Measuring What Matters Most: How to Use Assessment to Inform, Transform, and Inspire Your Department

Jillian Kinzie, Indiana University, NSSE and NILOA
My Perspective...

- Assessing Effective Educational Experiences
- Studying Teaching & Learning
- Using Data to Improve Student Learning Outcomes
- Using Evidence to Improve
• NSSE launched in 2000
• Diagnostic information to support the improvement of undergraduate education
• Ask students about experiences and behaviors positively associated with learning and development
Alabama State University 2013
Auburn University 2016
Barton College 2016
Clayton State University 2016
Clemson University 2016
Coastal Carolina U 2014
Eastern Kentucky U 2016
Emory & Henry College 2015
Florida Gulf Coast U 2013
Georgia Gwinnett College 2015
James Madison U 2014
Kenyon College 2014
North Carolina Agricultural & Technical State University 2016
North Carolina Central 2014
Radford University 2016
Rollins College 2016
Samford University 2014
Shenandoah University 2016
University of Georgia 2014
University of Louisiana at Monroe 2016
University of Louisiana at Lafayette 2016
University of North Carolina Wilmington 2015
Washington & Lee U 2014
Winthrop University 2016
Wofford 2016
Since 2008, NILOA’s mission has been to discover and disseminate effective uses of assessment data to strengthen undergraduate education and support institutions in their assessment efforts.

- Surveys
- Web Scans
- Case Studies
- Focus Groups
- Occasional Papers
- Website
- Resources
- Newsletter
- Listserv
- Presentations
- Transparency Framework
- Featured Websites
- Accreditation Resources
- Assessment Event Calendar
- Assessment News
- Measuring Quality Inventory
- Policy Analysis
- Environmental Scans
- Degree Qualifications Profile
- Tuning USA
- Coaching
- Assignment Design

www.learningoutcomesassessment.org
In the News | Archive

**Educating Minds Online**
Fri, Jan 02, 2015 - 08:00 am
James M. Lang in the Chronicle of Higher Education

James Lang writes about his interview with Michelle Miller, Co-Director of Northern Arizona University's first-year learning program, and her new book, Minds Online: Teaching Effectively With Technology. The various ways that technology can help in pedagogy and learning to increase student motivation and engagement, as well as issues with online programs, are discussed.

**Room to Experiment**
Tue, Dec 30, 2014 - 08:00 am
Carl Straumsheim in Inside Higher Ed

Ball State University has developed two new high-tech classrooms centered on the concept of active learning. By incorporating both technology and changes in pedagogy to enable more in-class collaboration and discussion, as opposed to a lecture-style approach, student engagement is on the rise.

**How Big Money Can, and Can't, Shake Up Teaching**
Mon, Dec 29, 2014 - 08:00 am
Dan Barrett in the Chronicle of Higher Education

Dan Barrett highlights efforts by Harvard University and the University of Michigan, which have devoted $40 and $25 million, respectively, to faculty members to experiment with and improve learning. However, while money sends an effective message on the importance of learning, it is not enough if the motivation, time, and infrastructure for innovation are missing.
NILOA Assertion:

Understanding what students know and can do as a result of their college education is fundamental to student success and to the quality and effectiveness of American higher education.
Agenda for Higher Education

• Increase postsecondary access
• Enhance educational quality
• Ensure student success
21st Century: Turning Point for Higher Education

• Getting students in the front door is only the first step—we also have to help them reach the graduation stage.

• Need students to have high quality educational experiences—and be better prepared for 21st century workforce.
Calls to Improve Higher Education

• More recent insistent press for improvement

• Demands for accountability, data-informed decision-making, and evidence of quality have pushed colleges and universities to launch reform initiatives
Greater Coherence

“There is little internal coherence in curricula or programs, and even less a plan for connected learning.”

“As for what passes as a college curriculum, almost anything goes.”

Greater Expectations, 2002; College learning for the new global century, 2007, Association of American Colleges and Universities
The Essential Learning Outcomes
Making Assessment Matter

Using Evidence of Student Learning to Improve Higher Education

George D. Kuh, Stanley O. Ikenberry, Natasha A. Jankowski, Timothy Reese Cain, Peter T. Ewell, Pat Hutchings, Jillian Kinzie

National Institute for Learning Outcomes Assessment
First, lets discuss definitions...

I think assessment means_____________________.

• Turn to your neighbor and discuss what assessment means to you.
• What is the purpose of assessment?
Assessment is...

The systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development (Palomba & Banta, 1999)
Cycle of Assessment

Do improvements contribute to intended end results?

What are we trying to do and why?

How well are we doing it? How do we know?

How do we use the information to improve or celebrate successes?

Maki (2004), Assessing for Learning
Cycle of Assessment

Identify outcomes

Gather evidence

Interpret evidence

Implement change

Maki (2004), Assessing for Learning
Purpose and Goals of Assessment

• How are we doing?
• Are we meeting our goals?
• Where might we improve?
• Are the conditions the same for all?
• Does evidence demonstrate effectiveness? Accountability?
• How are we doing compared to others like us?
• Are we making a difference?
• Are we getting better?
• Where should we invest?
Assessment.

What is it Good For?  Huh!

• Assessment Is Needed for Learning
• Assessment Is Needed for Effective Teaching
• Assessment Is Needed for a Quality Learning Environment
• Assessment is Essential to Improving Student Outcomes
• Assessment Drives Colleges Intent on Improving Quality in Undergraduate Education
• Assessment Informs Transformations in Life Sciences Education
Focus Assessment on the “Problem” Faculty are Trying to Solve

Assertion: We want students to get the best possible education and learn what’s most important.

- Effective assessment is best understood as a strategy for understanding, confirming, and improving student learning.

- Assessment is a vital tool to help us make sure we fulfill the crucial promises we make to our students and society.
Ultimately, we should answer through assessment:

• What have our students learned?
• Are we satisfied with what they’ve learned?
• If not, what are we doing about it?
Levels of Student Learning Assessment

Accreditors

Institution

Colleges/Schools/Program

Classroom
Learning Outcomes

- Outcomes are detailed and specific statements
- What you want the **end result** of your efforts to be
  - what do you expect student to know and do as a result of program curriculum, learning experiences, or in student affairs: your workshop; leadership experience, program etc.
- Statement describes **how student will demonstrate what he or she knows or can do**
Distinguishing Program vs. Course Student Learning Outcomes (SLOs)

• **Program SLOs** identify what students should learn as a result of their *entire educational experience*.

• **Course SLOs** identify what students should learn as a result of *taking* specific course:
  
  • Every course SLOs **does not** have to reflect every program, institutional and disciplinary SLO; but course SLOs should contribute to outcomes.

• Mapping helps assure integrated & layered opportunities to develop outcomes.
Guidelines for SLO Assessment

Focus on the end result – student learning.

“Upon completion of __________, the student will be able to _______”
At the completion of the Bachelor of Science degree in the Department of Biology, a graduate will have acquired:

- An understanding of major biological concepts and awareness of how these are connected within various areas of the biological and physical sciences.
- The problem solving, analytical, and communication skills that will provide the foundation for lifelong learning and career development.
- An appreciation of science as an integral part of society and everyday life.
- The ability to evaluate and discuss contemporary social and ethical issues related to biology and medicine.
Univ. of San Francisco: Biology majors will gain specific skills and knowledge in the following areas:

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply the scientific process, including designing and conducting experiments and testing hypotheses.</td>
<td>Students write research proposals and conduct research projects.</td>
</tr>
<tr>
<td>Develop laboratory techniques (such as light microscopy, gel electrophoresis and keeping a laboratory notebook and understanding of principles of laboratory safety).</td>
<td>Students make use of various instruments to perform laboratory and field exercises and complete lab practica.</td>
</tr>
<tr>
<td>Demonstrate the ability to read, understand, and critically review scientific papers.</td>
<td>Students present a critical analysis of the primary literature in oral or written format.</td>
</tr>
<tr>
<td>Prepare oral and written reports in a standard scientific format.</td>
<td>Students produce oral, written, and poster presentations.</td>
</tr>
<tr>
<td>Recognize the relationship between structure and function at all levels: molecular, cellular, and organismal.</td>
<td>Students complete quizzes, written examinations and give oral presentations.</td>
</tr>
<tr>
<td>Diagram and explain the major cellular processes in eukaryotes and prokaryotes.</td>
<td>Students complete group projects, take written examinations, and produce oral or poster presentations.</td>
</tr>
<tr>
<td>Describe the flow of genetic information, the chromosome theory of heredity and the relationship between genetics and evolutionary theory.</td>
<td>Students participate in class discussions, complete problem sets, and take written examinations.</td>
</tr>
<tr>
<td>Evaluate the principles of evolutionary biology and identify the taxonomy and phylogenetic relationships of the major groups of organisms.</td>
<td>Students complete written examinations, research projects, and lab practica.</td>
</tr>
</tbody>
</table>
Assessment Tools

- Appraise Meter

- Focus on Quality
NILOA Survey: Assessment Tools Used

- National Student Surveys
- Rubrics
- Classroom-based
- Alumni surveys
- Placement exams
- Locally developed surveys
- Capstones
- Locally developed tests
- General knowledge/skills
- Employer surveys
- Portfolios
- External
- Other

Percentage of Institutions
Top 3 Most Valuable Assessment Approaches

1. National Student Surveys
2. Rubrics
3. Classroom-based assessment
Assessment Methods Used in Programs

- Capstone
- Rubrics
- Performance Assessment
- Final Project
- Local Tests
- Local Surveys
- Alumni Surveys
- External Exam
- Portfolios
- Comprehensive Exam
- Special Tests
- National Surveys
- General Tests
- Employer Surveys
- Interviews/Focus Groups

- Most Students
- All Students
What tools and approaches are you using?
Choosing A Tool

- It is important to choose tools based on what you are trying to assess, not just the tool you know...
- Consider what will influence participation (faculty, students, respondents...)
- Consider what will provide you with usable information to make decisions
- Be able to justify your choice of tool and method
Two Types of Assessment Evidence
(Palomba and Banta, 1999)

• **Direct** - methods of collecting information that require the students to display their knowledge and skills

• **Indirect** - methods that ask students or someone else to reflect on the student learning rather than to demonstrate it
Direct Measures

• Critical thinking test
• Major field test
• Student performance, or product
• Portfolio
• Internship/Practicum
• Rubrics
• Capstone project

What’s NOT on this list?
Direct Measures - Curriculum/Course-Related

Performance-Based
• Capstone course assignments
• Capstone projects
• Case studies, hypothetical situation responses
• Minute papers
• Course-embedded questions
• Portfolio assignments (standard across program)
• Assessment of papers, projects with standard rubric
• Research papers
• Performance appraisal of in class exercises
• Expert evaluation
• Simulation

Other
• Observations in class by evaluator (not the teacher)
• Peer evaluation of practical skills using rubric
• Clinical practice or internship skill assessment

Examinations and Tests
• Standardized Exams & Tests
• National Test
• State Test
• Local Examinations and Tests
  • Local Tests
  • Pre-post test
  • Test-embedded questions (across several course sections)
• Licensure Exams
Indirect Measures

- Exit Surveys; Employer Surveys, Local surveys

- National Surveys:
  - The Freshman Survey (CIRP)
  - College Senior Survey (CSS)
  - National Survey of Student Engagement (NSSE)
  - Multi-institutional Study of Leadership (MSL)
  - ACHA-National Collegiate Health Assessment (NCHA)

- Honors, Awards, Achievements by students

- Rates of students in undergrad research

- Course grades, grade school accept rates, job placement
Matrix for Assessment Methods

- Categorize each assessment tool as being **direct** or **indirect** depending whether instruments are used to evaluate a student’s abilities & knowledge of academic support services (direct) or reflect perception of academic activities (indirect).

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Graduating Senior Survey</th>
<th>Capstone Course</th>
<th>Portfolio</th>
<th>Focus Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with advising</td>
<td>Direct</td>
<td>Direct</td>
<td>Indirect</td>
<td></td>
</tr>
<tr>
<td>Acquire necessary skills and knowledge</td>
<td>Direct</td>
<td>Direct</td>
<td>Direct</td>
<td>Indirect</td>
</tr>
<tr>
<td>Proficiency in written communication skills</td>
<td>Direct</td>
<td>Direct</td>
<td>Direct</td>
<td>Indirect</td>
</tr>
</tbody>
</table>
Levels of Assessment

- Accreditors
- Institution
- Colleges/Schools/Program
- Classroom
Classroom Assessment Cycle

Phase I: Plan
- Focus on a goal, choose a technique

Phase 2: Implement
- Teach the lesson, assess student learning, analyze the feedback

Phase 3: Respond
- Formulate appropriate response, try it out
Classroom Level: 2 Main Types of Assessment

**FORMATIVE**
- Gathering info. about student learning with goal of improvement
- Provides feedback
- Ex: Non-graded quiz, journal, pretest,

**SUMMATIVE**
- Gathering info. at end of course or program to assign grades, meet accountability demands
- Provides a final judgment
- Often used to determine future action
- Ex: Exam
Formative Assessment: Classroom Assessment Techniques

CATs = specific activities instructors use to quickly gauge students’ comprehension... assess understanding of material in course, and to gauge students’ knowledge coming into a course/program

EXAMPLES:
1. Minute paper
2. Muddiest point
3. Student Generated test questions
4. Application cards
5. Directed Paraphrasing to real audience

- Immediate feedback about entire class’s understanding
- Feedback to inform instruction...speeding up, slowing pace or explicitly addressing areas of confusion
What was the most important thing you learned in today’s class? OR, What one question related to today’s lesson remains uppermost in your mind?
Assessment should be embedded in the work that faculty members assign – *not* an “add on” measure, or an “exo-skeletal” approach.
Some of the most useful evidence about student learning outcomes comes from projects, papers, performances, portfolios examinations, assigned in coursework.

Faculty don’t have structured occasions to design and refine
Assignment Charrettes

What to do:

• Invite faculty applications (with a draft assignment, desired learning outcomes specified)

• Bring faculty members together (1 – 5 hrs)

• Work in 5-6 person, facilitated “charrettes” to review, critique assignments
Assignment Charrette - Productive Questions

1. How is the assignment related to course goals? program goals?
2. Is the assignment clear to students? How might they misconstrue it and what can be done to raise the likelihood of a successful response?
3. Is the assignment pitched at the right level, given students’ preparation and experience?
4. How could the assignment more effectively motivate students to do their best work?
5. Are the criteria used for assessing student performance clear and explicit?
6. What does a good student response look like?
The purpose of this website is to provide a searchable online library of collegiate-level course assignments in a wide variety of academic disciplines that link to one or more in the Degree Qualifications Profile (DQP).

The National Institute for Learning Outcomes Assessment (NILOA) has been working with groups of faculty from various institutions to revise and strengthen assignment specific proficiencies. The assignments and commentaries here are works in progress, generously shared by faculty members from a wide range of fields and institutions committed to advancing and documenting student learning. To learn more about the assignment library initiative click [here](http://www.assignmentlibrary.org/).

This library allows you to:

- Browse assignments
- Borrow and adapt an assignment to fit your needs
- Submit an assignment to the library
Non-Major Biology Course - fulfills GE science component --- Learning Outcomes:

1. Describe the methods of inquiry that lead to mathematical truth and scientific knowledge and be able to distinguish science from pseudoscience.
2. Use theories and models as unifying principles that help us understand natural phenomena and make predictions.
3. Recognize the interdependence of applied research, basic research, and technology, and how they affect society.
4. Illustrate the interdependence between developments in science and social and ethical issues.
5. Use graphical, symbolic, and numerical methods to analyze, organize, and interpret natural phenomena.
6. Discriminate between association and causation, and identify the types of evidence used to establish causation.
7. Formulate hypotheses, identify relevant variables, and design experiments to test hypotheses.
8. Evaluate the credibility, use, and misuse of scientific and mathematical information in scientific developments and public-policy issues.
Beautiful Biological Questions

BBQ1 - How do you distinguish Science from Pseudoscience?

Over the next few weeks you and your teammates will be constructing answers to the BBQ – How do you distinguish science from pseudoscience? You will start by answering three smaller/mini BBQs that will help you construct your answer to the big BBQ. Each mini-BBQ (BBQ1a, 1b, and 1c) explores a component of the answer to the question about distinguishing science from pseudoscience that you will answer and then integrate into your final post. During the next few weeks you will engage in some Individual Process Assignments (IPAs) that will help you explore information and resources related to the BBQs. You will also work with your teammates in class on Team Process Assignments (TPAs) that will further your understanding of the answer to the BBQ.
Assignment Part 1: (Homework Assignment)

The 18th Amendment, which took effect on January 17, 1920, outlawed the sale and consumption of alcohol in America and resulted in a sharp increase in the production of moonshine. To meet demand, and maximize their revenues, some moonshiners lowered their standards, to produce more liquor which was sometimes of lesser quality.

The drinkers of moonshine also became less discriminating, and often ended up dead or blind. The root cause of this blindness and/or death was the presence of methanol, or ‘wood alcohol’ present in the moonshine.

Methanol is a byproduct of alcohol distillation, but only forms in tiny, non-toxic amounts during distillation. It has a lower boiling point and is found in the first few ounces of alcohol that drip from the condenser. Any distiller worth his salt will discard these at the start, eliminating
Purpose of **Program Assessment**:

- **To improve** – provide feedback to determine how to improve
- **To inform** – faculty & other decision-makers of contributions & impact of program
- **To prove** – encapsulate & demonstrate to students, faculty, staff & others what program is accomplishing
- **To support** – campus decision-making, program review, strategic planning, external accountability activities, accreditation …

*(Adapted from Maki, 2004; Suskie, 2009)*
Components of Program Assessment

- Mission
- Intended outcomes
- Assessment measures
- Results
- Interpretation
- Plan for improvement
Common Program Measures

- Rubric Assessment
  - Capstone Projects
  - Conference Presentations
  - Design Exhibits
- Expert Evaluation of Student Performance
- Student Perception Surveys
- Structured Group Interviews (Focus Groups)
- Employer and Alumni Feedback
What Measures are Used in Life Sciences?

SURE
CURE

Find out how to prove — and improve — the effectiveness of your Biology program with the ETS® Major Field Tests.

Q4B
Questions For Biology
Program Assessment: Avila University – Nursing Program

• Program outcomes parallel university’s graduate outcomes – Comm; Professional Role; Knowledge...

• Assessment Strategies/Methods:
  – Internship preceptor evaluation;
  – NCLEX-RN Results;
  – Comprehensive Exam Results;
  – Oral Presentation;
  – Scholarly Paper;
  – Avila Senior Survey;
  – NSSE (11c,d,e; 2a-e; 6d,e,f,);
  – Position Paper - thinking categories
Inclusive Leaders: Function effectively as a team member. (aka Collaborative Learning)

- Drake Business First-Years
- Drake Business Seniors
- Carnegie Masters- Business First-Years
- Carnegie Masters- Business Seniors

- Working effectively with others
- Worked with other students on course projects or assignments
- Prepared for exams by discussing or working through course material with other students
- Explained course material to one or more students
- Asked another student to help you understand course material
Given that SE PULSE institutions have NSSE results...

What Aspects of Student Engagement do you want to explore? What is of interest to Life Sciences?

- Collaborative Learning
- Quantitative Reasoning
- Quality of Interaction with Faculty
- Challenge to do your Best Work
- Support for Learning
- Undergraduate Research
- Service Learning/Community Based Research
What Supports Meaningful SLO Assessment and Use in Departments/Programs?

• Simply getting data down to dept/program level makes it more meaningful to faculty

• Working in collaboration with other departments, or institutions in consortium to address common SLO interests

• Work on modest SLO goals and have some success, then develop grander plans

• Value the implications for improving teaching and learning

• Overcome perception that assessment must be quantifiable, comparable, and for external audiences

• Encouraging faculty to drive process and for department chairs/deans to activate it

• Expand organizational capacity and equip departments
Again, Basic Steps in Assessment

1. State the broad educational purposes and goals of your program
2. Specify objectives and intended learning outcomes
3. Select appropriate methods, establish criteria
4. Gather assessment data
5. Interpret findings and report to audiences
6. Identify and implement strategies for change
7. Revise assessment objectives, criteria, and methods, etc., as appropriate
Closing the Loop: Back to the Assessment Cycle!!!

- Collect Evidence
- Interpret results
- Implement Change
- Assess Again

Identify outcomes
Gather evidence
Implement change
Interpret evidence
Acting On Results

- **Assessment Action plan** utilizes assessment results to indicate needed changes to improve student learning or the program.
Describing Plans for Improvement

Colorado State University: BS Natural Resource Recreation and Tourism (NRRT) Program Improvement:

Data from Internship Evaluation by employers shows that for Spring & Summer 2009 our students did not do as well on their public speaking and writing skills in the work place as we wanted. Only 79% of students scored a 4 or better on public speaking skills & 81% scored a 4 or better on writing skills. While still fairly high, these scores are both below the 86% target we set....The internship coordinator will work on stressing the importance of high quality speaking & writing skills to students in the Internship Preparation course (NR 387) and.... During the last reporting cycle we saw an increase in the “Professionalism” score for students during their presentation after faculty agreed it had become a problem and we worked with students to emphasize its importance. However, it is clear this has become problematic again with only 54% of students scoring a 7 or better on a 10-point scale for this item, which is below our intended threshold of 75%. Additionally, “Speaking Ability” was below the 75% mark. Accordingly....
From Gathering to Using Assessment Results

• *Unfortunately, there is no “plug and play” system for using assessment data...*

• For assessment to be successful...put aside the question, “What’s the best possible knowledge?” and *instead ask: “Do we have good enough knowledge to try something different that might benefit our students?”* The most fruitful way to learn if conclusions drawn from assessment data are correct is to *try to change something and see what happens*

Blaich & Wise – NILOA Occasional Paper

Final Thoughts

The value of student learning outcomes assessment lies not in the data-gathering process but in the uses to which evidence is put and positive changes that result.
WORKSHOP – follow up
What Questions do you have from the Plenary?
What issues are you struggling with in assessment?
Assessment begins with a question(s): How do we know this is...?

- making a difference?
- making the intended difference?
- making a difference for educational effectiveness?
- making a difference for student learning?
- continuing to make a difference?
The promise of assessment depends on significantly growing and deepening faculty involvement...

What fosters faculty engagement in assessment?
1. Perception of assessment as top down, administrative

2. Results never shared with faculty

3. Data that are ambiguous, suspect, dispiriting, hard to act on

4. Data too far from home—hard to see connection to “my program, my students”

5. Time and priorities:
   “I worry that faculty are teaching too much to reflect on and change their teaching” (NILOA Provost survey, 2013)

6. Faculty disengagement as a self-fulfilling prophesy

Familiar? What would you add?
1. Create occasions where faculty can see, think about, and discuss assessment findings

   • Evidence not as “the answer” but as an invitation to deliberation and conversation

2. Organize conversation around issues faculty care about (not around source of data)
   
   ▪ What do we know about our students as writers...looking at local portfolios, NSSE data, info from writing center?
3. Tap into interest in the scholarship of T&L
   • Faculty treating their classrooms as sites for inquiry
   • Share data as grist for this work
   • And as larger context for work at the classroom level

4. Broaden the circle
   • Engage students in gathering, analyzing, presenting results (NC A&T State University)
5. Respect and work with disciplinary differences

- Employ multiple forms of representation—statistics, charts, narrative
- Tap into work by scholarly societies

6. Provide support and recognition

- Professional development opportunities
- $$ support, other rewards
Faculty Engagement

• Where have you been successful in engaging faculty in assessment activity?
• What types of ‘engagement’ do you want to see with faculty and assessment?
Engaging Faculty

Addressing the 15% Resistors:
• 5% already busy and productive
  Leave them alone
• 5% reasoned skeptics
  Take them to lunch
• 5% just plain mean
  Leave them alone

Getting Buy-In: Start small.
Use pilot projects to capture the 15% leaders + 35% early adopters

-- source Doug Eder
Assessment in the Heart of the Educational Process

Envision assessment as a natural and necessary enactment of core academic values, and when absent, a violation of those values.