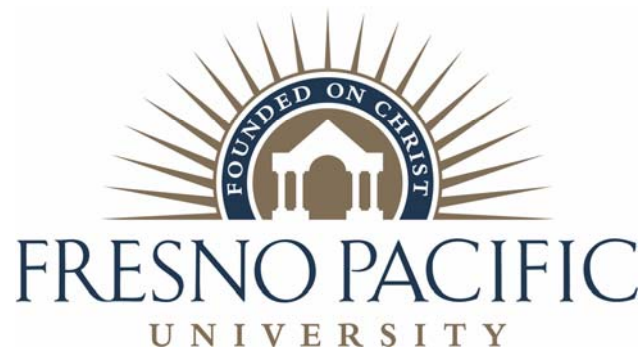


Fresno Pacific University

Assessment Manual



February 20, 2007

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Assessment Summary

Purpose

The purpose of assessment is to produce feedback to the program and school or administrative unit on the performance of its curriculum, learning process, and/or services, thereby allowing each unit to improve its programs. It is not an evaluation of individual students or of individual faculty or staff.

Process

The process to develop an assessment plan is the following:

- Agree on your mission
- Create goals for student outcomes and processes
- Identify related activities for each goal
- Brainstorm appropriate measures
- Evaluate and select measures
- Identify appropriate assessment methods
- Develop a plan for collecting data
- Prioritize goals
- Set timeline, milestones
- Implement assessment plan
- Use data to improve processes
- Communicate results

Types of Assessment Measures

Assessment measures include both direct and indirect means.

Direct Assessment Measures	Indirect Assessment Measures
Capstone Course	External Reviewers
Course Embedded	Student Surveying/Interviewing
Tests/Exams	Alumni Surveying/Interviewing
Portfolio	Employer Surveying/Interviewing
Pre-test/Post-test	Curriculum and Syllabus Analysis
Thesis Evaluation	
Videotape or Audiotape	

Outcomes Assessment

Academic outcomes assessment is based on a process in which faculty have identified the most appropriate objectives for specific programs and majors, e.g., general education, undergraduate and graduate majors. It is completed and analyzed annually and formally written up in the five-year program review. It employs a wide variety of measurements to discover as accurately as possible whether the program is achieving the announced objectives in these areas.

The purpose of assessment is to produce feedback to the program and school or administrative unit on the performance of its curriculum, learning process, and/or services, thereby allowing each unit to improve its programs. It is not an evaluation of individual students or of individual faculty or staff.

The goal of this document is to assist faculty in developing assessment plans at the program level. Assessment methods and instrumentation used at Fresno Pacific University and other comparable institutions are described here, with the intention that faculty will select and/or adapt the methods best suited to their educational goals and programs. An outline of useful steps for developing a assessment plan that can be used by those involved in the assessment process is also provided in this document.

Assessment Background

The call to assessment is linked to the public's accountability of higher education. Peter Ewell notes, "...teaching the universities how to act more effectively as public servants was nevertheless a major feature of higher education policy during the eighties. (Ewell, 1997, p.11) As higher education has been called to this public accountability, higher education grade reports and measures have been created. A conversation about national educational goals began as externally mandated assessment measures crept up to the colleges and universities from the K-12 sector. However, as Peter Ewell points out:

... but in our case it is less because of overtly poor performance than because colleges and universities are developing a reputation for maintaining a sense of secrecy about what they do, how they teach, and what students actually learn. As an enterprise of higher education, we could gain more public credibility and support if we were to demonstrate that we investigate our own effectiveness and that we respond promptly when the results aren't good. (Ewell, 2003, p. 33)

The responsible use of public monies combined with a quality improvement movement has created the impetus for assessment. As higher education moved into this realm of ensuring quality, institution and accrediting bodies were required to examine the "business" of learning. Assessment requires that higher educational institutions turn a reflective mirror inward on their processes and practices of teaching and learning, and develop evidence and processes around educational outcomes.

WASC's (Western Association for Schools and Colleges) mandate for all universities is to assess the student learning outcomes for a program. WASC follows other regional accreditation bodies in this manner. For example, the NCA (North Central Association) Commission on Institutions of Higher Education identified ten characteristics of an effective program to assess student academic achievement:

1. Successful assessment flows from the institution's mission and educational purposes.
2. Successful assessment emerges from a conceptual framework.
3. Successful assessment is marked by faculty ownership and responsibility.
4. Successful assessment has institution-wide support.
5. Successful assessment relies on multiple measures.
6. Successful assessment provides feedback to students and the institution.
7. Successful assessment is cost-effective.
8. Successful assessment does not restrict or inhibit goals of access, equity, and diversity established by the institution.
9. Successful assessment leads to improvement.
10. Successful assessment includes a process for evaluating the assessment program.

Faculty determination of the crucial issues of each academic program is essential for a good assessment plan. Additionally, student outcomes assessment planning is most effectively devised by faculty and staff at the program level. A successful program will also address the need for students to understand the purpose of assessment.

The growth of the assessment movement during the last decade has demonstrated that assessment is becoming an important tool for better understanding and responding to the needs of an increasingly diverse student population. Colleges and universities are increasingly turning to both nationally developed and locally designed assessment methods and instruments as a means of improving teaching and learning practices. The rationale for the increased focus on the development of assessment programs in academic majors is grounded in the belief that collecting systematic data improves awareness of how well students can integrate content, skills, and attitudes. Assessment research has provided useful information and insight on how students learn and what students learn, going beyond traditional measures that provide useful but limited student and programmatic data.

Assessment Approach and Process

In keeping with this institution's history and mission, FPU's plan is constructed primarily on the basis of a plan for each program.

Developing an Assessment Plan

When developing and implementing outcomes assessment strategies, academic units should have three purposes in mind: to improve, to inform, and/or to prove. The results from an assessment process should provide information which can be used to determine whether or not intended outcomes are being achieved and how the programs can be improved. An assessment process should also be designed to inform program faculty and other decision-makers about relevant issues that can impact the program and student learning.

When developing assessment programs that measure student learning to determine programmatic strengths and weaknesses, faculty often ask, "Aren't course grades a satisfactory measure of student performance?" Course grades are one source of information about student achievement of the overall objectives for the major or program. Multiple perspectives are the best format to assess learning. Multiple methods help us focus on the overall objectives.

The following six step approach has enabled academic units to develop effective plans for assessing student learning in the major/program.

STEP 1: Define desired student outcomes (DSOs) for the major or program.

An outcome serves as the foundation for assessment planning. Program assessment is intended to provide information on how well students are performing relative to the educational objectives or outcomes established by the program. The defined objectives should be far-reaching and describe a variety of skills and knowledge-based areas. In most instances, not all of the objectives can be adequately assessed for student achievement. However, assessment plans should be devised to assist faculty in determining whether students are acquiring some of the prescribed objectives. Clearly, objectives for the major/program must ultimately be integrated with those of the school, which in turn, must be aligned with the institutional mission statement.

STEP 2: Identify and describe instruments or methods for assessing student achievement.

Once desired student outcomes have been identified, assessment methods for collecting student data can be chosen. These methods should be consistent with the programmatic outcomes defined in the first step. Because programs often define a variety of educational goals and objectives, comprehensive assessment strategies frequently require the use of more than one assessment instrument to determine program effectiveness. It is important to include in your assessment plan the grid (see Appendix A and B) of what assessment methods have been chosen by faculty.

STEP 3: Determine how the results will be disseminated and used for program improvement.

Assessment results and information should be used in a timely fashion to facilitate continuous programmatic improvements. Designing a feedback process is essential in all assessment plans because it gives faculty the opportunity to use recent findings to incorporate curricular changes necessary to prepare students with the skills and knowledge to advance in their respective majors and programs. For example, when assessment results are used in a timely manner, faculty may determine that it is necessary to provide curricular changes to improve programmatic weaknesses. When results indicate that

students are performing consistently with established objectives, faculty may focus assessment initiatives in other areas or extend current practices to impact additional students.

Some questions to ponder include:

Grading Patterns: Have the students achieved the DSOs as reflected in grading patterns? If these patterns are high, have we applied firm standards. If low, did the students achieve?

Survey of graduates: What did we offer them that was of benefit? What did we fail to teach them? To what extent do they embody the values and mission of the school? What should we continue to do? What should we cease doing? Were they able to function professionally upon graduation, to compete, etc? Did they have the tools, critical abilities, etc.?

Student cohorts: Where have the students gone? Have they been able to work in profession or role in which we have claimed they would be able to work? In what percentages?

External Comparison Groups: Request voluntary GRE/GMAT/MAT scores for long range comparisons. Request feedback from employers, not specifically on the person, but on the preparation we have given the student. Request program evaluations from advisory groups, etc.

STEP 4: Each academic unit will need to establish a schedule for selecting, implementing, and using the results of assessment strategies.

In order to meet external demands for assessment implementation and to incorporate assessment into ongoing curricular planning, programs should devise appropriate timetables for development and execution of assessment plans.

STEP 5: Submit assessment outcomes and methods to School Dean.

Each school will determine its specific procedures for approval of program plans and subsequent reviews of assessment activities. Some phases of the program's assessment plan should be carried out each academic year regardless of the frequency with which the school officially reviews assessment activities. Programs should document all assessment activities and be prepared to demonstrate how information generated from assessment programming has been used for curricular changes by faculty.

STEP 6: Implement assessment plans and revise as needed.

Once approved by the School, programs should implement assessment strategies. When initial program feedback from assessment practices becomes available, programs should use the results for programmatic improvement or to revise objectives or plans, if necessary.

Summary: Developing an Assessment Plan

- A. Agree on your mission
- B. Create goals for student outcomes and processes
- C. Identify related activities for each goal
- D. Brainstorm appropriate measures
- E. Evaluate and select measures
- F. Identify appropriate assessment methods
- G. Develop a plan for collecting data
- H. Prioritize goals
- I. Set timeline, milestones
- J. Implement assessment plan
- K. Use data to improve processes
- L. Communicate results

Source: From Hatfield, Susan, "Assessment in the Major - Tools and Tips for Getting Started." Paper presented at the 1997 Assessment Conference in Indianapolis. Professor Hatfield is the Assessment Coordinator at Winona State University.

University Assessment Committee

The University has also established a University Assessment Committee (UAC) to aid assessment activities. The UAC is comprised of representatives appointed or elected by each school's dean. It is chaired by an academic dean who is a member of Academic Cabinet. Its primary purpose is to share assessment strategies in order to inform and expedite assessment efforts throughout the entire institution.

The Committee believes that if properly developed and implemented, assessment of student learning in all majors and program can be a beneficial tool for facilitating ongoing curricular dialogue and encouraging constant programmatic improvement throughout campus. However, only through widespread faculty involvement can an institution as complex as ours devise effective and efficient program-based assessment plans that will produce results beneficial for all academic units. With assessment planning located primarily in the program, faculty members exercise their responsibility to devise appropriate methods to measure student academic achievement and program effectiveness. This process gives widespread ownership of assessment planning to faculty and enables them to determine the methods and instruments that are most

applicable to their educational objectives and missions. Also, this Committee supports the idea that the academic units are best suited to determine how assessment results can be used to ascertain curricular strengths and weaknesses to improve programs.

Assessment Instruments and Methods Available to Assess Student Learning

Assessment of student learning can be conducted using a variety of available instruments and methods - quantitative and qualitative. A combination of assessment approaches can be the most effective way to measure student learning.

The following section contains a variety of assessment methods. They are classified into direct and indirect indicators of learning. Appendix C contains a bibliography as it relates to various assessment measures.

Direct Indicators of Learning

Direct indicators of learning are based on an analysis of student behaviors or products in which they demonstrate how well they have mastered learning objectives (WASC, "Assuring Improvement in Student Learning," September 2004). The following is a commonly understood list of direct indicators of learning.

1. Capstone Course Evaluation

Capstone courses integrate knowledge, concepts, and skills associated with an entire sequence of study in a program. This method of assessment is unique because the courses themselves become the instruments for assessing student teaching and learning. Evaluation of students' work in these courses is used as a means of assessing student outcomes. For academic units where a single capstone course is not feasible or desirable, a program or major may designate a small group of courses where competencies of completing majors will be measured.

Capstone courses provide students with a forum to combine various aspects of their programmatic experiences. For faculty, the courses provide a forum to assess student achievement in a variety of knowledge and skills-based areas by integrating their educational experiences. Also, these courses can provide a final common experience for students in the discipline.

2. Course-Embedded Assessment

Assessment practices embedded in academic courses generate information about what and how students are learning within the program and classroom environment. Course-embedded assessment takes advantage of already existing curricular offerings by using standardized data instructors already collected or by introducing new assessment measures into courses. The embedded methods most commonly used involve the development and gathering of student data based on questions placed in course assignments. These questions, intended to assess student outcomes, are incorporated or embedded into final exams, research reports, recitals, art shows, theater performances, and term papers in senior-level courses. The student responses are then evaluated by two or more faculty to determine whether or not the students are achieving the

prescribed educational goals and objectives of the program or major. This assessment is a separate process from that used by the course instructor to grade the exam, report, or term paper.

There are a number of advantages to using course-embedded assessment. First, student information gathered from embedded assessment draws on accumulated educational experiences and familiarity with specific areas or disciplines. Second, embedded assessment often does not require additional time for data collection, since instruments used to produce student learning information can be derived from course assignments already planned as part of the requirements. Third, the presentation of feedback to faculty and students can occur very quickly creating a conducive environment for ongoing programmatic improvement. Finally, course-embedded assessment is part of the curricular structure and students have a tendency to respond seriously to this method.

3. Tests and Examinations

In most cases, a test will be one part of a fully developed assessment plan. Tests are commonly used in association with cognitive goals in order to review student achievement with respect to a common body of knowledge associated with a discipline or program. Programs and majors have traditionally used tests in assessment programming to measure whether students have acquired a certain process- and content-related knowledge.

Using this approach, there are two primary testing alternatives; first, locally developed/ faculty generated tests and examinations, and (2) commercially produced standardized tests and examinations. Locally developed testing and examinations are probably the most widely used method for evaluating student progress. For assessing the validity of an academic program or major, examinations designed by the instructors who set the educational goals and teach the courses are often the best approach. Cost benefits, interpretation advantages, and quick turnaround time all make using locally designed tests an attractive method for assessing student learning.

Tests designed for a specific curriculum can often prove more valuable when assessing student achievement than commercial instruments. These tests focus on the missions, goals, and objectives of the program or major and permit useful projections of student behavior and learning. A well-constructed and carefully administered test that is graded by two or more judges for the specific purpose of determining program strengths and weaknesses remains one of the most popular instruments for assessing most majors.

Commercially generated tests and examinations are used to measure student competencies under controlled conditions. Tests are developed and measured nationally to determine the level of learning that students have acquired in specific fields of study. For example, nationally standardized multiple-choice tests are widely used and assist programs in determining programmatic strengths and weaknesses when compared to other programs and national data. Compilations of data on the performance of students who voluntarily take national examinations such as GRE and MCAT enable faculty to discover useful data that often leads to programmatic improvements.

When using commercially generated tests, national standards are used as comparative tools in areas such as rates of acceptance into graduate or professional school, rates of job placement, and overall achievement of students when compared to other institutions. In most cases, standardized testing is useful in demonstrating external validity.

There are a number of advantages for using commercial/standardized tests and examinations to measure student achievement; first, institutional comparisons of student learning are possible. Second, very little professional time is needed beyond faculty efforts to analyze examinations results and develop appropriate curricular changes that address the findings. Third, in most cases, nationally developed tests are devised by experts in the discipline. Fourth, tests are traditionally given to students in large numbers and do not require faculty involvement when exams are taken by students.

As part of their assessment efforts, many institutions and programs already use a multitude of commercially generated examination and tests. Some of the more commonly used national tests include:

ACT - COMP (College Outcome Measures Program): This is an assessment instrument that measures knowledge and skills acquired by students in general education courses. Administered by ACT, Iowa City, IA.

GRE (Graduate Record Examinations): The GRE is widely used by colleges, universities, programs, and graduate schools to assess verbal and quantitative student achievement. Also, many discipline-specific examinations are offered to undergraduate students in areas such as Biology, Chemistry, Education, Geology, History, Literature, Political Science, Psychology, and Sociology. The GRE is published and administered by Educational Testing Services, Princeton, New Jersey.

Major Field Achievements Tests: Major field examinations are administered in a variety of disciplines. They often are given to students upon or near completion of their major field of study. These tests assess the ability of students to analyze and solve problems, understand relationships, and interpret material. Major field exams are published by Educational Testing Services, Princeton, New Jersey.

4. Portfolio Evaluation

Portfolios used for assessment purposes are most commonly characterized by collections of student work that exhibit to the faculty and the student the student's progress and achievement in given areas. Included in the portfolio may be research papers and other process reports, multiple choice or essay examinations, self-evaluations, personal essays, journals, computational exercises and problems, case studies, audiotapes, videotapes, and short-answer quizzes. This information may be gathered from in-class or as out-of-class assignments.

Information about the students' skills, knowledge, development, quality of writing, and critical thinking can be acquired through a comprehensive collection of work samples. A student portfolio can be assembled within a course or in a sequence of courses in the major. The faculty determine what information or students' products should be collected and how these products will

be used to evaluate or assess student learning. These decisions are based on the academic unit's educational goals and objectives.

Portfolio evaluation is a useful assessment tool because it allows faculty to analyze an entire scope of student work in a timely fashion. Collecting student work over time gives programs or majors a unique opportunity to assess a student's progression in acquiring a variety of learning objectives. Using student portfolios also gives faculty the ability to determine the content and control the quality of the assessed materials.

5. Pre-test/Post-test Evaluation

Pre-test/post-test assessment is a method used by academic units where locally developed tests and examinations are administered at the beginning and at the end of courses or academic programs. These test results enable faculty to monitor student progression and learning throughout prescribed periods of time. The results are often useful for determining where skills and knowledge deficiencies exist and most frequently develop.

6. Thesis Evaluation

A senior or graduate student thesis, research project, or performance paper that is structured by the program to give students an opportunity to demonstrate a mastery of an array of skills and knowledge appropriate to the major can be a useful assessment instrument

7. Videotape and Audiotape Evaluation

Videotapes and audiotapes have been used by faculty as a kind of pre-test/post-test assessment of student skills and knowledge. Disciplines, such as theatre, music, art, communication, and student teaching, that have experienced difficulty in using some of the other assessment methods have had significant success in utilizing videotapes and audiotapes as assessment tools.

B. Indirect Indicators of Learning

Indirect indicators of learning are based on an analysis of reported perception about student mastery of learning objectives. The perception may be self-reports by students, or they may be made by other, such as peers, alumni, fieldwork supervisors, employers or faculty. (WASC, "Assuring Improvement in Student Learning," September 2004). The following is a commonly understood list of indirect indicators of learning.

1. External Reviewers

Peer review of academic programs is a widely accepted method for assessing curricular sequences, course development and delivery, and the effectiveness of faculty. Using external reviewers is a useful way of analyzing whether student achievement correlates appropriately with program goals and objectives. In numerous instances, recommendations initiated by skilled external reviewers have been instrumental in identifying program strengths and weaknesses leading to substantial curricular and structural changes and improvements.

2. Student Surveying and Exit Interviewing

Student surveying and exit interviews have become increasingly important tools for understanding the educational needs of students. When combined with other assessment instruments, many programs have successfully used surveys to produce important curricular and co-curricular information about student learning and educational experiences. During this process, students are asked to reflect on what they have learned as majors in order to generate information for program improvement. Through using this method, universities have reported gaining insight into how students experience courses, what they like and do not like about various instructional approaches, what is important about the classroom environment that facilitates or hinders learning, and the nature of assignments that foster student learning.

In most cases, student surveys and exit interviews are conducted in tandem with a number of other assessment tools. In many universities where surveys have been adopted as a method of program assessment, findings have results in academic and service program enhancement throughout campus.

3. Alumni Surveying/Interviewing

Surveying of alumni is a useful assessment tool for generating data about student preparation for professional work, program satisfaction, and curriculum relevancy. As an assessment supplement, alumni surveying provides programs with a variety of information that can highlight program areas that need to be expanded or enhanced. In most cases, alumni surveying is an inexpensive way to gather data and for reestablishing relationships with individuals that want to help the program continually improve.

4. Employer Surveying/Interviewing

Employer surveys can provide information about the curriculum, programs, and students that other forms of assessment cannot produce. Through surveys, programs traditionally seek employer satisfaction levels with the abilities and skills of recent graduates. Employers also assess programmatic characteristics by addressing the success of students in a continuously evolving job market. The advantages in using employer surveys include the ability to obtain external data that cannot be produced on campus, and the responses are often useful to help students discern the relevance of educational experiences and programs.

5. Curriculum and Syllabus Analysis

In a perfect planning/implementation cycle, once a program or major has defined its objectives, all phases of the curriculum and each individual course would almost automatically cover all the bases needed to provide each student the opportunity to learn the essential components of those objectives.

In any case, not every course needs to attempt to cover all the objectives for the major. As one technique to keep a focus on the agreed-upon objectives, curriculum analysis provides a means to chart just which courses will cover which objectives. The chart then provides assurance to the program that, assuming certain sequences are taken by the student candidates for that major, they will in fact have the opportunity to learn those objectives.

Syllabus analysis is an especially useful technique when multiple sections of a program or major's course are offered by a variety of instructors. It provides assurance that each section will cover essential points without prescribing the specific teaching methods to be used in helping the students learn those objectives.

Appendix A – Assessment Summary

Please indicate which assessment measures you are using with your Desired Student Outcomes in the following table.

Direct Indicators of Learning

Assessment Measure	DSO #1	DSO #2	DSO #3
Capstone Course			
Course Embedded			
Tests/Exams			
Portfolio			
Pre-test/Post-test			
Thesis Evaluation			
Videotape or Audiotape			

Indirect Indicators of Learning

Assessment Measure	DSO #1	DSO #2	DSO #3
External Reviewers			
Student Surveying/Interviewing			
Alumni Surveying/Interviewing			
Employer Surveying/Interviewing			
Curriculum and Syllabus Analysis			

Appendix B – Assessment Mapping

It is important to identify where the objective is being taught within the program/major courses. Please use the following chart to help graphically display the objective and course mapping.

DSO/Competence	DSO's specific knowledge, understanding or proficiency	Method of Demonstrating Competence	Location of Topic in Curriculum (Percentages can be used to identify the amount of time spent on the DSO during the semester.
<p>Example:</p> <p>The sensitivity to and understanding of difference in people.</p>	<p>Demonstrate basic knowledge of cultures other than one's own.</p> <p>Articulate the advantages of multi-dimensional/cross-cultural settings</p> <p>Recognition of diverse view points</p>	<p>Evidenced from one or more of the following:</p> <p>project work and papers in a portfolio</p> <p>oral presentations externally judged</p>	<p>XXX300</p> <p>XXX350</p> <p>XXX450</p>

Appendix C

Relevant Assessment Publications:

Ewell, P. (1997). Accountability and Assessment in a Second Decade: New looks or same old story? In *Assessing Impact: Evidence and Action* (p. 7-21). Washington DC: American Association for Higher Education.

1. Capstone Course Evaluation

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

Julian, Faye D. "The Capstone Course as an Outcomes Tests for Majors." *Assessment in Practice*. Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W., (Eds). San Francisco: Jossey-Bass Publishers, 1996. pp. 79-81.

2. Tests and Examinations

Anthony, Booker T. "Assessing Writing through Common Examinations and Student Portfolios." *Assessment in Practice*. In Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. (Eds.) San Francisco: Jossey-Bass Publishers, 1996. pp. 213-215.

Kubiszyn, Tom and Borich, G. *Educational Testing and Measurement: A Guide for Writing and Evaluating Test Items*. Minneapolis, MN. Burgess Publishing Co., 1984.

Popham, W. J. "Selecting Objectives and Generating Test Items for Objectives-based Tests." In Harris, C., Alkins, M., & Popham, W. J. (Eds.) *Problems in Criterion-Referenced Measurement*. University of California, Los Angeles: Center for the Study of Evaluation, 1974.

Priestley, Michael. *Performance Assessment in Education and Training: Alternative Techniques*. Englewood Cliffs, NJ: Educational Technology Publishers, 1992.

Osterlind, Steven. *Constructing Test Items*. Boston: Kluwer Academic Press, 1989.

3. Portfolio Evaluation

Aubrey Forrest. *Time Will Tell: Portfolio-Assisted Assessment of General Education*. Washington, DC: AAHE Assessment Forum, 1990.

Belanoff, Pat & Dickson, Marcia. *Portfolios: Process and Product*. Portsmouth, NH: Boynton/Cook Publishers, 1991.

Black, Lendley C. "Portfolio Assessment." In Banta, Trudy & Associates (Eds.) *Making a Difference: Outcomes of a Decade of Assessment in Higher Education*. San Francisco: Jossey-Bass Publishers, 1993. pp. 139-150.

Jones, Carolee G. "The Portfolio as a Course Assessment Tool." *Assessment in Practice*. Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. San Francisco: Jossey-Bass Publishers, 1996. pp. 285-287.

Portfolio News. Portfolio Assessment Clearing House, Encinitas, CA.

Fong, B. *The External Examiners Approach to Assessment*. Washington, DC: Association of American Colleges. 1987.

4. Student Surveying and Exit Interviewing

Lenning, O. Use of Cognitive Measures in Assessment. In Banta, T. W. (Ed.) *Implementing Outcomes Assessment: Promise and Perils*. New Directions for Institutional Research, no. 59. San Francisco: Jossey-Bass, p. 41-52.

Muffo, John A., & Bunda, Mary Anne. "Attitude and Opinion Data." In Banta, Trudy & Associates (Eds.) *Making a Difference: Outcomes of a Decade of Assessment in Higher Education*. San Francisco: Jossey-Bass Publishers, 1993. pp. 139-150.

Riess, R. Dean, & Muffo, John A. "Exit Interviews in Mathematics." *Assessment in Practice*. Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. San Francisco: Jossey-Bass Publishers, 1996. pp. 129-131.

Staik, Irene M., & Rogers, Julia S. "Listening to Your Students." *Assessment in Practice*. Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. San Francisco: Jossey-Bass Publishers, 1996. pp. 132-134.

5. Alumni Surveying

Converse, Jean M. & Pressler, Stanley. *Survey Questions: Handcrafting the Standardized Questionnaire*. Newbury Park. SAGE Publications. 1986.

Dyke, Janice Van, & Williams, George W. "Involving Graduates and Employers in Assessment of a Technology Program." In Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. (Eds.) *Assessment in Practice*. San Francisco: Jossey-Bass Publishers, 1996. pp. 99-101.

Ewell, Peter. *Student Outcomes Questionnaires: An Implementation Handbook*. New York, NY: National Center for Higher Education Management Systems and the College Board. 1983.

McKenna, B. *Surveying Your Alumni: Guideline and 22 sample questionnaires*. Washington, DC: Council for Advancement and Support of Education. Contains 22 documented examples of alumni surveys successfully employed at private colleges.

6. Employer Surveying

Converse, Jean M. & Pressler, Stanley. Survey Questions: *Handcrafting the Standardized Questionnaire*. Newbury Park. SAGE Publications. 1986.

Dyke, Janice Van, & Williams, George W. Involving Graduates and Employers in Assessment of a Technology Program. @ In Banta, Trudy W., Lund, Jon P., Black, Karen E., & Oblander, Frances W. (Eds.) *Assessment in Practice* San Francisco: Jossey-Bass Publishers, 1996. pp. 99-101.