Assessment and Undergraduate Research:
Developing a Plan for Assessment and Utilizing Tools
to Maximize Impact and Ensure High Quality Research Experience for Undergraduates

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DISCLOSURES

The speakers have no conflicts of interest to disclose
PURPOSE

- Discuss the critical aspects of developing appropriate student learning outcomes
- Review best practices for assessment as well as methods for collecting assessment data in undergraduate research
- Utilize ethical, legal, and sociocultural imperatives (ELSI) as a framework in assessment, evaluation and feedback
DEFINING “ASSESSMENT”

“Astonishment is the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving learning and development.”

(Palomba & Banta, 1999, p. 4)
LEVELS OF ASSESSMENT

- Classroom assessment
  - Individual student performance
- Course assessment
  - How well a course is meeting student learning outcomes
- Program assessment
  - How well an academic program/administrative or educational support program is meeting its objectives
- Institutional assessment
  - Institutional performance
EFFECTIVE PROGRAM ASSESSMENT

Should answer these questions:

- What and how does a program contribute to the development and growth of its students?
- What outcomes are you trying to achieve?
- What is the level of performance?
- How will you improve the program?
- What actions did you take?
- What are the results of these actions?
PROGRAM OUTCOMES VS. STUDENT LEARNING OUTCOMES (SLOs)

Program Outcomes
- Describe programmatic elements
- Examples include:
  - Admission criteria
  - Retention rates
  - Graduation rates

SLOs
- Describe student learning
- What students will know or be able to do as a result of the experience
MISSION AND OUTCOMES

Program Mission

Program Outcomes

Program Outcome 1
Program Outcome 2

Student Learning Outcomes

SLO 1
SLO 2
CREATING AN ASSESSMENT PLAN

- Include mission or purpose
- Student Learning Outcomes
- Curriculum Map
- Assessment Cycle
- Methods and Procedures
MISSION

- State primary functions and activities
- State why these are done (program purpose)
- Identify stakeholders

“The mission of (name of your program) is to (your primary purpose) by providing (your primary functions or activities) to (your stakeholders).”
MISSION STATEMENT EXAMPLES

“\text{The mission of the University of Kentucky Office of Undergraduate Research is to promote high quality undergraduate student-faculty collaborative research and scholarship in all disciplines across campus.}”

\text{The Undergraduate Research Office coordinates opportunities for undergraduate students to engage in meaningful research at XYZ university. The URO promotes many types of research-related activities in all academic disciplines.}
CREATING AN ASSESSMENT PLAN

- Include mission or purpose
- **Student Learning Outcomes**
- Curriculum Map
- Assessment Cycle
- Methods and Procedures
COMPONENTS OF EFFECTIVE SLOs

- Focus on what students will know and be able to do
- Describe observable and measurable actions or behaviors
WRITING LEARNING OUTCOMES

- Do not join elements in one outcome statement that can not be assessed by a single method
  - Students will demonstrate good written and oral communication skills

- Should be stated so that an outcome can be measured by more than one method
<table>
<thead>
<tr>
<th>KNOWLEDGE</th>
<th>COMPREHENSION</th>
<th>APPLICATION</th>
<th>EVALUATION</th>
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</thead>
<tbody>
<tr>
<td>Describe</td>
<td>Complete</td>
<td>Appraise</td>
<td>Appraise</td>
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<tr>
<td>Discuss</td>
<td>Compare</td>
<td>Compare</td>
<td>Argue</td>
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<td>Explain</td>
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<td>Arrange</td>
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<td>Relate</td>
<td>Recognize</td>
<td>Compose</td>
<td>Assemble</td>
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<td>Restate</td>
<td>Evaluate</td>
<td>Choose</td>
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<td>Test</td>
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<td>Complete</td>
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<td>Interpret</td>
<td>Evaluate</td>
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</table>
VERBS TO AVOID

- Avoid phrases/terms that describe covert behaviors such as:
  - Know
  - Familiarize
  - Gain knowledge of
  - Comprehend
  - Study
  - Cover
  - Understand

- Be aware
- Learn
- Appreciate
- Become acquainted with
- Realize
- Develop the capacity to
CRAFTING LEARNING OUTCOMES

- First-year students who attend a research orientation will be able to identify research opportunities and/or resources.

- Students who are engaged in undergraduate research will demonstrate knowledge of research practices.

- Target group; Intervention; Learning Outcome
CREATING AN ASSESSMENT PLAN

- Include mission or purpose
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CURRICULUM MAP

- Matrix that graphically organizes information about SLOs in a program
- Links SLOs to program activities
- Identifies where SLOs are introduced, reinforced, and assessed
<table>
<thead>
<tr>
<th>Activity #1</th>
<th>Activity #2</th>
<th>Activity #3</th>
<th>Activity #4</th>
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</thead>
<tbody>
<tr>
<td>SLO #1</td>
<td>Introduced</td>
<td>Assessed</td>
<td>Reinforced</td>
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<td>SLO #2</td>
<td>Introduced Assessed</td>
<td>Reinforced</td>
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<tr>
<td>SLO #3</td>
<td>Introduced</td>
<td></td>
<td>Reinforced Assessed</td>
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<tr>
<td>SLO #4</td>
<td>Reinforced Assessed</td>
<td></td>
<td>Introduced</td>
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</tbody>
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CREATING AN ASSESSMENT PLAN

- Include mission or purpose
- Student Learning Outcomes
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- Assessment Cycle
- Methods and Procedures
ASSESSMENT CYCLE

- Matrix that graphically organizes the frequency of SLO assessment
- Not all SLOs are assessed each year
- Multi-year process (usually about 3 years)
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<td>SLO #4</td>
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CREATING AN ASSESSMENT PLAN

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ASSESSMENT METHODS

Indirect
- The opinion or self-report of learning
- Examples include:
  - Enrollments
  - Surveys
  - Interviews
  - Focus groups
  - Student records

Direct
- Direct observation or examination of student knowledge or skills
- Examples include:
  - Quizzes
  - Tests
  - Observations
  - Internships
  - Simulations
  - Portfolios
ASSESSMENT METHODS

- What are you going to use?
  - Presentation, assignment, test, survey, observation, performance rating, portfolio, embedded questions
- What is your source?
  - Student, mentor, focus group, course
- Context (i.e. where or when)?
  - Course, capstone, throughout the year, end of program
- For what purpose?
  - Desired learning outcome
RUBRIC RESOURCES

- AAC&U VALUE Rubrics
  - [www.aacu.org/value/rubrics/](http://www.aacu.org/value/rubrics/)

- Intellectual and Practical Skills
  - Inquiry and analysis
  - Critical thinking
  - Creative thinking
  - Written communication
  - Oral communication
  - Reading
  - Quantitative literacy
  - Information literacy
  - Teamwork
  - Problem solving

- Personal and Social Responsibility
  - Civic knowledge and engagement
  - Intercultural knowledge and competence
  - Ethical reasoning
  - Foundations and skills for lifelong learning
  - Global Learning

- Integrative and applied learning
TYPES OF SURVEYS

- Institutional
  - Alumni
  - Employer
  - Graduating
  - Non-returning
  - Student satisfaction
  - Orientation
  - Climate

- Program/Department
  - Advisory board
  - Customer
  - Peer review
  - Point-of-service
  - Program-specific

- National
  - Freshman
  - Senior
  - Faculty
TIPS FOR SELECTING MEASURES

- Capstone or culminating experiences are ideal for SLO assessment
- Data should not be difficult to collect or access
- Use methods that can assess both the strengths and weaknesses of your program
- Identify multiple methods for assessing each outcome
CRAFTING MEASURES

- First-year students who attend a research orientation will be able to identify five opportunities and/or resources at the end of the orientation. (Student Awareness)

- Students engaged in undergraduate research will score proficient or above on a rubric that assesses their knowledge of research practices. (Student Knowledge)

- Target group; Target; Type of Measure
ASSESSMENT PLAN RESOURCES

- Assessment plan rubrics
  - University of Florida - http://assessment.aau.ufl.edu/aap-figure-3

- Assessment plan templates
ASSESSMENT CYCLE

Planning Phase

Mission/Purpose

Identify Outcomes/Objectives

Identify Measures/Methods

Assess Impact

Gather/Interpret Evidence

Implement Change

Results Phase
NATIONAL RESOURCES

- National Institute for Learning Outcomes Assessment
  - http://www.learningoutcomeassessment.org/Rubrics.htm
- Measuring Quality in Education
  - http://apps.airweb.org/surveys/
- Internet Resources for Higher Education Outcomes Assessment
  - http://www2.acs.ncsu.edu/UPA/archives/assmt/resource.htm
- Council for the Advancement of Standards
  - http://www.cas.edu/
ADDITIONAL REFERENCES

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- University of Kentucky Office of Assessment - [www.uky.edu/IRPE/assessment/](http://www.uky.edu/IRPE/assessment/)


ETHICS IN ELSI

- Autonomy - respect for individuality and self-determination - make own decisions
- Justice - fairness, allow time and clarification
- Veracity - truthfulness
- Fidelity - faithfulness
- Beneficence - act for the benefit of the client/family/patient
- Nonmalfeasance - do no harm
THE LAW IN ELSI

• Law and jurisprudence theory
  • Social contract among group members
  • Binding rules of conduct
  • Rule system established and enforced by an authority
  • Brings order to society
    • Places limits on rights
    • Creates obligations
• Sustains civilizations
SOCIOCULTURAL ISSUES IN ELSI

• A-B-C-D of Cultural Competence
  – Accommodation
  – Building bridges and foundations
  – Collaboration
  – Diversification
A-ACCOMMODATION

• Health care services should be designed to meet the needs of diverse populations
• Use of translation services and health literacy issues
• Support for navigating health care systems
• Consideration of spiritual needs
• National Standards for Culturally and Linguistically Appropriate Standards (CLAS)
B-BUILDING BRIDGES

• Strong leadership for a supportive infrastructure for cultural competence
• Provision of appropriate patient education materials-needs to be readable
• Assessment of patient or client understanding of education
• Simplify all directions, allow questions
C-COLLABORATION

• Institute of Medicine recommends health care professions develop integrated education, research and practice
• Partnerships within and across health care organizations and professions
• Enlistment of community leaders as partners in education, research and service
• Use of lay community health workers
D-DIVERSIFICATION

• Need for diversity of human resources
  – Hiring and promotion practices
  – Include persons from diverse backgrounds in key decision making roles, boards, policy-making committees

• Need for diversity of data
  – Community demographics
  – Patient level demographic data

• Ensure effective service delivery to underrepresented and diverse populations
A Research Proposal

- The Feasibility and Effectiveness of Text Messaging Intervention in Building Healthy Relationships Among College Students

The University of Pittsburgh School of Nursing is seeking volunteers for a research study that explores the usability and readability of text messaging in building healthy dating relationships. Dating violence is prevalent amongst college students, but many times students do not know the signs. Because text messaging is one of the most common modes of communication used by young people, its effectiveness on dating violence will be examined through this study. Participants will be part of a 4-week study and receive multiple text messages each week, containing information about relationship violence. Participants must be 18-25 years old and currently using text messaging. If interested or for more information, please contact Dominique Dela Cruz at ddela@pitt.edu or Grace Hwang at jhh50@pitt.edu.
ELSI Intersections

ETHICAL
- Autonomy
- Justice
- Veracity

LEGAL
- Torts-Negligence
- Criminal Law
- Public Law

SOCIOCULTURAL
- Accommodation
- Building Bridges
- Collaboration
- Diversity

Risks & Benefits
- IPV Definition
- Informed Consent

Recruitment
- Informed Consent
The Cycle of Intimate Partner Violence

- Tension Building
- Violent Episode
- Honeymoon Phase
Videos

• HELPP App

• LEAF
CONTACT US

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