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TOOLS & TECHNIQUES

for Program Improvement

Handbook for Program Review &
Asssessment of Student Learning

Office of Institutional Assessment, Research, and Testing

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Tools and Techniques for Program Improvement: A Handbook for Program Review and Assessment of Student Learning

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Office of Institutional Assessment, Research, and Testing
Western Washington University

This handbook is offered by the Office of Institutional Assessment, Research, and Testing (OIART) to guide deans, chairs, and faculty through the steps of program review and student learning outcomes assessment. *Tools and Techniques for Program Improvement*: *A Handbook for Program Review and Assessment of Student Learning* focuses on the assessment at the department or program level.

This publication is made available as a hard copy through the OIART and as an easily downloadable PDF file on the OIART website at www.wwu.edu/depts/assess/. Western is grateful to the work of the contributing authors at the University of Massachusetts, Amherst, and for allowing the adaptation of their original handbook. We would also like to acknowledge the contributions of colleagues at other institutions of higher education whose work is referenced throughout.

This manual is designed to support WWU program faculty in the development, implementation, and improvement of unit assessment plans, and to establish a unified reporting format which summarizes annual departmental assessment activities.

Much of this publication was originally developed by the Office of Academic Planning and Assessment at the University of Massachusetts, Amherst, and modified, by permission and under license, by the Office of Institutional Assessment, Research, and Testing (OIART) at Western Washington University. Western gratefully acknowledges and thanks Martha L.A. Stassen and her colleagues at the University of Massachusetts, Amherst, for their work in developing this valuable resource and in making it available for our use.

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Stages of a Program Assessment Plan

Academic departments at Western show considerable variation in levels of development of their assessment programs. Many, especially those forced to establish assessment procedures to meet the professional accreditation requirements of their disciplines, have quite highly developed plans for assessing program outcomes, including especially student learning outcomes. Many others have not had such incentives, and their assessment plans remain less developed. Even those programs with considerable experience with assessment do not necessarily share a common view of the importance of various learning outcomes or a common format for documenting their assessment activities or reporting their findings.

It is useful to acknowledge this range of experience with program assessment by identifying three stages of development of program assessment plans: the planning stage (beginning level), the emerging stage (intermediate level), and the maturing stage (integrated level).

The Planning Stage is the beginning level of implementation. It is characterized by tentativeness and uncertainty; mission and goals are not clearly defined; program learning objectives are not clearly defined and may not be congruent with goals; outcomes measures are not good estimators of program objectives; assessment data are being collected or analyzed only sporadically; classroom assessment procedures are not congruent with stated program goals; or collected data has either not been analyzed or results have not been applied for program improvement.

The Emerging Stage is the intermediate level of implementation. It is characterized by familiarity, growing confidence, and growing commitment to assessment; faculty members are increasingly engaged in collecting and applying assessment data; assessment results are increasingly used in decisions about course sequencing, faculty allocations, teaching methods, program curricula, choice of instructional resources, planning and budgeting, and program improvement; and faculty are increasingly engaged in an ongoing conversation about program improvement based on assessment findings.

The Maturing Stage is the integrated level of implementation. It is characterized by the continued development of the emerging stage processes, the increasingly important role of student learning and teaching excellence

in defining program effectiveness and guiding program changes, and the full engagement of faculty in an active "culture of evidence" dedicated to improving student learning, performance, involvement, and achievement.

Western's goal is for all academic program assessment plans to evolve to the "maturing" stage. This handbook was created to assist program faculty in the development, implementation, and improvement of unit assessment plans, and to establish a unified annual reporting format which summarizes departmental assessment activities. In addition, staff at the Center for Instructional Innovation and the Office of Institutional Assessment, Research, and Testing are available for assistance.

How to Use this Handbook

Chapter 1: Focus on Learning

If you are not familiar with the shift from traditional teacher-centered learning to student-centered learning, Chapter 1 discusses how teaching and learning can be made much more effective than with traditional methods, leading students to deeper understanding and increased knowledge retention.

Chapter 2: Why Assessment?

If you wonder what assessment is and why it is necessary, Chapter 2 introduces program assessment, its relationship to student learning, the basic elements every successful program assessment plan must have, and how they must be related to one another.

Chapter 3: Elements of a Program Assessment Plan

If you're new to assessment, Chapter 3 introduces the basic elements a successful program assessment plan must have. By understanding what an assessment plan includes and looking at what you already have in place, you can begin to focus on how to put together an effective assessment program for your department.

Chapter 4: Defining Program Mission and Goals

If you are ready to start building an effective assessment plan, Chapter 4 describes the visioning process that will lay the foundation for good assessment through careful structuring of your program mission and goals, the essential prerequisites to defining meaningful learning objectives.

Chapter 5: Defining Program Learning Objectives

When your program faculty have reached broad consensus on mission and goals, Chapter 5 will help you translate them into specific, useful, realistically achievable, and observable student behaviors which best characterize the most important abilities you intend your students to acquire.

Chapter 6: Outcomes Design and Measurement

If you know that you want to assess and have a good idea of the focus of your assessment program, Chapter 6 describes strategies for identifying appropriate student learning outcomes, outlines practical assessment tools and strategies, and offers guidelines for selecting assessment methods.

Chapter 7: Assessment Strategies and Methods

If you are clear about your learning objectives, Chapter 7 outlines an array of assessment strategies and offers guidelines for selecting appropriate assessment tools. Here, you can begin to choose specific methods for evaluating student learning in your program.

Chapter 8: Analyzing, Reporting, and Using Results

If you're ready to demonstrate what you've learned from your assessment data, Chapter 8 can help you put it together. The final goal of any project is a tangible set of products that documents your accomplishments and guides departmental revisions and improvements. Whether formal or informal, widely-distributed or limited to department access, assessment reports demonstrate what you have learned from your assessment efforts and maintain a record of informed program review and improvement.

Chapter 1

Focus on Learning

The Purpose of this Chapter

Over the past thirty years ideas about what constitutes excellence in education have shifted from the traditional view of what teachers provide to a practical concern for what learners actually learn, achieve, and become. The evidence tells us that teaching and learning can be made much more effective, and can lead to deeper understanding which is retained longer by students than with traditional methods.

Chapter 1 at a glance

- **From Teacher-centered to Learner-centered**
- **Best Practices in Teaching and Learning**
- **Models of Student Development**
- **Bloom's Taxonomy: A guide to setting learning objectives**
- **The Perry Scheme**
- **Toward a Culture of Evidence**

From Teacher-centered to Learner-centered

For the past century or so, the focus of the traditional "teacher-centered" model of education has been on inputs: the credentials of faculty, the topics to be covered, the sequencing of courses, the physical resources of universities, and so forth.

Based on a great deal that has been learned about learning in the last thirty years, the traditional model is rapidly being replaced with a *learner-centered* model, which has its main focus on *outputs*: what knowledge and abilities have students actually acquired, what do they actually know, and what are they competent actually to do?

Implicit in the student-centered model is the idea that instructors are not *providers of knowledge*, but rather *facilitators of learning*. It is not enough to construct a syllabus and present information, however skillfully, to a captive audience; the job of instructors now involves creating and sustaining an effective learning environment based on a wide range of "best practices" in teaching and learning, which today's instructors are expected to learn and adopt.

The increasing focus on student learning as the central indicator of institutional excellence challenges many tacit assumptions about the respective roles of college students and faculty. As shown below in Table 1.1, the responsibilities of students and faculty and the relationships between the two models are quite different.

In student-centered education, faculty bear less responsibility for being sources of knowledge, and take on more responsibility as facilitators of a broad range of learning experiences. For their part, students are called on to take on *more* responsibility for their own learning. Some main differences between the old model and the new model are shown in Table 1.1.

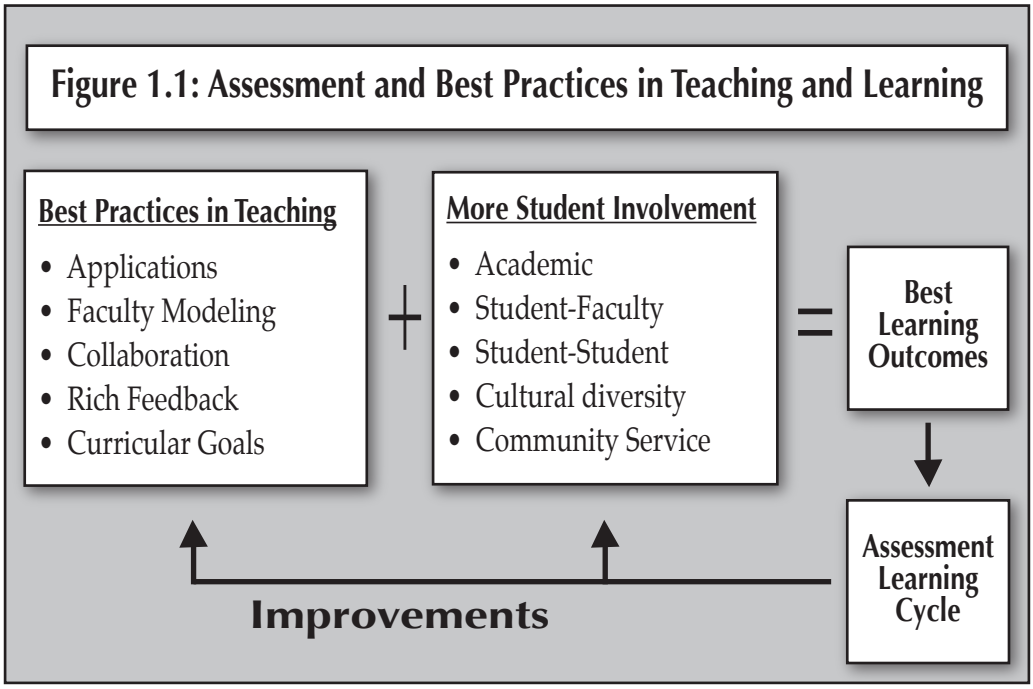
Table 1.1: Teacher-centered versus Learner-centered*

Domain:	Teacher-centered	Learner-centered
Knowledge:	Transmitted by instructor	Constructed by students
Student participation:	Passive	Active
Role of professor:	Leader/authority	Facilitator/learning partner
Role of Assessment:	Few tests—mainly for grading	Many tests—for ongoing feedback
Emphasis:	Learning correct answers	Developing deeper understanding
Assessment method:	Unidimensional testing	Multidimensional products
Academic culture:	Individualistic and competitive	Collaborative and supportive

*Huba & Freed (2000).

Best Practices in Teaching and Learning

New knowledge about how students learn has changed the way we define and achieve success in education, as summarized in Figure 1.1. In the learning-centered model, the best learning results from the interaction of *good teaching*, *student engagement*, and *ongoing assessment*.



A number of scholars have summarized the current knowledge about teaching and learning into various lists of "best practices." Perhaps the best known and widely accepted set of teaching and learning principles is the *Seven Principles for Good Practice in Higher Education* (Chickering and Gamson, 1987, adapted below from Ehrmann and Chickering, 1998). The principles deserve careful reading and reflection, as they provide direct and effective suggestions to instructors for improving the quality and effectiveness of instruction. All of these principles are linked by the common thread of stimulating the kinds of student engagement that promote the most effective learning.

The Seven Principles for Good Practice in Higher Education

1. Good Practice Encourages Contacts Between Students and Faculty

Frequent student-faculty contact in and out of class is a most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment, provides role models for their own development, and encourages them to think about their own values and plans.

2. Good Practice Develops Reciprocity and Cooperation Among Students

Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's ideas and responding to others' ideas improves thinking and deepens understanding.

3. Good Practice Uses Active Learning Techniques

Learning is not a spectator sport. Students do not learn much just sitting in classes listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives. Because students are continually forming their own meanings from their experiences with new information, teaching methods which emphasize application, such as internships, service learning, and other practica all help to transfer abstract learning into concrete action and measurable skills.

4. Good Practice Gives Prompt Feedback

Prompt and frequent feedback is an important tool for learning. Knowing what you know and don't know focuses study efforts. Students need frequent opportunities to perform and receive feedback on their performance, so they can reflect on what they have learned and what they still need to know. Entrenched practices of midterm, final, and term paper may be adequate for assigning course grades, but they fall far short of the potential for learning engendered by frequent assessment feedback.

5. Good Practice Emphasizes Time on Task

Time plus energy equals learning. Learning to use one's time well is critical for students and professionals alike. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty.

6. Good Practice Communicates High Expectations

Expect more and you will get it. High expectations are important for everyone—for the poorly prepared, for those unwilling to exert themselves, and for the bright and well motivated. An appropriate and continuing level of challenge stimulates student participation and learning, while too much or too little challenge discourages interest.

7. Good Practice Respects Diverse Talents and Ways of Learning

Many roads lead to learning. Different students bring different talents and styles to college. Brilliant students in a seminar might be all thumbs in a lab or studio; students rich in hands-on experience may not do so well with theory. Students need opportunities to show their talents and learn in ways that work for them before they can be led to learn in new ways that do not come so easily.

Models of Student Development

Since Western's mission and strategic goals are broadly based in the liberal arts tradition, and apply not only to general education requirements, but to the overall goals of the Western Experience, it is essential that Western faculty understand and are committed to the larger context of learning in which their courses and programs take place, as outlined in Western's Strategic Plan:

> "Western Washington University is committed to engaged excellence in fulfilling its tripartite mission of teaching, scholarship, and community service in a student-centered environment, with a liberal arts foundation and opportunities to develop professional skill. Through engaged excellence, Western:
>
> - instills in graduates a life-long passion for learning and fosters individual curiosity, intellectual rigor, critical thinking, and creativity;
> - promotes scholarly and creative work of significance and applies that scholarship in regional, national, and global communities;
> - creates opportunities for students to display leadership, civic engagement, social responsibility, and effective citizenship;
> - brings together an increasingly diverse and talented student body, faculty, and staff to form a learning community that, along with community partners, involves its members in active learning, scholarly discourse, and reflection; and
> - provides a high quality environment that complements the learning community on a sustainable and attractive campus intentionally designed to support student learning and environmental stewardship."

Clearly, the goals Western has embraced are about student development, very broadly defined. Fortunately, there are several very useful models of student development which illustrate and clarify the expanded roles of college teachers in learner-centered education. These include especially:

Bloom's Taxonomy: Cognitive domain

Bloom's Taxonomy: Affective domain

Perry model of intellectual development

Bloom's Taxonomy: A guide to setting learning objectives

Forty years ago American educational technologist Benjamin Bloom proposed that an assigned task stimulates in a student one of three hierarchical learning domains,

and developed a "taxonomy" that described a hierarchy of abilities in each domain. By linking assigned work to specific developmental levels of learning, Bloom's Taxonomy is a valuable tool to help faculty clarify the kinds and levels of skills they are asking students to demonstrate, create assignments that better evoke the kinds of learning they want, and create assessments that are meaningful for both instructor and students. (See Table 1.2.)

Table 1.2: Bloom's three learning domains

Cognitive domain:	Acqusition, integration, and application of knowledge.
Affective domain:	Evolution of attitudes, values, and feelings alongside cognitive development.
Psychomotor domain:	Acqusition of motor or physical skills.

Within each domain, abilities are organized into hierarchical levels, building from the simplest to the most complex and integrated. Higher level tasks of the taxonomy build on the foundation of the previous levels. A student goes through the hierarchy repetitively within each course, within a major or minor program of study, and within an entire collegiate experience in the process of maturing in all of the domains. In addition, Bloom developed lists of action verbs to describe different kinds of very specific abilities which can be learned, observed, and assessed. In Table 1.3 below are shown the six levels of the cognitive domain, along with a few representative keywords to describe the kinds of abilities involved at each level.

Word Power

Using concrete "action" verbs such as *define*, *argue*, or *create* to specify learning objectives is more helpful for assessment than vague terms such as *know* or *understand*, because they can be much more easily translated into observable, assessable outcomes. The *action keywords* in an assignment determine what kinds and levels of learning are being asked for and assessed. Comprehensive lists of keywords are available at many web sites; using "bloom's taxonomy key words" as the search, over 50,000 sites were listed. One of these sites is:

www.nwlink.com/~donclark/hrd/bloom.html.

Table 1.3: Bloom's cognitive domain

Remember	Understand	Apply	Analyze	Evaluate	Create
Demonstrate recall and recognition.	Comprehend the meaning and interpretation of instructions and problems.	Apply learning to concrete situations.	Separate concepts into component parts.	Make judgments about the value of material or methods for a given purpose.	Put parts together to create new meaning.
recall recognize identify retrieve	interpret exemplify classify explain summarize compare infer	apply execute implement carry out use	analyze associate attribute differentiate discriminate organize interpret	assess critique check evaluate interpret judge justify	compose create, design integrate, plan originate, relate invent, revise synthesize
Keywords					

Although the cognitive domain tends to dominate our thinking about what students learn in college, development of affective skills like listening, responding, participating, collaborating, and valuing is an inseparable and important component of every course and program of study. Maturation of these affective abilities is one of Western's major strategic goals; therefore, learning objectives in the affective domain deserve explicit attention and articulation in course and program objectives. (See Table 1.4.)

Table 1.4: Bloom's affective domain

Receiving phenomena	Responding to phenomena	Valuing	Organizing	Internalizing values
Sensory availability, directed attention, willing participation.	Engaged participation; attends to and interacts with phenomena; motivated to respond.	Motivated by worth or value attached to an object, phenomenon, or ideal; expressed in overt, identifiable behavior.	Organizes, compares, and synthesizes values into priorities, resolves conflicts among them, and creates a unique value system.	Internalizes a personal, consistent, and predictable value system that guides behavior.
ask, choose attend, listen select, reply observe	answer, assist comply, discuss practice present, read recite, report select, tell write	accept, adopt approve commit, endorse join, justify share, study work	adapt, combine categorize compare, defend generalize integrate organize systemize	discriminate, perform, act, practice, question, revise, serve, solve, verify
Keywords				

Baccalaureate learning objectives often emphasize the cognitive domain, while University mission and goals statements generally speak more broadly of affective outcomes. In a way, the cognitive domain says something about what a student has learned or can do, while the affective domain says something about how students have grown, developed, and evolved in their self-construal, values, and world view as an integrated result of their overall educational experience. Western's mission is about both, which invites a brief discussion of the Perry model of intellectual development, which does not make distinctions between the cognitive and affective domains.

The Perry Scheme

In the fifties and sixties, Harvard educational psychologist and student counselor William Perry, Jr., used students' own perceptions of overall changes in their learning and development during college to formulate a model of intellectual development that includes both the cognitive and affective development of increasingly complex forms of thought about the world, one's discipline, and one's self. Perry's work underscores the notion that the deep learning most faculty really want to see students achieve involves significant qualitative changes in the way learners make meaning from their learning.

Perry's "scheme" consists of nine hierarchical and integrative cognitive "positions" defined by how people make meaning of their experiences. Each position represents a quantum shift in thinking; like electrons jumping to higher levels, students need some quanta of integrative experience to "jump" to higher levels of complexity in their world views and behaviors. (See Table 1.5.)

Table 1.5: The Perry Model of Intellectual Development

1-2	3	4	5
Dualism	**Multiplicity 1**	**Multiplicity 2**	**Contextual Relativism**
Truth is absolute and defined by an Authority.	Truth is absolute and knowable, but incompletely defined by Authority.	Truth can never be known with absolute certainty.	Any act of knowing requires taking a point of view.

Undergraduate college education generally involves development up to positions 4 or 5. In particular, the shift from level 4 to level 5, where students integrate their values with their evolving cognitive understanding, is regarded as a particularly significant transition in intellectual development, and is entirely consistent with Western's mission as stated above.

The Bloom and Perry models together present an unified way of looking at the kind of integrative learning that Western strives for all graduates to achieve. Lower levels of development are on the left, and higher on the right. (See Table 1.6.)

Table 1.6: Bloom and Perry models compared

Bloom's cognitive domain →

Remember	Understand	Apply	Analyze	Evaluate	Create

Bloom's affective domain →

Receiving phenomena	Responding to phenomena	Valuing	Organizing	Internalizing values

Perry positions →

1-2 = Dualism	3 = Multiplicity 1	4 = Multiplicity 2	5 = Contextual Relativism
Truth is absolute and defined by an Authority.	Truth is absolute and knowable, but incompletely defined by Authority.	Truth can never be known with absolute certainty.	Any act of knowing requires taking a point of view.

Table 1-6 is also consistent with Robert Kegan's theory of lifespan development, which asserts that we make sense of the world in three primary, evolving, and interactive dimensions :

- cognitive: how one makes sense of knowledge;
- interpersonal: how one sees oneself in relation to others; and
- intrapersonal: how one develops an internal belief system.

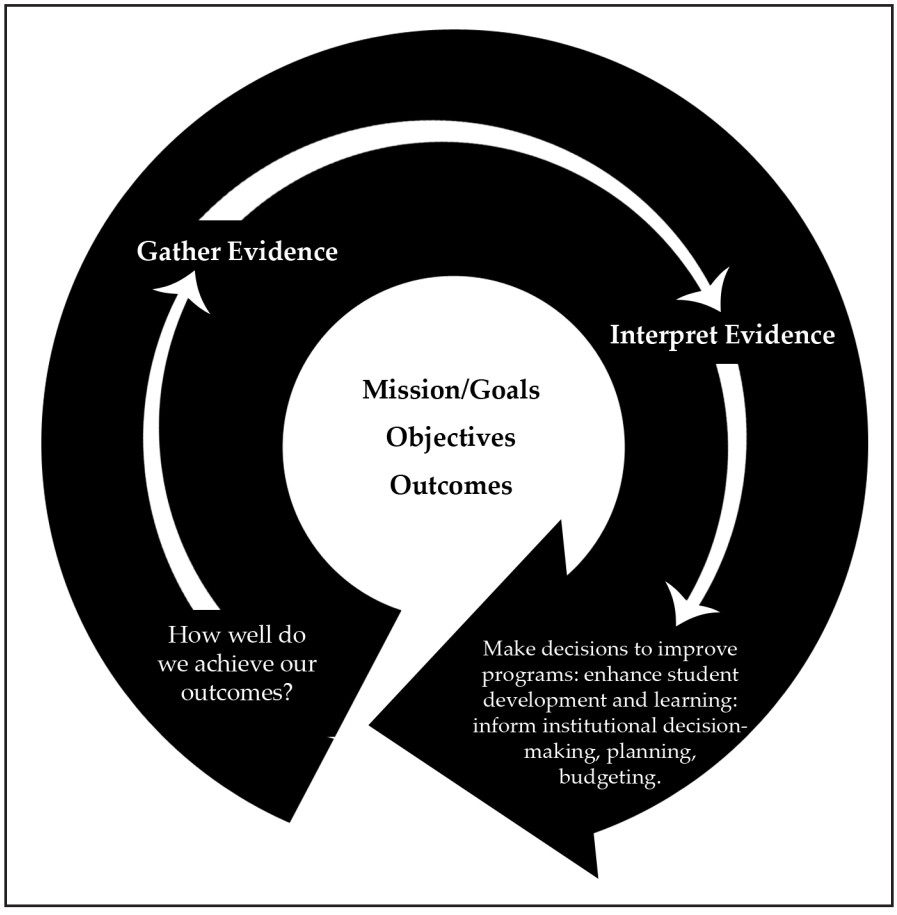
Because complex learning is a goal of higher education, and because people tend to become "embedded" in their beliefs, it is essential that students be engaged, challenged, and supported as they develop in all of these interacting dimensions.

Toward a Culture of Evidence

As shown in Figure 1.1 above (page 12), assessment is the "third pillar" of student-centered learning. Together with best practices in teaching and effective facilitation of student involvement, assessment is just the name for the ongoing, cyclical practice of setting goals, checking to see how well they have been achieved, and making appropriate adjustments to courses, programs, and assessment methods. The importance of assessment is that it is the mechanism which guides courses, academic programs, and support programs toward improving student learning.

These three elements when applied and practiced over time gradually build a "culture of evidence" in which assessment feedback becomes a regular and essential component of program development. (See Figure 1.2 below.)

Figure 1.2: Toward a culture of evidence*



*Adapted from Maki, 2001, and Bresciani, 2003.

Chapter 2

Assessment for Learning

The Purpose of this Chapter

This chapter introduces program assessment, its relationship to student learning, the basic elements every successful program assessment plan must have, and how they must be related to one another.

Chapter 2 at a glance

- **Assessment is Part of Learning**
- **Benefits of Assessment**
- **Nine Principles of Good Assessment Practice**
- **Assessment, Accreditation, and Accountability**

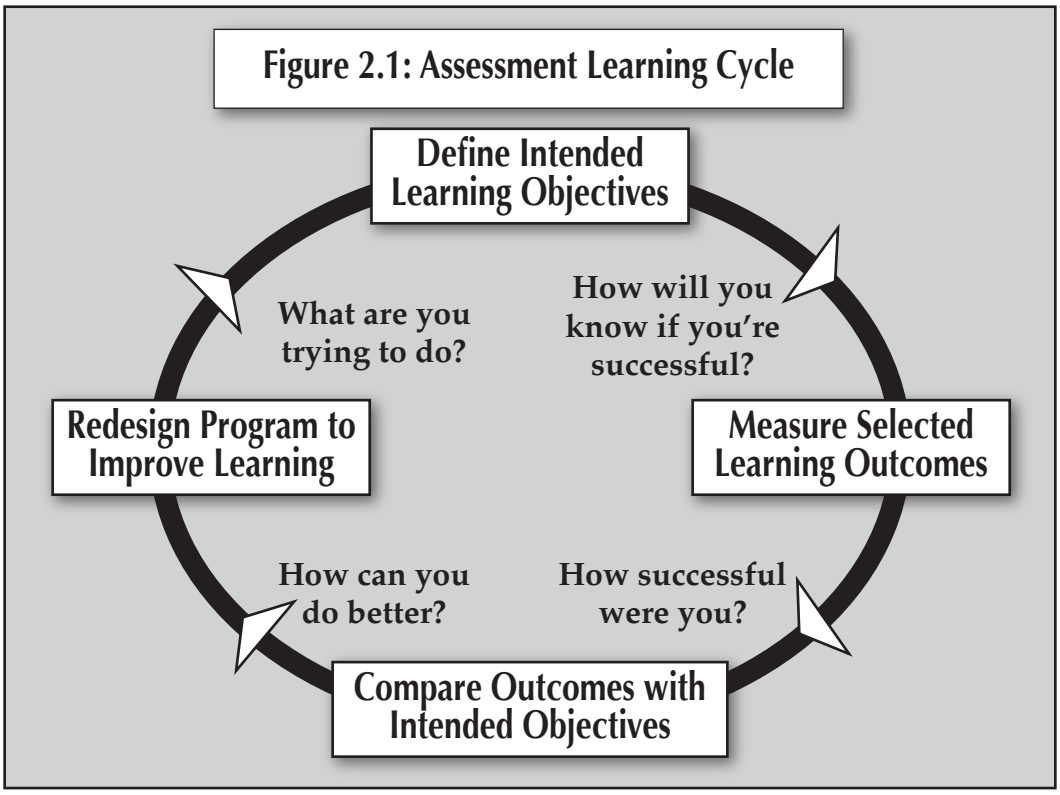
Assessment is the systematic collection and analysis of information to improve student learning

Defined in this manner, assessment asks you to think about the following questions:

- What should students be learning and in what ways should they be growing?
- What are students actually learning and in what ways are they actually growing?
- What should you be doing to facilitate student learning and growth?

Assessment is Part of Learning

As shown in Figure 2.1, assessment is an iterative, four-stage, *information feedback* process for setting learning goals and objectives and then gathering, interpreting, and applying outcomes data from courses, programs, or entire curricula to improve student learning. Assessment is intricately associated with the "learner-centered" model of institutional effectiveness, has become deeply embedded in American higher education, and reflects widespread acceptance among educational stakeholders that *student learning* is the most essential measure of program and institutional effectiveness.



As introduced in Chapter 1 (Fig. 1.1), assessment is the ongoing cyclical practice of *setting goals, checking to see how well they have been achieved, and making appropriate adjustments to courses, programs, and assessment methods* to improve results over time. Assessment is the process which guides courses, academic programs, and support programs toward improvement by continually asking one question over and over: ***Are you doing what you think you're doing?***

Assessment Learning Cycle:
Are you doing what you think you're doing?

Step One: What are you trying to do?

Define intended program learning objectives: specifically, what do you want your graduates to know and actually to be able to do?

Step Two: How will you know if you are successful?

Define observable, measurable, actual outcomes that will tell you how well each objective has been met.

Step Three: How successful were you?

Compare observed outcomes to intended outcomes: how well did you meet your objectives in general, and your student learning objectives in particular?

Step Four: What should you do about it?

Accept or modify program objectives, outcomes, and assessment measures to better achieve target objectives in next cycle.

Benefits of Assessment

Of course, even without formal assessment procedures, faculty have constantly explored in their own ways what worked well and what didn't, and used those observations and impressions to make changes in courses and curriculum. Formal assessment (like the type discussed in this handbook) simply makes those informal activities more systematic, more focused, more effective, and more public. Assessment can facilitate improvement through a variety of venues. When faculty members are directly involved in the development, implementation, and analysis of assessment activities, a number of specific benefits result. (See Table 2.1.)

Table 2.1: Benefits of Assessment*

Because assessment can provide information about the knowledge and skills students have as they enter a course…	**Faculty can** design instruction to target the knowledge and skill levels students should have upon finishing a course and better determine the levels of thinking or reasoning appropriate for the course.
Because assessment can provide reliable data on student learning…	**Faculty can** rely less on the comments that appear on student evaluations as indicators of their success in teaching.
Because assessment can make available richer data about the effects of the curriculum or teaching methods…	**Faculty can** engage in more productive conversations about the status of student achievement and make better decisions about how it might be improved.
Because assessment can yield more reliable data about instruction…	**Faculty can** make reliable decisions about innovations or experimental projects in instruction and share successes more easily.
Because assessment can provide evidence that faculty make a difference in student learning…	**Faculty can** enjoy greater satisfaction in their work as educators.
Because assessment can offer a larger view of student needs and accomplishments…	**Faculty can** identify directions for future instructional development.

*Adapted from *Program-based Review and Assessment*, University of Massachusetts, Amherst (Fall, 2001).

Nine Principles of Good Assessment Practice*

As discussed above, and as shown in Figure 1.1 in Chapter 1, because assessment is the mechanism by which we find out if our intentions for a program have been successfully transformed into actual student learning, it is essential that assessment practices are practically achievable and functionally effective. The American Association of Higher Education has summarized nine principles for good assessment practice. Though briefly stated, the principles are rich with detail about the linkages between assessment and learning. The ability for faculty to understand and apply these principles to their courses and programs is the primary goal of this handbook.

1 **Assessment begins with educational values.**

Effective assessment of student learning begins with a vision of the kinds of learning we most value for students. Where questions about educational mission and values are skipped over, assessment can become a futile exercise in measuring what's easy, rather than a process of improving what we really care about.

2 **Assessment is most effective when it is multidimensional, integrated, and revealed in performance over time.**

Learning entails not only what students know but also what they can do with what they know; it involves not only knowledge and abilities but also values, attitudes, and habits of mind that contribute to successful achievement of goals. Assessment should use a diverse array of methods to foster and reveal change, growth, and increasing degrees of integration.

3 **Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.**

Assessment is a goal-oriented process. Through an ongoing process of comparing educational performance with educational purposes, it pushes instruction toward clarity about where to aim and what standards to apply. Clear, shared, achievable goals are the cornerstone for assessment that is focused and useful.

4 **Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes.**

Information about outcomes is of high importance; but we also need to know about student experience along the way—about how the curricula, instruction, campus climate, and kind of student engagement enhances students' overall cognitive and affective development.

Assessment works best when it is ongoing not episodic.

Systematic improvement is best fostered when assessment entails a linked series of activities undertaken over time. Whether tracking the progress of individual students or of entire cohorts, the point is to monitor progress toward intended goals in a spirit of continuous improvement. Along the way, the assessment process itself should be evaluated and refined in light of emerging insights. **5**

Assessment fosters wider improvement when representatives from across the educational community are involved.

Student learning is a campus-wide responsibility, and assessment is a way of enacting that responsibility. Faculty play an especially important role, but so do student-affairs educators, librarians, administrators, and students. Assessment is not a task for small groups of experts but a collaborative activity of educators and stakeholders throughout the larger community. **6**

Assessment makes a difference when it illuminates questions that people really care about.

Assessment recognizes the value of information in the process of improvement. But to be useful, information must be connected to issues or questions that people really care about, and produce evidence that is credible, applicable, and useful. **7**

Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.

Assessment alone changes little. Its greatest contribution comes on campuses where the quality of teaching and learning is visibly valued and is central to the institution's planning, budgeting, and personnel decisions. On such campuses, information about learning outcomes avidly sought as an integral part of decision making. **8**

Through assessment, educators meet responsibilities to students and to the public.

Colleges have a responsibility to the publics that support and depend on them to establish meaningful goals and expectations for students, to provide information about how well students meet those goals and expectations are met, and to strive continually to improve student learning over time. **9**

*Adapted from American Association for Higher Education, *Assessment Forum*: Alexander W. Astin; Trudy W. Banta; K. Patricia Cross; Elaine El-Khawas; Peter T. Ewell; Pat Hutchings; Theodore J. Marchese; Kay M. McClenney; Marcia Mentkowski; Margaret A. Miller; E. Thomas Moran; Barbara D. Wright.

Assessment, Accreditation, and Accountability

Over the past fifteen years, the increasing attention higher education has been getting from both state regulators and from accreditation bodies has merged into a fairly unified focus on student learning as the "coin of the realm" for assessing institutional quality.

These changes increasingly mean that it is not enough that college teachers be well-trained in their disciplines; they also are increasingly being required to learn a great deal more about learning, teaching, setting course objectives, and organizing, integrating, and assessing curricula than has traditionally been the case. Their responsibilities have expanded considerably toward creating and maintaining an effective learning environment and gathering systematic evidence of student learning, and these are going to require them and their schools to invest relatively more of their time into their development as teachers.

At present, both the State of Washington and the Northwest Commission on Colleges and Universities require that all academic programs:

- have assessment plans that conform to specific standards, and
- are able to document the regular use of assessment data to improve student learning over time.

Accreditation:

Northwest Commission on Colleges and Universities Standard 2B requirements:

- "The institution's processes for assessing its educational programs are clearly defined, encompass all of its offerings, are conducted on a regular basis, and are integrated into the overall planning and evaluation plan.
- The institution identifies and publishes the expected learning outcomes for each of its degree and certificate programs. Through regular and systematic assessment, it demonstrates that students who complete their programs, no matter where or how they are offered, have achieved these outcomes.
- The institution provides evidence that its assessment activities lead to the improvement of teaching and learning."

Accountability:

Washington State Higher Education Coordinating Board program requirements:

- Program assessment: Describe the institution's plan for assessing how well program objectives will be met. Describe how the assessment information will be gathered and used.
- Student Assessment: Describe expected student learning outcomes of the program and how student learning outcomes will be measured and results used.

Table 2.2*: To meet the many external requirements for assessment, effective program assessment must generally be:

Systematic	It is orderly and includes all four steps in the assessment cycle.
Complete	Every program and course should be organized around clearly articulated learning goals and objectives, explicit assessment methods, and measurable outcomes.
Consistent with the program mission and goals	It focuses most on what the program says is most important.
Ongoing and cumulative	It builds a body of evidence over time.
Multi-faceted	It uses multiple measures of multiple dimensions of learning.
Pragmatic	It is practical to do and provides useful results.
Faculty-designed and implemented	It is unique to the needs of each program.

*Adapted from California State University, Chico, Assessment Plan (1998) and the Ball State University, Assessment Workbook (1999).

Chapter 3

What Is Program Assessment?

The Purpose of this Chapter

This chapter introduces program assessment, its relationship to student learning, and the basic elements every successful program assessment plan must have. It will help you think about how assessment can benefit you and other members of your department or program. Assessment is about improvement, and program assessment will help you focus on improving student learning in your classes and in the major.

Chapter 3 at a glance

- **Designing an Effective Program Assessment Plan**
- **Elements of an Effective Program Assessment Plan**
- **Steps to Effective Program Assessment**

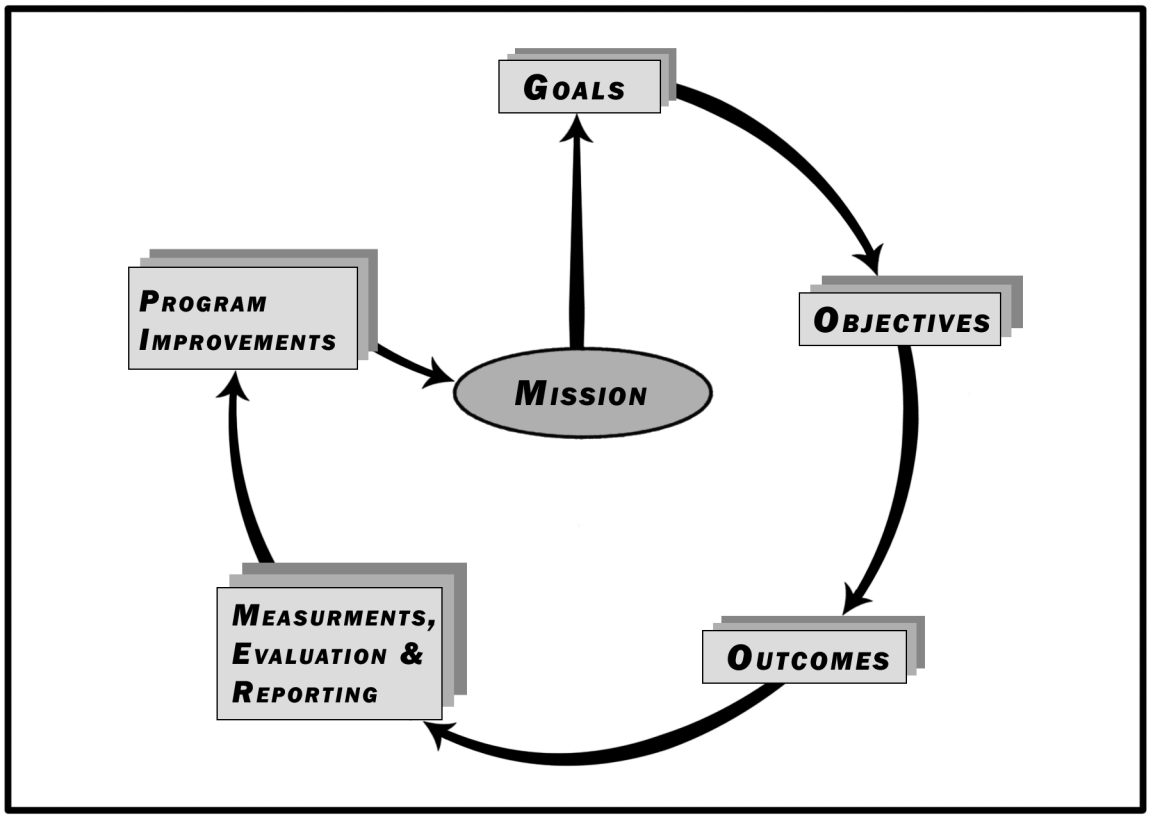
Designing an Effective Program Assessment Plan

Successful program assessment begins with a clear articulation of what the program is being designed to accomplish. The first step is for the program faculty to define as explicitly as possible what students who complete the major need to *know*, *understand*, and *be able to do* when they graduate. Focus first on articulating the *most important* goals and objectives. Then you can begin to start thinking about how you can assess how well they are being met.

Program assessment is a systematic way of monitoring whether students have *actually acquired* the skills, knowledge, and competencies *intended* by their programs of study. Assessment is just a process of comparing *intended*

outcomes with *actual outcomes* (observed, documented, realized, measured), and whether and how the outcomes can be improved. The main purpose of any program assessment process is to determine how well intended outcomes were achieved and how the program can be improved. The basic assessment process shown previously in Figure 2.1, when applied at the program level, leads to the elements of a successful assessment plan shown in Figure 3.1.

Figure 3.1: Elements of a Program Assessment Plan



MISSION = Values and principles that guide the curriculum

GOALS = Broad categories of abilities

LEARNING OBJECTIVES = Intended outcomes

LEARNING OUTCOMES = Actual outcomes (evidence of objectives met)

In designing your plan, consider and include the following*:

Learning Goals and Objectives	What will the student in the major know, value, and be able to do upon graduation?
Learning Processes	To what learning experiences and strategies will students be exposed to achieve these learning objectives?
Assessment Methods	By what measure(s) will you know that students are meeting departmental learning objectives? How will the information be collected? From whom, and at what points, will you gather data?
Assessment Processes	When will you conduct the assessment? Who will be responsible for each component? What is the overall timeline for the assessment plan?
Status, Outcomes, and Results	What did you find out? How do the data support these findings?
Decisions, Plans and Recommendations	Based on your findings, what do you plan to do now?

*Adapted from California State University, Chico, Assessment Plan (1998).

Elements of an Effective Program Assessment Plan

Ultimately, you will tailor your program assessment approach to respond to your own departmental goals and timelines, taking into account internal expectations, external requirements, or both. In general, however, your department will want to complete the following steps to develop an effective program assessment plan. In the following chapters, each of these elements will be discussed in detail. An effective assessment plan should contain all of the elements shown in Figure 3.1:

- The *Mission Statement* is the initial point of reference for any program or course. It is a concise statement of the general values and principles which guide the curriculum. In broad strokes it sets a tone and a philosophical position from which follow a program's goals and objectives; therefore, the mission statement is also a statement of *program vision*. The mission statement can and should be brief. However, it is not an isolated document. Rather, it is the cornerstone of the curricular structure, defining the very broadest curricular principles and the larger context in which more specific curricular goals will fit. The program mission statement should define the broad purposes the program is aiming to achieve, describe the community the program is designed to serve, and state the values and guiding principles which define its standards.
- *Goals* (and subsequent *Goals Statements*) must form a bridge between the lofty language of the *Mission Statement* and the concrete-specific nuts and bolts of very specific program learning objectives. In the goals statement, the broad principles of the mission are narrowed and focused into the specific categories of skills, knowledge, and abilities which will characterize graduates of your program including those that are specific to your discipline as well as those which represent the broader general competencies implied by Western's mission and strategic goals.
- *Learning* (or *Program*) *Objectives* are brief, clear, focused statements of specific *intended learning outcomes*. Each objective can be linked directly to one or more program goals. Stating each objective in the form of an "action verb" combined with a description of a very specific ability helps translate objectives into observable abilities or behaviors students can actually demonstrate and faculty can actually measure.

- *Learning Outcomes* are observable measures, estimators, or evidence of actual learning outcomes. Each program must select an array of assessment tools, which can include both direct measures of student knowledge and performance, and indirect measures of changes in student behavior, attitudes, or values.

  Program assessment must document two kinds of learning outcomes: *basic mastery* of fundamental knowledge and abilities, and *sequential development* of professional and personal abilities, including elements which foster affective development, such as volunteerism, internships, capstone experiences, field-related employment experiences, collaborative learning experiences, interaction with faculty, and other experiential mechanisms.

  Data gathered for each outcome should provide evidence about the accomplishment of a particular program objective. Ideally, each objective will be assessed by multiple outcomes measures, such that:

  - Each outcome is a measurable estimator of a program objective.
  - Outcomes selected are feasible measures given the resources available.
  - Outcomes link actual student learning to intended post-graduate abilities.
  - Outcomes accurately reflect ability and knowledge.
  - Outcomes can be direct or indirect measures.

- *Measurement, Evaluation, and Reporting*. The whole point of assessment is to establish an ongoing, systematic mechanism for assessing, reviewing, and improving programs. Therefore, each program assessment plan must include explicit procedures for determining which outcomes will be measured; when they will be measured; who will measure them; who will analyze them; what results will be reported, and to whom; and how results have been implemented. These mechanisms include:

  - Developing a plan for collecting data.
  - Prioritizing goals.
  - Setting timeline and milestones.
  - Implementing the assessment plan.
  - Using data to inform program improvements.
  - Documenting and communicating results.

*Adapted from Susan Hatfield, Department Level Assessment: Promoting Continuous Improvement (1992).

Steps to Effective Program Assessment*

In addition to the structural elements discussed above, an effective program assessment generally has the following characteristics*:

Systematic. It is an orderly and open method of acquiring assessment information over time.

Built around the department mission statement. It is an integral part of the department or program.

Ongoing and cumulative. Over time, assessment efforts build a body of evidence to improve programs.

Multi-faceted. Assessment information is collected on multiple dimensions, using multiple methods and sources.

Pragmatic. The best assessment methods yield economize on available resources and produce information that is directly useful in improving learning.

Faculty-designed and implemented. It is not imposed from the top down.

*Adapted from California State University, Chico, Assessment Plan (1998) and the Ball State University, Assessment Workbook (1999).

Chapter 4

Defining Program Mission and Goals

The Purpose of this Chapter

Successful program assessment begins with clarifying what you want students who complete your major to know, understand, and be able to do when they graduate. With that foundation you can go on to define specific program goals and objectives, and you can begin to think about how you might assess how well these goals and objectives are being met. This chapter is about laying the foundation for good assessment through careful structuring of your program mission and goals, essential prerequisites to defining meaningful learning objectives. (Please see Figure 4.1.)

Chapter 4 at a glance

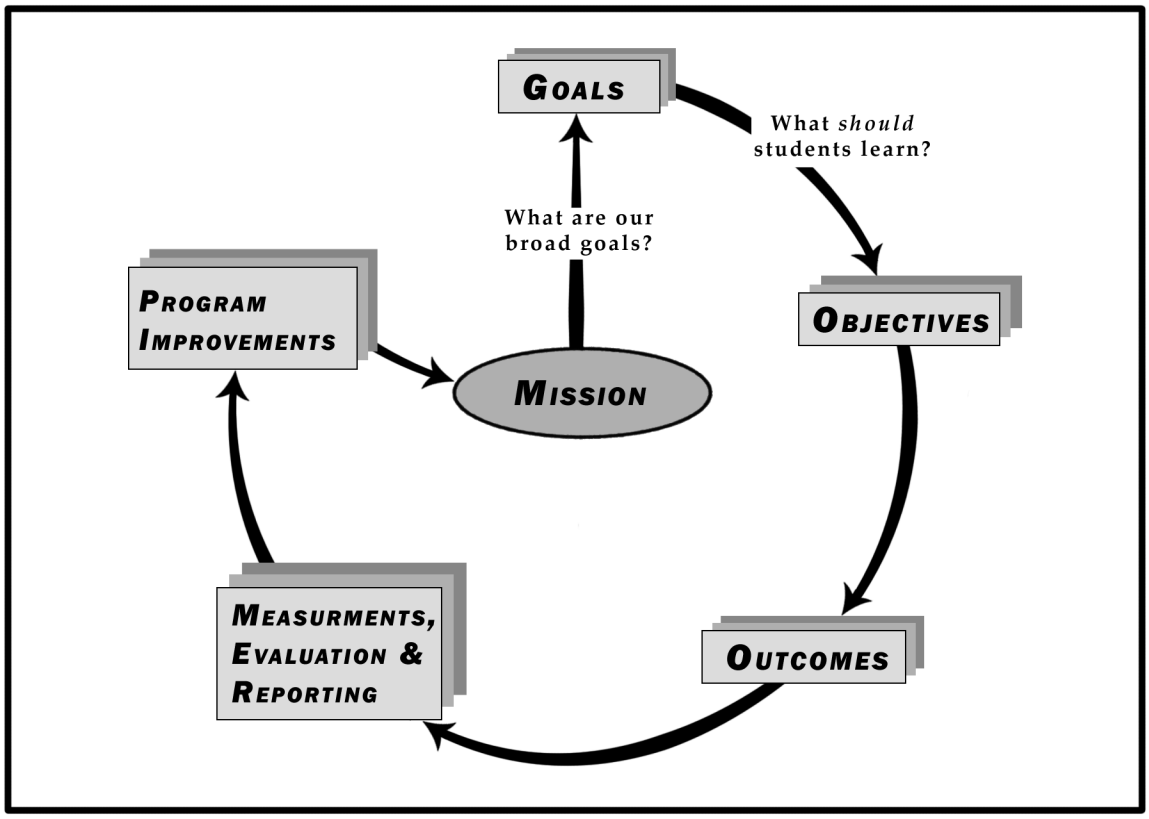
- **Mission Statement: Defining what's most important**
- **Program Goals: Focusing the mission statement**
- **Appendix 4-A: Mission and goals worksheets**

Mission Statement: Defining what's most important

The mission statement is the initial point of reference for any program or course. It is a concise statement of the general values and principles which guide the curriculum. In broad strokes it sets a tone and a philosophical position from which follow a program's goals and objectives; therefore the mission statement is also a statement of *program vision*.

The mission statement can and should be brief. However, it is not an isolated document. Rather, it is the cornerstone of a the curricular structure, defining the very broadest curricular principles and the larger context in which more

Figure 4.1: Elements of a Program Assessment Plan



specific curricular goals will fit. The program mission statement should define the broad purposes the program is aiming to achieve, describe the community the program is designed to serve, and state the values and guiding principles which define its standards.

Program mission statements must also be consistent with the principles of purpose set forth in the university's mission and goals statements; therefore, a good starting point for any program mission statement is to consider how the program mission supports or complements the university mission and strategic goals. Quoting once more from WWU's Strategic Plan:

> "Western Washington University is committed to engaged excellence in fulfilling its tripartite mission of teaching, scholarship, and community service in a student-centered environment, with a liberal arts foundation and opportunities to develop professional skills… Through engaged excellence, Western:

- instills in graduates a life-long passion for learning and fosters individual curiosity, intellectual rigor, critical thinking, and creativity;
- promotes scholarly and creative work of significance and applies that scholarship in regional, national, and global communities;
- creates opportunities for students to display leadership, civic engagement, social responsibility, and effective citizenship;
- brings together an increasingly diverse and talented student body, faculty, and staff to form a learning community that involves its members in active learning, scholarly discourse, and reflection; and
- provides a high quality environment designed to support student learning and environmental stewardship."

The program mission statement must serve as a link between departmental goals and objectives on the one hand, and university mission and goals on the other; it must also demonstrate logical internal consistency among program mission, goals, objectives, and outcomes. As a result, writing the mission statement might be regarded as an iterative process of successive approximations:

- first approximation of mission,
- first approximation of goals,
- first approximation of objectives,
- second approximation of mission, etc.

Therefore, in the initial stages of mission and goals development, a rough listing of several primary, broad purposes of a program, and how the program fits into the larger mission and goals of the university, might be adequate preparation for moving on to first approximations of program objectives.

Program Goals: Focusing the mission statement*

The main function of goals and subsequent goals statement is to form a bridge between the lofty language of the mission statement and the concrete-specific nuts and bolts of program objectives. In goals statements, the broad principles of the mission are narrowed and focused into a small number of specific categories of skills, knowledge, and abilities which will characterize graduates of your program, including those that are specific to your discipline as well as those which represent the broader general competencies implied by Western's mission and strategic goals.

*Adapted from the Ball State University, Assessment Workbook (1999).

Goals statements essentially become a blueprint for implementing the mission by answering the following questions:

- How do program goals relate to the program mission?
- How does this program fit into a student's overall development?
- What general categories of knowledge and abilities will distinguish your graduates?
- For each principle of the mission, what are the key competency categories graduates of the program should know or be able to do?

Goals describe broad learning themes or abilities that you want students to learn, expressed in general terms (e.g., clear communication, problem-solving skills, etc.). Program goals and their statements should focus on both general across-the-curriculum skill groups for graduates (e.g., writing, critical thinking, quantitative reasoning) as well as discipline-specific skill groups relevant to the department or program itself. Examples include:

- "Students can demonstrate a critical understanding of a significant portion of the field of psychology."
- "Students can explain how to exercise ethical responsibility in their communication with others."
- "Students can describe important concepts and methods in the sciences."
- "Students will be able to demonstrate mastery of higher-order skills (i.e. problem solving skills) in the discipline."
- "Students can function as entry-level professionals in their field of study."

It is generally a good idea to identify between three and five instructional goals for your program. However, if you and other members of your department can agree on only one goal, don't let this stall your progress. Focus on that one goal—more will come later.

Each major department must take responsibility for promoting and assessing student development across the range and level of abilities appropriate to its programs, including both majors and general education students. Therefore, program goals statements should include all of the key competency areas which the program or its courses address, for both majors and non-majors.

Reaching consensus on student learning goals for an academic program is rarely a quick and easy task. It is often surprisingly difficult to articulate curricular elements that have been implemented intuitively over time by many individual faculty members, and departments can vary in the extent to which the faculty share a common disciplinary framework or epistemology. Therefore, finding consensus on learning goals and objectives may be more difficult in some departments than others, and will likely entail a certain amount of "wallowing" before progress becomes tangible.

Before actually trying to write or revise program goals and objectives, it might be helpful to have your department faculty try some of the following activities, perhaps in a faculty retreat setting:

"Ideal Student" exercise

- Describe the ideal student at various phases in your program. Be concrete and focus on those strengths, skills, and values that you feel are the result of, or at least supported and nurtured by, the program experience.
- Using Bloom's Taxonomy (see Chapter 1) as a guide to heirachical learning goals, explore the following questions:
  - What should the ideal student know at each point?
  - What can the ideal student be able to do at each point?
  - In what ways should student abilities be maturing at each point?
  - What are the ideal program experiences that would contribute most to the development of the ideal student?
- List the achievements you implicitly expect of graduates in each major field.
- Describe your alumni in terms of such achievements as career accomplishments, lifestyles, citizenship activities, and aesthetic and intellectual involvement.

Review of instructional materials.

- Analyze program materials (syllabi, course outlines, assignments, exams, texts, technology) for the types and levels of Bloom's learning objectives each one is designed to promote: recognition/recall, comprehension, application, analysis, evaluation, creativity.
- Does the curriculum lead the student through a logical set of developmental steps that demand increasingly sophisticated performance demands?

Review documents

- Gather and review documents that describe your department and its programs, such as:
  - Brochures and catalogue descriptions
  - Accreditation reports
  - Curriculum committee reports
  - Mission statements
- What kind of story do they tell? Are you doing what your literature says you are doing?

Review and react to goals and objectives from another unit that is similar but external

- Try grouping the statements into broad categories or themes of student objectives (e.g., knowledge, attitudes, behavior).
- How do they compare with yours?

Use the "25 percent rule"

Imagine that you want to reduce program or course material by 25 percent. What objectives would you keep and which would you discard?

Administer an objectives inventory, survey, or self-assessment instrument with faculty, students, graduates, and employers

How well are the needs of various "stakeholders" being met?

Delphi iteration*

Delphi is a group technique to reach consensus about the most important themes before attempting to write specific objectives and outcomes. Here is the outline of how it works:

- Choose an impartial facilitator to mediate a panel discussion about possible program objectives. In a brainstorming session, ask each panel member to build a list of criteria that is important for program objectives.
- Have each member anonymously rank each criterion (e.g.: 1=very important; 2=somewhat important; or 3=not important.) Place the criteria in rank order and show the (anonymous) rankings to the panel as input for next round of discussion.
- Repeat the ranking and discussion process until panelists converge on consensus.

*Additional information about the Delphi technique is available on page 89 of this report.

Appendix 4-A:
Mission and Goals Worksheets

Assessment Period Covered **Date Submitted**

_____ _____

Program Assessment Plan: Mission Worksheet

_____

(Academic Degree Program) **(Degree Level)**

The Mission Statement is the initial point of reference for a program. It is a concise statement of the general values and principles which guide the curriculum, and the larger context in which more specific curricular goals will fit. In broad strokes it sets a tone and a philosophical position from which follow a program's goals and objectives; therefore the mission statement is also a statement of *program vision*.

It addresses the following questions:

1. What are the general values and broad principles that will guide the program?

2. What are the general characteristics and abilities of the ideal graduate?

3. Whom will the program serve, and how?

4. In what specific ways is the program mission consistent with the University's mission and strategic plan?

Assessment Period Covered _____ **Date Submitted** _____

Program Assessment Plan: Goals Worksheet

_____

(Academic Degree Program) **(Degree Level)**

In the goals statement, the broad principles of the Mission are narrowed and focused into the specific categories of skills, knowledge, and abilities which will characterize graduates of your program. These abilities include both those that are specific to your discipline and those which represent the broader general competencies articulated in Western's mission and strategic goals.

The goals statement addresses the following questions:

1. **For each principle of the mission, what are the major categories of knowledge and abilities you intend for graduates of the program to develop?**

2. **Describe in broad strokes the kinds of strengths, skills, knowledge, and values of your *ideal* graduate. What do you want the ideal graduate to:**
   - **know?**
   - **be able to do?**
   - **care about?**

3. **What kinds of career achievements do you hope will distinguish your graduates?**

4. **Based on the above, write tentative goals. How do your program goals relate to the program mission? How do they relate to the University's mission and goals?**

Chapter 5

Defining Program Learning Objectives

The Purpose of this Chapter

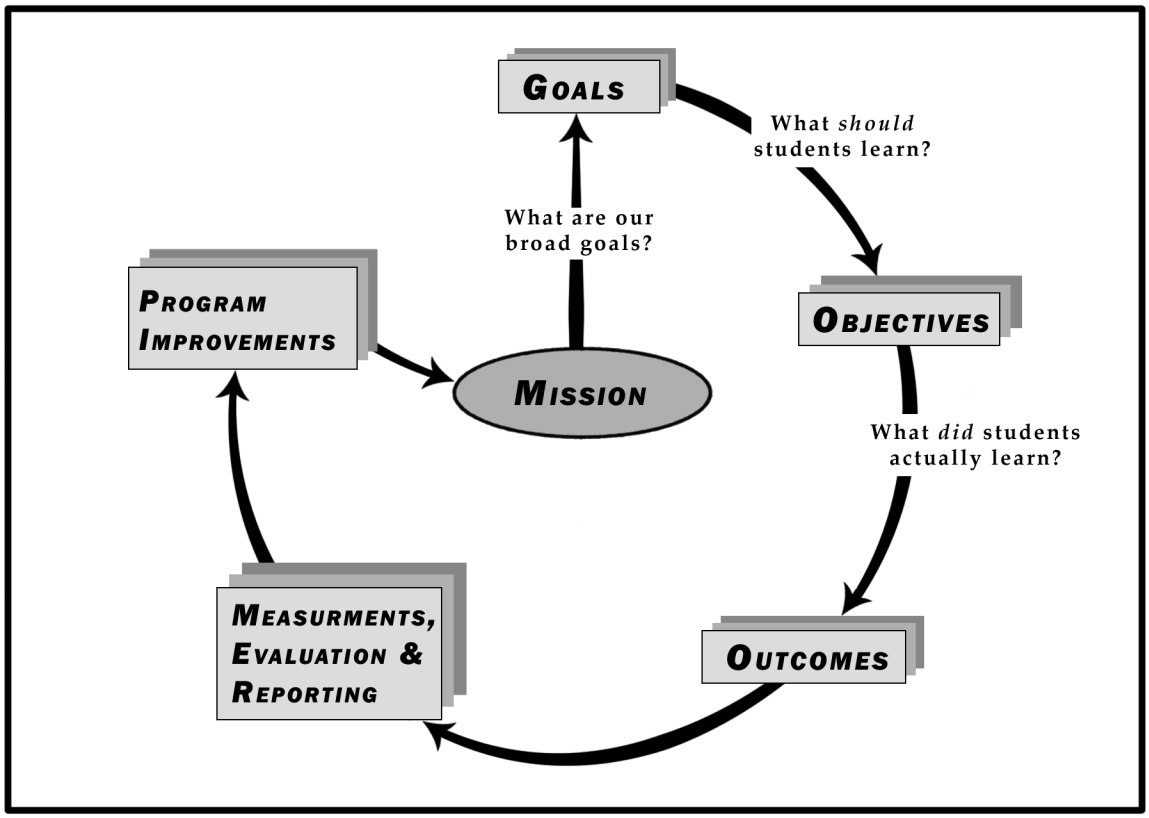
Program objectives transform broad program goals into specific student actions that can be observed and assessed to provide evidence of having developed specific abilities. When writing program objectives the aim is to define realistically achievable, observable student behaviors in simple language which best describe the most important abilities you intend for your students to acquire. (See Figure 5.1.)

Chapter 5 at a glance

- **Program Objectives: Identifying intended learning outcomes**
- **Levels of Learning Objectives**
- **Defining Program Objectives**
- **Examples of Effective Goals and Objectives Statements**
- **Appendix 5-A: Learning objectives worksheet**

Program Learning Objectives are *brief, clear, focused* statements of specific *intended* learning outcomes. Each objective can be linked directly to one or more program goals. Each objective should be defined with outcomes assessment criteria in mind for "measuring" how well each objective has been accomplished.

Figure 5.1: Elements of a Program Assessment Plan



Program Objectives: Identifying intended learning outcomes

You will have several different kinds of learning objectives.

Cognitive Outcomes	What do you want your graduates to know?
Behavioral Outcomes	What do you want your graduates to be able to do?
Affective Outcomes	How do you want your graduates to relate to their work and to others?

Each kind of learning objective fits into a hierarchical position in the taxonomy, and represents a different kind of ability.

Level	Cognitive behaviors
Knowledge	To know specific facts, terms, concepts, principles, or theories.
Comprehension	To understand, interpret, compare, contrast, or explain.
Application	To apply knowledge to new situations; to solve problems.
Analysis	To identify the organizational structure; to pull meaning from parts, relationships, and organizing principles.
Evaluation	To judge the quality of something based on its adequacy, value, logic, or use.
Synthesis	To create something, to integrate ideas into a solution, to propose an action plan, to formulate a new classification scheme.

Regardless of the type of learning objective, carefully stating each objective in the form of an "action verb" combined with a description of a very specific ability/activity helps translate objectives into practical outcomes measures students can actually demonstrate and faculty can actually measure. The use of the verb form emphasizes that objectives can be assessed by examining very specific products or behaviors students can actually do. By implication, well-stated objectives must also have value as valid indicators of the success of the program in terms of the actual accomplishments of its graduates.

Word Power

Concrete verbs such as *define*, *argue*, or *create* are more helpful for assessment than vague verbs such as *know* or *understand*, or passive verb phrases such as *be exposed to*. Some examples of action words frequently used in writing program objectives for the Cognitive Domain are included in Table 5.1 below.

Table 5.1: Objectives and Examples of Applicable Action Verbs

Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
define	classify	apply	analyze	arrange	appraise
identify	describe	compute	calculate	assemble	assess
indicate	discuss	construct	categorize	collect	choose
know	explain	demonstrate	compare	compose	compare
label	express	dramatize	contrast	construct	contrast
list	identify	employ	criticize	create	decide
memorize	locate	illustrate	debate	design	estimate
name	paraphrase	interpret	determine	formulate	evaluate
recall	recognize	investigate	diagram	manage	grade
record	report	operate	differentiate	organize	judge
relate	restate	organize	distinguish	perform	measure
repeat	review	practice	examine	plan	rate
select	suggest	predict	experiment	prepare	revise
underline	summarize	schedule	inspect	produce	score
	tell	shop	inventory	propose	select
	translate	sketch	question	set-up	value
		translate	relate		
		use	solve		

For example, here are some sample learning objectives from WWU's Human Services program; note that the objectives define increasingly more complex abilities:

- *Identify* what constitutes genuine and empathic relationship
- *Demonstrate* a broad range of relevant communication skills and strategies
- *Examine* the history and philosophies of human services;
- *Analyze* the role of conflict in individual and societal systems
- *Design* integrated services using innovative practices in diverse settings

A useful list of appropriate "action verbs" is available in the Appendix to this chapter.

Levels of Learning Objectives

Generally you will be concerned with defining and assessing two kinds of learning objectives:

Mastery objectives establish minimum criteria for the acquisition and demonstration of foundational skills or knowledge. Mastery implies that what is important is the attainment of a minimum or threshold level of competence in an area. Mastery outcomes tend to be very specific and limited in scope and, therefore, can often be articulated with great specificity (Palomba, et. al., 1999). Mastery objectives are measured on a binary scale: pass/fail, satisfactory/unsatisfactory, etc. For example, all accounting students should be able to:

- balance a financial statement;
- prepare an Excel spreadsheet; and
- track accounts receivable.

Developmental objectives, in contrast, reflect more complex (or higher order) learning outcomes—those learning tasks on which students can be expected to develop and demonstrate increasing degrees of sophistication over time. Developmental objectives imply a sequential continuum of increasingly integrated abilities. In general these include two distinct categories of abilities to be assessed as student learning objectives: *general, across-the-curriculum* abilities, and abilities *specific to the major*. Developmental objectives form a hierarchy of sequential skill levels which become the basis for course sequencing within the program.

In some cases developmental objectives can be written in a two-stage process in which an inclusive general objective or theme is stated along with a sample of specific learning outcomes reflecting different levels of development. For example, accounting students might be expected to demonstrate Generally Accepted Accounting Practices (GAAP), through abilities to:

- explain GAAP in layman's terms;
- name one or two of the practices;
- discuss the difference between accepted and non-standard practices; and
- give an example of when to use and reference GAAP.

In this case, the objective for the student is to show understanding of GAAP. While some students may demonstrate abilities in all four of the learning objectives associated with this theme, some may only demonstrate three, and some only one.

Because developmental objectives are best represented as a sequence of checkpoints for student learning, it is useful for departments to establish criteria for defining and assessing several different levels of developmental abilities, and to "map" the attainment of sequential levels of such abilities with specific courses or groups of courses in their programs. In this way program objectives can be integrated meaningfully into individual course objectives, and learning objectives for one course become prerequisite knowledge for more advanced courses.

For example, a sequence of developmental objectives might include (note use of action verbs, in order of increasing complexity):

- *list* observational skills;
- *describe* important relationships in observations;
- *apply* appropriate theoretical constructs to observations;
- *analyze* structure and organization; and
- *formulate* reasonable inferences from observations.

Both mastery objectives and developmental objectives can be associated with a wide variety of competency areas:

- Knowledge
- Cognitive development—area and level
- Technical skill development—skill and level
- Process skill development—skill and level
- Comprehension—type and level
- Application
- Analysis
- Synthesis
- Evaluation
- Integrative thinking/creativity
- Attitudes, behaviors, and values
- Development of desirable personal/professional qualities

Defining Program Objectives

Program objectives transform broad program goals into sets of particular actions that can be observed and assessed to provide evidence of specific student learning and skill development The aim in defining program objectives is to define realistically achievable, observable student behaviors in simple language. If a learning objective that is important to you seems difficult to measure, try to word the objective into language that focuses on observable behaviors.

Effectively defining learning objectives*

- For each of your stated goals, what are the specific student behaviors, skills, or abilities that would tell you this objective is being achieved?
- Ideally and briefly, what would a skeptic need (evidence, behavior, etc.) in order to agree that your students are achieving the major goals you have set out for them?
- In your experience, what evidence tells you when students have met these objectives—how do you know when they're "getting" it?
- Use action verbs that describe definite, observable actions.
- Include a description of the conditions under which the action takes place; for example: "When given x, the student will be able to…"
- Indicate an appropriate level of competency that is assessable through one or more indicators.

As a practical matter, program objectives should be widely accepted and supported by members of the program faculty. Developing appropriate and useful objectives is an iterative process; it's not unusual to go back a number of times to refine definitions. In most cases, it is only when you try to develop ways of assessing program objectives that the need for refining them more precisely becomes apparent.

Examples of Effective Goals and Objectives Statements**

As a department, you will want to develop objectives specific to your department, discipline, or field. Below are a few examples for you to consider as you think about your own.

*Adapted from Diamond, Robert M., Designing and Assessing Courses and Curricula (1998).

**Adapted from California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999).

Social Sciences

Program Goal: Students who major in one of the social sciences will learn that they have responsibilities to themselves, their families, peer groups, communities, and society.

Related Objectives:

- Students can recognize the role that cultural diversity plays in defining what it means to be a social being.
- Students can analyze the origins, workings, and ramifications of social and cultural change in their own community.
- Students can evaluate the distinctive methods and perspectives of two or more social science disciplines.

Natural Sciences

Program Goal: Students who major in the natural sciences will become critical thinkers who are able to judge scientific arguments created by others and see relationships between science and societal problems.

Related Objectives:

- Students can apply scientific methodology.
- Students can evaluate the validity and limitations of theories and scientific claims in experimental results.
- Students can assess the relevance and application of science in everyday life.

Humanities

Program Goal: Students who major in the humanities will begin to recognize themselves as "knowers," be self-conscious about their participation in a particular culture, and cultivate their ability to discover new knowledge for themselves.

Related Objectives:

- Students can appraise the contributions of the humanities to the development of the political and cultural institutions of contemporary society.
- Students can compare and contrast the meaning of major texts from both Western and non-Western cultures.
- Students can apply the humanistic perspective to values, experiences, and meanings in their own lives.

Appendix 5-A:
Learning Objectives Worksheet

Assessment Period Covered _____ **Date Submitted** _____

Program Assessment Plan: Learning Objectives Worksheet

Linking goals and objectives

Fill in a separate table for each Learning Goal.

_____

(Academic Degree Program) **(Degree Level)**

_____ _____

Program Goal # **Program Goal Title**

Program objectives are brief, clear, focused statements of very specific *intended learning outcomes* students are expected to achieve in the program. It is highly recommended that several objectives link to each specific program goal and that they be stated in the form of an *action verb* combined with a description of a *very specific, observable activity.* The more precise is the definition of the intended learning objective, the easier it will be to assess how well it is being met.

Remember that the goal of program assessment is to assess the *program*, not the *students*; so for each objective you are going to have to design *associated measurable outcomes* for evaluating the success of the program in terms of the actual accomplishments of its graduates.

Learning Objectives: *Fill in a separate table for each Learning Goal.*
a. In row 1, briefly state the Learning Goal for which you are writing objectives.
b. In column 1 state the learning objectives associated with this goal as specific actions or behaviors *(i.e., verbs)* graduates should be able to demonstrate;
c. In column 2 specify the target level of performance or expertise that will be expected;
d. In column 3, consider what might constitute evidence that the objective is being met.

Goal:		
Objectives: What will students be able to do?	**Criterion ability level**: How well will they be able to do it?	**Looking toward evidence:** How will you know if they can actually do it?
Describe objective #1:	Target criterion #1: Target criterion #2: Target criterion #3:	Existing measures? Possible new measures?
Describe objective #2:	Target criteria 1, 2, 3, etc.	
Describe objective #...	Target criteria 1, 2, 3, etc.	

Chapter 6

Outcomes Design and Measurement

The Purpose of this Chapter

Successful assessment revolves around matching learning objectives against actual, observable learning outcomes. Each department must select and develop outcomes measures and assessment methods that will provide the most useful and relevant information for the purposes that faculty in the department have identified. Not all methods work for all departments or are appropriate to all reasons for assessing. However, there are some general guidelines for selecting assessment methods. (See Figure 6.1.)

Chapter 6 at a glance

- **Selecting Learning Outcomes and Assessment Methods**
- **Guidelines for Selecting Strategies and Methods**
- **Using Available Data**
- **Programs Assessment Tools**
- **Appendix 6-A: Learning outcomes worksheet**

Selecting Learning Outcomes and Assessment Methods

A key part of deciding on what assessment methods to use is knowing what you want to assess. In general, you will be assessing elements of student learning, student attitudes and perceptions, and/or department processes. The following table offers examples for each category. (See Table 6.1.)

Figure 6.1: Elements of a Program Assessment Plan

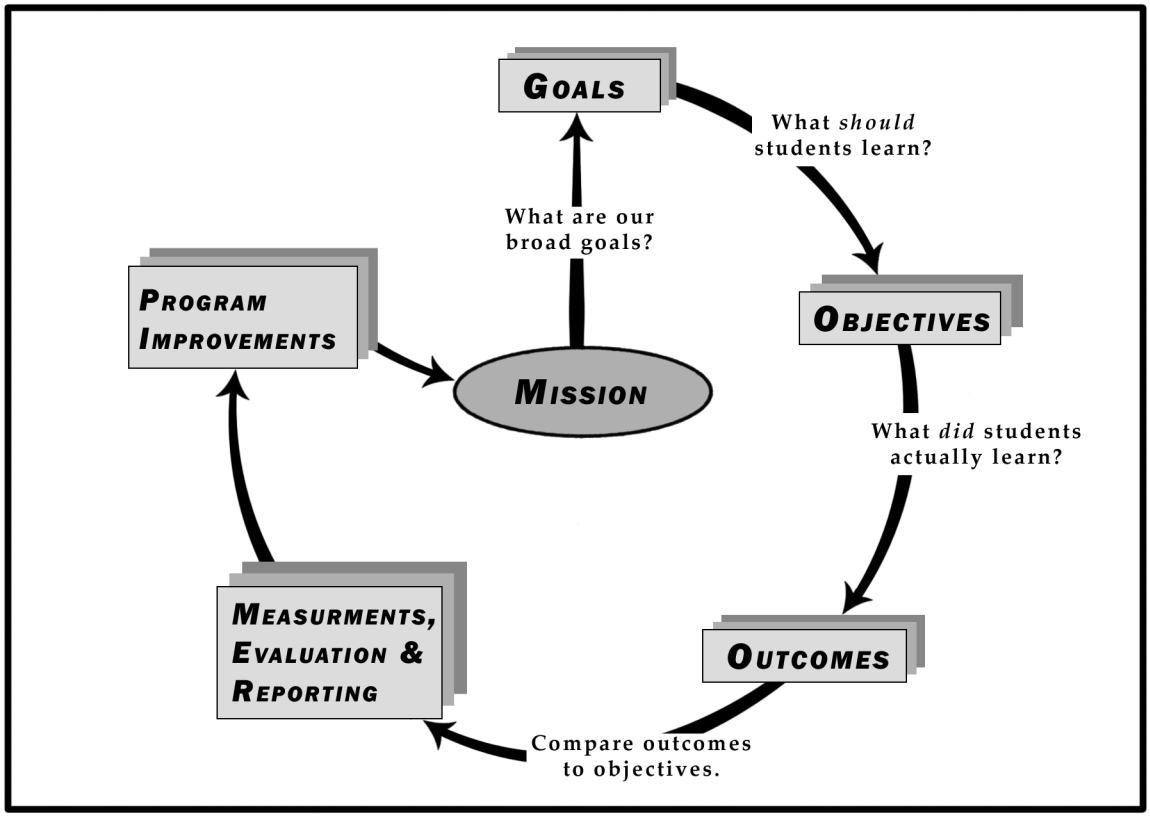


Table 6.1: Assessment elements*

Student Learning	Knowledge of the discipline (What do students know?) Skills (What can students do?) Values (What do students care about?)	
Student Attitudes and Perceptions about:	Advising Curriculum Mentoring Teaching Student services	Campus climate Co-curricular activities Campus facilities Course scheduling Preparations for work or graduate school
Departmental Processes: are students served efficiently and effectively when they need services such as:	Advising Counseling Tutoring Health Care Transcripts Financial aid	Graduation checks Library assistance Computer assistance New student orientations Ombudsman services

*Adapted from California State University, Bakersfield PACT Outcomes Assessment Handbook (1999).

Each program has its own unique goals, objectives, and outcomes. What is important is that every assessed outcome should provide evidence about the accomplishment of a particular program objective. Ideally, each objective will be assessed by multiple outcomes measures so that:

- each outcome is a measurable estimator of a particular program objective;
- outcomes selected are feasible measures given the resources available;
- outcomes link actual student learning to intended post-graduate abilities;
- outcomes accurately reflect ability and knowledge;
- outcomes answer questions that are important to you; and
- analysis highlights accomplishments and identifies areas requiring attention.

Guidelines for Selecting Strategies and Methods*

The evidence you collect depends on the questions you want to answer. In thinking about program assessment, four kinds of questions come to mind:

- Does the program meet or exceed certain standards?
- How does the program compare to others?
- Does the program do a good job at what it sets out to do?
- How can the program experience be improved?

Use multiple methods to assess each learning outcome. Many outcomes will be difficult to assess using only one measure. The advantages to using more than one method include:

- Multiple measures can assess different components of a complex task.
- No need to try to design a complicated all-purpose method.
- Greater accuracy and authority achieved when several methods of assessment produce similar findings.
- Provides opportunity to pursue further inquiry when methods contradict each other.

Include both direct and indirect measures of outcomes. Outcomes can include both direct measures of student knowledge and performance, and indirect measures of changes in student behavior, attitudes, or values. Direct methods

*Adapted from J. Volkwein, *Program evaluation and assessment: What's the question* (1996).

ask students to demonstrate their learning while indirect methods ask them to reflect on their learning. Direct methods include some objective tests, essays, presentations and classroom assignments. Indirect methods include surveys and interviews.

Include qualitative as well as quantitative measures. All assessment measures do not have to involve quantitative measurement. A combination of qualitative and quantitative methods can offer the most effective way to assess objectives and outcomes. Use an assessment method that matches your departmental culture. For example, in a department where qualitative inquiry is particularly valued, these types of methods should be incorporated into the plan. The data you collect must have meaning and value to those who will be asked to make changes based on the findings.

- Qualitative measures rely on "descriptions rather than numbers" (Palomba and Banta 1999).
  - Ethnographic studies
  - Exit interviews
  - Formal recitals
  - Participant observations
  - Writing samples
  - Open-ended questions on surveys and interviews
- Quantitative measures assess teaching and learning by collecting and analyzing numeric data using statistical techniques.
  - GPA
  - Grades
  - Primary trait analysis scores
  - Exam scores
  - Demographics
  - Forced-choice surveys
  - Standardized teaching evaluations

Acknowledge differences between units. Even programs within the same department may have different objectives specific to that program. Assessment measures that work well in one unit may not be as successful in another. The key is to design or identify assessment techniques that are specific to the objective that you are assessing.

Allow time for mistakes and for ongoing faculty input and discussion. Pilot projects are excellent ways to try out new techniques to see how well they assess the objective or outcome you are trying to measure. Encourage and set

time aside for faculty meetings to discuss assessment techniques and methods so that faculty both invest in the process and see how assessment is connected to the learning that goes on in their classrooms.

Tie the assessment methodology and instruments to the purpose of the assessment. Differences among units and the need to experiment are only two challenges you may face. You will also want to avoid the common error of designing or identifying an assessment technique, then fitting a purpose or objective to it.

Address the issues of participant attrition/retention, the actual amount of time involved, and cost and/or resources. Longitudinal studies are particularly vulnerable to these challenges. Any effective assessment plan will acknowledge these challenges and incorporate ways to address them within the development and implementation of the plan itself.

Choose assessment methods that allow you to assess the strengths and weaknesses of the program. Effective methods of assessment provide both positive and negative feedback. Finding out what is working well is only one goal of program assessment.

Be selective about what you choose to observe or measure. Assessment methods should be selected as carefully as you selected your departmental objectives and outcomes. As you work through this process, remember that:

- comprehensive does not mean "assessing everything";
- choosing assessable indicators of effectiveness is key;
- complex methods are not necessarily the best choice; and
- select a manageable number of methods that do not drain energy or resources.

Include passive as well as active methods of assessment. In addition to assessment methods that require you to interact directly with the student in an instructional or evaluative setting, assessment measures are also available that allow you to analyze assessment information without direct student contact or effort. You can accomplish this goal by analyzing:

- Student database information
- Attendance and course selection patterns
- Employer survey results
- Transcript analyses

Use capstone courses or senior assignments to directly assess student learning outcomes. Capstone courses and senior assignments promote faculty student interaction and scholarly inquiry; they allow demonstration of academic breadth; and they allow demonstration of ability to synthesize and integrate knowledge and experiences. If you use this method, however, care should be taken that:

- the course and its assignments are truly representative of requirements for the major;
- the course curriculum and assignment evaluation (or products) are consistent across sections; and
- students understand the value and importance of the capstone course or senior assignment and take this requirement seriously.

Enlist the assistance of assessment and testing specialists when you plan to create, adapt, or revise assessment instruments. Staff in the Office of Institutional Assessment, Research, and Testing (OIART) are happy to assist you in finding the appropriate resources. Areas in which you might want to seek assistance include:

- ensuring validity and reliability of test instruments;
- ensuring validity and reliability of qualitative methods;
- identifying appropriate assessment measurements for specific goals and tasks; and
- analyzing and interpreting quantitative and qualitative data collected as part of your assessment plan.

Use established accreditation criteria to design your assessment program. Established criteria will help you:

- respond more effectively to accreditation requirements; and
- build on the techniques and measures that you use as part of the accreditation process.

Using Available Data

Before designing learning outcomes for the objectives you have established, it is important to document how the current curriculum does or does not match the learning objectives you have identified and to inventory what assessment-related information/processes are already in place that you can draw upon. The most effective departmental assessment plan is one that is closely linked to the curriculum and uses available information and resources to the greatest degree possible.

Curriculum Mapping: Linking objectives to the curriculum*

Curriculum mapping makes it possible to identify where within the current curriculum each departmental learning objective is addressed. Below (in Table 6.2) is the framework for a matrix that might be helpful to you in identifying these links between intended outcomes and curricular processes. Along the top of the matrix, list all the courses and other requirements/options (internships, service learning, theses, etc.) for the major. Along the side, list your departmental objectives. Then indicate which of the objectives are addressed in each of the requirements/options. (You could also go into more detail and identify in which courses these objectives are Introduced, Emphasized, Utilized, and Assessed Comprehensively—as shown in the first row).

Curriculum mapping can also be used to link program outcomes to specific course assignments, or course outcomes to program outcomes, or any other configuration that helps you connect what you are currently doing to the program goals and objectives your department has identified as important for your majors.

Table 6.2: Assessment Matrix: Linking outcomes to curriculum*

KEY

I = Introduced
E = Emphasized
U = Utilized
A = Comprehensive assessment

	Course number				
Outcomes	115	351	370	495	Next course
Communicate effectively in writing and speech	I	E	U	A	
Apply discipline-specific theory and principles					
Next outcome…					
Next outcome…					

*Adapted from Diamond, R.M. Designing and assessing courses and curricula (1998).

Curriculum mapping provides an inventory of the links between your objectives and the curriculum. It can also serve as a catalyst for discussions about the proper sequencing of courses, the degree to which the curriculum really supports student learning, and the extent to which core outcomes are appropriately addressed within the curriculum. Discussing the links and identifying gaps between learning objectives and the curriculum may lead to a more general conversation about how processes within the major facilitate or hinder accomplishment of program objectives. You may find the following questions helpful in framing that discussion:

- What are the processes (e.g., course, activities, practica) under your control that contribute to meeting your objectives and outcomes?
- Are there processes that don't contribute to your objectives?
- Are there processes in which you should be engaged to attain your objectives?
- Are there resources not under the control of your program that might assist you in improving student learning (e.g., general education, related minor program, courses offered outside the major, library holdings, or other support services for students)?

Such a departmental conversation can also be very helpful in identifying the key program components particularly in need of assessment. (For example, are there key points in the curriculum where it is particularly important to gauge student progress?) Revisit these questions after collecting assessment information—the assessment data should further inform your initial responses.

Inventory of Current Assessment Practices

Instructors and departments are already assessing student learning through a variety of methods including grades, competency exams, capstone courses, etc., though you may not call them "assessment." Before designing a department assessment program, it is important to identify what assessment information you are already collecting and match these data sources to the learning objectives you defined in Chapter 5.

An *assessment matrix* is another useful way of linking objectives and outcomes to assessment tools, program requirements, or course curricula. The example below (Table 6.3) shows a set of departmental outcomes down the first column of the matrix and, along the first row, different sets of information currently available at the department level. In this matrix, the link between outcomes and data sources is identified in two ways—direct measures of the outcomes (D) and indirect measures (I).

Table 6.3: Assessment Matrix: Linking outcomes to data gathering tools

KEY
I = Indirect Methods
D = Direct Methods

Outcomes	Enrollment Trends	Senior Survey	Capstone Assignment	Focus Groups with Students
Apply scientific method			D	I
Work as professional in field		I	D	
Next outcome…				
Next outcome…				

What Should You Add?

Once you have identified assessment processes that are currently in place, you can pinpoint central questions that are not being answered by your currently available data sources. For example, does your department currently collect direct measures of the learning outcomes? (Unfortunately, for many departments, the information that best reflects learning outcomes is kept at the course level—department level analyses/synthesis of student learning is rarely done.)

Also, pay attention to points in the student experience where information collection is most easily accomplished. For example, courses required for the major (those courses that all students in the major take) are ideal opportunities to collect systematic information from students. Embedding assessment activities into the curriculum for these courses and making them "count" toward the student's final grade will facilitate successful data gathering.

Program Assessment Tools

Existing Information

In addition to institution-wide information provided by WWU's Office of Institutional Assessment, Research, and Testing (OIART) and the range of college-specific resources in each college, consider other data elements you currently have available to you but that you might not already use for program-level assessment purposes. These could include:

- existing exams, assignments, or projects common to a group of students in the major;
- writing samples completed for upper division writing intensive courses;
- senior assignments accomplished as a part of a capstone experience;
- materials describing current curricular practices (syllabi, exams, textbooks);
- trends in student performance in key courses; tracking of course grades or exam performance over time; and
- student transcripts.

Think about the ways in which you can use one source of information for a variety of individual student and program-level purposes. Multiple usefulness will improve the chances that the assessment activity will become embedded into the structure of your program, requiring less start up work down the road.

Grades

When the issue of assessment is raised, faculty members often say, "I already do assessment. I grade student assignments." Grades are indeed one measure of student achievement. There are significant drawbacks, however, to using grades to meet assessment's primary goal—to improve teaching and learning.

Traditional grading which offers one "score" to represent the sum total of a student's performance across a host of outcomes does not provide the detailed and specific information necessary for linking student performance to specific program objectives and, ultimately, to improvement.

New Information

In addition to using data that are already available, your department can collect new student learning data specific to your program and designed to address departmental objectives and outcomes. These data sources might include information collected through:

- student internships or performance;
- capstone courses for graduating seniors (summary course for major);
- portfolio analysis (collection of student work);
- standardized tests (nationally-constructed or department-based);
- surveys, interviews, or focus groups of students at entrance and exit, alumni, faculty, employers or related to course content; and
- performance measures (activities such as writing an essay, making a presentation, completing a complex problem-solving exercise).

Appendix 6-A:
Learning Outcomes Worksheet

Assessment Period Covered _____ **Date Submitted** _____

Program Assessment Plan: Learning Outcomes Worksheet

Linking objectives and outcomes

_____

(Academic Degree Program) **(Degree Level)**

_____ _____

Program Goal # **Program Goal Title**

Program learning outcomes are any *observable evidence* of actual student learning, and can include both direct measures of student knowledge and performance, and indirect measures of changes in student behavior, attitudes, or values. Each outcome must provide evidence about the accomplishment of a particular program objective. Ideally, each objective will be assessed by multiple outcomes measures in such a way that:

- Each outcome is an estimator of a particular program objective;
- Outcomes measures are feasible given the resources available;
- Outcomes link actual student learning to the most important intended post-graduate abilities;
- Outcomes accurately reflect ability and knowledge;
- Outcomes can be direct or indirect measures.

Learning Outcomes Worksheet (next page)**:** *Fill in a separate sheet for each Learning Objective.*

a. In row 1, briefly state the learning objective *(one objective per table)*;
b. In column 1, enter each target criterion from the objectives worksheet;
c. In column 2 specify level of performance actually measured or observed;
d. In column 3, compare observed outcomes with intended outcomes;
d. In column 4, enter assessment results and applications.

Objective: *Enter brief description*			
Target criteria: *Intended* outcomes and specific abilities	**Evidence**: *Observed* outcomes performance	**Analysis:** Compare intended and observed outcomes	**Results:** What you decided and what you did about it
Target criterion #1:	Outcome #1 Outcome #2		
Target criterion #2:	Outcome 1, 2, 3, etc.		
Target criterion #3:	Outcome 1, 2, 3, etc.		

Objective:			
Target criteria: *Intended* outcomes and specific abilities	**Evidence**: *Observed* outcomes performance	**Analysis:** Compare intended and observed outcomes	**Results:** What you decided and what you did about it
Target criterion #1:	Outcome #1 Outcome #2		
Target criterion #2:	Outcome 1, 2, 3, etc.		
Target criterion #3:	Outcome 1, 2, 3, etc.		

Chapter 7

Assessment Strategies and Methods

The Purpose of this Chapter

The effectiveness of a program assessment plan depends directly on how well the intended learning objectives are matched to the measurement of corresponding observable learning outcomes. This chapter describes strategies for identifying appropriate student learning outcomes, outlines practical assessment tools and strategies, and offers guidelines for selecting assessment methods.

Chapter 7 at a glance

- **Challenges to Assessment Design**
- **Assessment Methods Review**
- **Linking Outcomes, Methods, and Results**
- **Appendix 7-A: Assessment Strategy Toolbox**

Challenges to Assessment Design

As departments work to identify and design assessment methods to measure objective and outcome attainment in the program, a variety of challenges and complications will emerge:

Acknowledge differences between units. Even programs within the same department may have different objectives specific to that program. Assessment measures that work well in one unit may not be as successful

in another. The key is to design or identify assessment techniques that are specific to the objective that you are assessing.

Allow time for mistakes and for ongoing faculty input and discussion. Pilot projects are excellent ways to try out new techniques to see how well they assess the objective or outcome you are trying to measure. Encourage and set time aside for faculty meetings to discuss assessment techniques and methods so that faculty both invest in the process and see how assessment is connected to the learning that goes on in their classrooms.

Tie the assessment methodology and instruments to the purpose of the assessment. Differences among units and the need to experiment are only two challenges you may face. You will also want to avoid the common error of designing or identifying an assessment technique, then fitting a purpose or objective to it; it should be the other way around!

Address the issues of participant attrition/retention, the actual amount of time involved, and cost and/or resources. Longitudinal studies are particularly vulnerable to these challenges. Any effective assessment plan will acknowledge these challenges and incorporate ways to address them within the development and implementation of the plan itself.

Assessment Methods Review*

Assessment Method Selection Criteria Matrix

As you consider which methods might be most appropriate for your departmental culture and your assessment questions, it might be helpful to use the Assessment Method Selection Criteria Matrix. (See Table 7.1 on next page.) This matrix allows you to evaluate the appropriateness of the methods you are considering based on criteria of importance to the department. Note that in this example, the criteria of importance to the department are listed in the first column and the methods under consideration are along the first row. Use checks, pluses and minuses to indicate the degree to which the method is an effective way to measure the central criteria. At the end of this chapter you will find the Assessment Strategies Toolbox (Appendix 7-A), which is a glossary of many useful assessment methods.

*The following examples are adapted from University System of Georgia: Task Force on Assessing Major Area Outcomes, Assessing Degree Program Effectiveness (1992); and Western Carolina University, Assessment Resources Guide (1999).

Table 7.1: Assessment method selection criteria matrix*

KEY

√ = Adequate tool
\+ = Valuable tool
\- = Not an effective tool for criterion

Criteria of value to department	Measures				
	Standardized tests	Performances	Portfolios	Surveys	Class assignments
Curriculum match	-	+	+	√	+
Low data gathering costs	-	-	√	+	+
Reasonable planning time	-	-	-	+	+
Reasonable analysis time/costs	+	-	-	√	√
Value to student learning	√	+	+	-	√

*Adapted from Paomba, C.A., & Tanta, T.W., Assessment essentials (1999).

Learning Outcomes by Measures Matrix

In the next example, the learning outcomes under consideration are listed in the first column and assessment methods are outlined along the top. Completing this matrix will help you link learning outcomes to specific measures that can be used to assess these outcomes. Think about whether each measure is direct or indirect and note that in the appropriate column (in this example, "D" and "I"). You can also rate the extent to which each measure appropriately represents the outcome, using pluses and minuses or other indicators with meaning for you. (See Table 7.2 below.)

Table 7.2: Learning outcomes by measures matrix*

KEY
I = Indirect
D = Direct

Learning Outcomes	Measures			
	Term paper tests	Questionnaires	Speech	Standardized Exams
Write at a scholarly level	D/+			D/+
Adapt verbal messages to a specific audience			D/+	
Value lifelong learning		I/+		

*Adapted from Paomba, C.A., & Tanta, T.W., Assessment essentials (1999).

Table 7.3, below, identifies various types of assessment data, methods for collecting these data, and the sort of information each method provides.

Table 7.3: Examples of assessment approaches available*

Data	Assessment tool	Who or what is analyzed?	What can be assessed?
Self-reports	Classroom assessment Focus groups Interviews Phone surveys or interviews Reflective essays Surveys (local or standardized)	Alumni Employers Enrolled students Faculty Graduating students Off-campus supervisors Parents Staff	Perceptions about: Campus climate Evaluation processes Perceived learning Educational outcomes Attitudes Values
Achievement tests	Test score analysis Content analysis Scoring rubrics	Competitions Embedded questions on exams Locally-developed exams Oral thesis defense Orals exams, recitals Standardized tests	Mastery and knowledge of principles, skills Value-added
Observations	Case Studies Observations	Campus events (sports, theater) Classes Club meetings Faculty offices Fieldwork sites Student services offices	Attitudes Campus climate Interactions Processes Services Student involvement Student learning
Student academic work	Content analysis Scoring rubrics	Capstone course products Homework papers Portfolios Presentations Performances Publications Research reports Term papers, Theses Videotapes	Mastery and knowledge of principles, skills Values Processes Value-added
Campus documents	Course x program objectives matrix Course assignment x program objectives matrix Analysis of forms	Administrative units Departments Programs Student services offices Course syllabi, etc. Student transcripts	Accuracy Cohesion/consistency Efficiency Structure for promoting Objectives Processes

*Adapted from California State University, Bakersfield. PACT Outcomes Assessment Handbook (1999).

Linking Outcomes, Methods, and Results

When you have identified the outcomes you will assess, have decided on the methods you will use to collect the data, and have tried to anticipate the results you might see, it is important to link these components together to most effectively articulate and operationalize your assessment plan. The following examples (Tables 7.4 and 7.5) can help you outline assessment goals and methodology, and mark out a timeline for the plan. Remember that for program improvement purposes, all data do not have to be collected every year, since there will probably not be much change from year to year unless you have made substantial changes in your delivery system or curriculum.

Table 7.4: Example of linking outcomes, methods, and results*

Program objective	**Outcome criteria** (What will you assess?)	**Assessment measures** (How will you assess it?)	**Population** (Whom will you assess?)	**Reporting/Use**
Cognitive knowledge	Students will be able to demonstrate mastery of basic knowledge relevant to the field	Several standardized test items on existing exams	All students	• Revise curriculum and/or instruction as determined
Student perceptions	Students understand goals and objectives of program	10-item in-class survey	Mastery and knowledge of principles, skills Value-added	• Departmental discussion/ review of results • Revise program instruction/ goals as determined
Faculty perceptions	Faculty agree that goals and objectives of program are being met.	Focused dialogue	Department faculty	• Departmental discussion/ review of results • Revise program instruction/ goals as determined

*Adapted from California State University, Bakersfield. PACT Outcomes Assessment Handbook (1999).

Table 7.5: Sample department assessment timeline

	Fall quarter (beginning)	Fall quarter (end)	Winter quarter	Spring quarter
Year One				
Preparation	Departmental discussions regarding objectives & outcomes		Complete objectives and outcomes statements Match objectives and outcomes to current curriculum	Develop assessment strategies and 3-year plan
Year Two				
Data collection	-	Frosh/Soph focus groups Course evaluations	-	Capstone assignments Course evaluations
Analysis	-	-	Focus group analysis	Department scores capstone
Reporting/Use	-	-	-	-
Year Three				
Data collection	-	Course evaluations	-	Capstone assignments Senior survey Course evaluations
Analysis	-	-	-	Department scores capstone
Reporting/Use	Departmental discussions and review of results	-	Revise assessment plan	Complete *Program Assessment Plan Report* (Summer quarter also an option.)
Year Four				
Data Collection	Course evaluations	-	Capstone assignments	Senior survey Course evaluations
Analysis	-	-	-	-
Reporting/Use	*Program Assessment Plan Report* due	-	-	-

Appendix 7-A:
Assessment Strategies Toolbox

Alumni Surveys

Description: Surveying department alumni can provide a wide variety of information about program satisfaction, how well students are prepared for their careers, what types of jobs or graduate degrees majors have gone on to obtain, starting salaries for graduates, and the skills that are needed to succeed in the job market or in graduate study. These surveys provide the opportunity to collect data on which areas of the program should be changed, altered, improved or expanded.

Strengths and Weaknesses: Alumni surveying is usually a relatively inexpensive way to collect program data from individuals who have a vested interest in helping you improve your program as well as offering the opportunity for improving and continuing department relationships with program graduates. However, without an easily accessible and up-to-date directory of alumni, they can be difficult to locate. It also takes time to develop an effective survey and ensure an acceptable response rate.*

Additional Resources:

Converse, J. M. & Pressler, S. (1986). *Survey questions: Handcrafting the standardized questionnaire*. Beverly Hills: SAGE Publications.

Dillman, D. (1978). *Mail and telephone surveys: The total design method*. New York: Wiley-Interscience Publication.

Dyke, J. V. & Williams, G. W. (1996). Involving graduates and employers in assessment of a technology program. In Banta, T. W., Lund, J. P., Black, K. E., & Oblander, F. W. (Eds.). *Assessment in practice*, pp. 99-101. San Francisco: Jossey-Bass Publishers.

Ewell, P. (1983). *Student outcomes questionnaires: An implementation handbook*. New York, NY: National Center for Higher Education Management Systems and the College Board.

Labaw, P. J. (1980). *Advanced questionnaire design*. Cambridge, MA: Abt Books.
McKenna, B. Surveying your alumni: Guideline and 22 sample questionnaires. Washington, DC: Council for advancement and support of education.

*Adapted from Palombo et al. Ball State University, Assessment Workbook (2000).

Culminating Assignments*

Description: Culminating assignments offer students the opportunity to put together the knowledge and skills they have acquired in the major, provide a final common experience for majors, and offer faculty a way to assess student achievement across a number of discipline-specific areas. Culminating assignments are generally designed for seniors to complete in the last term before graduation. Their purpose is to integrate knowledge, concepts and skills that students are expected to have acquired in the program during the course of their study. This is obviously a curricular structure as well as an assessment technique and may consist of a single culminating course (a "capstone" course) or a small group of courses designed to measure competencies of students who are completing the program. A senior assignment is a final culminating project for graduating seniors such as a performance portfolio or a thesis that has the same integrative purpose as the capstone course.

Strengths and Weaknesses: Many colleges and universities are using capstone courses to collect data on student learning in a specific major or in general education or core requirement programs. Putting together an effective and comprehensive capstone course can be a challenge, however, particularly for those programs that mesh hands-on technical skills with less easily measurable learning outcomes. Also, there is a great deal of start-up time to developing appropriate and systematic methods for assessing these or other culminating experiences. See Content Analysis and Primary Trait Analysis below for further information.

Additional Resources:

Southern Illinois University website: *www.siue.edu/~deder/assess*

Julian, F. D. (1996). The capstone course as an outcomes test for majors. Banta, T. W., Lund, J. P., Black, K. E., & Oblander, F. W. (Eds.). In *Assessment in practice*, pp. 79-81. San Francisco: Jossey-Bass Publishers.

Upcraft, M. L., Gardner, J. N., & Associates. (1989). *The freshman year experience: Helping students survive and succeed in college*. San Francisco: Jossey-Bass Publishers.

*Adapted from the University of Wisconsin, Madison, Outcomes Assessment Manual (2000).

Content Analysis*

Description: Content analysis is a technique that looks at a group of students, such as majors in a program or department, and assesses samples of written work that are produced by this group. This assessment method uses outcomes identified as important prior to the analysis or as the analysis proceeds. For example, you might want to determine how well majors in your department write. To use content analysis to assess their writing skills, you will need a representative sample of the writing. Analysis may look at what students actually write or at the underlying meaning of their writing. Results are generally presented in written form giving averages and examples of specific categories of outcomes (e.g., spelling errors). Primary trait analysis, which identifies important characteristics of specific assignments and assigns levels of competency to each trait, can be particularly effective in identifying student learning.

Strengths and Weaknesses: Content analysis allows you to assess learning outcomes over a period of time and can be based on products that were not created for program assessment purposes. Because writing samples can be re-examined, content analysis also makes it easier to repeat portions of the study and provides an unobtrusive way to assess student learning. However, accuracy of the assessment is limited to the skill of the person(s) doing the analysis. Data is also limited by the set of written work and may not be relevant to technical skills valued by a particular field or major that involve hands-on performance. Pre-testing coding schemes, using more than one analyst per document, and concrete materials and coding schemes can improve the reliability of this technique.

Additional Resources:

Babbie, E. (1995). *The Practice of Social Research* (7th ed.). Belmont, CA: Wadsworth.

Walvoord, B. E. & Anderson, V. J. (1998). *Effective grading: A tool for learning and assessment*. San Francisco: Jossey-Bass.

*Adapted from the California State University Bakersfield, PACT Outcomes Assessment Handbook (1999).

Course-embedded Assessment*

Description: Course-embedded assessment refers to methods of assessing student learning within the classroom environment, using course objectives, outcomes, and content to gauge the extent of the learning that is taking place. This technique generates information about what and how students are learning within the program and classroom environment, using existing information that instructors routinely collect (test performance, short answer performance, quizzes, essays, etc.) or through assessment instruments introduced into a course specifically for the purpose of measuring student learning.

Strengths and Weaknesses: This method of assessment is often effective and easy to use because it builds on the curricular structure of the course and often does not require additional time for data collection since the data comes from existing assignments and course requirements. Course-embedded assessment does, however, take some preparation and analysis time and, while well documented for improving individual courses, there is less documentation on its value for program assessment.

Additional Resources:

Angelo, T. A. & Cross, K. P. (1993). *Classroom assessment techniques: A Handbook for college teachers* (2nd. Ed.). San Francisco: Jossey-Bass.

Classroom Assessment Techniques. (1999). Center for Excellence in Learning & Teaching. *www.personal.psu.edu/celt/CATs.html*

Palomba, C. A., & Banta, T. W. (1999). Assessment essentials. San Francisco: Jossey-Bass.

Walvoord, B. E. & Anderson, V. J. (1998). *Effective grading: A tool for learningand assessment*. San Francisco: Jossey-Bass.

*Adapted from the University of Wisconsin, Madison, Outcomes Assessment Manual (2000), and the CaliforniaState University, Bakersfield, PACT Outcomes Assessment Handbook (1999).

Curriculum Analysis*

Description: Curriculum analysis involves a systematic review of course syllabi, textbooks, exams, and other materials to help you clarify learning outcomes, explore differences and similarities between course sections, and/or assess the effectiveness of instructional materials. It offers a way to document which courses will cover which outcomes and helps in sequencing courses within a program. (Also see Matrices.)

Strengths and Weaknesses: Using curriculum analysis as an assessment tool can be a valuable way of tracking what is being taught where. It can provide assurance that specific learning objectives and outcomes are being covered in the program and can pinpoint areas where additional coverage is needed. This method, however, can be time-consuming, particularly in large departments with many courses and different instructors, and there may be little consistency between how learning outcomes are addressed in one course and how they are taught in another.

Additional Resources:

Bers, T., Davis, D., & Taylor, W. (1996, Nov.-Dec.). Syllabus analysis: What are you teaching and telling your students? *Assessment Update (8)*, 6, pp. 1-2, 14-15.

Diamond, R. M. (1998). *Designing and assessing courses and curricula*. San Francisco: Jossey- Bass.

Ewell, P. T. (1997). Identifying indicators of curricular quality. In *Handbook of the undergraduate curriculum*, J. G. Gaff & J. L. Ratcliff (Eds.). San Francisco: Jossey Bass, pp. 608-627.

*Adapted from the Ball State University, Assessment Workbook, 1999 and The University of Wisconsin, Madison, Outcomes Assessment Manual I (2000).

Delphi Technique

Description: The Delphi technique is used to achieve consensus among differing points of view. In its original form, a team of experts, who never actually meet, are asked to comment on a particular issue or problem. Each member's response is reviewed and a consensus determined. Any member whose response falls outside of the consensus is asked to either defend or rethink the response. The anonymity provided by this technique offers more junior members of the team an equal chance to get their ideas out, as well as permits a challenge to the ideas of senior members that might never take place in an open forum. More recently, the Delphi technique has been modified so that teams of individuals are brought together to discuss an issue or problem face-to-face and reaching a consensus at the meeting. For instance, a team of faculty members might meet to review possible goals and objectives for their department in an effort to develop a set of goals and objectives on which they can agree.

Strengths and Weaknesses: The Delphi technique can be useful in bringing together diverse opinions in a discussion forum. This technique fails, however, when the facilitator lacks objectivity or when the participants feel unsafe or insecure in voicing their real opinions. For instance, a faculty member discussing intended goals and objectives might not be comfortable in disagreeing with the department head. For this technique to succeed, care must be taken to appoint an impartial facilitator and to convince participants that differing opinions are welcome. Returning to the original design of this technique, with an anonymous team who never meet, might ensure more honest and open input.

Additional Resources:

Armstrong, M. A. (1989). The Delphi technique. Princeton Economic Institute. *www.pei-intl.com/Research/MARKETS/DELPHI.HTM*.

Cline, Alan. (2000). Prioritization Process using Delphi Technique. *www.carolla.com/wp-delph.htm*.

Stuter, L. M. (1996). The Delphi technique: What is it? *www.icehouse.net/lmstuter/page0019.htm*.

Stuter, L. M. (November 1998). Using the Delphi technique to achieve consensus. *Education Reporter (54)*.

Employer Surveys*

Description: Employer surveys help the department determine if their graduates have the necessary job skills and if there are other skills that employers particularly value that graduates are not acquiring in the program. This type of assessment method can provide information about the curriculum, programs and student outcomes that other methods cannot: on-the-job, field-specific information about the application and value of the skills that the program offers.

Strengths and Weaknesses: Employer surveys provide external data that cannot be replicated on campus and can help faculty and students identify the relevance of educational programs, although, as is true in any survey, ambiguous, poorly-worded questions will generate problematic data. Additionally, though data collected this way may provide valuable information on current opinion, responses may not provide enough detail to make decisions about specific changes in the curriculum or program. Also, it is sometimes difficult to determine who should be surveyed, and obtaining an acceptable response rate can be cost and time intensive.

Additional Resources:

Converse, J. M. & Presser, S. (1986). *Survey questions: Handcrafting the standardized questionnaire*. Newbury Park: SAGE Publications.

Dyke, J. V., & Williams, G. W. (1996). Involving graduates and employers in assessment of a technology program. In Banta. T. W., Lund, J. P., Black, K. E., & Oblander, F. W. (eds.) *Assessment in Practice*. San Francisco: Jossey-Bass.

Lead Center, University of Wisconsin, Madison. (1998). Program assessment tool kit: A guide to conducting interviews and surveys.

*Adapted from the Ball State University, Assessment Workbook (1999), the California State University,Bakersfield, PACT Outcomes Assessment Handbook (1999), and the University of Wisconsin, Madison, Outcomes Assessment Manual I (2000).

Focus Groups*

Description: Focus groups are structured discussions among homogeneous groups of 6-10 individuals who respond to specific open-ended questions designed to collect data about the beliefs, attitudes and experiences of those in the group. This is a form of group interview where a facilitator raises the topics for discussion and collects data on the results. Emphasis is on insights and ideas.

Strengths and Weaknesses: Focus groups can provide a wide variety of data about participants' experiences, attitudes, views and suggestions, and results can be easily understood and used. These groups allow a small number of individuals to discuss a specific topic in detail, in a non-threatening environment. Data collected in this way, however, is not useful for quantitative results, and qualitative data can be time-consuming and difficult to analyze because of the large amount of non-standardized information. Ultimately, the success of this method depends on a skilled, unbiased moderator and appropriate groups of participants.

Additional Resources:

Lead Center, University of Wisconsin, Madison. (1998). Program assessment tool kit: A guide to conducting interviews and surveys.

Morgan, D. L. (1988). *Focus groups as qualitative research*. Newbury Park: SAGE Publications.

Morgan, D. L., & Krueger, R. A. (1997). *The focus group kit (Vols. 1-6)*. Thousand Oaks, CA: SAGE Publications.

*Adapted from Palombo et al. Ball State University, Assessment Workbook (2000); and the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999).

Institutional Data*

Description: A variety of departmental and student data are routinely collected at the university level. These data can enhance and elaborate on data you collect in the department. Institutional data can tell you whether the program is growing, what the grade point average is for majors in the program, and what the retention rate is for your students.

Strengths and Weaknesses: Institutional data are generally easily accessible and readily available. Student and departmental data are collected on a systematic and cyclical schedule that can offer you both current and longitudinal information. On the other hand, these data sets are generally large and may be difficult to sort through, particularly for those individuals who are not used to working through large databases. The data may be less useful to specific departments or programs because the information collected is very often general (age, gender, race, etc.) and may not directly relate to program goals and objectives.

Additional Resources:

Western Washington University: *http://www.wwu.edu/depts/assess/*

Western Washington University: *https://west.wwu.edu/admcs/process/forms/ADMCS/Data_Warehouse_Request2.aspx*

Western Washington University: *http://west.wwu.edu/institutional_research/display.aspx*

*Adapted from the Ball State University, Assessment Workbook (1999).

Matrices*

Description: At its most basic, a matrix is a grid of rows and columns used to organize information. For assessment purposes, a matrix can be used to summarize the relationship between program outcomes and course syllabus outcomes, course assignments, or courses in a program or department. Matrices can be used for curriculum review, to select assessment criteria or for test planning. A matrix can also be used to compare program objectives to employer expectations.

Strengths and Weaknesses: Using a matrix can give you a good overview of how course components and curriculum link to program outcomes, can help you tailor assignments to program outcomes, and can lead to useful discussions that in turn lead to meaningful changes in courses or curricula. However, because a matrix can offer a clear picture of how program components are interconnected and can reveal where they are not, acknowledging and responding to discrepancies may involve extensive discussion, flexibility and willingness to change.

Additional Resource:

Diamond, R.M. (1998). *Designing and assessing courses and curricula*. San Franciso: Jossey-Bass.

Palomba, C. A., & Banta, T. W. (1999). *Assessment essentials*. San Francisco: Jossey-Bass.

*Adapted from the Ball State University, Assessment Workbook, revised April (2000), and the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999).

Observations*

Description: Observation as a method of assessment is an unobtrusive tool that can yield significant information about how and why students learn. You may choose to observe any relevant interactive event, such as classes, club meetings, or social gatherings. This tool is generally used when you are interested in how students study, are concerned about the effectiveness of study sessions or other supplementary activities, or when you are focusing on the relationship between out-of-class behavior and in-class performance. Data collected through observation can be correlated with test scores and/or course grades to help provide further insight into student learning.

Strengths and Weaknesses: Data collected through observation can yield important insight into student behavior that may be difficult to gauge through other assessment methods. This method is typically designed to describe findings within a particular context and often allows for interaction between the researcher and students that can add depth to the information collected. It is especially useful for studying subtleties of attitudes and behavior. Observed data, however, is not precise and cannot be generalized to larger populations. Conclusions may be suggestive rather than definitive, and others may feel that this method provides less reliable data than other collection methods.

Additional Resources:

Babbie, E. (1995). *The practice of social research* (7th ed.). Belmont, CA: Wadsworth.

Palomba, C. A., & Banta, T. W. (1999). *Assessment essentials*. San Francisco: Jossey-Bass.

*Adapted from the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999).

Performance Assessment*

Description: Performance assessment uses student activities to assess skills and knowledge. These activities include class assignments, auditions, recitals, projects, presentations, and similar tasks. At its most effective, performance assessment is linked to the curriculum and uses real samples of student work. This type of assessment generally requires students to use critical thinking and problem-solving skills within a context relevant to their field or major. The performance is rated by faculty or qualified observers and assessment data collected. The student receives feedback on the performance and evaluation.

Strengths and Weaknesses: Performance assessment can yield valuable insight into student learning and provides students with comprehensive information on improving their skills. Communication between faculty and students is often strengthened, and the opportunity for students' self-assessment is increased. Performance assessment, like all assessment methods, is based on clear statements about learning outcomes. This type of assessment is also labor-intensive, is sometimes separate from the daily routine of faculty and student, and may be seen as an intrusion or an additional burden. Articulating the skills that will be examined and specifying the criteria for evaluation may be both time-consuming and difficult.

Additional Resources:

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers*. San Francisco: Jossey-Bass.

Palomba, C. A., & Banta, T. W. (1999). *Assessment essentials*. San Francisco: Jossey-Bass.

*Adapted from the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999).

Portfolio Evaluations*

Description: Portfolios are collections of student work over time that are used to demonstrate student growth and achievement in identified areas. Portfolios can offer information about student learning, assess learning in general education and the major, and evaluate targeted areas of instruction and learning. A portfolio may contain all or some of the following: research papers, process reports, tests and exams, case studies, audiotapes, videotapes, personal essays, journals, self-evaluations and computational exercises. Portfolios are often useful and sometimes required for certification, licensure, or external accreditation reviews.

Strengths and Weaknesses: Portfolios not only demonstrate learning over time, but can be valuable resources when students apply to graduate school or for jobs. Portfolios also encourage students to take greater responsibility for their work and open lines of discussion between faculty and students and among faculty involved in the evaluation process. Portfolios are, however, costly and time-consuming and require extended effort on the part of both students and faculty. Also, because portfolios contain multiple samples of student work, they are difficult to assess and to store and may, in some contexts, require too much time and effort from students and faculty alike.

Additional Resources:

Belanoff, P. & Belanoff, D. (1991). *Portfolios: Process and product*. Portsmouth, NH: Boynton/Cook Publishers.

The Washington State University Writing Portfolio (2001). *wsu.edu/~bcondon/portpage.html*.

Forrest, A. (1990). *Time will tell: Portfolio-assisted assessment of general education*. Washington, DC: AAHE Assessment Forum.

Western Washington University: *http://it.wce.wwu.edu/carney/Portfolio/eport.html*

*Adapted from the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999), and the University of Wisconsin, Madison, Outcomes Assessment Manual I (2000).

Pre-test/Post-test Evaluation

Description: This method of assessment uses locally developed and administered tests and exams at the beginning and end of a course or program in order to monitor student progress and learning across pre-defined periods of time. Results can be used to identify areas of skill deficiency and to track improvement within the assigned time frame. Tests used for assessment purposes are designed to collect data that can be used along with other institutional data to describe student achievement.

Strengths and Weaknesses: Pre-test/post-test evaluations can be an effective way to collect information on students when they enter and leave a particular program or course, and provide assessment data over a period of time. They can sample student knowledge quickly and allow comparisons between different students groups, or the same group over time. They do, however, require additional time to develop and administer and can pose problems for data collection and storage. Care should be taken to ensure that the tests measure what they are intended to measure over time (and that they fit with program learning outcomes) and that there is consistency in test items, administration and application of scoring standards.

Additional Resources:

Berk, R. (Ed.). (1986). *Performance assessment: Methods and applications*. Baltimore, MD. The Johns Hopkins University Press.

Gronlund, N. (1991). *Measurement and evaluation in teaching* (4th ed.). New York: MacMillan.

Palomba, C. A., & Banta, T. W. (1999). *Assessment essentials*. San Francisco: Jossey-Bass.

*Adapted from the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999), and the University of Wisconsin, Madison, Outcomes Assessment Manual I (2000).

Reflective Essays

Description: Reflective essays may be used as an assessment tool to gauge how well students are understanding class content and issues. They are generally short essays (5 to 10 minutes) on topics related to the course curriculum and may be given as in-class assignments or homework. Reflective essays may be voluntary or required, open-ended questions on surveys required in student portfolios or capstone composition courses.

Strengths and Weaknesses: Reflective essays as an assessment tool can offer data on student opinions and perspectives at a particular moment in a class. Essays will provide a wide array of different responses and might lead to increased discussion among faculty and students. On the other hand, poorly worded, ambiguous questions will yield little, and opinions and perceptions may vary in accuracy. Analysis of essay content also takes additional time and expertise.

Additional Resource:

Banta, T. W., Lund, J. P., Black, K. E. & Oblander, F. W. (1996). *Assessment in practice: Putting principles to work on college campuses*. San Francisco: Jossey-Bass.

Scoring Rubrics*

Description: Scoring rubrics are typically grids that outline identified criteria for successfully completing an assignment or task and establish levels for meeting these criteria. Rubrics can be used to score everything from essays to performances. Holistic rubrics produce a global score for a product or performance. Primary trait analysis uses separate scoring of individual characteristics or criteria of the product or performance.

Strengths and Weaknesses: Scoring rubrics allow the instructor to efficiently and consistently look at complex products or performances and to define precise outcomes and expectations. They also are easily shared with students. However, developing an effective rubric can be time-consuming and often requires ongoing edits to fine tune criteria and anticipated outcomes. Training raters to use the scoring rubrics in a consistent manner also involves a significant time commitment.

Additional Resources:

Southern Illinois University: *www.siue.edu/~deder/assess*

Walvoord, B. E., & Anderson, V. J. (1998). *Effective grading*. San Francisco: Jossey-Bass.

White, E. M. (1994). *Teaching and assessing writing*. San Francisco: Jossey-Bass.

*Adapted from the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999).

Standardized and Local Test Instruments

Description: Selecting a standardized instrument (developed outside the institution for application to a wide group of students using national/regional norms and standards) or a locally-developed assessment tool (created within the institution, program or department for internal use only) depends on specific needs and available resources. Knowing what you want to measure is key to successful selection of standardized instruments, as is administering the assessment to a representative sample in order to develop local norms and standards. Locally-developed instruments can be tailored to measure specific performance expectations for a course or group of students.

Strengths and Weaknesses: Locally-developed instruments are directly linked to local curriculum and can identify student performance on a set of locally important criteria. Putting together a local tool, however, is time-consuming as is development of a scoring key/method. There is also no comparison group and performance cannot be compared to state or national norms. Standardized tests are immediately available for administration and, therefore, are less expensive to develop than creating local tests from scratch. Changes in performance can be tracked and compared to norm groups and subjectivity/misinterpretation is reduced. However, standardized measures may not link to local curricula and purchasing the tests can be expensive. Test scores may also not contain enough locally-relevant information to be useful.

Additional Resources:

Jacobs, L. C., & Chase, C. (1992). *Developing and using tests effectively: A guide for faculty*. San Francisco: Jossey Bass.

Morris, L. L., Fitz-Gibbons, C. T., Lindheim, E. (1987). *How to measure performance and use tests*. Beverly Hills: SAGE Publications.

National Post-Secondary Education Cooperative (NPEC) Assessment Tests Review. *www.nces.gov/npec/evaltests.*

Ory, J., & Ryan, K. E. (1993). *Tips for improving testing and grading*. Beverly Hills: SAGE Publications.

*Adapted from the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999), and the University of Wisconsin, Madison, Outcomes Assessment Manual I (2000).

Student Surveys and Exit Interviews*

Description: Surveys and interviews ask students to respond to a series of questions or statements about their academic experience. Questions can be both open-ended (respondents create answers) and close-ended (respondents answer from a list of simple and unambiguous responses). Surveys and interviews can be written or oral (face-to-face) or phone. Types of surveys include in-class questionnaires, mail questionnaires, telephone questionnaires, and interviews. Interviews include structured, in-person interviews and focus group interviews.

Strengths and Weaknesses: Surveys can be relatively inexpensive and easy to administer, can reach participants over a wide area, and are best suited for short and non-sensitive topics. They can give you a sense of what is happening at a given moment in time and can be used to track opinions. Data is reasonably easy to collect and tabulate, yet the sample may not be representative of the population (particularly with a low response rate). Ambiguous, poorly written items and insufficient responses may not generate enough detail for decision making. An interview can follow up on evasive answers and explore topics in depth, collecting rich data, new insights, and focused details. It can, however, be difficult to reach the sample and data can be time-consuming to analyze. Information may be distorted by the respondent, who may feel a lack of privacy and anonymity. The success of the interview depends ultimately on the skills of the interviewer.

Additional Resources:

Dillman, D. (1978). *Mail and telephone surveys: The total design method*. New York: Wiley-Interscience Publication.

Fowler, F. J. (1985). *Survey research methods*. Beverly Hills: SAGE Publications.

*Adapted from the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999), and the University of Wisconsin, Madison, Program Assessment Tool Kit (1998).

Syllabus Analysis

Description: Syllabus analysis (as well as systematic review of textbooks, exams and other curricular material) involves looking at the current course syllabus (written or oral assignments, readings, class discussions/projects and course expectations) to determine if the course is meeting the objectives and outcomes that the instructor and/or department has set for it.

Strengths and Weaknesses: Use syllabus analysis when you want to clarify learning outcomes; explore differences and similarities between sections of a course; or assess the effectiveness of instructional materials. Syllabus analysis can provide invaluable information to enhance any assessment plan. However, this review is time consuming and, as there may be more than one reviewer, there may not be adequate consistency in collecting and analyzing the data.

Additional Resources:

Bers, T., Davis, D., & Taylor, W. (1996, Nov. -Dec.). Syllabus analysis: What are you teaching and telling your students? *Assessment Update (8)*, 6, pp. 1-2, 14-15.

Palombo et al. (2000). Assessment workbook. Ball State University. web.bsu.edu/IRAA/AA/WB/contents.htm.

Walvoord, B. E., & Anderson, V. J. (1998). Effective grading. San Francisco: Jossey-Bass.

White, E. M. (1994). Teaching and assessing writing. San Francisco: Jossey-Bass.

Western Washington University: *http://pandora.cii.wwu.edu/cii/calypso/*

Transcript Analysis*

Description: Transcript analysis involves using data from student databases to explore course-taking or grade patterns of students. This tool can give you a picture of students at a certain point in their academic careers, show you what classes students took and in what order, and identify patterns in student grades. In sum, transcript analysis gives you a more complete picture of students' actual curricular experiences. Specific information can be drawn from transcripts to help answer research questions, and course pattern sequences can be examined to see if there is a coherence to the order of courses taken.

Strengths and Weaknesses: Transcript analysis is an unobtrusive method for data collection using an existing student database. This information can be linked to other variables such as sex or major, or used to measure outcomes. It is important to keep in mind, however, that course patterns may be influenced by other variables in students' lives that don't show up on their transcripts. Also, solutions that arise from results of the analysis may not be practical or easily implemented. It is critical to have specific questions whose answers can lead to realistic change before conducting the analysis.

Additional Resources:

Palomba, C. A., & Banta, T. W. (1999). *Assessment essentials*. San Francisco: Jossey-Bass.

Ratcliff, J. L. (1992). What can you learn from coursework patterns about improving undergraduate education? In J. L. Ratcliff (Vol. Ed.), *Assessment and curriculum reform: Vol. 80. New directions for higher education* (pp. 5-22). San Francisco: Jossey-Bass.

*Adapted from the California State University, Bakersfield, PACT Outcomes Assessment Handbook (1999), and the Ball State University, Assessment Workbook (1999).

Chapter 8

Analyzing, Reporting, and Using Results

The Purpose of this Chapter

This chapter provides some guidance on the things to consider as you analyze and interpret assessment data. It is also designed to walk you through the process of defining an assessment report in terms of audience and needs, formatting the data for effective presentation, and distributing and sharing the results of your work. (See Figure 8.1.)

Chapter 7 at a glance

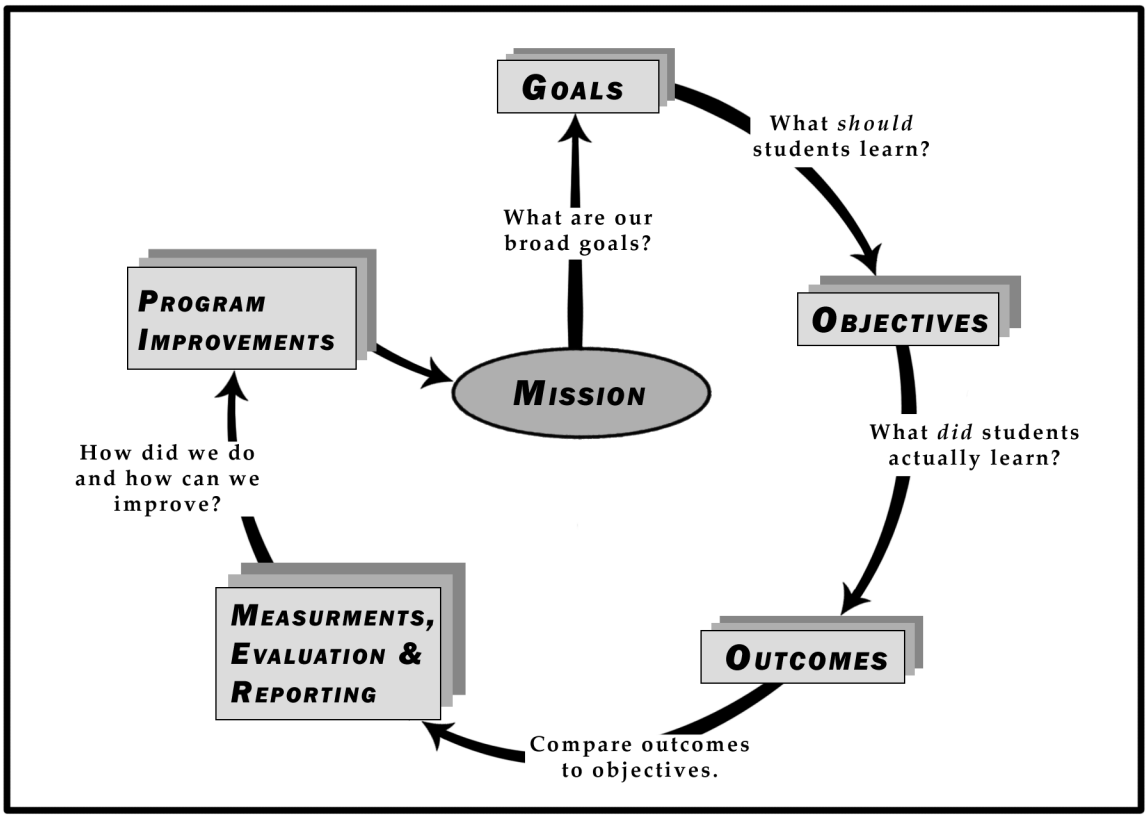
- **How Do You Approach Data Analysis and Interpretations?**
- **How Do You Prepare and Present an Assessment Report?**
- **What Should You Remember?**
- **Appendix 8-A: Assessment reporting**
- **Appendix 8-B: Suggested format**
- **Appendix 8-C: Sources and resources**

How Do You Approach Data Analysis and Interpretation?

The American Association of Higher Education (AAHE) asserts in its "Nine Principles of Good Practice for Assessing Student Learning" (1992) that…

> *An assessment plan's value to the department lies in the evidence it offers about overall department or program strengths and weaknesses, and in the evidence it provides for change (Wright, 1991). The key factors in attaining the real value of all your work is to make the most out of the information you collect through appropriate analysis and interpretation.*

Figure 8.1: Elements of a Program Assessment Plan



Best Ways to Analyze and Interpret Assessment Information.* In its faculty handbook on program assessment, the University of California at Chico (1998) recommends:

- presenting data in relation to identified goals and objectives;
- selecting and using appropriate procedures for data analysis;
- using both qualitative and quantitative methods to present a well-balanced picture of the program;
- tailoring your analysis and reporting procedures to the identified audience(s);
- identifying and elaborating on the strengths and weaknesses of the academic program; and
- developing recommendations based on analysis of data, and using identified objectives as a framework within which to accomplish these changes.

*Adapted from the Southeast Missouri State University, Busy Chairperson's Guide to Assessment (1997).

Also consider the extent to which your findings can help you answer the following questions.

- What do the data say about your students' mastery of subject matter, of research skills, or of writing and speaking?
- What do the data say about your students' preparation for taking the next step in their careers?
- Are there areas where your students are outstanding? Are they consistently weak in some respects?
- Are graduates of your program getting good jobs, accepted into reputable graduate schools, reporting satisfaction with their undergraduate education?
- Do you see indications in student performance that point to weakness in any particular skills, such as research, writing, or critical thinking skills?
- Do you see areas where performance is okay, but not outstanding, and where you would like to see a higher level of performance?

These are compelling and central questions for faculty, administrators, students, and external audiences alike. If your assessment information can shed light on these issues, the value of your efforts will become all the more apparent.

Finally, assessment data can offer useful insight into department and program effectiveness when carefully analyzed and interpreted in the context in which it was collected—for overall program improvement. Data are misleading, and even threatening, when they are used for purposes other than originally intended and agreed upon. For example, data from assessment of student performance in a capstone course should be used to identify areas of strengths and weaknesses in student learning across the students' entire experience in the major. In this way, these data guide curricular modifications and departmental pedagogical strategies. These data should not be used to evaluate the performance of the capstone course instructor.

How Do You Prepare and Present an Assessment Report?

Defining the Purpose

The first, and most important, step in preparing an assessment report is to define its purpose. As *Palomba and Banta (1999)* point out, the first step in developing an assessment report is to answer the following questions:

1) Who is the audience for this report?
2) What do they want to know?

They also provide the following checklist of potential audiences:

- Accrediting bodies
- State or Federal agencies
- External funding agencies
- Deans and other administrators
- College curriculum committees
- Departmental planning committee
- Alumni
- Colleagues at other institutions
- Students and prospective students

The audience for your assessment results plays an important role in defining the purpose of the report(s) you generate. For example, if the primary purpose of your report is to help faculty members in the department identify ways to improve the major, you would focus on how the results inform curricular change and improvement.

For a report to an external audience, your purpose is more likely to make a case for the quality of the educational experience students receive in your major, and highlight the program's particular strengths in fostering student learning, while also documenting the improvements made as a consequence of results.

Report Content

At its most basic, your report should have enough information to answer five basic questions:

1) What did you do?
2) Why did you do it?
3) What did you find?
4) How will you use it?
5) What is your evaluation of the assessment plan itself?

A comprehensive, systematic department assessment report is not necessarily a formal written report complete with charts, tables and a structured process, though it can be. It may be as simple as a presentation to the department on major results, leading to further discussion about assessment; or it can be as complex as a formal report to the Provost on assessing learning outcomes in your program.

The audience(s) for your report will also affect your presentation methods. For some purposes it may be necessary to provide statistical analyses, direct quotes from interviews, and specific supporting evidence for conclusions made. For other audiences, a general summary of major findings and a discussion of changes made by the department as a result of the findings may be more appropriate. (Note: see the templates in Appendix 8-B for suggested format.)

Formal Reports

If you have decided to prepare a formal assessment report, your report should address each of the identified audiences, elaborating on the information you outlined in the table above. Your final report for the department might contain some or all of the following:

- Discussion of why the assessment activity was undertaken
- Description of program mission, goals, learning objectives, and learning outcomes
- Description of assessment methods and choices, why they were used and how they were implemented
- Explanation of how the analysis was done and what methodology was used
- Presentation of major findings
- Discussion of how results are being used for program improvement
- Evaluation of the assessment plan/process itself: what worked and what did not work and why
- Outline of next steps (programmatic, curricular, and assessment-related)
- Appendix containing a curriculum analysis matrix, relevant assignments and outcomes, data collection methods, and other information or materials as appropriate

Summary Reports

Assessment reports do not necessarily have to be pages and pages of text and graphs to be effective. You may choose to prepare a report that briefly outlines your assessment program results. By highlighting the main points and significant results, you can convey in a very concise manner what you were trying to accomplish, what you did and did not accomplish, and what changes you will implement as a result. The following forms, from Nichols (1995), provide an example of a format for reporting results and action in short, summary form.

The reality is that a department rarely has only one purpose for engaging in assessment. Therefore, you may want to develop a number of reports tailored specifically to the audiences you need to address.

What Should You Remember?

Good News Is Always Worth Sharing

Sharing encouraging results and any effective assessment tools you develop helps the entire campus community improve assessment practices and methods, and is highly encouraged. Both WWU's Center for Instructional Innovation and OIART would like to help you publish your assessment "success stories."

There Are Primary and Secondary Uses for Assessment Results—Target Results to these Uses*

A question frequently asked by department faculty members is "How can assessment data be used?" When preparing your report, you should target your results to the use(s), and thus the audience(s), you have identified as appropriate, important, and/or required. Note that there are primary uses and audiences—those most relevant or common—and secondary uses and audiences—those less obvious or pressing.

Primary uses:

- Accreditation reports and reviews
- General education review and improvement
- Curriculum review (faculty-based or department-based)
- Requests to a curriculum committee (school or university level)

Secondary uses:

- Recruiting
- Alumni newsletter
- Publications and sharing with other universities
- Career services
- Securing grants

*Adapted from the Ball State University, Assessment Workbook (1999).

Link Results to Original Objectives

- Report your results in the context of your original objectives to most effectively demonstrate teaching and learning within your department.
- Assessment results mean little if your audience does not understand what it was you were trying to accomplish in the first place.
- Comparison of objectives to realized outcomes should be highlighted.
- Show how you plan to address program areas that still need work.
- Even less-desirable results can be used positively to document what has been learned and what steps will be taken for improvement.

There Is a Lot of Help Out There.

It is important to keep in mind that you are not alone. Some units on campus already have well-developed assessment plans and practices, and effective department plans in your field probably exist already at a number of colleges and universities across the country. There are also staff on campus who specialize in assessment and data collection and analysis. "Sources and Resources" in this handbook lists campus and on-line resources for getting help with this process as well as additional resources you can find in the printed literature.

Appendix 8-A:
Assessment Reporting

Assessment Reporting

Reporting the Results

1. What were you trying to accomplish by using assessment in your department?
2. What assessment methods did you use? Why did you select these?
3. What was the most valuable thing you learned?
4. What are the three most important things you would like to share with others about your results? (List a., b., c., etc.)
5. How will it affect what you do with your department's courses and/or with program requirements?

Evaluating the Process

1. Did you have a positive or negative experience implementing your assessment methods?
2. What were students' reactions to the assessment process?
3. What did you find especially effective in the assessment process?
4. What did you particularly dislike about the process?
5. What would you change about the process? Why?
6. What will you do again? Why?
7. What do the results suggest for program review at WWU?

Appendix 8-B:
Suggested Format

Suggested Format

Assessment Plan

Each program must have a formal written assessment plan, with the following elements (described in Chapter 3), including clearly articulated program objectives and related student learning outcomes, as well as how the learning outcomes will be assessed, the schedule or cycle for assessing them, and how the results of the assessment will be used within the program, both immediately and in terms of the larger overall periodic program review. In addressing these needs, specific sections of the assessment plan should include and integrate the following elements, as discussed in the preceding chapters:

1. Program mission
2. Program goals
3. Intended objectives
4. Actual student learning outcomes underlying each objective
5. Assessment methods for each outcome
6. Criteria by which outcomes will be judged
7. Time cycle for review of objectives and related outcomes
8. Who is responsible for coordinating the assessment process
9. Type of feedback data provided by the assessment process
10. How, when, and by whom the data will be used to improve the program or revise curricula

The assessment plan is the guiding document which articulates intended student learning objectives in the program and how the department will ensure that the program is structured to best meet those expectations. As such, the assessment plan is the master document to which annual assessment reports and periodic program review reports should correspond in a given program review cycle.

The assessment plan and record of cyclical results and actions should remain on file in the relevant department to be available to various stakeholders.

Appendix 8-C:
Sources and Resources

Sources and Resources

This section offers a variety of on-campus and on-line resources, as well as a reference list of articles and publications cited in this handbook, to provide additional assistance as you move deeper into the assessment process. On-campus resources are given to provide you with a "real person" to contact should you have questions, concerns or need additional information or support.

On-line websites are listed to give you further opportunity to explore how assessment is being used at other large research institutions across the country. These websites are particularly useful in providing specific examples and "how-to" models as well as in sharing how the assessment experience is playing out in higher education today. References from the literature offer more in-depth discussion of handbook topics. We would especially note:

Stassen, Martha L.A., Doherty, K., and Poe, M. (2001). *Program-based Review and Assessment: Tools and Techniques for Program Improvement*. Office of Academic Planning & Assessment. University of Massachusetts, Amherst.

OnCampus

Office of Institutional Assessment, Research, and Testing (http://www.wwu.edu/depts/assess/). Old Main 120. Director: Joseph Trimble, PhD (joseph.trimble@wwu.edu).
Center for Instructional Innovation (http://pandora.cii.wwu.edu/cii/). Director: Kris Bulcroft (Kris.Bulcroft@wwu.edu).

On-Line

California State University, San Bernardino (http://academic-affairs.csusb.edu) and (www.co.calstate.edu/aa/sloa).
ERIC Assessment Clearinghouse (http://ericae.net/).
Internet Resources for Higher Education Outcomes Assessment (http://www2acs.ncsu.edu/upa/assmt/resource.htm).
Ohio University (www.cats.ohiou.edu/~insres/assessments/ncaplan.html).
Penn State (www.psu.edu/dus/uac/assessme.htm).
Southern Illinois University (www.siue.edu/~deder/assess).
University of Cincinnati, Raymond Walters College (www.rwc.uc.edu/phillips/index_assess.html).
University of Colorado, Boulder (www.colorado.edu/pba/outcomes).
University of Michigan (www.umich.edu/~crltmich/crlt.faq.html).
University of Nebraska (www.unl.edu/svcaa/priorities/assessment.html).
University of Wisconsin, Madison (www.wisc.edu/provost/assess.html).
Virginia Tech (http://aappc.aap.vt.edu).

Principles and elements of good practice.

(1998). University of Nebraska (www.uni.edu/svcaa/policies/programreview/goodpractice.html).

Allen, M. J., McMillin, J. D., Noel, R. C., & Rienzi, B. M. (1999). *PACT outcomes assessment handbook*. Bakersfield: California State University.

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers*. San Francisco: Jossey-Bass.

Assessing Degree Program Effectiveness. (1992). University System of Georgia: Task Force on Assessing Major Area Outcomes.

Baird, L. L. (1996). *Documenting student outcomes in graduate and professional programs*. New Directions for Institutional Research (92), pp. 77-109.

Bean, J. C. (1996). *Engaging ideas*. San Francisco: Jossey-Bass.

Bers, T., Davis, D., & Taylor, W. (1996). Syllabus analysis: What are you teaching and telling your students? *Assessment Update (8)*, 6, pp. 1-2, 14-15.

Bilder, A. E., & Conrad, C. (1996). Challenges in assessing outcomes in graduate and professional education. *New Directions for Institutional Research (92)*, pp. 5-15.

Bloom, B. S. (ed.) (1964) *Taxonomy of educational objectives: The classification of educational goals, by a committee of college and university examiners.* New York; Longmans, Green.

Boggs, G. R. (1999) What the learning paradigm means for faculty. *AAHE Bulletin*, pp. 3-5.

Brookhart, S. M. (1999). The art and science of classroom assessment: The missing part of pedagogy. *ASHE-ERIC Higher Education Report (Vol. 27, No. 1)*. Washington, DC: The George Washington University,

Graduate School of Education and Human Development. California State University, Bakersfield (1999). *PACT outcomes assessment handbook*.

California State University, Chico (1998). Assessment plan.

Cerbin, W. (1995). Connecting assessment of learning to improvement of teaching through the course portfolio. *Assessment Update (7)*, 1, pp. 4-6.

Cerbin, W. (1992). How to improve teaching with learning-centered evaluation. *National Teaching and Learning Forum (1)*, 6, pp. 8-9.

Classroom assessment/classroom research: Four years into a movement. (1992). *National Teaching and Learning Forum (1)*, 6, pp. 1-4.

Classroom Assessment Techniques. (1999). Center for Excellence in Learning & Teaching. *www.psu.edu/celt/CATs.html*.

DeZure, D. (1996). Closer to the disciplines: A model for improving teaching within departments. *AAHE Bulletin (48)*, pp. 9-12.

Diamond, R. M. (1998). *Designing and assessing courses and curricula*. San Francisco: Jossey-Bass.

Ewell, P. T. (1997). Identifying indicators of curricular quality. In J. G. Gaff & J. L. Ratcliff (Eds.) *Handbook of the undergraduate curriculum*. San Francisco: Jossey Bass, pp. 608-627.

Farmer, D. W. (1993). Course-embedded assessment: A teaching strategy to improve student learning. *Assessment Update* (5), 1, pp. 8, 10-11.

Farmer, D. W., & Napieralski, E. A. (1997). Assessing learning in programs. In *Handbook of the undergraduate curriculum*, J. G. Gaff & J. L. Ratcliff (Eds.). San Francisco: Jossey Bass, pp. 591-607.

Five-year program review for undergraduate and graduate degree programs (1997-98). California State University, Chico.

Fogarty, T. J., & Saftner, D. V. (1993). Academic department prestige: A new measure based on the doctoral student labor market. *Research in Higher Education (34)*, 4, pp. 427-449.

Fuhrmann, B. S. (1996). Assessment of the major at Virginia Commonwealth University: Two examples. *Assessment Update (8)*, 5, pp. 7, 13.

Gandolfo, A. (1995). Format assessment: An assessment model that answers the questions. *Assessment Update (7)*, 2, p. 6.

Green, R. (1993). Quality standards for academic program evaluation plans. *Assessment Update (5)*, 6, pp. 4-5.

Hatfield, Susan. (1999). Department Level Assessment: Promoting Continuous Improvement, IDEA paper #35. Manhattan, KS: IDEA Center.

Haworth, J. G. (1996). Assessment in graduate and professional education: Present realities, future prospects. *New Directions for Institutional Research (92)*, pp. 89-97.

Haworth, J. G., & Conrad, C. F. (1996). Refocusing quality assessment on student learning. *New Directions for Institutional Research (92)*, pp. 45-61.

Hodgkinson, H. L., Hurst, J., & Levine, H. (1975). Assessment of elusive objectives. In *Improving and assessing performance: Evaluation in higher education*. University of California, Berkeley: Center for Research & Development in Higher Education, 45-59.

Hogan, T. P., & Stamford, A. M. (1997). Encouraging departments to engage in assessment activities. *Assessment Update (9)*, 5, pp. 4-5, 14.

Holt, D. & Janzow, F. (1995). Assessing general education using aggregated student course ratings. *Assessment Update (7)*, 4, pp. 7-9.

Hummer, A. (1997). Measuring critical thinking outcomes via the capstone course paper. *Assessment Update (9)*, 3, pp. 8-9.

Hutchings, P. (1993). Principles of good practice for assessing student learning. *Assessment Update (5)*, 1, p. 6.

Imasuen, E. (1998). Institution-wide classroom assessment. *Assessment Update (10)*, 3, pp. 9-11.

Keith, S. Z. (1995). The assessment of quantitative literacy. *Assessment Update (7)*, 2, pp. 14-15.

Kells, H. R. (1995). *Self-study processes: A guide to self-evaluation in higher education*. Phoenix, AZ: American Council on Education and the Oryx Press.

Kinnick, M. K. (1995). What does an academic department chairperson need to know anyway? *The Association for Institutional Research Professional File (56)*, pp. 1-10.

Kugel, P. (1998). Fertilize, but stay out of the garden. *Assessment Update (10)*, 1, pp. 4-5.

Murphy, P. D. (1994). Assessing student learning in graduate programs. *Assessment Update (6)*, 6, pp. 1-2.

Murphy, P. D., & Gerst, J. (1997). Beyond grades and 'satisfactory' in assessing graduate student learning. *Assessment Update (9)*, 3, pp. 12-13.

Nowaczyk, R. H., & Underwood, D. G. (1995). Possible indicators of research quality for colleges and universities. *Education Policy Analysis Archives (3)*, 20, 830 lines.

From the literature

Nichols, J. O. (1995). *The departmental guide and record book for student outcomes assessment and institutional effectiveness*. New York: Agathon Press.

Nichols, J. O. (1995). *A practitioner's handbook for institutional effectiveness and student outcomes assessment implementation* (3rd. ed.). New York: Agathon Press.

Ohia, U. O. (1995). Connections among assessment, testing, and faculty development. *Assessment Update (7)*, 4, p. 9.

Ohio University Institutional Impact and Assessment Plan. (1998). *www.cats.ohiou.edu/~insres/assessments/ncaplan.html.*

Outcomes assessment. (1998). Office of the Provost, University of Wisconsin-Madison. *www.wisc.edu/provost/assess.html.*

Palomba, C. A., & Banta, T. W. (1999). *Assessment essentials*. San Francisco: Jossey-Bass.

Palomba et al. (2000). Assessment Workbook. Ball State University. *http://web.bsu.edu/IRAA/AA/WB/contents.htm.*

Perkins, D. (1993, Fall). Teaching for understanding. *The Professional Journal of the American Federation of Teachers (7)*, 3, pp. 8, 28-35.

Pew Higher Education Roundtable sponsored by The Pew Charitable Trusts. (1996, Feb.). *Policy Perspectives (6)*, 3, pp. 1-11.

Pfatteicher, S. K. A., Bowcock, D., & Kushner, J. (1998). *Program assessment tool kit: A guide to conducting interviews and surveys*. University of Wisconsin-Madison: LEAD Center.

Pike, G. R. (1996). Assessment measures: The reflective judgment interview. *Assessment Update (8)*, 5, pp. 14-15.

Rice, R. E. (1996). Making a place for the new American scholar. Preliminary draft presented at the 1996 AAHE Conference on Faculty Roles & Rewards, Atlanta, GA.

Schilling, K. M., & Schilling, K. L. (1998). Proclaiming and sustaining excellence: Assessment as a faculty role. *ASHE-ERIC Higher Education Report Volume 26, 3*. Washington, D.C.: The George Washington University, Graduate School of Education and Human Development.

Secor, R. (1995). Recapturing departmental community. *AAHE Bulletin (47)*, 6, pp. 3-6.

Seldin, P. (1998). How colleges evaluate teaching. *AAHE Bulletin (50)*, pp. 3-7.

Shaeiwitz, J. A. (1996). Capstone experiences: Are you doing assessment without realizing it? *Assessment Update (8)*, 4, pp. 4-6.

Shay, S. (1997). Portfolio assessment for program evaluation. *Assessment Update (9)*, 2, pp. 8-9, 13.

Southeast Missouri State University (1997). *Busy chairperson's guide to assessment.*

Tan, D. L. (1992). A multivariate approach to the assessment of quality. *Research in Higher Education (33)*, 2, pp. 205-227.

Tobias, S. (1994). The contract alternative. *AAHE Bulletin (47)*, pp. 3-6.

Towles, D. & Black, E. (1993). Adult education: The assessment of distance learning services and outcomes. *Assessment Update (5)*, 2, pp. 10-11.

Truog, A. L. (1995-1996). Students' reactions to performance-based versus traditional objective assessment. *Teaching Excellence (7)*, 8, pp. 1-2.

Types of assessment at CSU, San Bernardino (1999). *http://academic-affairs.csusb.edu/types.html*.

University of Massachusetts General Education Task Force Report (1999).

University of Nebraska-Lincoln Teaching and Learning Center (1999), *Teaching at UNL*, Vol. 21, 2.

University of Wisconsin-Madison (2000). *Using assessment for academic program improvement*.

Volkein, J. F. (1996). *Program evaluation and assessment: What's the question?* Albany: State University of New York.

Volkwein & Carbone (1994). The impact of departmental research and teaching climates on undergraduate growth and satisfaction. *Journal of Higher Education*, pp. 23-25.

Walker, C. J. (1995). Assessing group process: Using classroom assessment to build autonomous learning teams. *Assessment Update (7)*, 6, pp. 4-5.

Walvoord, B. E. & Anderson, V. J. (1998). *Effective grading: A tool for learning and assessment*. San Francisco: Jossey-Bass.

Walvoord, B. E., & Anderson, V. J. (1995). An assessment riddle. *Assessment Update (7)*, 6, pp. 8-9, 11.

White, E.M. (1994). *Teaching and assessing writing*. San Francisco: Jossey-Bass.

Wright, B. D., (1997). Evaluating learning in individual courses. In *Handbook of the undergraduate curriculum*, J. G. Gaff & J. L. Ratcliff (Eds.). San Francisco: Jossey Bass, pp. 571-590.

Western Carolina University (1999). *Assessment resource guide*.

Woehrle, L. M. (1997). The role of assessment in building a student-centered curriculum. *Assessment Update (9)*, 5, pp. 6-7, 11.

Wood, P. K., & Lynch, C. L. (1998). Using guided essays to assess and encourage reflective thinking. *Assessment Update (10)*, 2, p.14.

Wright, B. D. (1991). Discipline-based assessment: The case of sociology. *AAHE Bulletin (44)*, pp. 14-16.

Yancey, K. (1994). Writing assessment: A position statement. *www.missouri.edu/~cccc95/assessment.html.*