

Student Learning Assessment Handbook
2016- 2017

Overview

Assessment is the ongoing process in which student learning outcomes are defined, student success in achieving those outcomes is measured, and the results are used to implement improvements in curriculum. Thus, the overarching purpose is to gauge what students have learned in the context of program/course expectations and then document the resulting enhancements to program/course delivery. Most faculty members do this on an on-going basis, though perhaps not documenting as formally as needed or done in concert with other faculty members. A key consideration is that the learning outcomes data that are collected are meaningful to those faculty members involved in the instruction, and the assessment process is manageable for all who participate. Elaborate plans that are not implemented and/or result in feedback that doesn't benefit a faculty member's efforts are of no value in this context.

There are three stages to an effective outcomes assessment program; 1. Define the important skills for students to achieve when participating in an academic experience (outcome); 2. evaluate how well students are achieving those skills (assessment); and, 3. discuss and use the results for program improvement (closing the loop). Often the first two stages are accomplished and data is gathered without using it for program improvement, or, the information is not recorded and there is no history to determine why changes were made. A good assessment program can demonstrate high quality student learning and program effectiveness for all the University's constituents. The stages of assessment start with a review of the institution's mission statement.

Colorado Mesa University Legislative Mission Statement

Colorado Mesa University serves the citizens of Colorado, in general, with a specific emphasis on increasing the level of educational attainment of residents in its 14-county region in Western Colorado. Colorado Mesa University's mission, established by the Colorado Legislature, is contained in Colorado Revised Statutes (C.R.S.) 23-53-101:

There is hereby established a College at Grand Junction, Colorado, to be known as Colorado Mesa University, which shall be a general baccalaureate and graduate institution with moderately selective admission standards. Colorado Mesa University shall offer liberal arts and sciences, professional and technical degree programs, and a limited number of graduate programs. Colorado Mesa University shall also maintain a community college role and mission, including career and technical education programs. Colorado Mesa University shall receive resident credit for two-year course offerings in its commission-approved service area. Colorado Mesa University shall also serve as a regional education provider.

In accomplishing its mission, the commission-approved (CDHE) service areas are:

- For its role as a baccalaureate and graduate institution - the entire State of Colorado.
- For its role as a community college - Mesa, Delta, Montrose, San Miguel, and Ouray Counties. (The College cooperates with Adams State College in providing two-year programs for Gunnison and Hinsdale Counties.)
- For its role providing vocational programs - Mesa County.

Board of Trustees' Campus-wide Mission Statement

Committed to a personal approach, Colorado Mesa University is a dynamic learning environment that offers abundant opportunities for students and the larger community to grow intellectually, professionally, and personally. By celebrating exceptional teaching, academic excellence, scholarly and creative activities, and by encouraging diversity, critical thinking, and social responsibility, CMU advances the common good of Colorado and beyond.

Assessment Committee Mission Statement

The Colorado Mesa University Assessment Committee oversees the implementation and advancement of Essential Learning and Program Assessment of student learning and achievement.

Assessment Oversight

- The Vice President for Academic Affairs has the overall responsibility for academic assessment.
- The Assessment Committee – a standing Faculty Senate committee – is responsible for monitoring assessment of student learning outcomes. The committee reviews assessment plans and reports; and gives feedback to the departments for improvements of assessment methods.
- The Faculty Assessment Coordinator serves as a liaison between departments and the Assessment Committee.
- The Director of Assessment of Student Learning is responsible for assisting faculty and departments with the development, implementation and overall maintenance of program assessment.
- Department Heads are responsible for the successful operation of assessment within the department.
- Program Faculty have the most say in what is to be assessed in the major. Aligning with the institutional student learning outcomes, instructors determine where the specialized knowledge, applied learning and intellectual skills are taught in the curriculum and also determine when to assess if the students know and are able to demonstrate what they have been taught.

Who Benefits from Assessment?

- First, and foremost, students benefit because learning outcomes provide clear expectations about what is important in the program or course. Program improvements based on assessment can help students in their learning experiences.
- Second, faculty benefit because assessment helps determine what is and is not working in the program. Assessment lends itself to writing the 'story' of the program and can demonstrate to interested constituencies of the institution the quality of the program. All faculty can have a say in what is assessed, thus strengthening the cohesive nature of teaching and learning.
- Third, administration benefits when the assessment process demonstrates institutional commitment to continuous improvement of academic and student support services. Valuable information is also shared with state and local governments, or private supporters when requesting funding. Results of assessment can be easily shared with the University's stakeholders and demonstrate the impact that education has on our students and community.

Cycle of Assessment – Program Review

At Colorado Mesa University, student learning assessment takes place at the essential learning level and the academic program level. The assessment of essential learning time frame is currently being determined.

Assessment Levels	Timeline
Essential Learning	Yearly
Academic Program Review and Assessment	Six-year rotation for each program: Year 1 = Plan Year 3 = Progress Report Year 6 = Program Review
Program Specific Accreditation	Varies by program
Institutional Assessment	NSSE, FSSE, CCSSE = 2008, 2011, 2013, 2016 LASSI = Yearly ETS Proficiency Profile = 2013, 2014, 2015, 2016

The responsibility for assessment of student learning is an integral part of each faculty member's teaching responsibilities. Proper assessment is designed to improve student learning which should be the goal of any instructor and should not be viewed merely as a means of complying with accreditation requirements. Used correctly, faculty should see that they are instinctively assessing within their courses and programs on a regular basis.

Program Review

Program review is on a six-year rotation for assessment. In year one, a program assessment plan is submitted in the fall semester to indicate the outcomes and criteria that will be evaluated over the next six years. Evidence is gathered by the program over the six-year period. At the beginning of the third year, a program assessment progress report is submitted to the Assessment Committee to document what has been done so far. At the completion of the six-year period, a formal program assessment report is completed. This final report documents the assessment work over the review period and is a self-study format to look at strengths and weaknesses in the program and identify areas for improvement. The final report should include a curriculum map that aligns courses in the program with the expected student learning outcomes of the program. An independent external reviewer also makes a site visit to evaluate the program and provide feedback.

Linking Assessment to Program Review

One purpose for conducting program review is to help programs/department identify the strengths and weaknesses of the curriculum. Assessment of student learning can help programs determine necessary improvements to courses or determine what works well. A well-designed assessment plan can aid the program in formulating time frames for assessment as well as decide what courses line up with the learning outcomes to be assessed. The Assessment Committee's role in this process is to review program assessment plans and offer suggestions for outcome wording, find gaps in yearly assessment of outcomes, and assure that the program has reviewed the data and came to decisions about revisions in the program to assure student learning.

The time frame for the Committee review of the assessment portion of the program review is as follows:

- Department Head submits the program review to the Assistant VP of Academic Affairs in November.
- The assessment portion of the review is forwarded to the Faculty Coordinator of Assessment and Director of Assessment of Student Learning in November.
- The Assessment Committee sub-groups review the assessment plan/report using a rubric (Appendix A), making comments and observations. The sub-group report is submitted to the Faculty Coordinator and the review is sent to the Department Head and Assistant VPAA.
- The final report from the Assessment Committee is submitted to Faculty Senate by May 15.

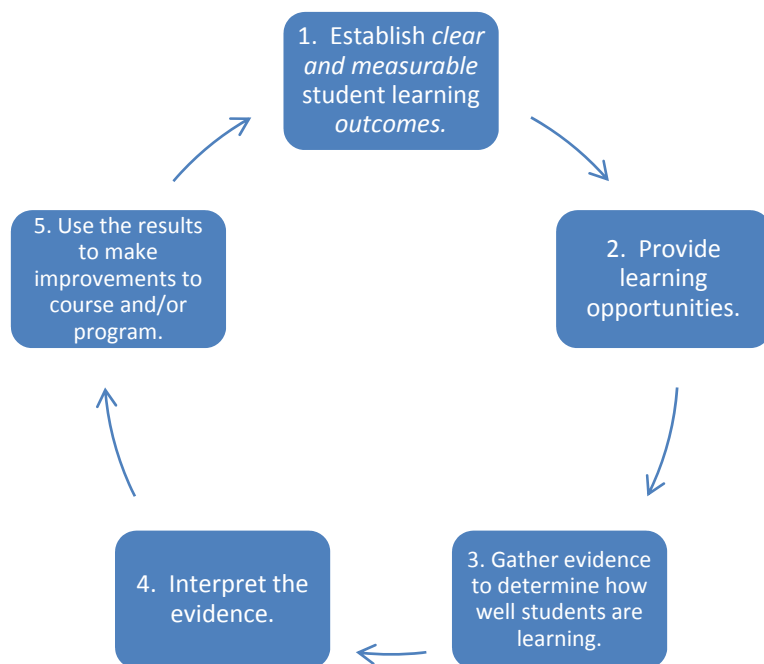
Overview of Assessment of Learning

The following are assumptions for student learning assessment at CMU based on the 9 Principles of Good Practice for Assessing Student Learning (Appendix B):

1. Assessment should be designed to improve student learning.
2. All faculty members should be actively involved.
3. Assessment should be embedded in regular course and program activities where possible.

Assessment of student learning should be viewed as a continuous cycle of improvement as illustrated in Figure 1.

Figure 1



Establish Institutional Student Learning Outcomes

At Colorado Mesa, learning outcomes are established on the institutional level with program and course outcomes aligning to those outcomes. The institutional outcomes for a baccalaureate degree program are:

Institutional outcomes for graduate programs are:

The CMU doctoral degree graduate will be able to:

- Advance science, education, leadership, practice, or policy within a chosen discipline by completing an original research project approved by a faculty panel. (Specialized Knowledge/Applied Learning)
- Employ discipline-specific logical, mathematical, or statistical methods, or other analytical processes to address a topic or issue. (Quantitative Fluency)
- Create oral and written arguments or explanations, well-grounded in discipline-specific theories and methods, for specified audiences. (Communication Fluency)
- Formulate and evaluate hypotheses as related to research problems, issues, concepts, and various perspectives. (Critical Thinking)
- Synthesize, evaluate, or refine the information base of various scholarly sources. (Information Literacy)
- Choose ethical and legal courses of action in research and professional practice. (Ethical Reasoning)

The CMU master's degree graduate will be able to:

- Contribute to scholarly advancement in the chosen field by completing projects individually and collaboratively. (Specialized Knowledge/Applied Learning)
- Employ discipline-specific logical, mathematical, statistical methods, or other analytical processes to address a topic or issue. (Quantitative Fluency)
- Create oral and written arguments or explanations, well-grounded in discipline-specific theories and methods, for specified audiences. (Communication Fluency)
- Formulate and evaluate hypotheses as related to research problems, issues, concepts, and various perspectives. (Critical Thinking)
- Synthesize, evaluate, or refine the information base of various scholarly sources. (Information Literacy)
- Evaluate moral, ethical, legal, or professional challenges within the discipline. (Ethical Reasoning)

Institutional outcomes for undergraduate programs are:

The CMU baccalaureate degree graduate will be able to:

- construct a summative project, paper or practiced-based performance that draws on current research, scholarship and/or techniques, and specialized knowledge in the discipline (applied learning; specialized knowledge);
- analyze data critically, reason logically, and apply quantitative analysis methods correctly to develop appropriate conclusions (quantitative fluency);
- make and defend assertions about a specialized topic in an extended well-organized document and an oral presentation that is appropriate to the discipline (communication fluency); and
- Describe reasoned conclusions that articulate the implications and consequences for a particular decision by synthesizing information and methodologies (critical thinking).

The CMU/WCCC associate degree graduate will be able to:

- locate, gather and organize evidence on an assigned topic addressing a course or discipline-related question or a question of practice in a work or community setting (applied learning; specialized knowledge);
- use program-level mathematical concepts and methods to understand, analyze, and explain issues in quantitative terms (quantitative fluency);
- make and defend claims in a well- organized, professional document and/or oral presentation that is appropriate for a specific audience (communication fluency); and
- identify and gather the information/data relevant to the essential question, issue and/or problem and develop informed conclusions (critical thinking)

Institutional outcomes for a technical certificate program are:

All technical certificate graduates will be able to:

- Apply principles of grammar and vocabulary in documentation for the field of study (communication fluency)
- Apply mathematical concepts and practices to the field of study (quantitative fluency)
- Locate, gather, organize and evaluate evidence on an assigned topic, or question of practice, in a work place setting (critical thinking)
- Demonstrate mastery of the current terminology in the field of study (specialized knowledge)
- Generate substantially error-free products or processes in the field of study (applied learning)
- Demonstrate personal and professional ethical behavior (specialized knowledge)

Institutional outcomes for Essential Learning are:

- Produce effective arguments and summaries in written English
- Present information effectively in spoken English
- Demonstrate quantitative literacy
- Critically examine and evaluate an argument
- Demonstrate investigative and analytical thinking skills to solve problems
- Select and use appropriate information or techniques in an academic project

Based on these institutional outcomes, programs will produce student learning outcomes applicable to the discipline. Course learning outcomes may vary but should have a component of the program/institutional outcome alignment.

The Assessment Process

Define Learning Outcomes

The first step in assessment is to define clear and measurable student learning outcomes. Generally, these outcomes should state what the student will be able to do as a result of learning. In other words, student learning outcomes should focus on student performance at the completion of a course or program. Therefore, outcomes should be written with action words that indicate what a student will be able to do. Bob Mundhenk, Senior Scholar to the HLC, presented the following questions that one should answer when building assessment plans:

1. What do we promise incoming students?
2. What do we say our graduates will be able to do or to be?

3. What do we expect students in a course to carry with themselves to other courses and to life after college?
4. What *essential* skills, knowledge, and values *must* they carry forward?
5. How do we help students understand what's most important?
6. How do our assignments, activities, assessment practices, grading strategies, syllabi, and other forms of interaction communicate what's important?
7. How do we assure that these important things are developed within courses, experiences, and majors? (Mundhenk, 2011)

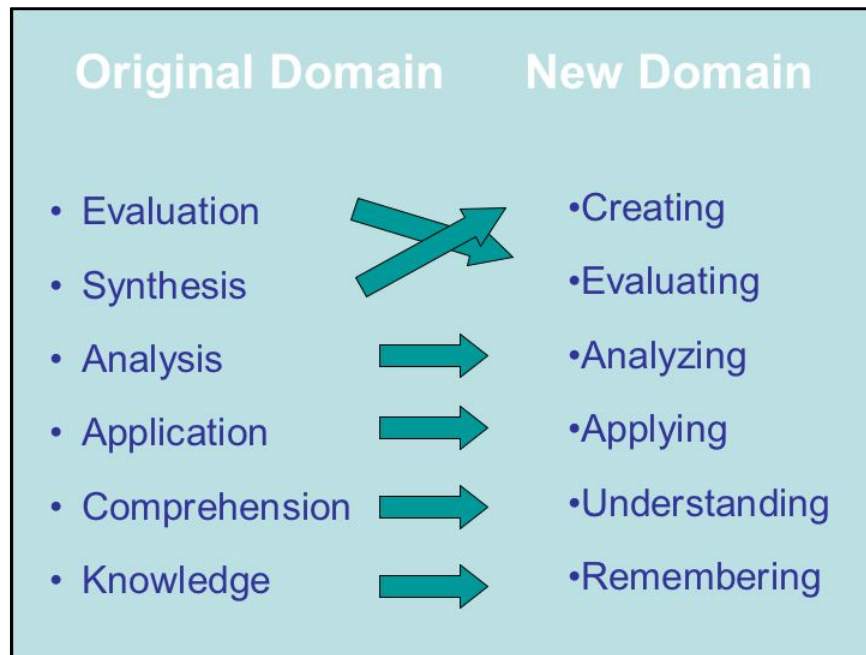
The student learning outcomes should be closely aligned to Bloom's Taxonomy of Learning Objectives. It is important that the instructor use the appropriate level(s) of Bloom's Taxonomy in developing outcomes. The Taxonomy begins with knowledge at the lowest level and develops through multiple levels up to evaluation. When developing outcomes, it is important to use action words that are appropriate to each level in Bloom's Taxonomy. For example, a student in a 100-level essential learning course may only demonstrate the lower levels such as knowledge and comprehension. A 400 level course should provide the student with higher-level learning such as synthesis and evaluation. Huitt (2009) provides examples of action words and behavior outcomes for each level as shown in Figure 2.

Figure 2 From <http://www.edpsycinteractive.org/topics/cogsys/bloom.html>

LEVEL	DEFINITION	SAMPLE VERBS	SAMPLE BEHAVIORS
KNOWLEDGE	Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned.	Write List Label Name State Define	The student will define the 6 levels of Bloom's taxonomy of the cognitive domain.
COMPREHENSION	Student translates, comprehends, or interprets information based on prior learning.	Explain Summarize Paraphrase Describe Illustrate	The student will explain the purpose of Bloom's taxonomy of the cognitive domain.
APPLICATION	Student selects, transfers, and uses data and principles to complete a problem or task with a minimum of direction.	Use Compute Solve Demonstrate Apply Construct	The student will write an instructional objective for each level of Bloom's taxonomy.
ANALYSIS	Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, or structure of a statement or question.	Analyze Categorize Compare Contrast Separate	The student will compare and contrast the cognitive and affective domains.
SYNTHESIS	Student originates, integrates, and combines ideas into a product, plan or proposal that is new	Create Design Hypothesize Invent Develop	The student will design a classification scheme for writing educational objectives that combines the

	to him or her.		cognitive, affective, and psychomotor domains.
EVALUATION	Student appraises, assesses, or critiques on a basis of specific standards and criteria.	Judge Recommend Critique Justify	The student will judge the effectiveness of writing objectives using Bloom's taxonomy.

In 2000, the Bloom's chart was changed slightly to rearrange the categories and make the words verbs instead of nouns:



<http://www.nwlink.com/~donclark/hrd/bloom.html>

An example of using the revised chart can be found at <http://www.gcssk12.net/fullpanel/uploads/files/revised-blooms-chart.pdf>. This reference also provides types of assessments that can be used with the level of taxonomy.

Writing Learning Outcomes

The following formula may be helpful in developing learning outcomes:



For example, clear and measurable objectives for an introductory accounting course might say:

- *At the completion of the course a student will be able to describe basic accounting principles and terminology.*

- *At the completion of the course a student will be able to analyze and record basic accounting transactions in the general journal.*

Some verbs are not clear or easily measurable and should be avoided when developing student learning outcomes. Examples of these *problem* verbs would include: understand, know, grasp or comprehend.

State the Criteria for Success (The “student will... [expected performance]”)

In order to evaluate the student learning one must also identify how well it should be done. After developing the student learning outcomes, the minimum acceptable performance level should also be defined. This could be done by specifying the minimum number of correct responses that would be judged as acceptable performance. Or, one might indicate the percentage correct that would be expected. In order to interpret the evidence later, the University of Connecticut’s Assessment Primer (n.d.) suggests the following question should be addressed “*How will we know when the performance is good enough to be acceptable?*” for an assignment.

Create Curriculum Maps

Once learning outcomes have been written, it is important to determine where the outcomes will be assessed in the curriculum. By mapping the outcomes to the program courses on a grid, it is easier to see if there are any “holes” in the assessment process.

Outcome	Course 1XX	Course 2XX	Course 3XX	Course 4XX
1. Communication	x		x	x
2. Quantitative		x		x
3. Critical Thinking			x	x
4. Program Special Knowledge and Applied Learning	x	x	x	x

After determining where the outcomes are assessed in the curriculum, an assessment plan will be developed to determine when the assessment takes place. Program faculty will play an important role in this planning as they will be responsible for gathering the data in the courses.

Gather Evidence

After faculty has determined the expected outcomes of the course and the acceptable level of performance, they can determine how to measure whether learning has taken place. It is generally better to embed assessment in the normal activities of the course or program. For example, one can assess learning in the course by using a particular writing assignment that is given each semester. An assessment can be direct or indirect. Direct assessments look at the work a student produces. Indirect assessments may include surveys and interviews. Both types of assessment can be extremely informative in making improvements to curriculum and a mixture of direct and indirect assessments should be used (at least one direct measure must be in place).

Examples of assessment instruments may include:

Direct:

- Pre-tests & post-tests
- Writing activities
- Multiple choice questions

- Essay questions blind scored by faculty across the department
- Oral presentations
- Standardized tests
- Projects
- Clinical experiences
- Internships
- Simulations
- Portfolios
- Externally reviewed exhibitions and performance in the arts

Indirect:

- Interviews
- Surveys/questionnaires
- Job placement/continuing education data

In deciding the assessment instrument, one needs to consider if it is appropriate and meaningful and if it will be useful in improving learning. It is also important to determine the appropriate timing of the assessment in relation to the course or program.

Interpret the Evidence

After evidence has been gathered, the faculty must judge the student's work. It is helpful for both the student and the faculty to understand the learning outcomes and the expectations of acceptable student performance. The faculty may interpret the evidence by using a rubric. A rubric is an assessment tool that can be used to analyze many assignments like writing activities, exams, and oral presentations. This allows consistency in interpreting the work along a continuum of performance of the skill or ability the student is demonstrating. There are many websites available to assist one in creating rubrics such as <http://rubistar.4teachers.org/>, http://www.aacu.org/value/rubrics/index_p.cfm, <http://course1.winona.edu/shatfield/air/rubrics.htm> and http://www.teach-nology.com/web_tools/rubrics/. These are helpful for students in understanding how grades were determined based on specific criteria. The AAC&U developed Values Rubrics which will become the core for assessment of Essential Learning. These rubrics can be found at <http://leap.aacu.org/toolkit/projects/value-project>.

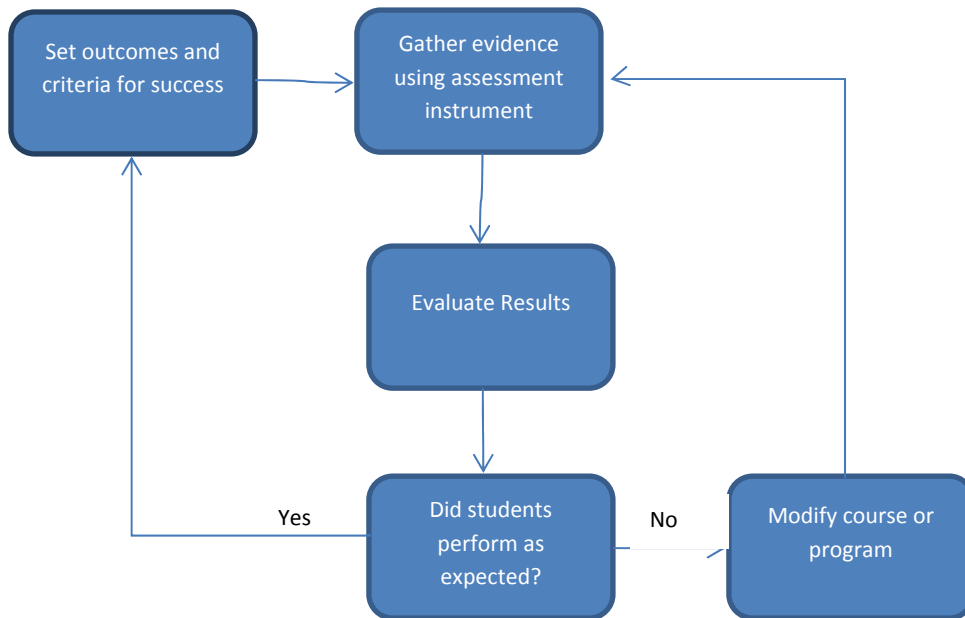
Use the Results

The primary purpose of assessment is continuous improvement in student learning. Therefore, the use of the results to advance the curriculum is imperative. After interpreting the evidence, one may find that the students are learning what was intended. Such a favorable result means that the current design of the course or program is meeting that particular objective. In that case, it would be appropriate to consider another objective or outcome to measure during the next assessment period. Many faculty members might be inclined to just continue to measure the same thing period after period even though the assessment does not indicate that changes are necessary. They may be missing an opportunity to refine their course or program in other areas that do need improvement.

After interpreting the evidence, one may find that students have not learned what was intended. In that circumstance, it would be appropriate to modify the curriculum to try to get students to learn what is intended. Perhaps students did not realize that it was important. Perhaps another method of presenting the material would be more effective. The faculty should look at the curriculum to determine how it might be modified to improve student learning in that particular area in order for

students to achieve the expected outcome. After making changes to the course or program, the expected outcome should be assessed again to see if student learning has improved. See Figure 3.

Figure 3



Document what changes were made as a result of assessment

As stated before, faculty already do assessment in their courses. However, the assessment process is not always formally documented. The last step is to document the assessment of courses and programs to be able to show evidence of continuous improvement to CMU’s various stakeholders. All faculty should participate in the recommendation process as well as the discussion of the changes that occurred as a result of assessment. The Assessment Committee will review program assessment plans/reports each year (in the program review cycle) to assure that the process is on-going.

The Assessment Cycle

In order to streamline the process and make assessment less cumbersome, an assessment cycle in which evaluating each outcome over a 3 – 4 year period of time can be beneficial. Depending on the number of program outcomes, faculty should consider assessing two outcomes in the first year, evaluating the results of the assessment and determining the course of action in the second year, and then putting any changes into action in the third year. The fourth- sixth year would be a repeat of the cycle in order to have two cycles of assessment in the six-year program review period. The rest of the outcomes would be cycled in a similar manner. An example of this cycling (courtesy of Gloria Rogers, Senior Scholar to the HLC) is as follows:

Student Outcomes	AY 13-14	AY 14-15	AY 15-16	AY 16-17	AY 17-18	AY 18-19
A recognition of ethical and professional responsibilities	A	E	C	A	E	C
An understanding of how contemporary issues shape and are shaped by mathematics, science, & engineering		A	E	C	A	E
An ability to recognize the role of professionals in the global society			A	E	C	A
An understanding of diverse cultural and humanistic traditions	A	E	C	A	E	C
An ability to work effectively in teams		A	E	C	A	E
An ability to communicate effectively in oral, written, graphical, and visual forms			A	E	C	A

A= Assess; E= Evaluate;
C= Changes (if necessary)

The assessment period will depend on the number of students assessed. Classes with 20 or more students may give good data for the outcomes while classes with less numbers may need to be assessed over two or three semesters/years in order to collect enough information to make determinations on changes. While assessment generally occurs in capstone courses and perhaps in some formative courses, evaluation of the results of assessment should be conducted by all faculty whose courses contributed to the outcomes. The program curriculum map identifies which courses are assessing which outcomes and to include all faculty in these discussions becomes very productive in determining changes in courses or the entire curriculum. By streamlining the process, all faculty at various times in the assessment cycle will participate in some but not all discussions.

Course Outcomes Assessment

A critical piece of assessment of learning outcomes takes place within the course itself, whether in the classroom or in online learning. Outcomes should be based on what students have learned in the course and part of the learning should align to the program and, ultimately the institutional, outcomes. Many schools have used the term ‘objective’ instead of ‘outcome’ in regard to student learning assessment. Both terms can be used in the course syllabus, however, the decision was made to use the term “student learning outcomes” for assessment rather than the term, “objectives”. The following information from Rensselaer Polytechnic Institute gives a brief explanation of the difference:

Objectives

- Objectives represent valuable skills, tools, or content which enable a student to engage a particular subject.
- Objectives describe the goals and intentions of the professor who teaches the course.
- Objectives focus on content and skills important within the classroom or program. Objectives describe what the staff and faculty will do.
- Objectives, often termed the input in the course, state the purpose, and goals, of the course.
- Objectives can often be numerous, specific, and detailed. Assessing and reporting on each objective for each student may be impossible.

Outcomes

- Student Learning Outcomes catalog the overarching products of the course. Learning Outcomes are statements that describe or list measurable and essential mastered content-knowledge—reflecting skills, competencies, and knowledge that students have achieved and can demonstrate upon successfully completing a course.
- Outcomes express higher-level thinking skills that integrate course content and activities and can be observed as a behavior, skill, or discrete useable knowledge upon completing the course. Outcomes are exactly what Assessments show that the student is able to do upon completing the course.
- An assessable outcome is an end-product that can be displayed or observed and evaluated against criteria.

Both outcomes and objectives are desirable in a course syllabus as these will guide the student as to the intent of the instructor and the responsibility of learning on the part of the student. An excellent reference for writing objectives and outcomes is found at the University of Connecticut (see resources).

Frequently Asked Questions

Q. Assessment seems like extra work, how is assessment useful to my course or program?

R. Students learn better when they receive feedback on their performance. Faculty will understand their students' learning better and can refine their teaching methods to better achieve the outcomes expected and to provide more relevant feedback to students. Assessment is also useful when there are many faculty members involved as it requires communication and agreement on what the student learning outcomes should be for a course or program to ensure consistency.

Q. Should I use multiple assessment tools?

R. By using multiple assessment tools, you may get a more complete picture of what you are trying to measure. It will give you multiple perspectives for analysis.

Q. Which and how many faculty members of a program need to participate in the assessment process?

R. All faculty members should participate in assessment as they are all stakeholders in improving student learning and the success of the program. Also, courses across the curriculum are used in the assessment process so faculty participation is crucial.

Q. Will assessment information be used to evaluate faculty?

R. Absolutely not. This process is about assessing the effectiveness of programs, courses, and co-curricular activities, not individuals. The results will be reported in a way that will not identify any individual faculty or student.

Q. Where can I go for help in developing assessment for my course or program?

R. Each department has a representative on the Assessment Committee. This might be the first person you go to for help with assessment activities. In addition, the Faculty Assessment Coordinator and the Director of Assessment of Student Learning are available to meet with you and provide guidance. Contact information can be found on the web site. There are also many online resources that you may wish to use. Many resources are listed at <http://www.coloradomesa.edu/assessment/>.

Q. Is this just another academic fad that will be gone in a couple of years?

R. Not likely. The outcomes assessment movement has been a serious one for at least two decades, and its momentum continues to grow, not wane. Every regional higher education accreditation agency, including the HLC, across the country now includes the assessment of learning outcomes as one of the highest priority criterion.

Q. Aren't we only doing this for the Higher Learning Commission?

R. It is true that the Higher Learning Commission will be looking at our assessment practices. However, used correctly many faculty members find that assessment is a tool to help them understand what their students are learning to affirm what is working and/or make improvements to what is not working.

Q. How will assessment improve learning?

R. Assessment by itself will not improve learning. It is a tool that provides information to faculty and that information can be used to improve learning.

References

Assessment Primer. (n.d.). Retrieved September 7, 2011, from University of Connecticut:

<http://assessment.uconn.edu/primer/objectives1.html>

Huitt, W. (2009). *Bloom et al.'s taxonomy of the cognitive domain*. Retrieved September 7, 2011, from Educational Psychology Interactive:

<http://www.edpsycinteractive.org/topics/cogsys/bloom.html>

Mundhenk, B. (2011). *Assessment of Learning: The Basics. Making a Difference in Student Learning: Assessment as a Core Strategy*. Chicago: HLC.

Rensselaer Polytechnic Institute, Office of the Provost, Learning Assessment:

<http://provost.rpi.edu/node/36>

Resources

Association of American Colleges and Universities: <http://www.aacu.org/leap/index.cfm>

Bakersfield College: *Assessing Student Learning in Higher Education*

<http://www2.bakersfieldcollege.edu/courseassessment/Default.htm>

University of Connecticut: *How to write Program Objectives/Outcomes*

<http://assessment.uconn.edu/docs/HowToWriteObjectivesOutcomes.pdf>

National Institute for Learning Outcomes Assessment:

<http://learningoutcomeassessment.org/>

North Carolina State University: *Internet Resources for Higher Education Outcomes Assessment:*

<http://www2.acs.ncsu.edu/UPA/archives/assmt/resource.htm>

Writing Student Learning Outcomes in the Syllabus

<http://services.pepperdine.edu/oie/learning-outcomes/slos-course-syllabi.aspx>

Appendix A

AAHE's 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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<http://www.aahe.org/assessment/principi.htm>

Appendix B

Characteristics of a Good Departmental Assessment Plan

1. The plan flows from the mission statement.
2. The focus is on the major (i.e. degree program) as a whole rather than on individual courses.
3. The number of critical learning outcomes is small.
4. The assessment plan is the product of input and discussion by the entire department/unit (faculty and students).
5. The plan is integrated into the curriculum or services provided.
6. The plan is ongoing rather than periodic.
7. The plan is manageable.
8. The plan uses multiple measures, both qualitative and quantitative, and direct and indirect measures.
9. Students understand their role in assessment (how it will be used and how it can help them).
10. The results of assessment activities are used by faculty/ units to improve; they are seen as a means rather than an end.

Source: Concordia College; Ball State University; Kansas State University; Higher Learning Commission

Appendix C
COLORADO MESA UNIVERSITY
Program Outcome and Assessment Plan/Report Template (Revised May, 2016)

Program Name:

Date of Submission:

Program Reviews of the Assessment Plan and Report

In this box and in reverse chronological order, please provide a timeline of when your program faculty reviewed your assessment plan and/or report.

Please focus on dates when the following were performed:

- A) The learning outcomes were reviewed by the program faculty for possible revision.**
- B) All program faculty received the assessment results.**
- C) Faculty input regarding the results was sought.**
- D) The majority of program faculty met face-to-face to discuss the assessment results in depth.**

Assessment Report

Program Outcomes	Courses/Educational Strategies (from Curriculum Map)	Assessment Method(s)	Semester of Data Collection/ Person Responsible
Outcome #1		What: How:	Who: When:

Results of Assessment (include numbers of students involved in the assessment and the percentage)

Results: Key Findings:

Analysis:

Actions Taken (steps taken to enhance student learning)

Action:

Re-evaluation Date:

Add outcomes as necessary

Assessment Plan Key:

1. **Program Outcomes** are student learning outcomes that have been determined by the program faculty. These outcomes will align with the CMU institutional outcomes in the areas of specialized knowledge/applied learning, communication fluency, quantitative fluency, and critical thinking skills.
2. **Courses/Educational Strategies** are based on the program curriculum map. Program faculty determine where outcomes are assessed throughout the curriculum. Lower division courses would likely be assessed at a beginning or developmental level whereas higher division courses would be assessed at a developmental or advanced level. All courses used to assess each outcome should be listed.
3. **Assessment Methods** would list the actual rubric/test/survey that is used for assessment of the outcome and how it will be used.
4. **Time of Data Collection** would be the semester/year in which the outcome is assessed. As the plan is developed, there should be a broad range of semesters/years and courses used for assessment of all outcomes over a six-year review period demonstrated. The person responsible could be listed by name or listed as all instructors for the course in case of multiple sections of courses.
5. **Results** will be posted by the instructors collecting the data of the assessment. Having the assessment plan posted on the R drive gives each instructor access for posting the results in a timely fashion. There could be **Key Findings** based on assessment that the instructor would want to note in this section as well as **Conclusions** derived from the findings.
6. **Actions Taken** will be determined by the program faculty after a review of submitted data from semester/yearly assessed courses. Once a course of action is determined, a date for further evaluation of those actions will be set.

Appendix D
COLORADO MESA UNIVERSITY
Three or Six-Year Summary Report

The Colorado Mesa University assessment progress report will consist of areas regarding program student learning outcomes, results, and actions taken over a 3-year period. Please attach the last three years of annual assessment reports, and any department/program minutes that recorded discussion of learning outcomes. Summarize each student learning outcome that has been assessed over the past three years. Attach rubrics used in assessment.

Assessment Summary

Program Outcome 1	Courses/Educational Strategies Used (from Curriculum Map)	Assessment Method(s)	Semester of Data Collection

Results Summary

Year	Results (Include numbers of students)	Target or Benchmark (If Applicable)

Actions Taken (Briefly describe the analysis of the results and actions taken for future assessment. Indicate any budget implications based on the analysis. Limit 150 words.)

Program Outcome 2	Courses/Educational Strategies Used (from Curriculum Map)	Assessment Method(s)	Semester of Data Collection

Results Summary

Year	Results (Include numbers of students)	Target or Benchmark (If Applicable)

Actions Taken

Add outcomes as necessary

Appendix E
Reflecting Bloom's Across the Curriculum

	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
KNOWLEDGE	Associate				
Cite	Classify		Analyze	Arrange	Appraise
Count	Compare	Apply	Appraise	Assemble	Assess
Define	Compute	Calculate	Calculate	Collect	Choose
Draw	Contrast	Classify	Calculate	Compose	Compare
Identify	Differentiate	Demonstrate	Categorize	Construct	Criticize
List	Discuss	Determine	Classify	Create	Determine
Name	Distinguish	Dramatize	Compare	Design	Estimate
Point	Estimate	Employ	Debate	Formulate	Evaluate
Quote	Explain	Examine	Diagram	Integrate	Grade
Read	Express	Illustrate	Differentiate	Manage	Judge
Recite	Extrapolate	Interpret	Distinguish	Organize	Measure
Record	Interpolate	Locate	Examine	Plan	Rank
Repeat	Locate	Operate	Experiment	Prepare	Rate
Select	Predict	Order	Inspect	Prescribe	Recommend
State	Report	Practice	Inventory	Produce	Revise
Tabulate	Restate	Report	Question	Propose	Score
Tell	Review	Schedule	Separate	Specify	Select
Trace	Tell	Sketch	Solve	Summarize	Standardize
Underline	Translate	Solve	Translate	Synthesize	Test
		Use	Test	Write	Validate
		Write			

Lower division course outcomes

	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
KNOWLEDGE	Associate				
Cite	Classify		Analyze	Arrange	Appraise
Count	Compare	Apply	Appraise	Assemble	Assess
Define	Compute	Calculate	Calculate	Collect	Choose
Draw	Contrast	Classify	Calculate	Compose	Compare
Identify	Differentiate	Demonstrate	Categorize	Construct	Criticize
List	Discuss	Determine	Classify	Create	Determine
Name	Distinguish	Dramatize	Compare	Design	Estimate
Point	Estimate	Employ	Debate	Formulate	Evaluate
Quote	Explain	Examine	Diagram	Integrate	Grade
Read	Express	Illustrate	Differentiate	Manage	Judge
Recite	Extrapolate	Interpret	Distinguish	Organize	Measure
Record	Interpolate	Locate	Examine	Plan	Rank
Repeat	Locate	Operate	Experiment	Prepare	Rate
		Order	Inspect	Prescribe	Recommend
		Practice	Inventory	Produce	Revise
		Report	Question	Propose	Score
		Restructure	Separate	Specify	Select
		Schedule	Summarize	Synthesize	Standardize
		Sketch	Test	Write	Test
		Solve			Validate
		Translate			
		Use			
		Write			

Upper division Course / Program outcomes

Appendix F Glossary of Assessment Terms

Assessment: The systematic process of determining educational objectives, gathering, using, and analyzing information about student learning outcomes to make decisions about programs, individual student progress, or accountability. Methods used to analyze student learning outcomes or achievement of program objectives.

Assessment Plan: A document used to summarize the relationship between program outcomes and courses, course assignments, or course syllabus objectives to examine congruence and to ensure that all outcomes have been sufficiently structured into the curriculum.

Authentic Assessment: The provision of real-life situations for students to practice and reinforce knowledge and skills. An assessment that measures a student's ability to perform a "real world" task in the way professionals in the field would perform it.

Benchmark: A criterion-referenced objective performance datum that is used for comparative purposes. A program can use its own data as a baseline benchmark against which to compare future performance. It can also use data from another program as a benchmark. In the latter case, the other program often is chosen because it is exemplary and its data are used as a target to strive for, rather than as a baseline. (James Madison University)

Bloom's Taxonomy: The extent and rigor of learning as defined by six levels by Benjamin Bloom: (1-Knowledge; 2-Recall and Comprehension; 3-Application; 4-Analysis; 5-Synthesis; 6-Evaluation); characterized by action verbs.

Capstone Course: A course that encompasses educational experience and provides a summative demonstration of competencies.

Closing the Loop: Evaluative steps in the assessment process that lead to program improvement. This is accomplished by reviewing the data collected in course assessment and discussing possible methods of course or program educational improvement or revision.

Competency: The demonstration of the ability to perform a specific task or achieve a specified criterion.

Course-level Assessment: Assessment of student-learning outcomes in a specific course. Faculty members engage in course assessment by evaluating student performance on assignments, projects, and exams, and then using that information to improve student learning. The focus is on understanding the performance of an entire class or the effectiveness of the course across multiple sections.

Course Learning Outcomes: A demonstrable competency at a certain level of proficiency (what does the student know; what can the student do); outcomes must be measurable for the sake of assessment. Measurement can be both objective (quantifiable) and/or subjective (qualitative).

Course Objectives: Detailed aspects of the course that are accomplished by the successful completion of the course outcomes. Refers to the specific knowledge, skills, or attitudes that students are expected to achieve through their college experience.

Curriculum Mapping: Curriculum mapping is a process for collecting and recording curriculum-related data to identify core skills and content taught, processes employed, and assessments used for each course and level in a degree program. The purpose of a curriculum map is to document the relationship among the components in the curriculum, and ultimately, to create a more coherent curriculum. A curriculum map can be used for analysis, communication, and planning.

Degree Qualifications Profile: A qualifications framework that illustrates clearly what students should be expected to know and be able to do once they earn their degrees at any level. (Lumina Foundation)

Direct Assessment Methods: Direct measures of student learning require student to display their knowledge and skills as they respond to the instrument itself. Objective tests, essays, presentations, and classroom assignments all meet this criterion. (James Madison University)

E-Portfolios: A portfolio is a collection of work developed across varied contexts over time. The portfolio can advance learning by providing students and/or faculty with a way to organize, archive and display pieces of work (Regis University). An electronic format of a collection of work developed across varied contexts over time. The electronic format allows faculty and other professionals to evaluate student portfolios using technology, which may include the Internet, CD-ROM, video, animation or audio.

ETS Proficiency Profile: A test developed to assist in the assessment of the outcomes of essential learning courses in order to improve the quality of instruction and learning. It is a test of college-level skills in critical thinking, reading, writing, and mathematics designed to measure the academic skills developed through essential learning courses, rather than the subject knowledge specifically taught in those courses.

Formative Assessment: The gathering of information about student learning-during the progression of a course or program which is usually repeatedly-to improve the learning of those students. Example: reading the first lab reports of a class to assess whether some or all students in the group need a lesson on how to make them succinct and informative. (Leskes, 2002)

Higher Learning Commission: The review commission for accreditation within NCA (North Central Association of Colleges and Schools).

Indirect Assessment Methods: Methods such as surveys and interviews that ask students to reflect on their learning rather than to demonstrate it (James Madison University). Reflection by students and others on learning experiences, adequacy of a program, etc.; may be administered by surveys, course embedded activities (such as minute papers), focus groups, job placement rates, transfer studies success, etc.

Information Literacy: The ability to acquire, evaluate, organize, maintain, interpret, and communicate knowledge.

Institutional Assessment: A process of assessing institutional outcomes in relationship to mission, values, and strategic planning.

Institutional Learning Outcomes: Broad-based learning outcomes reflecting common educational knowledge and skills from all programs that all graduates of the institution will acquire. Outcomes should align with the institution's mission.

Liberal Education: A philosophy of education that empowers individuals with broad knowledge, transferrable skills, and a strong sense of values, ethics and civic engagement. The specific choice of major matters far less than the knowledge and skills gained through all studies and experiences in college. (AAC&U)

Outcomes Based Assessment: Measures of performance against defined, measurable outcomes. Faculty and administrators purposefully plan the program to support student achievement of the outcomes, implement methods to systematically identify whether the end results have been achieved, and use the results to plan improvements or make recommendations for resource reallocation or requests. Assessment often conveys the same meaning.

Portfolio: A collection of education experiences and assessments that reflects the capabilities of a student or group of students.

Program Learning Outcomes: The knowledge, skills, and abilities students should possess when they complete a program. Educational or degree programs are more than a collection of random courses. Educational programs prepare students for a range of particular outcomes that can be stated in measurable terms. Program assessment seeks to determine the extent to which students in the program can demonstrate these outcomes.

Program Review: The administrative and peer review of academic programs conducted on a six-year cycle, the results of which are reported to the CMU Board of Trustees. This review includes a comprehensive analysis of the structure, processes, and outcomes of the program. The outcomes reported in the program reviews include program outcomes (e.g. costs, degrees awarded) as well as student learning outcomes (i.e. what students know and can do at the completion of the program). (Northern Illinois University)

Qualitative Data: Data in which the values of a variable differ in kind (quality) rather than in amount.

Quantitative Data: Data in which the values of a variable differ in amount rather than in kind.

Reliability: The characteristic of a measuring instrument to obtain similar results with repeated administrations.

Rubrics: Specific sets of criteria that clearly define for both student and teacher what a range of acceptable and unacceptable performance look like. Criteria define descriptors of ability at each level of performance and assign values to each level. Levels referred to are proficiency levels which describe a continuum from excellent to unacceptable product. (SABES)

A scoring tool that lists the criteria for a piece of work, or "what counts" (for example, purpose, organization, and mechanics are often what count in a piece of writing); it also articulates gradations of quality for each criterion, from excellent to poor.

Standardized Assessment: A standard-based assessment of learner achievement in relation to set standards.

Student Artifacts: A collection of papers, projects, documents, etc., which represent your knowledge, competency, understanding, and achievement of identified goals and learning incomes.

Student Learning Outcomes: Demonstration of what students will be able to know, do, and value at the end of their degree program. An expression of what a student will demonstrate on the successful completion of a module, course or program of study.

Summative Assessment: Evaluation at the conclusion of a unit or units of instruction or an activity or plan to determine or judge student skills and knowledge or effectiveness of a plan or activity. (Leskes, 2002) The gathering of learning information at the conclusion of a course or program. When used for improvement, impacts the next cohort of students taking the course or program. Example: examining student final exams in a course to see if certain specific areas of the curriculum were understood less well than others.

Validity: The degree to which a test or other assessment measure measures what it is designed to measure. The extent to which an assessment measures what it is supposed to measure and the extent to which inferences and actions made on the basis of test scores are appropriate and accurate.

Voluntary System of Accountability (VSA): A joint accountability initiative by the American Association of State Colleges and Universities (AACSU) and the Association of Public and Land Grant Universities (APLU) aimed at making institutional data transparent.

Value Added Learning: The increase in learning that occurs during a course, program, or undergraduate education. Can either focus on the individual student (how much better a student can write, for example, at the end than at the beginning) or on a cohort of students (whether senior papers demonstrate more sophisticated writing skills-in the aggregate-than freshmen papers). A baseline measurement is required for comparison. (Leskes, 2002) The increase in knowledge, skills and aptitudes from the college experience; may also be the additional benefits of learning team work, appreciation for one's culture, etc.

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