Designing and Assessing Courses and Curricula

A Practical Guide

THIRD EDITION

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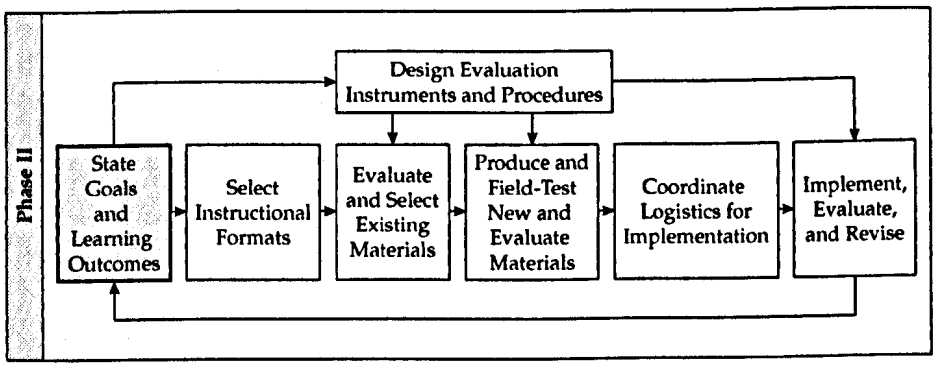
CHAPTER 13

Clarifying Instructional Goals and Learning Outcomes

Figure 13.1.
Production, Implementation, and Evaluation for Each Course



Robert Mager (1975) tells the story of a sea horse who, with money in hand, swims off to seek his fortune. After purchasing flippers and a jet-propelled scooter to speed up his travels, he comes across a shark. The shark informs the sea horse that if he swims into the shark's mouth, he will find his fortune. The sea horse follows this advice and is never heard from again. The moral of this fable is that if you are not sure where you are going, you are likely to end up someplace you do not want to be.

The call for stating the goals of instruction in measurable terms is not new. What is new is the demand that institutions become more accountable for the learning of their students and

that they be able to document the quality and effectiveness of their academic programs. For the first time, institutions are now required by accreditation agencies and state offices to state their instructional goals in outcome terms and to document their effectiveness in reaching these goals through appropriate assessment of student learning.

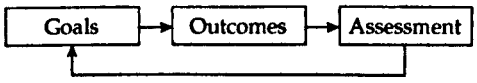
In previous chapters, we described the importance of developing a clear statement of instructional goals for your course, stated in terms of student performance. These statements will serve as your starting point as you consider how learning should occur and how students should be assessed. In this chapter, we will describe the qualities of well-written objectives and provide you with an approach to developing them that faculty have found to be efficient and effective. In the chapters that follow, we will discuss in detail the relationship between your instructional goals and your evaluation of students' performance, and show how these data can be used to improve your course.

The Relationship Between Goals, Outcomes, and Assessment

The most important concept in bringing quality to any curriculum or course is the fundamental relationship that must exist between goals, outcomes, and assessment. The closer this relationship is, the more effective the teaching and learning experience will be. Unfortunately, in too many instances there is a significant disconnect among the three. What we say is important is often not what we teach, and the focus of our testing and other assessments often has little in common with either. It is essential that our learning outcomes describe in detail what we mean by our goals and that students are then judged by how well they can meet these criteria.

Goals are usually short statements or even single words that describe the major objectives of the instructional experience. Statements of goals can be found at all levels of the instructional program, curriculum, courses, and units within courses. Although goals can sometimes be listed in broad outcome terms as seen in Resource D, they are usually described in more detail in most of the statements developed by individual institutions or programs (see Case Studies 1, 2, and 3.)

Figure 13.2



Learning outcomes are detailed descriptions of what a student must be able to do to reach a goal under the specific conditions that have been established. However, before outcome statements can be developed, you must identify those specific skills and attitudes that are required to reach a goal.

The basic sequence you will follow moves from goals to outcomes to assessment (see Figure 13.2).

From Goals to Outcomes: Your First Step

For students to reach a specific goal, they will usually need to possess a range of skills, a basic knowledge base, and, in many instances, certain attitudes as well. Your first step before writing your learning outcomes will be to identify these specific contributing requirements.

A Case Study: Critical Thinking

Although "critical thinking" appears on most lists of core competencies, it is a goal that that is not clearly defined in the minds of most faculty. When you ask a group of faculty to describe what it means to be a critical thinker you will often get as many different responses as you have participants. Fortunately, over the last few years there has been a growing body of research that describes in some detail what it means to be a "critical thinker."

In his outstanding review of the literature, Peter Facione (2007) provides us with an important first step in identifying those elements that combine to make up the process of being a critical thinker. He describes it as a process that requires both "cognitive" skills (interpretation, analysis, evaluation, inference, explanation, and self-regulation), and "disposition" (a willingness to apply this approach as a way of life). He then goes on to define each of these terms in some detail. Building on this base of information it now becomes possible for you to write a series of outcome statements that, when taken together, describe "critical thinking."

However, this is not the time to get hung up on specific definitions. What is important is that when you are finished writing your outcome statements for your course or curriculum, no one (other faculty, professionals in the field, or your students) will have doubts about what you mean and what will be required of the students to be successful.

In Resource L by Lion Gardiner you will find three excellent examples showing the relationship between goal statements and learning outcomes. The first two examples address common core competencies, critical thinking and ethics, and the third focuses on a goal that is discipline-specific, the principles and concepts of ecology.

In reading these examples, notice the care that has been taken to be as specific and concise as possible. Statements that are loosely worded can create major problems later on when different readers reach different interpretations.

The Importance of Stating Outcomes

Based on numerous projects, both successes and failures, we can now identify those characteristics that are common in successful programs. Six factors that appear to be essential are:

- High-quality outcomes stated in performance terms
- The translation of these goals into course-specific goals
- The match between goals and assessment
- The match between objectives and the instructional method selected
- The ownership of the initiative by participating faculty and the academic unit

If we are to determine whether academic programs are successful, we must initially determine the goals of courses and curricula. We must state in specific terms what we expect our students to be able to do, and then design evaluation instruments and procedures that adequately assess whether students meet these criteria at the end of the instructional program.

In addition to forming the base on which assessment programs must be designed, clearly stated outcomes offer important advantages at the course and program levels:

- Fairness in both testing and grading is facilitated.
- The goals of the course, its content, and the evaluation procedures are both consistent and interrelated.
- The outcome statements will allow you to determine which practices and materials are effective and which are not.
- The emphasis is changed from what faculty members must cover to what a student should be able to do as a consequence of instruction.
- A logical instructional structure is communicated by identifying a sequence of outcomes and thus content—that is, the student must be able to do *a* before he or she can do *b*.
- Communication among faculty, between faculty and support staff, and between faculty and students is improved.
- Self-evaluation by the students is encouraged because they know what is expected of them.

- Efficient student learning is facilitated and anxiety is reduced, because the students are provided with direction and they know what the instructional priorities are.
- Students understand how the course relates to other courses and to the overall goals of the curriculum.

Misconceptions About Outcomes: A Brief History

A major obstacle for the assessment movement has been and continues to be the necessity of stating outcomes in performance terms. In their report on over eighty course and curriculum projects, Bergquist and Armstrong (1986) noted that stating goals in performance terms was the first major problem. "While viewed by the architects of Project QUE (Quality Undergraduate Education) as the foundation of academic planning, the outcomes approach was one of the more controversial elements of the project. The crux of the challenge was aptly described by one campus coordinator (who chose to remain anonymous): 'The major shift to describing program goals in terms of student outcomes required effort on the part of faculty, most of whom had conceptualized their teaching in terms of their content area rather than with reference to student outcomes'" (p. 82).

The authors concluded, however, that although focusing on the results of learning did not gain total acceptance among the several hundred faculty and administrators who were involved, at the end of the project the majority viewed the approach as both practical and essential.

Unfortunately, the use of the term *behavioral objectives* has been a second major hurdle to overcome. In the early days of behavioral objectives, they were defined in terms of minutiae, leading to long lists of steps toward limited goals. The result was frustration on the part of the faculty who were most open to experimentation and change. In *On College Teaching* (1978), Ohmer Milton, reviewing Robert M. Barry's early and excellent chapter on clarifying objectives in the same book, writes: "In my judgment the weakest area of classroom instruction is that of specifying course objectives. He [Barry] quite properly avoids the unwarranted simplicity of much that is written about college course objectives—a simplicity especially true of many treatises about 'behavioral objectives.' All too often this concept has been carried to ridiculous extremes and has earned a resulting contempt among senior faculty who are now in leadership roles" (p. 3).

No wonder that as it developed its statewide assessment program, New Jersey (State of New Jersey College Outcomes Evaluation Program Advisory Committee, 1987) diligently avoided using the term *behavioral objectives,* focusing instead on college *outcomes,* which soon became another name for behavioral objectives.

Learning outcomes need not be low-level cognitive skills. Many faculty have come to equate a learning outcome with a multiple-choice, true-false, or similar selected-response format. This misconception is unfortunate as well as incorrect. Outcomes legitimately can include changes in attitude and in high-level performance skills. The students' abilities to relate philosophies to concepts and to defend their answers, to relate history to current events, to design a structure or write an article that meets prestated criteria, and to perform cooperatively within a small group are examples of valid higher-order learning outcomes that can be measured.

The way the assessment approach was described to faculty often deterred its acceptance. Because many of the early advocates of stating goals in performance terms focused on minutiae and on complex classification systems, they alienated the very people they were hoping to convert. Horror stories from these early efforts still abound and some of these approaches continue to surface as demands for greater accountability increase.

From Broad Statements to Specifics

Broad course and curricular goals are your starting point. Next you need to develop statements that are useful to you and to your students—outcomes that are clear, concise, and can be measured within the framework of the instructional unit.

Before you develop your course-specific outcomes, you should refer to other, more general statements created by the college, university, state, or discipline. Because individual courses are the vehicles for developing many of these general competencies, faculty are responsible for including within their statements course outcomes that are content- and discipline-specific and appropriate objectives from the broader list. Goal statements must become increasingly specific as they move from the national and state levels to the college or university, to the school, to the department curriculum, and finally to the course. In most instances the more specific goals are also more easily measured.

In addition to the broad goals you may address in your course that are not discipline-specific, there may be others that together constitute a complex goal that will be reached later in a student's academic program. For example, the Task Force on the Student Experience at Rutgers University compiled a list of the competencies they believe describe the "qualities of the liberally educated person" (1986). The qualities, characteristics, abilities, and competencies in this list were described in observable and measurable terms. However, as the following examples demonstrate, these characteristics still require additional specification before student performance can be assessed.

These are two of the Task Force's competency statements (1986) in the category of "scientific reasoning":

1. [The student] demonstrates an understanding of the scientific method of inquiry, including accurate measurement based on observation and the use of controlled experiment.
2. [The student] identifies the assumptions and limitations of the scientific method of inquiry and distinguishes the extent to which this method is applicable in various situations and contexts in all disciplines and fields of inquiry.

The faculty would have to adapt these statements, rewriting them to apply to their specific courses. They would have to describe how the student will demonstrate "an understanding of the scientific method of inquiry" or how the student will identify "the assumptions and limitations of the scientific method" in an applied context.

This problem of moving from general program goals to outcomes at the course level is one that all faculty members face. Such statements as "make sound, responsible judgments on the ethical policy issues involved" and "apply an historical perspective to the role of science and technology" are not unusual. The challenge for you is how to move from these broad statements to specific learning outcomes—that is, what the students have to do to show that they can apply a "historical perspective" and "make sound, responsible judgments." Quite often, statements from national associations on other campuses can be most helpful as you move along. Resource I on Multicultural Competencies for Counselors and Resource J on Ethics are examples of two such statements.

In the end, you, as the faculty member responsible for the course, must write your own outcome statements. Although a course may fulfill the requirements of others (professional agencies, the board of trustees, the university, the department), the outcome statement must be developed to satisfy your needs as the individual responsible for instruction.

Writing Outcomes

To be useful, objectives should contain three basic elements:

- A verb that describes an observable action.
- A description of the conditions under which the action takes place ("when given x, you will be able to . . .").
- The acceptable performance level—that is, what percentage of correct answers will be considered acceptable, how many

errors will be permitted, how many and which examples must be included, and so on.

In addition, before you begin this task, the student for whom the material is designed should be described, and the prerequisites should be identified. Problems often are the result of a mismatch between the students for whom we have designed the course and the abilities and experiences of those who have or will enroll.

Use clear, concise words to describe student behavior in these objectives, words not open to misinterpretation. Mager (1975) provides the following suggestions for terms to avoid and terms to use:

Words Open to Many Interpretations	Words Open to Fewer Interpretations
To know	To write
To understand	To recite
To really understand	To identify
To appreciate	To sort
To fully appreciate	To solve
To grasp the significance of	To construct
To enjoy	To build
To believe	To compare
To have faith in	To contract

Categorizing Outcomes

Although there are almost as many ways of categorizing outcome statements as there are authors of textbooks on the subject, the use of such a system at the course level is questionable (although it may be helpful to categorize goals when you are reporting them outside your institution). In Resource M, you will find one of the more widely used approaches to categorizing the outcomes for your courses. It will be up to you to organize your objectives in the way that you find most comfortable. However, it is rarely cost-effective for you to spend a great deal of time analyzing the type or level of your outcome statements. It is far more essential to ensure that useful statements are written, that they include all the elements that should be addressed, that they are measurable within your course, and that when students reach the end of the course, you can be confident that the goals you established have indeed been met.

Process Outcomes

In some instances an outcome focuses more on the process than on the students' ability to solve a problem or come up with the right answer. Such an outcome might, for example, be conceptualizing

a value. In their discussion of how to test the conceptualization of a value, Krathwohl, Bloom, and Masia (1964, p. 157) write, "The process of conceptualization is largely cognitive, involving abstraction and generalization . . . the emphasis is less on the *quality* of the cognitive process[es] than on the fact that they are being used."

In testing the conceptualization of a value, you might use examples in which there are no right or wrong answers and ask the student to express a point of view. Here, you are more interested in the process the student uses to reach the point of view than in the specific conclusion. For evaluation purposes, focus is then on the process used, the alternatives explored, and the student's justification for the conclusion. Or you might ask your students to list a number of alternative solutions to a problem and then to defend the solution selected.

An Almost Painless Way to Specify Outcomes

When we faculty are asked point-blank to state our instructional outcomes, we have several reactions. First, we tend to resent the question; second, we often produce far more objectives than could ever be used; and third, many of these outcome statements are at a trivial level because they are the easiest to write. This process has a tendency to disenchant many faculty, as it is time-consuming, often boring, and usually frustrating.

As an alternative to writing objectives in the abstract, a facilitator can help you to develop strong, clear objectives by playing the role of the student and asking you, *"If I'm your student, what do I have to do to convince you that I'm where you want me to be at the end of this lesson, unit, or course?"* Out of this discussion will emerge outcome statements that are measurable and that tend to be far more important and at a higher level than you would produce otherwise. This process, while difficult at times, is generally comfortable and efficient, and produces the specific statements that are needed for the development of projects. Most important, it works.

Specifying Grading Criteria and a Word About Grade Inflation

As a final step for evaluation purposes you need to establish a standard of performance that will explain the basis for your grades. In some instances, a grade may cover a number of outcomes combined within a broad level of performance. You will also have to select among grading options—for example, pass-fail or the mastery approach, where performing at a high level is the only way to pass,

or the more traditional letter grades, A, B, and so forth. Waiting until you see how well your students have done on a test before you determine grades is a disservice to you, your course, and your students. It is *not* grade inflation if more of your students perform at a level that you and the other faculty involved have determined is A-level work. It is only grade inflation when your original standards are lowered. In well-designed courses you should expect to see more students earning higher grades.

Representative Samples of Outcome Statements

A sampling of objectives from various courses follows. Note that each is written directly to the students, tells them what they must do to be successful, and identifies what they must be given before they are evaluated.

- *Government.* When given a major decision made by a governmental leader, you will be able to identify the major factors that the leader had to consider and discuss why the action was taken and what apparent trade-offs were made.
- *Economics.* Demonstrate graphically and explain how a change in expectations will affect the *loanable funds market.* (Begin with an appropriately labeled graph that represents the initial equilibrium.)
- *Management.* Identify (based on readings, case studies, or personal experiences) those activities that are most likely to distinguish effective, well-managed technology development programs from ineffective programs.
- *Statistics.* When given two events, you will be able to determine whether they are independent or whether there is a relationship between them (that is, one event affects the probability of the other). On the basis of this determination, you will be able to select and use the appropriate rules of conditional probability to determine the probability that a certain event will occur.
- *Religion.* When given a definition of the term *religion,* you will be able to identify which of the following characteristics is emphasized: feeling, ritual activity, belief, monotheism, the solitary individual, social valuation, illusion, ultimate reality, and value.
- *Music.* On hearing musical selections, you will be able to identify those that are examples of chamber music and be able to identify the form, texture, and makeup of the ensemble.

- *Art.* When shown a print, you will be able to identify whether it is a woodcut, an etching, or a lithograph, and you will be able to list the characteristics on which this identification was based.
- *Psychology.* When given a case study, you will be able to identify whether it describes a case of schizophrenia, and if it does, which of the following schizophrenic reactions are involved: hebephrenic, catatonic, or paranoid.

Another excellent and useful approach to describing the behavior expected of critical thinkers will be found in Resource N. Note how the specific skill is described and then shown in a behavioral or outcomes context. An additional step would be required for the range of skills to be in outcome terms (see Facione, 2007).

Although many objectives lend themselves to this format, for others you may find this approach awkward and confining. Such broad goals as critical thinking, effective speaking and writing, interpersonal skills, leadership, and the development of a positive attitude toward a particular subject need to be described to your students in somewhat different terms. For example, if you want your students to develop the ability to manage change, one of your goals for the students at the end of the sequence might be to "identify sources of conflict between yourself and others and take steps to eliminate this disharmony." In demonstrating competence in writing, one skill for which you might hold students responsible is to "be able to incorporate information from various sources to support the hypothesis that you are developing."

Limitations of Outcome Statements

As you establish outcomes for your course, keep in mind the limitations of outcomes. Some broad objectives or goals cannot be measured because of time and program limitations. In art and music, for example, a secondary goal may be to develop in the student viewing and listening habits that will last throughout a lifetime. This goal cannot be measured after a single course or even after a four-year program. In these instances you need to select as outcomes the skills, knowledge, and attitudes that you believe will result in the desired behavior. Evaluation must focus on the objectives that fit within the scope of the course. Later, in alumni surveys, you can determine if your graduates do show the desired behaviors.

When overused, the detailed learning outcomes can limit creativity and reduce instructional excitement. As noted earlier, outcome statements are a key ingredient in selecting your instructional

methodology and evaluating student performance. The process of developing and testing for specific outcomes is important, but it should not preclude flexibility and, as opportunities arise, adding new elements. In addition, the larger goals of a course must always be kept in view. For example, although it will never appear on a quiz or your final examination, a primary goal of a course may be to excite the students about a subject area or field of study. You would certainly be collecting and using enrollment data, but this is not a goal that would be publicly stated in most of your documents. This is not to suggest that we should eliminate long-term performance-based outcomes but rather to emphasize that although they may be important, these outcomes have inherent limitations that must be recognized as one develops and uses them.

Additional References

As a first step you should review the most recent publications of the disciplinary associations in your discipline. With the recent emphasis on the need for quality statements of learning outcomes and associated assessment procedures, a growing number of these groups are publishing materials on outcomes and assessment directly related to their specific field of study. In addition, as seen in Resources I and J, these publications often include excellent justifications on why certain learning outcomes are crucial to their particular discipline.

Because quality student assessment requires well-defined learning outcomes, you will find that almost every new book on assessment or instructional design will include useful material on writing and assessing learning outcomes. In many instances this will include examples of quality outcome statements. The following publications are excellent examples of what you can expect to find.

Allen, M. J. *Assessing Academic Programs in Higher Education.* San Francisco: Anker/Jossey-Bass, 2004.

Designing and assessing courses and curricula. Includes practical suggestions on identifying learning outcomes, assessing performance, and setting standards.

Banta, T. W. *Assessing Student Achievement in General Education.* San Francisco: Jossey-Bass, 2004.

As the title implies, this book focuses directly on the basic core competencies, writing, speaking, interpersonal relations, critical thinking, and so forth. Highly practical.

Comeaux, P. (ed.). *Assessing Online Learning.* San Francisco: Anker/Jossey-Bass, 2005.

Addresses the challenges of assessing students enrolled in online courses. Includes strategies for student self-assessment and approaches to evaluating critical thinking and writing skills using technology.

Driscoll, A., and Wood, S. *Developing Outcomes-Based Assessment for Learner-Centered Education.* Sterling, Va.: Stylus, 2007.

Articulating learning outcomes to provide evidence of learning that are appropriate for your course. Numerous case studies with concrete examples of what worked and what didn't.

Wehlburg, C. M. *Meaningful Course Revision: Enhancing Academic Engagement Using Student Learning Data.* San Francisco: Jossey-Bass, 2007.

Focusing on using multiple, direct measures of student learning to improve the quality of courses. Addresses the need for continual assessment and course revision.

Phase II

Once the outline of a course is complete (Phase I), the production, implementation, and evaluation activities begin (Phase II). During this phase several activities take place:

- Course goals are finalized.
- Learning outcomes are specified.
- Evaluation procedures and instruments are developed.
- Methods or strategies of instruction are chosen.
- Instructional materials are selected or developed (or both).
- When possible, new materials are field tested.
- The program is implemented, evaluated, and when needed, revised.

During Phase II you should anticipate that you will continue to make changes in the design of your course. Although these modifications are usually minor, they can sometimes determine the overall success of your project. Changes usually take place in two areas: time and content. If it becomes clear that the specified objectives cannot be reached in the time allotted, some outcomes may be

modified or moved to other courses so that certain units are given more time. Even after implementation most courses undergo fine-tuning as problems are identified and addressed, changes occur in the discipline, adjustments are made in the content, or other faculty with different strengths and backgrounds enter the program. This chapter focuses on the first step of this phase: stating your learning outcomes. Later chapters will cover the other steps in Phase II.

As you move through this first step, take care to build the appropriate and broader, more general goals of the curriculum into the objectives of your course, As we noted previously, these non-discipline-specific core outcomes exist in every course; they include those skills and competencies that every student needs after graduation—the abilities to write and speak effectively, to work well with others, to engage in critical thinking, and so on. One of your challenges will be to identify those basic goals that fit appropriately within your course.

Summary

No matter which specific form you use, statements of learning outcomes should do the following:

- Describe your goals in performance terms
- Communicate to your students your expectations and how the students will be assessed
- Serve as the basis for selecting instructional methods
- Serve as the basis for your assessment of student achievement

Keep in mind that the clearer your outcome statements, the easier it will be for you to design your course and assess your students' success in reaching the goals established for your academic programs. In the next chapter we will focus on designing your assessment plan for both curricula and courses.