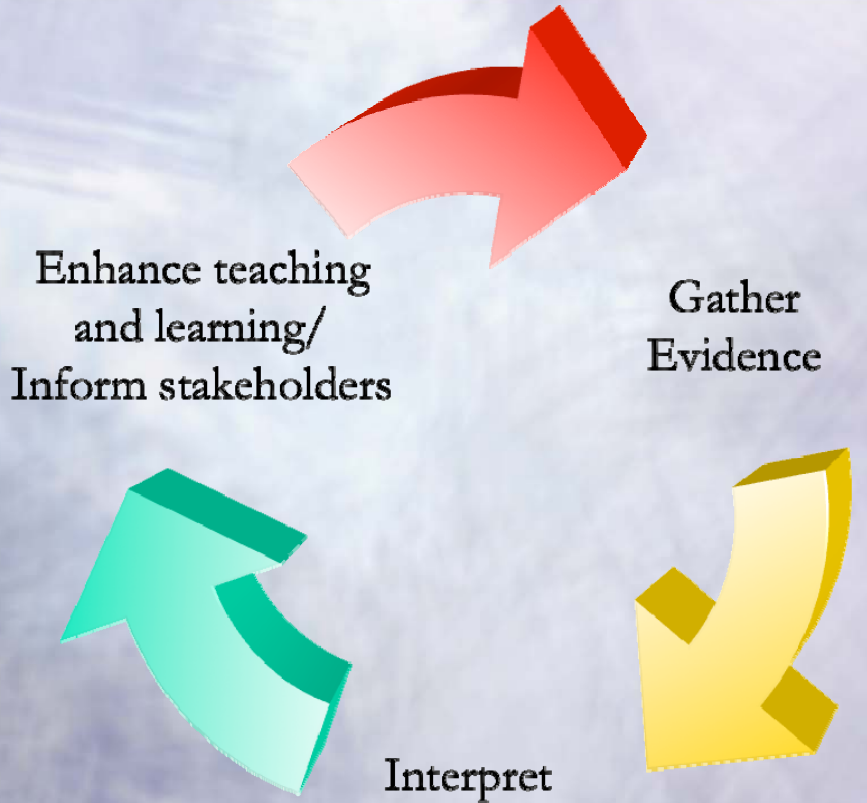
Assessment and Evidence of Student Learning

Gathering Evidence of Student learning is a part of the Assessment Process

"Assessment is an ongoing process aimed at understanding and improving student learning. It involves making expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards, and using the resulting information to document, explain, and improve performance."

Thomas A. Angelo, 1995

Assessment "Loop"



Grades Can Be Evidence of Student Learning

A grade, standing alone, does not provide evidence of student learning.

However, when a grade is coupled with an artifact or example of student work and a rubric used to assess the student work, the grade becomes evidence of learning associated with the student learning objectives that are implicit or explicit in the rubric.

Student Learning Outcomes

Student Learning Outcomes are measurable and specific goals for what we want our students to know, feel, or be able to do as the result of an educational experience.

Discipline-Specific Student Learning Outcomes

Student learning outcomes can have primarily a disciplinary focus, like the following student learning outcomes for an Introductory Psychology class at WSU this Spring:

Course Goals -By the end of this course, you will be able to:

-think critically about human behavior and mental processes
-become familiar with major psychological theories
-observe how psychological processes operate in everyday life and apply various psychological principles to problems in our environment
-discuss the scientific method and its importance to the study of behavior
-gain an understanding of how various forces (i.e. biology, cognition, emotions, social and cultural contexts) impact behavior
-be familiar with the technical vocabulary used in the field

Cross- Disciplinary Student learning Outcomes

- Student learning outcomes can be cross-disciplinary like WSU's general education mission statement: Students completing the general education program can:
  - Communicate, understand and interpret ideas and information using written, oral and visual media.
  - Think critically and creatively to construct well-reasoned arguments supported by documented research.
  - Use quantitative, mathematical relationships, operations and reasoning.
  - Demonstrate an understanding of the history, foundational principles, economics, and politics of the United States.
  - Demonstrate proficiency in computer and information literacy.
  - Demonstrate an understanding of how the biological and physical sciences describe and explain the natural world.
  - Demonstrate an understanding of humans, their behavior, and their interaction with and within their physical, social, local and global environments.
  - Demonstrate an understanding of diverse forms of aesthetic and intellectual expression.

Student learning Outcomes That meet Both Cross-Disciplinary and Departmental Goals

Student learning outcomes may meet both departmental and cross-disciplinary goals like this these from the description of the Foundations of the Natural Sciences:

After completing the natural sciences general education requirements, students will demonstrate their understanding of general principles of science:

Nature of science.

Scientific knowledge is based on evidence that is repeatedly examined, and can change with new information.

Scientific explanations differ fundamentally from those that are not scientific.

Integration of science.

All natural phenomena are interrelated and share basic organizational principles. Scientific explanations obtained from different disciplines should be cohesive and integrated.

Cross-Disciplinary Rubrics

Cross-disciplinary rubrics tend to be more abstract, reflecting the student learning outcomes of the university mission, rather than the more specific student learning outcomes within the discipline:

Critical Thinking student learning objectives in the WSU General Education Mission:

Communicate, understand and interpret ideas and information using written, oral and visual media.

Think critically and creatively to construct well-reasoned arguments supported by documented research.

Use quantitative, mathematical relationships, operations and reasoning.

Demonstrate proficiency in computer and information literacy.

A possible Critical Thinking cross-disciplinary rubric: The student demonstrates (excellence, proficiency, adequacy, limitations, deficiency) in analyzing, synthesizing and evaluating information and ideas from multiple perspectives. (Consistently, Usually, Frequently, Occasionally, Rarely) demonstrates the ability to solve problems, argue logically, apply scholarly and scientific methods, use terminology accurately, and employ information literacy skills.

Disciplinary Rubrics

Rubrics used to measure a student learning outcome within a discipline may be far more specific reflecting the more specific learning goals within the discipline, such as the following:

Student Learning Objective: Metabolism and homeostasis: Living things obtain and use energy, and maintain homeostasis via organized chemical reactions known as metabolism.

A possible rubric based on the student learning objective: The student demonstrates (excellence, proficiency, adequacy, limitations, deficiency) in understanding how living things obtain and use energy, and maintain homeostasis via organized chemical reactions known as metabolism. (Consistently, Usually, Frequently, Occasionally, Rarely) demonstrates the ability to apply the knowledge of metabolic reactions to explain the energy interdependence of an ecosystem.

Grades as Evidence of Disciplinary Learning

Tying grades to evidence of disciplinary (general education and/or discipline-specific) student learning involves:

1. Securing representative examples of student work within the discipline.
2. Establishing rubrics within each discipline that reflect the student learning outcomes and that indicate how they are assessed.
3. Preserving the grades assigned to the representative samples and the grades assigned to the non-sampled work so that the grades from the sampled work can be used to infer patterns of performance in the non-sampled work.

To complete the assessment process the evidence must be analyzed and utilized to improve learning.

An Example of a Faculty Member's or Departmental Response to Evidence of Student Learning

Collection of evidence of student learning substantiates that learning is occurring, but does not, by itself, lead to improved teaching or learning.

In order to use the data effectively, the evidence must be reviewed so that patterns that can lead to improvements in learning can be identified.

Analysis of Evidence of Student learning by an Individual Faculty Member or a Department

The analysis of evidence of student learning at an individual faculty member or departmental level begins by asking, "What evidence do I/we have of student learning?"

Grade-based evidence can be considered with standardized test scores, scores on licensure exams or other available data.

The next question is "What patterns does the evidence reflect?"

Once patterns are identified, the question is, "Are there any patterns that indicate ways that the course/program can be improved?"

Individual Faculty or Departmental Responses to Analysis of Evidence of Student Learning

Patterns identified by analyzing the evidence of student learning may suggest a change in pedagogy, a change of the text, a modification of the curriculum, or some other change may improve learning for some students.

What is important is not the scale of a change, but that there is a process of continual improvement of teaching and learning that is informed by regularly documenting and reviewing the evidence of student learning.

Creating an Institutional Composite Picture of Student Learning to Improve Cross-Disciplinary Learning

When the student learning that is being reviewed is cross-disciplinary, such as general education, it is helpful to couple grade-based evidence of student learning with other institutional evidence (e.g. CLA, NSSE, student scores on licensure exams) to create a composite picture of our students' learning that will provide insights that can improve cross-disciplinary learning.

An example of using data to improve Cross-Disciplinary learning

The Weber State Mission Statement provides,

"The university, in partnership with the broader community, engages in research, artistic expression, public service, economic development, and community-based learning experiences in an environment that encourages freedom of expression while valuing diversity."

Another Part of the Desired Student Learning is Defined in the WSU General Education Mission Statement

The WSU General Education Mission Statement urges “exposure to diverse fields of study [that] enables students to make intellectually honest, ethical decisions that reflect a knowledge of and respect for diverse people, ideas and cultures. Such breadth of education also cultivates skills critical to student success in academic, personal, professional and community endeavors both within and beyond the university.”

Data Suggested WSU Students Had Difficulty Dealing With Diverse Viewpoints

- NSSE data (2005, 2006) suggested that students perceived themselves as having relatively low levels of community engagement as part of their academic coursework, that students perceive the institution's "concern for the individual" as marginally lower than the national average and that the student-reported rates of collaborative and active learning or enriching educational experiences were below national averages.
- Data from both the NSSE and the Noel-Levitz (2007) suggested that WSU students had lower than average exposure to individuals from diverse backgrounds.
- The CLA (2005, 2007) suggested that WSU students show poorer performance in tasks that require students to "acknowledge alternative explanations/viewpoints" which includes "consider[ing] other viewpoints and acknowledg[ing] that his/her answer is not the only perspective."

The Difficulty With Diverse Points of View Impinges on WSU Students' General Education

- The 2005 HERI data (2005) indicated almost 62% of faculty members believed WSU makes building community partnerships a high priority, but only 43.4% believed WSU makes "providing resources for faculty to engage in community-based teaching or research" a high priority.
- Taken together, the students' perceptions of their relatively low campus-related civic engagement experiences and their inability to take a position different than their own reflected a general education outcome that was quite different than institution's intended outcomes with respect to civic engagement and diversity.

Institutional Responses to Improve Student learning

- Providing shared instructional materials that encourage diverse viewpoints. Faculty and administration have collaborated to provide free copies of the New York Times to all students.
- Submitting an application and receiving recognition as a Carnegie "Community Engaged Institution." This designation allows the university to focus greater attention on the centrality of civic engagement and understanding of diverse cultures.
- Dedicating space, personnel and other resources to establish a Civic Involvement Center in which faculty and staff have been recruited to facilitate service learning, community-based research and service projects.

Additional Institutional Responses

- Creating a community-based learning supplemental instructor (CBLSI) program for community-based learning classes to provide students additional instruction on community-based learning assignments and reflection exercises beginning Fall 2008.
- Integration of a service-learning track in the Bachelor of Integrated Studies program.
- Instituting a service project as part of The First Year Experience (FYE) program. The 500 students enrolled in FYE each year utilize the service opportunity to explore career possibilities or to teach the time management skills they're learning to at-risk youth in local schools and afterschool programs.