferred personal gratification through an extensive long term effort requiring as much as ten years to complete a degree program. Today's nontraditional student is packaged with a variety of challenging obstacles to a smooth and uninterrupted educational experience. The majority of corporate and military, graduate level, and off campus programs are taught in the evening, during periods ranging from two to five hours. The vast majority of the students have just completed their normal day's schedule, and are not in the same frame of mind as full time students attending day classes as portrayed in The Paper Chase. Instructors, functioning in the role of actors, must be able to adapt their style to insure that the "learning moment" will occur, and not go unnoticed (Pullias & Young, 1968). By placing the students in proper frame of mind through the use of humor, an instructor can hope to reduce the boredom associated with long classes after a full workday.

While research supports the idea that there are many different learning styles, it is not always apparent which one will benefit a particular student. Nor is it possible to identify one style that will meet everyone's needs across the classroom. Therefore, many professors have adopted a variety of methodologies for maximizing their own potential in the classroom. Humor, as one strategy, allows students to be more receptive to quick transitions to new topics, reveals the human side of the professor, and if only temporarily, releases the student's contrived defenses or anxieties. Humor reveals, to the student, the possibility that embarrassment, seemingly foolish inquiries and risk oriented learning behaviors are acceptable and even encouraged in this 'learning' environment. Kushner, a noted humor consultant contends that an audience will remember even the dry basic information if it is aligned with humor. (Newman, 1989).

It is probably a safe assumption, from an academic point of view, that the classroom process is infrequently associated with the terms 'fun', 'exciting' or even 'humorous' as a learning experience. In fact, more often students identify the experience as a time consuming means to a

greatly sought after or needed end, that being the credential and its side effect: knowledge. Periodically, professors become aware of colleagues with positive profiles from students. We often wonder if these high marks correlate to any real learning by students. It is not unusual to hear reviews integrating the use of classroom humor in conveying positive comments regarding a particular professor.

But why humor? As previously mentioned, researchers have found that humor can minimize anxiety (Malone, 1980), and reduce boredom (Ray, 1960). Humor and accomplishment are definitely linked (Smith, 1990). C. W. Metcalf (1990) suggests that the purpose of humor is to bond, not to separate. Humor can be a catalyst in overcoming the fear of failure. Metcalf's humorobics suggests that humor, just as with any skills or art form, should be practiced frequently to avoid atrophy. Humor should be the instrument by which one maintains a respectable distance from 'terminal professionalism' (Metcalf, 1990). How one views a given situation can provide a much needed sense of control. Humor makes you more human "... more approachable...leads to good communication and a fruitful exchange of ideas" (Feigelson, 1989, p.8) Training films used for educational purposes have adopted a method of relying on humor by presenting a realistic event through an exaggerated obvious point to enhance learning (Cleese, 1990). Businesses like Southwest Airlines support and encourage employees having fun, some formalize a "fun committee" (Jaffe, 1990). Hal Schatz, Vice President of Sales and Marketing for the training division of Lettuce Amuse U Comedy Schools, incorporate trained comedians to teach various subjects, suggesting that "...humor piques interest, melts barriers, promotes participation, enhances learning and boosts morale" (1991, p.60).

"...humor has been associated with verbal aggression, information retention and recall, learning and entertainment" (Graham, Papa & Brooks, 1992, p.161). Studies have found that humor can be an important learning tool in the learning process. Information disseminated to students in which humor is used as part of the learning process, may, in some instances, be recalled because of the humor associated with the learning moment. Freud referred to humor as a defense mechanism allowing one to confront difficult situations (1928). He further suggested that humor, unlike wit and the comic, had a "liberating element". Research has shown that not all students learn alike. While the processes involved in the concept of learning will not be explored in this paper, it is however, necessary that the instructor be willing to acknowledge that his or her style may not provide the most appropriate method for transferring information to the student, information which will be learned and retained as cognitive knowledge. Graham et al. state that "the introduction of new information...may cause apprehension and possible anxiety. Much of the anxiety can be...expunged by humor" (p. 167). Educators have a responsibility to their students, as well as their profession, to insure that the learning moment occurs. This responsibility is far greater than to just insure that pertinent information is presented to students, but also in a way in which it can be comprehended and absorbed in an

individuals cognitive knowledge base. For some, the idea that one must change or alter one's teaching style can appear to be quite threatening, as change normally is, but if one assumes that learning is only the student's responsibility, they do not comprehend the role of the instructor as a teacher! A teacher's role is not only to disseminate information, but to the best of one's ability, insure that the information has been understood and learning has occurred.

This study does not attempt to imply that humor must be a mandated solution to facilitate the learning process, and must be utilized in every course by every instructor. Its sole purpose is to explore humor as an appropriate learning technique which can be used in the classroom environment. The authors also believe that humor may not be the correct choice for every instructor, or for every course. Many would agree that if Professor Kingsfield had used humor in his classroom, the intensity he required for his students would have declined or diminished. Politicians rely on humor and laughter to boost their popularity and credibility. Laughter is the best motivator (Reynolds, 1989). However, when used inappropriately, humor could blow up in one's face, as President Reagan discovered when he indicated that the federal deficit was big enough to take care of itself, so why worry about it. (Reynolds, 1989) A miscalculated, misaligned effort which was poorly timed and definitely inappropriate! But the authors contend that humor is a viable educational technique which, when used in the proper situation, will lead to enhanced learning and student satisfaction.

The question being researched in this study is to determine whether the use of humor in the classroom environment will facilitate the learning process (in this study defined as higher examination scores), and increase the students satisfaction of the overall learning experience.

The purpose of this study was to determine whether the use of humor as a proactive and ongoing ingredient of classroom instruction resulted in significant differences in students performance (as reflected in examination scores), and in student course evaluations (as reflected in the student critiques).

The research methodology used in this study is causal-comparative since the groups (classes) had already been formed, and the authors had no control in the selection process. The population of the study were two graduate Embry-Riddle Aeronautical University Aeronautical Science classes, both enrolled in the MAS 604 course, Human Factors in Aviation/Aerospace Science, and two graduate University of West Florida classes, both enrolled in the MAN 6156 course, Organizational Behavior. The two Embry-Riddle classes were taught by the same instructor during the same academic term while the two West Florida classes were taught in two consecutive terms. In one of the Embry-Riddle classes, and in one of the West Florida classes a proactive humor treatment was utilized, while no proactive humor was used in the other section.

Both instructors agreed prior to the beginning of the courses that they would cover the identical information in both of the classes, the midterm and final examination would be identical for the respective classes, and a criterion, verses norm referenced, grading system was utilized. In an attempt

to correct for any subjectivity in the results, only the midterm and final examination test scores were used to evaluate student performance; presentations, exercises and research papers were not considered. The two instructors utilized numerous forms of levity in the classes which received the humor treatment, including jokes, cartoons, comical video's, stories, and experiences. The humorous material did not in any way, pertain to the subject matter being covered in the class.

The two research hypotheses of this study are: that students in classes in which proactive humor was used minimized anxiety and reduced boredom will have significantly higher evaluation scores (midterm and final examinations) as compared to those students whose classes did not receive humor treatment; and that instructors who utilize proactive humor in the classroom environment will be perceived by the students as being more effective educators (as measured by the end course critiques), than those instructors who did not utilize humor. The null hypotheses are: there will be no significant difference in student examination scores in classes which use proactive humor to minimize anxiety and reduce boredom, when compared to classes which do not use humor; and there will be no significant difference in the student's perception of teacher effectiveness, as measured by the course critiques, between instructors who use proactive humor in the classroom, as compared to those who do not. Both hypotheses were tested at the $a = .05$ level of significance.

Certain assumptions were made in this study. First, the instructors teaching the course will communicate the same information to both sections of the course used in this study. Second, the use of humor will be used to further explain or elaborate on the information being presented. (While there is evidence that the use of humor which directly relates to the learning event could assist in facilitating the retention and recall of information, this aspect of humor research will be left for another study, to allow the authors to study examination scores which were not influenced by the infusion of humor to explain or assist in recalling the learning event.) The use of humor therefore, did not provide the classes receiving the humor treatment with an advantage over those which did not receive the treatment.

A limitation of this study was that the authors had no input to the composition of the individual class sections. Although a comparison of the students in the class sections revealed that their educational level, grade point averages, and work experiences were very similar, the inability of the authors to randomly assign the individuals must be considered a limitation of this study.

As far as this study is concerned, proactive humor will be defined as the use of levity, (jokes, cartoons, comical stories and experiences, etc,) intentionally initiated by the instructor that does not relate directly to the information being presented in the course. This will insure that the examination scores will not be affected by the use of humor directly related to the subject matter being presented. As in every course there will always be situations where unplanned levity will occur. Both instructors made every attempt to insure that no levity was initiated by them in the classes

which were not designated to receive the humor treatment.

The statistical tests used to evaluate the data from the study were the t-Test for independent means and the Chi Square test. The t-Test was used to test for significance between the examination scores of the two classes; while Chi Square tested for significance between the student critique responses.

At the conclusion of the classes, the midterm and final examination test scores for the two-Embry-Riddle MAS 604 classes (Table 1) were compared against each other utilizing the t-Test for independent means. The same process was completed for the West Florida MAN 6156 classes (Table 2). The results revealed that there was no significant difference between either the Embry-Riddle (Figure 1) or West Florida (Figure 2) classes in relation to their test scores. Based on this information, the first null hypothesis was not rejected. Classes where humor was used to minimize anxiety and relieve boredom did not have significant higher examination scores as compared with classes who did not receive the humor treatment.

In the case of the second hypothesis, the course critique were compared using the nonparametric Chi Square test. Since the Embry-Riddle and West Florida critiques are somewhat similar in format, but not exactly alike, different survey questions were used to evaluate the second hypothesis. In the case of the Embry-Riddle critique, the question which asked, "Compared to other instructors you have had (second school and college) how effective has this instructor been in this course?" In the case of the West Florida critique, the question which asks students "Overall, I would rate the instructors teaching skill" was used. The Chi Square was used in both cases to evaluate the data. The results of the classes which did not receive the humor treatment were, for this test, considered the expected values, while the classes which received the humor treatments were considered the observed values. Since Embry-Riddle classes (Table 3) did not have the same amounts of students, (24 verses 22) it was assumed that the raw data would have to be interpolated, however, since three members of the larger class, and one member of the smaller class were on temporary duty assignments and did not participate in the course critique, the number of critiques for both classes was 21, negating the need to interpolate the data. In the case of the University of West Florida classes, both were "full" classes with 30 students each (Table 4). There were some students which dropped the course at the start of the term, but these vacancies were filled by students from a waiting list. The data from the classes were compared against each other (as expected and observed values) since that data allowed for a direct verses estimated comparison. The results from both the Embry-Riddle (Figure 3) and West Florida (Figure 4) critiques indicated significance in the evaluations of the instructors by the students. The classes in which the humor treatment was utilized rated the instructors significantly higher in their course critique as compared to the classes where the humor treatment was not utilized. The null hypothesis was therefore rejected.

Table 1

Midterm and Final Examination Scores for Embry-Riddle MAS 604

	Class With Proactive Humor		Class Without Proactive Humor	
Student	Midterm	Final	Midterm	Final
1	85	88	90	97
2	94	90	92	90
3	96	98	88	86
4	93	92	88	82
5	90	92	73	88
6	92	96	98	96
7	88	84	98	92
8	84	88	87	82
9	89	88	98	93
10	98	99	78	91
11	86	88	88	84
12	93	97	93	90
13	94	98	90	92
14	90	90	94	98
15	90	92	96	94
16	93	83	93	92
17	72	87	88	86
18	98	86	82	83
19	96	88	87	89
20	83	82	99	*
21	82	90	94	*
22	90	*	96	*

* Student was not available for the final examination due to temporary military duty assignment (TDY/TAD). Individuals were administered a make-up examination which differed from the one used in class. Because of the difference in the examination the scores were not included in the study.

Table 2

Midterm and Final Examination Scores for West Florida MAN 6156

	Class With Proactive Humor		Class Without Proactive Humor	
Student	Midterm	Final	Midterm	Final
1	90	93	92	86
2	88	88	88	98
3	98	92	90	93
4	96	93	88	88
5	94	94	94	94
6	97	93	90	83
7	90	90	96	81
8	88	83	96	93
9	86	96	85	98
10	94	98	97	93
11	96	93	96	97
12	81	85	96	90
13	96	90	90	92
14	97	92	91	83
15	83	96	96	94
16	93	83	94	96
17	91	85	92	90
18	90	91	88	85
19	96	92	91	96
20	96	99	99	86
21	89	83	83	89
22	93	93	88	94
23	88	88	95	93
24	92	80	83	88

(table continues)

25	95	83	97	86
26	86	87	89	80
27	78	96	88	99
28	89	95	98	96
29	80	94	93	98
30	*	96	94	99

* Student was not available for the final examination due to temporary military duty assignment (TDY/TAD). Individuals were administered a make-up examination which differed from the one used in class. Because of the difference in the examination the scores were not included in the study.

Table 3

Results From Embry-Riddle MAS 604 Course Critique Question "Compared to Other Instructors You Have Had (Secondary School and College) How Effective Has This Instructor Been In This Course?"

	Class With Proactive Humor*	Class Without Proactive Humor**
Excellent	19	6
Good	2	14
Satisfactory	0	1
Fair	0	0
Poor	0	0

* Three students were not available to complete the course critique due to temporary military duty assignment (TDY/TAD).

** One student was not available to complete the course critique due to temporary military duty assignment (TDY/TAD).

Table 4

Results From University of West Florida MAN 6156 Course Critique Statement "Rate the Overall Teaching Skills of the Instructor."

	Class With Proactive Humor	Class Without Proactive Humor
Outstanding	28	16
Good	2	13
Average	0	0
Below Average	0	0
Poor	0	0

t-Test for Independent Samples

Statistic	Value
No. of Scores in Group One	43
Sum of Scores in Group One	3872.00
Mean of Group One	90.00
Sum of Squared Scores in Group One	349942.00
SS of Group One	.281.91
No. of Scores in Group Two	41
Sum of Scores in Group Two	3695.00
Mean of Group Two	90.12
Sum of Squared Scores in Group Two	334367.00
SS of Group Two	1366.38
t-Value	-0.06
Degree of Freedom	82
p-Value at .05	1.970

Figure 1. t-Test results for Embry-Riddle Aeronautical University MAS 604 examination scores.

t-Test for Independent Samples

Statistic	Value
No. of Scores in Group One	59
Sum of Scores in Group One	5351.00
Mean of Group One	90.69
Sum of Squared Scores in Group One	486889.00
SS of Group One	1580.53
No. of Scores in Group Two	60
Sum of Scores in Group Two	5495.00
Mean of Group Two	81.58
Sum of Squared Scores in Group Two	504719.59
SS of Group Two	1468.59
t-Value	-0.95
Degree of Freedom	117
p-Value at .05	1.980

Figure 2. t-Test results for University of West Florida MAN 6156 examination scores.

One Dimensional Chi Square

Observed Frequency	Expected Frequency	Cell Chi Square
19.00	6.00	28.17
2.00	14.00	10.29
0.00	1.00	1.00
Chi Squared		39.45
Total Numbers of Observations		21
Number of Categories (N)		3
Degrees of Freedom (N-1)		2
p-Value at.05		5.99

Figure 3. Chi Square results for Embry-Riddle MAS 604 course critique question.

One Dimensional Chi Square

Observed Frequency	Expected Frequency	Cell Chi Square
28.00	16.00	9.00
2.00	13.00	9.31
0.00	1.00	1.00
Chi Squared		19.31
Total Numbers of Observations		30
Number of Categories (N)		3
Degrees of Freedom (N-1)		2
p-Value at .05		5.99

Figure 4. Chi Square results for University of West Florida course critique question.

The results of this study revealed that proactive humor did not have a significant impact in the scores in the classes in which it was utilized, as compared with the classes where it was not used. From these results, one would assume that humor has no effect on the students in terms of increasing their knowledge of the subject matter. However, as stated earlier in this paper, the humor which was used did not relate to the material being taught in the classes. There have been other studies which maintain that there is a direct correlation between the scores students receive, and the use of humor to explain, exemplify, enhance, intensify, magnify, heighten, etc. the material being presented. This study specifically sought to correct for this variable by insuring that humor would not be used for this purpose, and to leave this question for future research.

In the case of the question which asks if proactive humor would have significance in the students evaluation of the instructor, as measured by the course critiques, the test results rejected the null hypothesis. As found in both the Embry-Riddle and West Florida critiques, the classes where proactive humor was used reflected significantly higher instructor evaluations, as compared to those classes where it was not used. Although humor did not increase the students' scores, it did, as hypothesized by the authors, increase the perception of the effectiveness of the instructor. Some may question the importance of the students perception as a creditable measuring device, especially since it appears that it did not result in higher test scores. But to make an assumption such as this, one ignores that fact that learning cannot only be measured by test scores. There are certain intangibles which cannot be quantified in every instance, and only through the subjectivity of the student evaluations can the affects be analyzed. In this case the subjective course critique indicate that the use of proactive humor was effective in increasing the students' perception of the learning process.

Overall, the study suggests that there is an impact on the relationship that exists between the professor and the student when humor is applied in the learning process. While humor, in this study, does not support retention of subject matter as measured by test results, it does suggest a plethora of topics to be studied testing the use of various types of humor, short term vs long term retention, rote vs abstract learning, or even student morale, just to name a few.

The application of humor in the classroom can be used as a transitioning strategy, enhancing subject matter, dealing with disruptions or even as a method of sympathizing with students (Hill, 1988). Humor can bring the subject matter and textbook into reality for the students. Humor and laughter cannot replace the content of the course, but it can act as a catalyst or method of exciting and assisting the student to become aware of the very process of learning.

References

Cleese, J. (1990, December). Something completely different in training. Business Marketing. pp.20-22.

Cleese, J. (1991, April). Making safety a laughing matter. Business Marketing. p. 60.

Costello, M. (1991, January). Rx: Laughter, humor and health go hand in hand. Safety & Health. pp.58-59

Duncan, W. J., Smeltzer, L. & Leap, T. (1990). Humor and work: applications of joking behavior to management. Journal of Management. 16, No 2, pp. 255-278.

Feigelson, S. (1989, November). Mixing mirth and management. Supervision. pp. 6-8.

Freud, S. (1928). Humor. International Journal of Psychoanalysis. 9, 1-6.

Gordon, J. (1992), September). Structured fun. Training. pp. 23-29.

Graham, E., Papa, M., & Brooks, G. (1992). Function of humor in conversation: conceptualization and measurement. Western Journal of Communication. 56, 161-183.

Hill. D. (1988). Humor in the classroom. A handbook for teachers (and other entertainers!). Charles C. Thomas Publisher.

Jaffe, C. (1990, January). Management by fun. Nation's Business. pp. 58-60.

Pullias, E., & Young, J. (1974). A teacher is many things. Indiana University Press.

Lefcourt, H. & Martin, R. (1986). Humor and life stress. Antidote to adversity. Springer-Verlag New York Inc.

Metcalf, C. W. (1990). Humor, Risk and Change. American Media, Inc., Des Moines, IA

Newman, J. (1989, September). A corporate good humor man. Business Month.

Reynolds, L. (1989, July). Laughter is the best motivator. Management Review. pp. 58-59.

Smith, D. (1990, September). No laughing matter. Training . pp. 85-86.

Zemke, R. (1991 August). Humor in training. Laugh and the world learns with you - maybe. Training. pp. 26-29

TOTAL QUALITY TEACHING PRINCIPLES AS A MEANS TO ASSESS STUDENT PERFORMANCE

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TOTAL QUALITY TEACHING PRINCIPLES AS A MEANS TO ASSESS STUDENT PERFORMANCE

by Roger D. Lee, Ph.D.

Introduction

Total Quality Management is a system that has been applied successfully in the Japanese business community and is currently being implemented in America's industries. However, quality as a system can be applied not only in business organizations, but also in higher education, federal, and state bureaucracies. The fundamental purpose of this paper is to show how quality principles can be successfully transferred to higher education and provide an excellent mechanism to assess student performance and enhance teaching effectiveness.

The primary elements of the Total Quality Management philosophy vary from author to author, but the common pillars include the following:

1. Vision
2. Barrier removal
3. Communication
4. Continuous evaluation
5. Continuous improvement
6. Student relationships
7 Empowering the student
8. Education and training of faculty

These components are selected because they can be applied to institutions of higher education that are initially making the move to implement a total quality teaching program. As college institutions advance in their implementation of quality programs, barrier removal, education, and communication can be subsumed into empowering the student. Moreover, continuous evaluation and continuous improvement may be integrated into continuous analysis. Each of the eight foundational components is discussed below.

Vision

Vision is a product of a mission statement. A well crafted vision statement guides the organization's beliefs and values. The typical mission statement consists of one paragraph to one page and considers both the external customer or the students and the internal customer, the faculty and administrative staff. Vision and the mission statement must be transformed into action, otherwise they are useless. One essential key that is necessary for successful vision implementation is total involvement. (Charles A. Aubarey, 1988). Every faculty member, including administrative staff, must be involved in quality improvement teaching activities. Also, students must share the vision and values of the institution. Thus, a classroom consists of a partnership in which students and instructors share the responsibilities of teaching and learning and sharing values and beliefs.

Another key to enhance vision and facilitate the implementation of the mission statement is barrier removal, the second pillar of a quality program.

Barrier Removal

Change will inevitably be resisted by most individuals involved in an organization. (Kurt Lewin, 1947). In fact a great deal of effort in quality management is expended in overcoming resistance to change by allowing change to emanate from individuals directly involved, rather than as a directive from administration. In an academic environment, the strategies for barrier removal include the following:

1. Drive out fear in students. Some students, especially non-traditional ones, may have significant apprehensions upon returning to college after being removed from this environment for several years.

2. Encourage and reward creative and critical thinking by students. Instructors should praise students who make purposeful and salient comments in class discussions and who submit praiseworthy written assignments.

3. Give credit for student success. When students complete a class project and earn an outstanding grade, the instructors should recognize their students' accomplishments.

4. Establish ownership of class projects and assignments. Allowing students to develop real case studies from their own experience would enhance the ownership quality of such an assignment.

Following are steps to barrier removal:

1. Identify the barriers. Anything that impedes implementing change should be considered a barrier. This means examining internal procedures, students' concerns, and personnel issues. Anything that is perceived to be a barrier deserves further consideration.

2. Place problems and issues into categories. Related barriers and their systemic causes should be analyzed. Categorization is facilitated by defining cause-effect relationships. Instructors and staff must be alert for barriers that mask or cause one another. Moreover, it is not unusual for a myriad of problems to be caused by a few significant difficulties. Issues that matter most should not be at the mercy of issues that matter least. Thus, the significant few issues should receive more emphasis and analysis than the trivial many issues.

3. Establish priorities. Barriers should be judged by the their validity in accordance with the severity of the problem. In institutional-wide searches for barriers, it may be necessary to find more than one common denominator and deal with the problem accordingly.

4. Engage in problem solving. Problem solving means more than symptom removal. It is vital to address the root not the branch cause of the problem.

5. Establish goals and strategies for resolution. Resolution of problems may entail several months. Goals should be realistic and attainable with the given resources. Strategies ensure that goals can be accomplished. Allowing students to work at their optimum, without harming other students, will provide measurable improvements without measuring numerical quotas. To assist students in capturing vision, communication is another essential element.

Communication

Communication is the glue that binds all of the techniques and ideas.

Communication may be written, verbal, or nonverbal. Understanding and refining the three types of communication skills is an ongoing process. All teachers must seek to understand the specific needs of their students and be conscious of how well they are meeting the students' needs. A class should evolve from a collection of individuals into a learning community with shared values and commons goals and objectives. (Diane Booher, 1988). By nurturing an alliance with students through sound communication skills, instructors can help students gain command of the course material.

Faculty members should be well aware of the barriers to effective communication which include the following:

1. Different value systems of the sender and receiver. If instructors do not share similar values as their students, communication will be constrained. For example, if an instructor is very negative toward military personnel and his class is comprised of people in the Air Force, the credibility of the instructor may be challenged. Thus, a common vision should enhance congruency of the value systems between the students and the instructor.

2. Diminished capacity-fatigue. Students who work all day and attend night classes are likely to experience this phenomenon. The notion that the mind can only absorb as much as the seat can endure seems to be valid.

3. Experientia differences. When students have not experienced the same problems or issues which an instructor is explaining, the students may not relate well to the situation. Building on a common experiential base or common denominator enhances communication. Thus, instructors must seek to find the common experiential base.

4. Semantic difficulties. The use and meaning of words, jargon, and acronyms by an instructor or student may create confusion. For example, an instructor may state to students: "You need to become O.D. specialists." Does O.D. mean over dose, olive drab, outer diameter, optimists, or organization development. The experience of the class members may cause the word to be misinterpreted or defined differently from the instructor's use of the word.

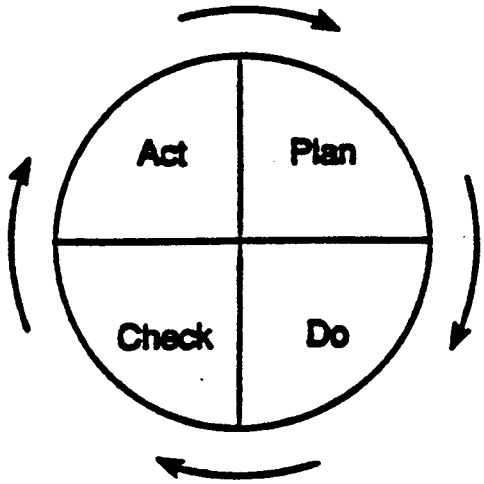
5. Noise. This may seem obvious that external noise to include lighting, heating, and ventilation, impedes communication. However, internal noise within the students equally can curtail communication between the instructor and the students. For example, some students may have had to rush to a night class without eating dinner. Thus, internal noise can be such things as hunger or feelings of anger. After communication is enhanced, the academic organization should look at the principle of continuous evaluation.

Continuous Evaluation

Feedback to students is essential to continuous evaluation. How else can students know if their goals are coming to fruition? How can they take corrective action in a timely fashion? Feedback mechanisms may be simple oral comments or written comments on student papers. The key is to receive the information in a timely manner to initiate corrective action before the quarter is completed.

The model for feedback can be based on the Edwards Deming Wheel. Note the diagram below.

Deming Wheel



The crucial four sequential elements are: (1) plan--tentative plan is developed; (2) do--a trial is done; (3) check--feedback and monitor the results; and (4) act--modify and process, return to plan. Continuous evaluation will naturally lead to continuous improvement. Thus, the continuous evaluation process becomes the basis on which continuous improvement is built.

Continuous Improvement

Japanese companies have used this concept for some time and they call it, Kaizen. (Imai, 1986). Unlike innovation, which tends to require significant resources, continuous improvement is easier to manage. Instructors should always be improving their teaching methods and skills to enhance their effectiveness. Some strategies to keep in mind when implementing continuous improvement are as follows. (Maass, Brown, and Bossert, 1990).

1. Start with an example project. Small is beautiful when initiating radical new teaching methods. Run a pilot class in which new teaching techniques are used before exporting the techniques to all classes institution-wide.

2. Analyze the teaching process, not just results. Teachers must learn to handle both the content and process of the class. The process is the key to improving student results.

3. Simplify, simplify, simplify. Thoreau's injunction is more true today than it was in the mid-19th century. Instructors should constantly ask what is the value-added for each home work assignment or student project.

4. Realize that failures and problems are opportunities. Perfection is boring--there is no opportunity to learn new things. Students must learn from their mistakes. Entrepreneurs typically start and fail at two to three enterprises before finding the right match. Applying continuous improvement methods should help to build sound student relationships.

Student Relationships

"Hearing the voice of the customer" has become a key phrase in the last few years. (Liswood, 1990). The customer in academic institutions is obviously the students. That institutions of higher education could do anything other than listen closely to students' needs may puzzle casual observers of higher education. It seems to be an obvious point. To many faculty, however, it is not. Strategies for improving

student relationships are:

1. Link vision to student satisfaction. Instructors should help students internalize the values of the institution's mission, and thereby create intrinsic satisfaction resulting from enrolling in the institution's classes.

2. Reward faculty for student performance and satisfaction. Students who perform exceptionally should be properly recognized and their instructors should be equally acknowledged.

3. Identify and meet student needs. When student needs are fulfilled, increased motivation, satisfaction, and commitment to the institution will typically result. This is the epitome of a win-win situation in which the students and the institution both win.

4. Involve students in planning and developing the curriculum. Students, who have several years of practical experience, can make purposeful suggestions relative to the content of the different courses offered by the institution.

5. Establish a routine dialogue with students. Students can provide useful feedback to instructors and staff before the completion of a course. Traditionally most student feedback is generated by end-of-course evaluations when the feedback is not timely to revise the emphasis of a particular class while the course is being taught. Enhancing student relationships should lead to greater empowerment of the students.

Empowering The Students

Empowering the student means enabling students to achieve their highest potential. For most academic institutions, this is new and may be the most powerful and useful concept in quality teaching. Allowing and facilitating students to reach their highest potential may appear obvious or impossible; however, it is in fact neither.

Empowerment requires turning the organization chart upside down and recognizing that staff and faculty should be in place to aid the student in overcoming problems they encounter, not to place new roadblocks in their way.

Empowerment strategies include the following:

1. Ownership. Allowing students to own a project or assignment implies trust and requires delegation and guidance. Nitpicking and finding fault with the student's assignment upon completion will undermine any attempt at empowerment via ownership. However, descriptive, non-valuative feedback will stimulate student learning and ownership.

2. Value all student contributions. To enhance self-esteem needs, instructors should reinforce all students' comments. Giving a demeaning response to a student's comment will normally create resentment in the student specifically and hostility in the class room generally. A hostile learning environment is definitely not a learning environment of mutual trust and respect.

3. Listen to the least voice. Sometimes the newest and least experienced students have invaluable contributions to make in a class discussion. Faculty should also listen to administrative staff who may provide purposeful feedback after sitting in their classes. For example, an upholsterer who was working on a patient's chair in a psychologist's office asked why only the front edge of the patient's chair was worn, which was unusual in the upholsterer's experience. The psychologist deeply

pondered the upholsterer's question and developed the theory of Type A personalities.

4. Believe every student has value. Treat every student with dignity and respect. It is essential that faculty respect and value cultural and ethnic diversity in students.

Six conditions are necessary to empower students. (Covey, 1991).

1. Nurturing character in the instructor. Character is what a person is. One significant attribute of character is integrity, meaning habits and behaviors are congruent with values, words are congruent with deeds, expressions are congruent with feelings. Maturity also describes character in the sense that courage is balanced with consideration. An example of this trait is courage to stand firm on a final grade awarded to a student, but consideration of all relevant performance indicators. The third measurement of character is the abundance mentality. This means that there is plenty out there for everybody relates to the pluralist pie analogy. Everybody can share in the benefits of education and everybody can learn from everyone else. Instructors possessing these character traits can be genuinely happy for the success and accomplishments of their students.

2. Developing skills in the instructor. The three most critical skills are: (1) communication, (2) planning and organization, and (3) synergistic problem-solving. As discussed previously, instructors who are poor communicators are not successful in the classroom. Similarly lesson plans and discussion material must be carefully planned and organized to ensure smooth delivery in the class room. Engaging students in a collaborative problem-solving approach will result in generating synergy where the end result or sum will indeed be greater than each student's contribution.

3. Building win-win agreements. Establishing win-win agreements between students and faculty requires five steps. First, the instructor must specify expected results in terms of quantity and quality. The concept of win-win suggest that instructors and students clarify expectations and mutually commit themselves to achieving desired results.

Second, guidelines must be set. Policies and procedures are essential to obtaining desired results. They should stipulate unacceptable behaviors and failure paths that experience has identified as inimical to accomplishing student objectives.

Third, identify available resources. Various resources to include human, organizational, and technical, which are available to students to assist them in achieving desired results, should be discussed by the instructor. The most available resource should be the instructor.

Fourth, define accountability. Holding students accountable for results puts teeth into the win-win agreement. If there is no accountability, students tend to lose their sense of responsibility and start blaming circumstances or other people for their poor performance. When students participate in setting the exact standards of acceptable performance, they normally feel a deeper sense of responsibility to get desired results.

Fifth, determine the consequences. An understanding of what follows when the desired results are achieved or are not

achieved is crucial. Students must feel responsible for the consequences, positive or negative. Positive consequences primarily include the "A" grade for the course. However, praise, recognition, and appreciation are valuable rewards to students. Negative consequences are the poor grade. Once a win-win agreement is complete, then the fourth step to empowerment is self-supervision.

4. Allow students to supervise themselves. With a win-win agreement, students can supervise themselves in terms of the agreement. Instructors serve as sources of help to marshall resources for student success to fulfill the win-win agreement. Students should plan their assignments, do them, and submit them to the instructor for control and the provision of descriptive but not judgmental feedback.

5. Create helpful institutional structures and systems. Helpful academic systems can greatly facilitate the fulfillment of win-win agreements. For example, scheduling classes yearly so that students can plan their course work according to their time constraints and the required prerequisite courses, would be helpful.

6. Establish accountability and self-evaluation. Under a win-win agreement, students have a clear up-front understanding of what results are expected and what criteria are used to assess their performance. Therefore, students are in a position to evaluate themselves. The instructor's attitude should be to serve as a resource not a judge in the self-evaluation process. Following the students' self-evaluations, the instructors' evaluations can be reconciled with them. The chart on the following page summarizes the empowerment model.

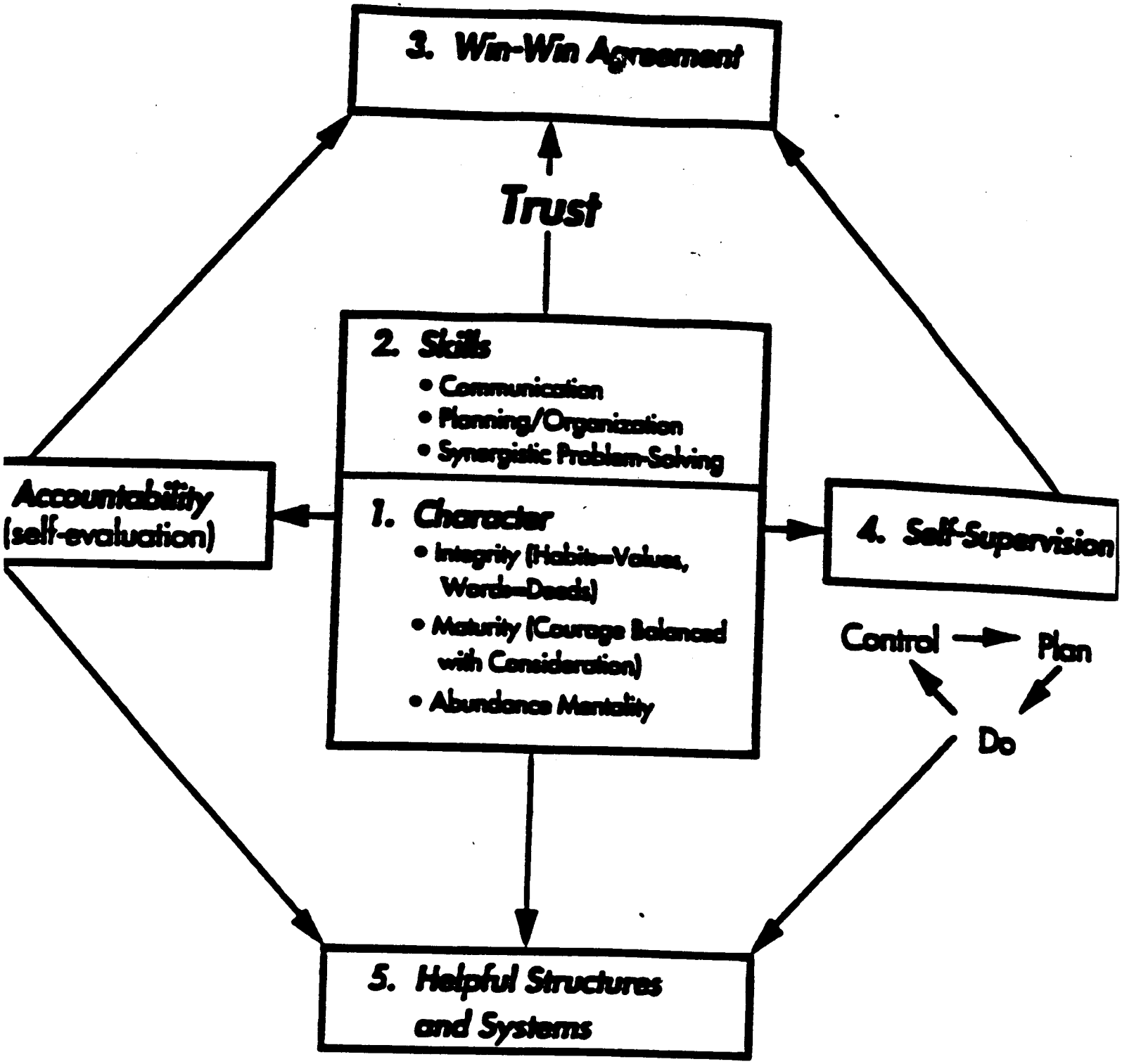
After empowering students, faculty should also seek means to stay current in their respective disciplines to avoid obsolescence. Education and training are viable means to stay sharp.

Education and Training

Some instructors may seemingly be too busy sawing to take time to sharpen their saws. Faculty renewal through education and training is paramount. The outcome of training is a direct, identifiable modification of behavior. For example, the result of a faculty training program may be enhanced interpersonal and communication skills. Conferences and seminars are good to refresh instructors and to ameliorate the possibility of tunnel vision.

Unlike training, education has no such immediately identifiable outcome. The utility of education may not be discoverable for a long period of time. However, education is vital in promoting a divergent look at the way things are done

EMPOWERMENT MODEL



and the material taught in the class room. Training is convergent and focuses primarily on the event at hand, thereby filling in fuzzy spots on an information matrix or puzzle. While education may help faculty to determine if they are working on the right puzzle. Divergent thinking is necessary for an educational institution to survive in the long run. For example, a worker in a candle making factory around the turn of the century, who received convergent training, would be challenged to consider quality improvements such as making the candle drip less, last longer, and burn more smoothly. The divergent thinker, who received additional education, would have suggested manufacturing light bulbs as an improvement to provide light at night time.

Summary

The omnipresent question for a quality teaching program is: What is the value added? The question does not demand a complex answer, requiring consultants with sophisticated computer software programs. Nor does the answer to the question have to be measurable in a traditional sense. This question and the subsequent answer should provide insight to faculty in developing vision in their students, removing barriers for them, providing continuous improvement to their educational experience, establishing purposeful student relationships, and generating greater student empowerment. Finally, additional education and training should equip faculty members with greater knowledge, skills, and abilities which become a definite value added to their character. Instructors who are green are still growing while those who are ripe will go rotten.

Thus, through education and training, the essence of academic institutions, the possibility of faculty going prematurely obsolete is mitigated. Moreover, the extent to which the educational process enhances student and faculty learning will determine the quality of the teaching and the effectiveness of the academic institution in accomplishing its mission.

Bibliography

Aubrey, Charles, A. II, and Patricia Felkins. Teamwork: Involving People in Quality and Productivity Improvement, Milwaukee, Wis.: ASQC Press, 1988.

Booher, Diane, "Quality or Quantity Communication." Quality Progress 21, No. 6 (June 1988), pp. 65-68.

Covey, Stephen R. Principled-Centered Leadership. New York: Simon & Schuster, 1992.

Demming, Edwards W. "Quality: Management's Commitment to Quality." Business 35 (January 1985), pp. 50-55.

Demming, Edwards W. Quality, Productivity and Competitive Position. Cambridge, Mass.: Center for Advanced Engineering Study, MIT Press, 1982.

Demming, Edwards W. Out of the Crisis. Cambridge, Mass.: Center for Advanced Engineering Study, MIT Press, 1986.

Imai, Masaaki. Kaizen: The Key to Japan's Competitive Success. New York: Random House, 1986.

Lewin, Kurt. "Frontiers in Group Dynamics." Human Relations 1, No. 1 (1947).

Liswood, Laura A. Serving Them Right: Innovative and Powerful Customer Retention Strategies. Milwaukee, Wis.: ASQC Quality Press, 1990.

Maass, Richard A.; John O. Brown; and James L. Bossert. Supplier Certification--A Continuous Improvement Strategy, Milwaukee, Wis.: ASQC Quality Press, 1990.

EFFECTIVE LISTENING: A TEACHING AND LEARNING SKILL TO ENHANCE STUDENT PERFORMANCE

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Listening is a skill critical for success in teaching and learning. Effective listening skills increase student performance, thus, requiring the teacher to tune in to the student in building and maintaining a positive teaching-learning environment. This paper explores the factors, techniques, and applications influencing and enhancing the listening process. Notably, listening is not just a question of technique, but of attitudes such as commitment, caring, and compassion. The goal of this paper is to assist teachers in achieving effective listening skills for use in the teaching and learning context.

EFFECTIVE LISTENING: A TEACHING AND LEARNING SKILL TO ENHANCE STUDENT PERFORMANCE

by Vernon Stauble, Ph.D.

In the teaching profession, learning relies heavily on communication skills, and listening in particular is critical to learning. The paradox is that, while listening is the number one communication problem, it also may be the primary solution to most communication breakdowns.

Nonetheless, habits of poor listeners persist. The ten bad listening habits proposed by Nichols can also be applied to teaching situations (Nichols 1985): (1) Criticizing the teacher's delivery; (2) Calling the subject uninteresting; (3) Letting emotionally laden words throw the student out of tune with the teacher; (4) Trying to make an outline for every lecture; (5) Faking attention; (6) Avoiding technical or expository material; (7) Getting overstimulated; (8) Tolerating or creating distractions; (9) Listening only for facts; (10) Wasting the differential between speech speed and thought speed.

In an effort to enhance student performance, this presentation examines listening as a powerful force toward strengthening the learning experience. This paper is divided into three sections. The first section discusses the listening environment. The second describes the levels of listening that teachers use. The emphasis of the third section is on applying effective listening skills in a teaching context, with particular emphasis on giving and receiving feedback.

The Listening Environment

Listening is a magnetic, enriching, and rewarding experience. We are drawn magnetically to those who will lend an ear. We are enriched when we take the time to listen to those who need an ear. We are rewarded and we prosper by learning and personally growing as we use our ears (Wolff, Marsnik, Tacey, Nichols 1983).

However, building a supportive listening environment is not easy. Obstacles include time pressures, interruptions, previous encounters, message sending, ongoing relationships, and perceptions (Lewis and Reinsch 1988). Furthermore, findings reveal that a classroom environment can provide a solid listening environment by providing a forum for listening, encouraging feedback and reinforcement, and adopting the positive attitude that listening is valuable.

The Importance of Listening

Listening requires an attitude of wanting to receive a message, not creating your "own" noise through biases or physical or environmental distractions. For example, if a teacher perceives that all fat people are dull and lazy and is prejudiced by race and gender, those biases will distort the teacher's ability to receive messages openly and nonjudgmentally.

Furthermore, active listening requires

attending behaviors that include nonverbal expressions of attentiveness. If the teacher is attempting to actively listen to an obese female student, biases will probably be reflected through nonverbal behavior patterns.

Nonverbal behavior, such as making eye contact and changing facial expressions, can telegraph strong signals of interest. Students are good at reading nonverbal signals. One way to demonstrate to the student that he or she is being heeded is to clarify and confirm what is being said, even when the teacher understands. A teacher is in real trouble when the student shows signs of fidgeting with his/her pen, or starts doodling on the desk. These are indicators that he/she is not listening anymore.

Factors Influencing the Listening Process

People in general are poor listeners. Factors that influence the listening process are biological reasons, negative self-concept, understanding the intended meaning, and time pressures (Oberhaus, Ratliffe, Stauble 1993).

1. Biological reasons. An individual must be careful not to waste the differential between speaking and thinking speed. As listeners we can think about 500 words per minute, while the normal speaking rate is 125-150 words per minute. In rapid conversation, people speak 200-250 words per minute. The typical lecturer speaks 100-200 words per minute. That leaves as much as 400 words of thinking time available to use for each minute that we are listening (Wolvin and Gwynn 1988). Furthermore, a person's average attention span is limited to 30-45 seconds (Berko, Wolvin, Curtis 1990).

Students are further affected by their physical or physiological state during the listening event. How they feel physically will influence their listening proficiency. If they have a sinus headache or are feeling stressed about meeting assignment deadlines, their concentration will be challenged that much more.

2. Negative self-concept. How students perceive themselves has a significant effect on how they listen. Conditioned at an early age with messages from teachers or parents, such as "be quiet and listen; why don't you ever listen to me?" or "you haven't heard a word I've said," negative self-images predominate. Consequently, they conclude that they may as well not expend their effort to improve their listening skills.

3. Understanding the intended meaning. Each discipline and field of specialization has its own internal jargon or specialized vocabulary used in the profession. This jargon may enhance the students' ability to listen if they are not familiar with the words and phrases being used. Furthermore, inciting words serve as emotional triggers and may evoke an emotional response from the student.

Another listening barrier may occur if the teacher does not realize that the student is incapable of receiving the message being sent, or if the student does not give the teacher feedback to indicate that the message has not been received.

4. Time pressures. Oftentimes, teachers are compelled to talk as quickly as possible and listen only a little to make up for lost time. These pressures often reduce the amount of time that is needed to enhance

the intensity of the communication process and offer appropriate feedback.

Levels of Listening

This section explores how the listening process occurs on various levels, depending on the teacher's intended purpose. Individuals function as listeners at five levels (Berko, Wolvin, Curtis 1991), and teachers can improve their listening behaviors as they discover how to function effectively at these various levels.

The five levels are as follows:

1. Discriminative listening. This is the most basic of all levels. Individuals listen at this level to distinguish aural and visual differences. The process involves isolating various aspects of the message to identify its distinguishing highlights or strengths before processing the message at any other level. Teachers of complex subjects can best serve students' needs if they become proficient in distinguishing the differences in prioritized subject matter.

Becoming efficient in this skill also involves developing sensory awareness and understanding of vocal characteristics, such as pitch, inflection, tension, volume, rate, and tone. Teachers must realize that when verbal and vocal characteristics are in conflict, their students will rely more heavily on the interpretation of vocal expression to infer the teacher's feelings. Mehrabian, a communication specialist, has devised a formula for determining the impact of nonverbal channels in communicating feeling messages. His formula suggests that 38% of the meaning of the message comes from the vocal component of the communication, 55% from the facial, and 7% from the verbal (Mehrabian 1971).

Furthermore, the ability to discriminate visual cues is a significant function in the listening process. The greatest impact of the meaning of the message may well come from what is communicated through the visual channel (Wolvin and Coakley 1988).

2. Comprehensive listening. Much of the listening that teachers do is at the comprehensive level. At this level, their objective is to understand information to retain, recall, and use it at a later time. The information that the teacher gleans from using comprehensive listening, and what can be done with the responses, determine the course of the lecture. To be a comprehensive listener, the teacher must concentrate on the message strictly to understand, not to make a critical judgment.

Furthermore, concentration is also included in comprehensive listening. This involves a student's ability to pay attention. Reasons for poor concentration are misdirection of attention energy, such as external preoccupation and self-consciousness; being too involved with internal distractions, such as hunger, fear of rejection, concern about inappropriate attire, or even thinking of a response. Indeed, an ability to listen closely in spite of distractions may be crucial to effective learning.

Underlying the many reasons for this lack of concentration are lack of self-discipline, lack of self-motivation, and lack of responsibility.

3. Therapeutic listening. This involves acting as a sounding board, allowing another person to talk through a

problem. To be an effective therapeutic listener, teachers must be willing to listen and understand and be capable of caring. Also, teachers must possess honesty (a sincere, unpretentious interest in the student); patience (allowing the student the time needed to provide adequate expression), and faith (belief in the student's ability to solve the problem).

Additional skills important in therapeutic listening are demonstrating attending behavior, developing a supportive climate, and listening with empathy (Wolvin and Coakley 1988).

a. Attending behavior includes touching and silence which can have a calming effect on the student. A brief silence may encourage the student to speak freely.

b. Developing a supportive climate. A teacher should provide a supportive climate in which the student feels free, safe, and comfortable to communicate. By providing a supportive atmosphere, the teacher says, "I am here and I care about you." The student knows that the teacher has interest in and unconditioned regard for what is being said. This regard yields a feeling of security and a safeness to self-disclose without the fear or threat of being attacked personally. Perhaps the greatest benefit to both the teacher and student is shared trust and acceptance.

c. Listening with empathy. Empathy requires both feeling and thinking with another person by trying to recreate the other person's world or situation as if it were the listener's own world. It is helpful to identify with the student's thoughts and feelings. It is also important that the teacher takes responsibility to practice furthering responses that contribute to the student's self-exploration.

4. Critical listening. This centers on understanding the message and then evaluating it. This level of listening is especially useful to students who are exposed to a persuasive message, i.e. a message designed to influence a change in the student (Berko, Wolvin and Curtis (1990).

5. Appreciative listening. A teacher engages in appreciative listening to derive pleasure or sensory stimulation from the works and experiences of others. It is not necessarily the source of the appreciative listening activity, but rather the person's response to it, that defines appreciative listening. These sources include the oral style of the teacher or the oral interpretation of the subject matter.

Applying Effective Listening Skills

The ways in which teachers function require that they look at listening from both interpersonal and intrapersonal perspectives. Teachers listen interpersonally in informal conversation with colleagues, and they listen intrapersonally when they make a concerted effort to listen to themselves

1. Intrapersonal listening. A tool in cultivating positive
self-image is using positive self-talk. By teachers listening to themselves, they create the opportunity to know more about themselves, to listen to who they are, to accept what they learn, and to act on the information.

2. Interpersonal listening. Teachers should be able to operate more effectively when listening to students as well.

Exhibit 1 exemplifies the processes of effective listening (Girzaitis 1972).
EXHIBIT 1

We listen with our hearts.

When I listen with the heart
I stop playing the game of non-listening.
In other words,
I step inside the other's skin;
I walk in his shoes;
I attempt to see things from his point-of-view;
I establish eye contact;
I give him conscious attention;
I reflect my understanding of his words;
I question;
I attempt to clarify.
Gently,
I draw the other out
as his lips stumble over words,
as his face becomes flushed,
as he turns his face aside.
I make the other feel that
I understand that he is important,
that I am grateful that he trust me enough
to share deep, personal feelings with me.
I grant him worth.

Hence, both giving and receiving feedback are involved in listening as follows:

a. Giving feedback. Good listeners provide quick feedback and act on what they hear. When teachers listen effectively and give appropriate feedback, they show that they are attempting to manage their environment successfully. Also, giving feedback is a way of participating in the mutual exchange process of problem solving. The more feedback there is between the teacher and the student, the more accurate is the listener's interpretation of the message. Hence, this increases mutual confidence that the message is being communicated accurately. Importantly, to be effective, the teacher must be open, honest, constructive, and meaningful to the student.

Furthermore, common ways of responding to students are by judging, analyzing, questioning, supporting.

1. Judging. Judging responses are quick ways for teachers to deal with a student's feelings. If the student perceives that the teacher is trying to deal with the question in a quick and easy manner, the teacher's suggestions will likely be rejected.

2. Analyzing. Analyzing is offering an explanation why teachers believe a student thinks or feels in a specific manner. Guidelines to help teachers decide how and when to offer an analysis include:

a. Offer an analysis or interpretation in a tentative rather than absolute manner.

b. Make sure the analysis has a reasonable chance of being correct.

c. Be certain that the student is receptive.

d. Determine that the motive is to honestly help the student.

3. Questioning. Questioning is asking for specific information about feelings and thoughts in order to encourage the student to continue talking. Learning to construct open-ended questions that draw out the student's needs is crucial.

4. Supporting. Supporting means reassuring the students, oftentimes through encouragement. This is simply acknowledging the seriousness of the student's feelings without implying agreement. Sometimes a student can be distracted with humor depending on the appropriateness of the situation.

b. Receiving feedback. Monitoring feedback is a way of assuring that the message intended is as closely related as possible to the message received. . . . The cues received may cause continuous talking, restating of ideas, stumbling or stammering, or becoming silent. Whatever the case, feedback is needed to help understand the communication behavior of others (Schultz 1966).

CONCLUSION

This paper describes effective listening skills modeled for both teachers and students. Moreover, improvement of listening abilities for students are essential toward increasing student performance. In view of the role effective listening plays in teaching and learning, and the need for skilled listening for academic success, acquiring listening skills seem warranted.

REFERENCES

Berko, R., Wolvin, A., Curtis, R. (1990). This Business of Communication. Dubuque, IA: Wm. C. Brown, 42.

Cost, D., Bishop, M., Anderson, E. (1992). Effective Listening: Teaching Students a Critical Marketing Skill. Journal of Marketing Education, pp. 41-45.

Girzaitis, Loretta (1972). Listening & Response Ability. Winona, MN: St. Mary's Press, p. 42.

Lewis, M., Reinsch, N. (1988). Listening in Organizational Environments. Journal of Business Communication, 25, p. 63.

Mehrabian, Albert (1971). Silent Messages. Belmont, CA: Wadsworth Publishing Company, p. 56.

Nichols, Ralph G. (1985). Successful Listening. New York: Dun & Bradstreet.

Oberhaus, M., Ratliffe, S., Stauble, V. (1993). Professional Selling: A Relationship Process. Texas: Dryden Press/HBJ, pp. 274-277.

Schultz, William C. (1966). The Interpersonal Underworld. Palo Alto, CA: Science and Behavior Books, p. 13.

Wolff, F., Marsnik, N., Tacey, W., Nichols, R. (1983). Perspective Listening. New York: Holt, Rinehart & Winston, p. 2.

Wolvin, A. and Coakley, C. (1988). Listening. Dubuque, IA: Wm. C. Brown, pp. 150, 207-208, 243-265.

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ASSESSING STUDENT PERFORMANCE

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One of the essential conditions for effective learning is provision for transfer. Effective teachers provide for application of learned principles in real life situations. The only evidence that a student has learned is demonstrated in his/her behavior change. Therefore, student performance is the criterion upon which effective learning and teaching may be measured.

Understanding the sequential phases of learning and carefully planning lesson presentations to move the student through each phase are skills a teacher must acquire and use. The first phase of learning is perception. The student is stimulated by hearing, seeing, smelling, tasting or touching. Teachers usually plan and prepare a wide variety of experiences which will help the student perceive what is to be learned. Methods and techniques of lesson presentation along with effective audio/visual aids are used to enhance the student's chances of receiving the appropriate perceptions.

Perception is an essential phase of learning, but it is only the first phase. That which a student perceives passes with the second. A spoken word, a viewed picture, a body gesture, a projected feeling or any other form of communication is perceived only as long as the stimulus is present. As soon as the stimulus is removed, the perception ends. Very few of the words that are spoken are retained more than a few seconds.

This makes the second phase of learning, which is conceiving that which has been perceived, more important than the first phase. It is the concept formed in the mind of the student that will remain and will to some degree change the lens through which the student will view the world. Concepts program us to see what we believe rather than the usually accepted theory that we believe what we see.

Teachers should be as concerned about that which has been conceived as they are about that which has been presented for the student to perceive. Some students were asked to form in their minds the image of a cat. The word cat was perceived by each student, but the concept formed by each was different. One conceived a black cat, another a white cat, another a yellow cat. No two students conceived the same cat. The teacher had in mind a Caterpillar Tractor. From the same perception developed a wide variety of conceptions and none was the same as the teacher's.

When the students form a wide diversity of concepts related to the word cat which is a very concrete word, it is obvious that a wider diversity of concepts would be formed from a more abstract word; therefore, teachers must assess the appropriateness of the concepts formed by the students from that which has been perceived.

At this point, we see the importance of presenting appropriate information in a

manner that may be perceived correctly by the student so that appropriate concepts may be formed. However, that which is perceived and that which is conceived may lie dormant and be of little value to the student even though he/she has scored high on the examinations given by the teacher. It is not until the perceptions and conceptions are transformed into action that there is evidence that learning has taken place. Behavior change is the objective of the learning process and should receive the greatest emphasis.

The task of assessing student performance requires the teacher to focus the lesson presentation upon the behavior change which is expected as perceptions are received and concepts are formed in the minds of the students. An excellent example of focusing upon the application of learning may be seen in the MAS 605, Research Methods and Statistics Class. The students in this class are required to call upon all of the perceptions and conceptions they have acquired during their entire public and college experiences and focus them upon selecting a problem, stating a hypothesis, collecting data, presenting data, evaluating data, drawing conclusions and making recommendations. All the students have perceived and conceived over the years is brought into focus to successfully complete the research study.

Examples where the teacher has not provided the opportunity for application or has not made the connection between perceiving, conceiving and applying may be seen in the following cases: A student was failing in his math. To check the problem, the student was asked to multiply 305 by 217. The student had no mode of attack he could use to solve this problem. As he sat looking at the math problem he said, "It is going to freeze tonight and my dad is working like crazy trying to get all of the apples picked before they are frozen."

When asked, "Do you have apples for sale?"

He replied, "Yes, we do."

"How much do you charge for a bushel?"

"Two and a half."

"How many bushels could I buy with ten dollars?"

"Four," he replied without hesitation.

It is obvious that the student had not made the connection between working math problems in a math class and the real life use of math at the orchard.

Another student was unable to read. He had no word attack skills. However, when asked to read along with the writer, it was discovered that the student could read when he became interested in the content of the printed material, but he could not read when he was just trying to recognize words. No doubt the teachers who had tried to teach him to read would say, "Get your reading books out. We are going to have reading." This student perceived these words to mean that reading has content of its own and that reading is an end rather than a means to an end; therefore, he had not seen the connection between reading skills and seeking information. Acquiring reading skills quickly becomes boring unless the

application of these skills are understood. Boredom and failure are closely connected.

A simple, easy way for a teacher to check the concepts which have been formed and the applications which have been made may be accomplished without undue hardship on the student or the teacher. The teacher may ask the students to write two concepts which have been acquired during the class period. These concepts provide an excellent opportunity for the teacher to check the appropriateness of his lesson presentation and/or the class discussion.

At the beginning of the next class period, the teacher may ask each student to write a brief statement related to the application of the concepts acquired in the previous class. This provides the teacher with an excellent opportunity to evaluate the student's performance in real life.

"You can't guide anything that is stopped", was a concept one student submitted. At the beginning of the next class, he stated, "I tried to guide my car before I started it and discovered that it was impossible to guide it while it was stopped. Even though it was moving in the wrong direction when I backed away from the curb, I could guide it into the right direction as long as I kept it in motion.

I made use of this same basic principle when I guided my son into his home work. I called him to me without telling him what I wanted him to do. This got him in motion. Then I led him into the den where he would have a quiet place to study. Our walk together gave me the opportunity to lead him into the appropriate place for effective study and guide him into the step by step approach to problem solving. I discovered that motion was essential before guiding can take place."

Understanding the sequential phases of learning and carefully leading students from perception to conception to real life application is essential if learning is to take place effectively.

Student evaluation may be appropriately made based upon student performance if the teacher has created a learning environment which required the student to apply, in real life situations, that which has been perceived and conceived during the course of study.