

Developing Program-Level Student Learning Outcomes

Opening Remarks—George Hynd

Context—Bev Diamond

- Why student learning outcomes assessment? Why now?
- First Steps and Expectations for Programs (spring 2011 – fall 2012)
 - Spring 2011
 - Begin development of program-level student learning outcomes
 - Connect program to course-level student learning outcomes
 - By end of semester, identify appropriate assessment measures for 3 program-level learning outcomes
 - Fall 2011
 - Complete development of program-level student learning outcomes and connection to course-level outcomes
 - Gather data/assess chosen outcomes,
 - Spring 2012
 - Analyze data, discuss what the findings mean (involve students as well as faculty)
 - Develop improvement plan
 - Fall 2012—Implement improvement plan
- General education student learning outcomes
- No penalty for identifying failures
- Usual assignments in courses can often be used for assessment of student learning outcomes
- Not every outcome need be assessed with every cycle of assessment

AAPA's New Approach – Karin Roof

Program-Level Student Learning Assessment—Getting Started—Lynne Ford and Karin Roof

- Shared Vocabulary
 - Assessment is a “rich conversation about student learning informed by data.”
 - The emphasis is on “closing the loop” or using the information you discover to improve student learning in your program.
 - Program and course-based assessment is NOT connected in any way to faculty evaluation.
 - Learning Outcomes are statements that describe significant and essential learning that students have achieved and can reliably demonstrate at the end of a course or program/major.
- Role of Program-Level Outcomes
 - Identify core aspects of the program (significant and essential)
 - Lead to a cohesive learner-centered program (focus is on learner and learning)
 - Promote effective learning when course-level student learning outcomes are aligned with program-level student learning outcomes.

STEP 1: Define key learning outcomes for students in the program/major.

- “What should our students know and be able to do after they complete the program?”
- “What are the characteristics of our ‘ideal’ graduate?”
- Constructing Learning Outcomes using Taxonomies--cognitive, affective, and behavioral (Handout #2)

STEP 2: In response to the questions, produce a limited set of student learning outcome statements.

- Statements should be results/outcome oriented, clearly understood, and measurable.
- Learning outcomes should be active and observable so that they can be measured.
 - Using “power verbs” (Handout #3)
- The emphasis is on the student, not the instructor.
- Learning outcomes should be realistic, simple, and not compound.
- To get started, fill in the blanks: At the end of the program/major, students should know _____, be able to _____, and value _____.
- Examples (Handout #4).
- Aim for between three and five program student learning outcomes to start (no fewer than three, but too many beyond five and the program will be difficult to assess and strategically improve).
- Learning outcomes should align with the program curriculum.
 - Curriculum mapping (Handout #5).

STEP 3: Review the learning outcomes with faculty using the checklist (Handout #6).

- Translate the process to the course level by ensuring that all course syllabi contain student learning outcomes related to the program outcomes.
- You should not expect all program-level outcomes to be found in all courses.

WORKSHOP ACTIVITY

- Choose a partner from within your school or from your department.
- Working one at a time, describe the “ideal graduate” from your program/major—speak in terms of what that student should know and be able to do after they complete your program. You might want to use Handout # 2 to guide your thinking. Your partner should take notes on “significant and essential” characteristics found within your description as you speak.
- Once you have each completed your description, share notes and identify one characteristic to use as the basis for a student learning outcome statement for the major/program.
- You can work individually or together, but share and critique one another’s outcomes using the checklist (Handout #6).
- Reporting Out

Closing Discussion—Lynne Ford

- How can you best work through this exercise with your departmental colleague?
- What resources can you provide to get the discussion started? (see below; also Handout
- Does your professional/disciplinary association have a list of program-level outcomes and might they be useful in informing your work? Are there similar programs at peer institutions that might be useful?
- How does this exercise serve as the beginning of the Assessment Process (Handout #7)

Return to Timeline—Bev Diamond

List of Handouts:

- 1-Creating Learning Outcomes (Stanford University)
- 2-Constructing Learning Outcomes (Stanford University)
- 3-Bloom's Taxonomy action verbs
- 4-Examples of student learning outcomes
- 5-Curriculum mapping example (Stanford University)
- 6-Learning Outcomes Checklist
- 7-Assessment Methods (Stanford University)
- 8-AAHE Assessment Forum: 9 Principles of Good Practice for Assessing Student Learning

Additional Resources:

Internet Resources for Higher Education Outcomes Assessment: <http://www2.acs.ncsu.edu/UPA/assmt/resource.htm>

Excellent workshops with PPT and Handouts, University of Hawaii~Manoa:

<http://manoa.hawaii.edu/assessment/workshops/index.htm>

CREATING LEARNING OUTCOMES

What Are Student Learning Outcomes?

Learning outcomes are statements of the knowledge, skills and abilities individual students should possess and can demonstrate upon completion of a learning experience or sequence of learning experiences. Before preparing a list of learning outcomes consider the following recommendations:

Learning outcomes should be specific and well defined. When developing a list of student learning outcomes, it is important that statements be specific and well defined. Outcomes should explain in clear and concise terms the specific skills students should be able to demonstrate, produce, and know as a result of the program's curriculum. They should also exclude the greatest number of possible alternatives so that they can be measured. For example, the learning outcome "Students completing the BS in Chemistry should be well practiced in the relevant skills of the field" is too vague. In this example, we do not know what the relevant skills of the field of chemistry include. This will create problems in measuring the behavior of interest and drawing valid conclusions about the program's success.

Learning outcomes should be realistic. It is important to make sure that outcomes are attainable. Outcomes need to be reviewed in light of students' ability, developmental levels, their initial skill sets, and the time available to attain these skill sets (i. e, 4 years). They should also be in line with what is being taught.

Learning outcomes should rely on active verbs in the future tense. It is important that outcomes be stated in the future tense in terms of what students should be able to do as a result of instruction. For example, the learning outcome "Students have demonstrated proficiency in..." is stated in terms of students' actual performance instead of what they will be able to accomplish upon completion of the program. Learning outcomes should also be active and observable so that they can be measured. For example, outcomes like "Students will develop an appreciation of, and will be exposed to..." are latent terms that will be difficult to quantify. What does it mean to have an appreciation for something, or to be exposed to something?

Learning outcomes should be framed in terms of the program instead of specific classes that the program offers. Learning outcomes should address program goals and not specific course goals since assessment at the University is program-focused. For example, the learning outcome "Students completing Chemistry 101 should be able to..." is focused at the course level. It does not describe what a graduating senior in Chemistry should be able to demonstrate as a result of the program.

There should be a sufficient number of learning outcomes. You should include between three to five learning outcomes in your assessment plan. Fewer than three will not give you adequate information to make improvements, more than five may be too complicated to assess. It is important to note that not all programs will assess all learning outcomes in all classes. The program may choose to focus on one or two per class.

Learning outcomes should align with the program's curriculum. The outcomes developed in your plan need to be consistent with the curriculum goals of the program in which they are taught. This is critical in the interpretation of your assessment results in terms of where changes in instruction should be made. Using curriculum mapping is one way to ensure that learning outcomes align with the curriculum. A curriculum map is a matrix in which learning outcomes are plotted against specific program courses. Learning outcomes are listed in the rows and courses in the columns. This matrix will help clarify the relationship between what you are assessing at the program level and what you are teaching in your courses.

Learning outcomes should be simple and not compound.

The outcomes stated in your plan should be clear and simple. Avoid the use of bundled or compound statements that join the elements of two or more outcomes into one statement. For example, the outcome "Students completing the BS in mathematics should be able to analyze and interpret data to produce meaningful conclusions and recommendations and explain statistics in writing" is a bundled statement. This outcome really addresses two separate goals, one about analyzing and interpreting data and another about writing.

Learning outcomes should focus on learning products and not the learning process. Learning outcomes should be stated in terms of expected student performance and not on what faculty intend to do during instruction. The focus should be on the students and what they should be able to demonstrate or produce upon completion of the program. For example, the learning outcome "Introduces mathematical applications" is not appropriate because its focus is on instruction (the process) and not on the results of instruction (the product).



(Diagram adapted from Linn & Miller, 2005.)

Constructing Learning Outcomes

Considering Taxonomies

Taxonomies of educational objectives can be consulted as useful guides for developing a comprehensive list of student outcomes. Taxonomies attempt to identify and classify all different types of learning. Their structure usually attempts to divide learning into three types of domains (cognitive, affective, and behavioral) and then defines the level of performance for each domain. Cognitive outcomes describe what students should know. Affective outcomes describe what students should think. Behavioral outcomes describe what students should be able to perform or do. (Adapted from OAPA Handbook PROGRAM-Based Review and Assessment. UMass Amherst)

Bloom's Taxonomy of Educational Objectives (1956) is one traditional framework for structuring learning outcomes. Levels of performance for Bloom's cognitive domain include knowledge, comprehension, application, analysis, synthesis, and evaluation. These categories are arranged in ascending order of cognitive complexity where evaluation represents the highest level. The table below presents a description of the levels of performance for Bloom's cognitive domain.

Level	Description
Knowledge <i>(represents the lowest level of learning)</i>	To know and remember specific facts, terms concepts, principles or theories
Comprehension	To understand, interpret, compare, contrast, explain
Application	To apply knowledge to new situations to solve problems using required knowledge or skills
Analysis	To identify the organizational structure of something; to identify parts, relationships, and organizing principles
Synthesis	To create something, to integrate ideas into a solution, to propose an action plan, to formulate a new classification scheme
Evaluation <i>(represents the highest level of learning)</i>	To judge the quality of something based on its adequacy, value, logic or use

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

Bloom's Taxonomy Action Verbs

Definitions	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Bloom's Definition	Remember previously learned information.	Demonstrate an understanding of the facts.	Apply knowledge to actual situations.	Break down objects or ideas into simpler parts and find evidence to support generalizations.	Compile component ideas into a new whole or propose alternative solutions.	Make and defend judgments based on internal evidence or external criteria.
Verbs	<ul style="list-style-type: none"> • Arrange • Define • Describe • Duplicate • Identify • Label • List • Match • Memorize • Name • Order • Outline • Recognize • Relate • Recall • Repeat • Reproduce • Select • State 	<ul style="list-style-type: none"> • Classify • Convert • Defend • Describe • Discuss • Distinguish • Estimate • Explain • Express • Extend • Generalized • Give example(s) • Identify • Indicate • Infer • Locate • Paraphrase • Predict • Recognize • Rewrite • Review • Select • Summarize • Translate 	<ul style="list-style-type: none"> • Apply • Change • Choose • Compute • Demonstrate • Discover • Dramatize • Employ • Illustrate • Interpret • Manipulate • Modify • Operate • Practice • Predict • Prepare • Produce • Relate • Schedule • Show • Sketch • Solve • Use • Write 	<ul style="list-style-type: none"> • Analyze • Appraise • Breakdown • Calculate • Categorize • Compare • Contrast • Criticize • Diagram • Differentiate • Discriminate • Distinguish • Examine • Experiment • Identify • Illustrate • Infer • Model • Outline • Point out • Question • Relate • Select • Separate • Subdivide • Test 	<ul style="list-style-type: none"> • Arrange • Assemble • Categorize • Collect • Combine • Comply • Compose • Construct • Create • Design • Develop • Devise • Explain • Formulate • Generate • Plan • Prepare • Rearrange • Reconstruct • Relate • Reorganize • Revise • Rewrite • Set up • Summarize • Synthesize • Tell • Write 	<ul style="list-style-type: none"> • Appraise • Argue • Assess • Attach • Choose • Compare • Conclude • Contrast • Defend • Describe • Discriminate • Estimate • Evaluate • Explain • Judge • Justify • Interpret • Relate • Predict • Rate • Select • Summarize • Support • Value

Examples of Student Learning Outcomes

Languages and Literature:

Students will be able to analyze and interpret texts within the contexts they are written.

French students will be able to produce written work that is substantive, organized, and grammatically accurate.

Students will be able to apply critical terms and methodology in completing a literary analysis following the conventions of standard written English.

Fine Arts:

Students will demonstrate in-depth knowledge of artistic periods used to interpret works of art including the historical, social and philosophical contexts.

Students will be able to critique and analyze works of art and visual objects.

Students will be able to identify musical elements, take them down at dictation, and perform them at sight.

Physical and Biological Sciences:

Students will be able to demonstrate an understanding of core knowledge in biochemistry and molecular biology.

Students will be able to acquire and synthesize scientific information from a variety of sources.

Students will apply techniques and instrumentation to solve problems.

Mathematics:

Students will be able to articulate the rules that govern a symbolic system.

Students will be able to judge the reasonableness of obtained solutions.

Social Sciences:

Students will be able to write clearly and persuasively to communicate their scientific ideas clearly.

Students will be able to test hypotheses and draw correct inferences using quantitative analysis.

Humanities:

Students will be able to recognize and respond appropriately to an ethical dilemma.

Students will be able to use historical data as evidence for a point of view.

Students will be able to describe and explain relevant historical events and people.

Using A Curriculum Map

After you have developed the learning outcomes for your program, you should use a curriculum map to see how the outcomes you have developed are met in each course in the program. A curriculum map is simply a matrix in which you list each learning outcome in the rows and the program courses in the columns to indicate which courses contribute to each learning outcome. In each cell, place a letter to indicate how the course relates to the learning outcome. Use the letters "I," "R," and "E" to designate which courses in the program "introduce," "reinforce," or "emphasize" the corresponding learning outcomes. By completing the curriculum maps, you can check for unnecessary redundancies, inconsistencies, misalignments, weaknesses and gaps in your learning outcomes.

For example, the curriculum map below reveals that the 4th learning outcome is not addressed by any of the courses in the Engineering program. To correct for this a course could be redesigned to include this outcome or the outcome could be eliminated from the program.

Problem: Learning Outcome 4 is not met in any of the courses listed on the curriculum map.



LEARNING OUTCOME	COURSE NUMBER				
	ENG 101	ENG 203	ENG 305	ENG 425	ENG 498
Outcome 1	I	E	R	R	R
Outcome 2	I	E	R	R	R
Outcome 3			E		
Outcome 4					
Outcome 5			E	R	R

We recommend developing a curriculum map as a group exercise with your program faculty to facilitate faculty discussion about the program's learning priorities. The curriculum map will also illustrate how well your curriculum aligns with the specified outcomes. You can also use it to help design your assessment plan (e.g., which courses you might sample students from or administer assessment to). It will also provide a reference that may assist in interpreting assessment results later and in determining where you might make modifications in the curriculum.

Can be directly measured and observed					
Maps directly to curriculum					
Focuses on student learning outcomes and not teaching activity					
Relies on action verbs in future tense					
Is useful to identify areas to improve					
Describes what students are intended to do, know, produce					
LEARNING OUTCOME					

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ASSESSMENT METHODS

Now that you have successfully developed program learning outcomes, you are ready to start thinking about ways to measure them. Selecting appropriate means for assessment is an essential step in the assessment process.

Selecting Assessment Measures

There are many different ways to assess student learning. In this section, we present the different types of assessment approaches available and the different frameworks to interpret your results. (See examples on page 27.)

Direct versus Indirect Measures of Assessment

Direct measures of assessment require students to represent, produce or demonstrate their learning. Standardized instruments, student portfolios, capstone projects, student performances, case studies, embedded assessments and oral exams all provide direct evidence of student learning. Indirect measures capture information about students' perceptions about their learning experiences and attitudes towards the learning process. Informal observations of student behavior, focus groups, alumni surveys, self-reports (i.e., NSSE), curriculum and syllabi analysis, exit interviews, and evaluation of retention rates are some examples. The difference between direct and indirect measures of student learning has taken on new importance as accrediting agencies such as WASC have required the use of direct measures to be the primary source of evidence. Indirect measures may serve only as supporting evidence. (See table on the following page.)

Objective versus Performance Assessment

Objective assessments such as short answer, completion, multiple-choice, true-false, and matching tests are structured tasks that limit responses to brief words or phrases, numbers or symbols, or selection of a single answer choice among a given number of alternatives (Miller & Linn, 2005). Objective assessments capture information about recall of factual knowledge and are less useful for assessing higher-order thinking due to their structured response format that allows for only one best answer. Performance assessments allow for more than one correct answer. They require students to respond to questions by selecting, organizing, creating, performing and/or presenting ideas. For this reason, performance assessments are better at measuring higher-order thinking. However, these assessments are often less reliable than objective assessments since they require expert judgment to score responses.

Embedded and Add-On Assessment

Embedded assessments are tasks that are integrated into specific courses. They usually involve classroom assessment techniques but are designed to collect specific information on program learning outcomes. These assessments are typically graded by course instructors and then pooled across sections to evaluate student learning at the program level. Embedded assessments are highly recommended. They are easy to develop and to administer and can be directly linked to the program's curriculum and learning outcomes. Additionally, students are usually more motivated to show what they are learning since embedded assessments are tied to the grading structure in the course. Add-on assessments are additional tasks that go beyond course requirements and are usually given outside of the classroom such as during designated assessment days on campus. Generally they involve standardized testing. Because they are not typically part of the course grading structure, students are often less motivated to perform well. Some programs have tried to eliminate this problem by offering incentives for performance.

Local versus Standardized Assessment

Local assessments are instruments developed by faculty members within a program for internal use only. They are helpful in assessing standard-based questions (i.e., whether or not students are meeting objectives within the program), because they can be directly linked to program learning outcomes. Standardized assessments are published instruments developed outside of the institution. They rely on a standard set of administration and scoring procedures and because of this are often times more reliable. These assessments provide information about how students in a program compare to students at other peer institutions or to national/regional norms and standards. Knowing what you want to assess is key in the selection of standardized instruments. This includes making sure that these assessments contain enough locally relevant information to be useful. It also means that norms should be comparable in terms of the institution's size, mission and student population in order to draw valid conclusions.

Although standardized assessments are primarily used to generate benchmarking information, they are sometimes used to answer standards-based questions. If you decide to use a standardized assessment for this purpose, make sure that the test content aligns with your learning outcomes, otherwise interpretations will be invalid. Secondly make sure results are reported in the form of subscales so that you can identify where improvements need to be made. Testing companies should be able to provide you with this information.

Direct Versus Indirect Measures

Measures	Description	Examples
DIRECT	<p>Prompt students to represent or demonstrate their learning or produce work</p> <p><i>NOTE: WASC requires the use of direct measures of learning</i></p>	<ul style="list-style-type: none">• Standardized instruments• Student portfolios• Capstone projects• Performance, products, creations• Case studies• Embedded-assessments• Orals
INDIRECT	<p>Capture students' perceptions of their learning attitudes, perceptions, and experiences. May also include informal observation of student behavior, evaluation of retention rates, and analysis of program procedures that are linked to student learning.</p> <p><i>NOTE: Indirect methods alone do not provide adequate information about student learning outcomes. They must be supplemented with direct measures.</i></p>	<ul style="list-style-type: none">• Focus groups• Student surveys and exit interviews• Interviews• Alumni surveys• National surveys (e.g., NSSE)• Self-Reports• Observation• Curriculum and syllabi analysis

Examples of Direct Assessment Methods

Assessment Method	Description
Capstone Projects	<ul style="list-style-type: none"> • Culminating research projects that provide information about how students integrate, synthesize and transfer learning • Assess competence in several areas • May be independent or collaborative • Focus on higher order thinking • Are useful for program-level assessment • Examples: exams, integrative papers, projects, oral reports, performances • Typically disciplined based and may be designated as a “senior seminar” • Scoring Method: Pre-Specified rubrics
Course-Embedded Assessment	<ul style="list-style-type: none"> • Assessment procedures that are embedded into a course’s curriculum • May include test items or projects • May be take-home or in-class • Usually locally developed • Can be used assesses discipline-specific knowledge • Scoring methods: Raw scores or pre-specified rubrics
Performance Assessment	<ul style="list-style-type: none"> • Use student activities to assess skills and knowledge • Assess what students can demonstrate or produce • Allow for the evaluation of both process and product • Focus on higher order thinking • Examples: Essay tests, artistic productions, experiments, projects, oral presentations • Scoring Methods: Pre-Specified rubrics
Portfolio Assessment	<ul style="list-style-type: none"> • Collection of student work over time that is used to demonstrate growth and achievement • Usually allows student to self-reflect on incorporated work • May include written assignments, works of art, collection of projects, programs, exams, computational exercises, video or other electron media, etc. • Focus on higher-order thinking • Scoring Methods: Pre-Specified rubrics
Standardized Instruments	<ul style="list-style-type: none"> • Instruments developed outside the institution with standardized administration and scoring procedures and frequently with time restrictions • Psychometrically tested based on norming group • Sometimes allow for national comparisons • Caution: Content may not link to local curriculum and so may not pinpoint where to improve; normative comparisons may be inappropriate; do not allow for examination of processes of learning; • Scoring Methods: Answer key, scored by testing company
Localized Instruments	<ul style="list-style-type: none"> • Instruments within the university usually developed within the department for internal use only • Content may be tailored to match outcomes exactly • Caution: Not as psychometrically sound as standardized instrument unless validated internally • Scoring Methods: Answer key, scored internally



AAHE ASSESSMENT FORUM

9 Principles of Good Practice for Assessing Student Learning

1. **The assessment of student learning begins with educational values.**
 Assessment is not an end in itself but a vehicle for educational improvement. Its effective practice, then, begins with and enacts a vision of the kinds of learning we most value for students and strive to help them achieve. Educational values should drive not only *what* we choose to assess but also *how* we do so. Where questions about educational mission and values are skipped over, assessment threatens to be an exercise in measuring what's easy, rather than a process of improving what we really care about.
2. **Assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time.**
 Learning is a complex process. It entails not only what students know but what they can do with what they know; it involves not only knowledge and abilities but values, attitudes, and habits of mind that affect both academic success and performance beyond the classroom. Assessment should reflect these understandings by employing a diverse array of methods, including those that call for actual performance, using them over time so as to reveal change, growth, and increasing degrees of integration. Such an approach aims for a more complete and accurate picture of learning, and therefore firmer bases for improving our students' educational experience.
3. **Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.** Assessment is a goal-oriented process. It entails comparing educational performance with educational purposes and expectations -- those derived from the institution's mission, from faculty intentions in program and course design, and from knowledge of students' own goals. Where program purposes lack specificity or agreement, assessment as a process pushes a campus toward clarity about where to aim and what standards to apply; assessment also prompts attention to where and how program goals will be taught and learned. Clear, shared, implementable 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; where students "end up" matters greatly. But to improve outcomes, we need to know about student experience along the way -- about the curricula, teaching, and kind of student effort that lead to particular outcomes. Assessment

can help us understand which students learn best under what conditions; with such knowledge comes the capacity to improve the whole of their learning.

5. **Assessment works best when it is ongoing not episodic.** Assessment is a process whose power is cumulative. Though isolated, "one-shot" assessment can be better than none, improvement is best fostered when assessment entails a linked series of activities undertaken over time. This may mean tracking the process of individual students, or of cohorts of students; it may mean collecting the same examples of student performance or using the same instrument semester after semester. 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.
6. **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. Thus, while assessment efforts may start small, the aim over time is to involve people from across the educational community. Faculty play an especially important role, but assessment's questions can't be fully addressed without participation by student-affairs educators, librarians, administrators, and students. Assessment may also involve individuals from beyond the campus (alumni/ae, trustees, employers) whose experience can enrich the sense of appropriate aims and standards for learning. Thus understood, assessment is not a task for small groups of experts but a collaborative activity; its aim is wider, better-informed attention to student learning by all parties with a stake in its improvement.
7. **Assessment makes a difference when it begins with issues of use and 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. This implies assessment approaches that produce evidence that relevant parties will find credible, suggestive, and applicable to decisions that need to be made. It means thinking in advance about how the information will be used, and by whom. The point of assessment is not to gather data and return "results"; it is a process that starts with the questions of decision-makers, that involves them in the gathering and interpreting of data, and that informs and helps guide continuous improvement.
8. **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 worked at. On such campuses, the push to improve educational performance is a visible and primary goal of leadership; improving the quality of undergraduate education is central to the institution's planning, budgeting, and personnel decisions. On such campuses, information about learning outcomes is seen as an integral part of decision making, and avidly sought.
9. **Through assessment, educators meet responsibilities to students and to the public.** There is a compelling public stake in education. As educators, we have a responsibility to the publics that support or depend on us to provide information

about the ways in which our students meet goals and expectations. But that responsibility goes beyond the reporting of such information; our deeper obligation -- to ourselves, our students, and society -- is to improve. Those to whom educators are accountable have a corresponding obligation to support such attempts at improvement.

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This document was developed under the auspices of the AAHE Assessment Forum with support from the Fund for the Improvement of Postsecondary Education with additional support for publication and dissemination from the Exxon Education Foundation. Copies may be made without restriction.

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Modification Date: Thursday, July 25, 1996.