Writing Learning Outcomes

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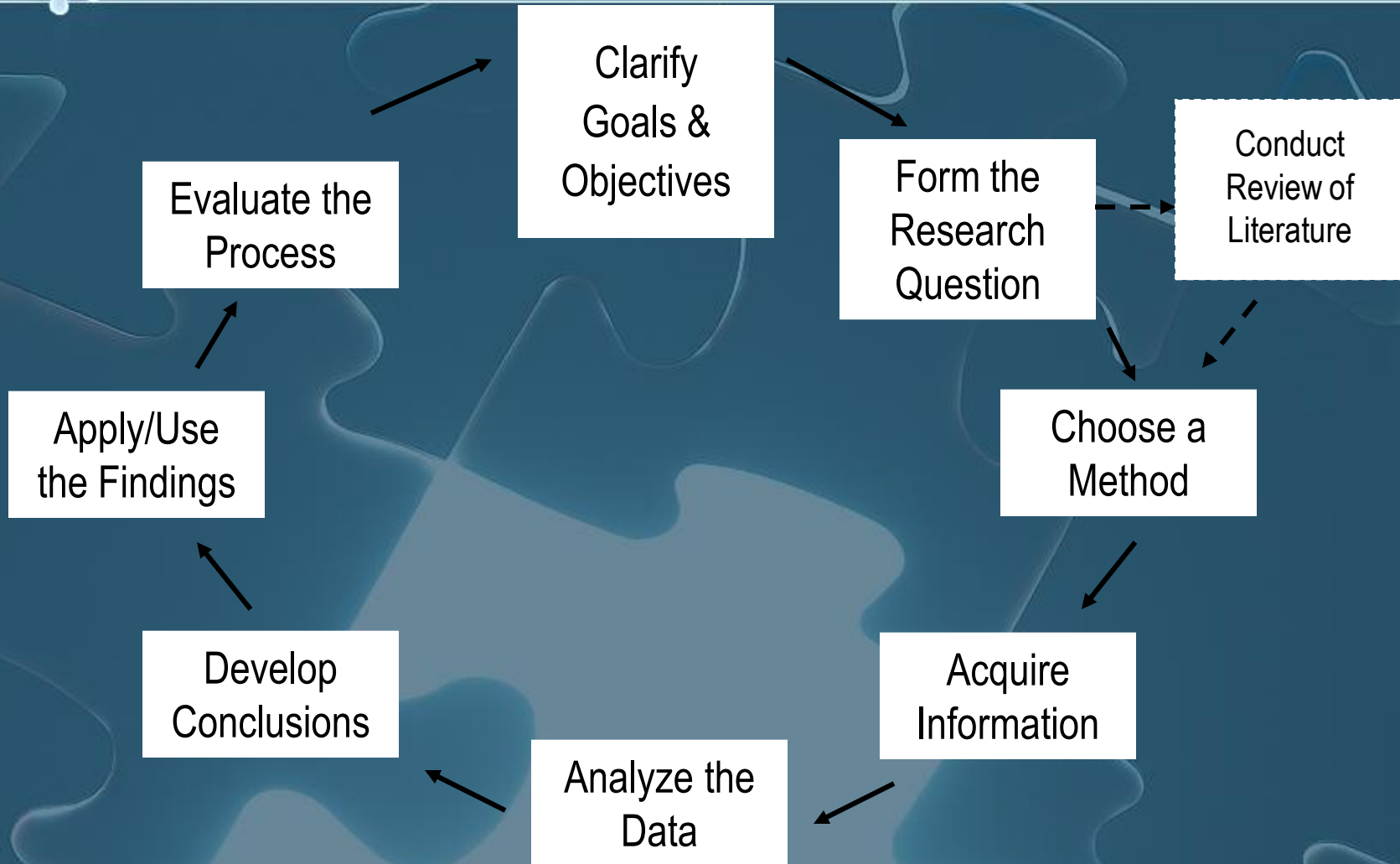
CAS Symposium

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Outline of Session

- Tips on forming research questions related to student learning outcomes

- Measuring student learning outcomes

- Judging the quality of student learning outcome data

- Review of the overall process

General diagram of the assessment process

Clarify Goals & Objectives → Form the Research Question → Conduct Review of Literature → Choose a Method → Acquire Information → Analyze the Data → Develop Conclusions → Apply/Use the Findings → Evaluate the Process → Clarify Goals & Objectives

First steps in
learning outcomes assessment

- Clarify your program's goals and objectives

- In this case, goals & objectives as they relate to *__student learning outcomes:__*

  - *Student Learning Outcomes Definition:* particular levels of knowledge, skills, and abilities that a student has attained at the end (or as a result) of his/her engagement in a particular set of collegiate experiences (Ewell, 2001)

From goals & objectives to research questions

- Try to identify your program/unit's learning objectives

- Ask yourself: "What do I hope students will be like or be able to do after having participated in my program?"

- Then think of what the answer to your question is
  - Example: "As a result of participation in my program, students will become more integrative or critical thinkers."

Looking for inspiration in identifying your program's goals & objectives?

Try:

- Program's mission statement
- Division's mission statement
- Accreditation reviews (or any external review)
- CAS standards
- Comparable units' missions/objectives

Transforming goals/objectives to learning outcomes

Effective learning outcomes…

- Rely on action verbs, describing what students should be able to demonstrate, represent, or produce

- Aligns with collective program (and institution) level educational intentions for student learning
  [institutional goals & objectives]

- Maps to the curriculum, co-curriculum, and educational practices that provide multiple and varied opportunities for students to learn **[accreditation review]**

- Incorporates or adapts professional organization outcome statements when they exist **[CAS standards]**

From: Maki, 2004

Looking for inspiration in transforming goals/objectives to learning outcomes?

Try Bloom's taxonomy:

	Bloom	Verb *	Tasks
1	Knowledge	Remember	Write, list, label, define
2	Comprehension	Understand	Explain, summarize, paraphrase
3	Application	Apply	Use, compute, demonstrate, apply
4	Analysis	Analyze	Analyze, categorize, contrast
5	Synthesis	Evaluate	Create, design, hypothesize
6	Evaluation	Create	Justify, critique

* From: Anderson & Krathwohl (2001)

One more noteworthy consideration…

Consider your intended audience

- Who is your intended audience
    - Do you have more than one? Are they competing interests?

- What directives have they given?

- What preferences do they have?

- What do you know about them through the grapevine?

An example: Dept. of Residence Life

Mission statement:

Residence halls exist at the University of xxx to provide students with reasonably comfortable and safe housing which is close to classrooms, libraries and the other programs and services of the campus. Since the residence hall environment also has an impact upon the development and well being of residents, programs and services are provided to positively shape the quality of the on-campus living experience.

The Department of Residence Life is established to:

- provide the basic housing services that are made available to resident students;
- insure the orderly, cost-effective operation of campus residence halls;
- promote the existence of an environment where student and community development, academic excellence, respect for individual differences, and constructive social interaction is valued and advanced; and
- insure that fiscal and human resources are managed effectively and consistent with University policies and procedures.

What if your mission statement isn't helpful/doesn't exist?

- Check out your institution's mission statement
  - Is there any language that matches up with your unit's goals/objectives

- Consult your accreditation review criteria (or any external review) reviews

- Consult the CAS standards

- Read the mission statements of your contemporary or aspirational peers

An example: Dept. of Residence Life

REVIEW:

Checklist for learning outcomes:

1. *Relies on action verbs*

2. *Aligns with program & institutional learning goals*

3. *Maps to program & institutional practices that offer multiple & varied opportunities for student learning*

4. *Incorporates professional organization outcome statements, when possible*

So…for our example:

As a result of students' engagement with Residence Life programs and practices, students will:

- Promote and engage in student and community development

- Achieve academic excellence

- Exhibit respect for individual differences, and

- Participate in constructive social interaction

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An example: Dept. of Residence Life

REVIEW:

Consider your intended audience

- Who is your intended audience?

- What directives have they given?

- What preferences do they have?

- What do you know about them through the grapevine?

For this campus:

- Intended audience might be VPSA's Office, central administration, general public

- Directives/preferences might include: obtaining "hard" data, using commonly accepted standards of social science inquiry methods

- Grapevine talk might include: desperateness to obtain data that preserves programs in face of budget cuts

Small-group activity: (10 minutes)

- Clarify your program's goals/objectives

- Transform goals/objectives into student learning outcome:
  - Ask yourself: "What do I hope students will be like or be able to do after having participated in my program?"
  - Then think of what the answer to your question is
  - Hint: use action verbs

- Think about intended audience(s) and their expectations/preferences

Note: We won't report out, but feel free to ask me questions as I circulate.

Welcome back!

Where we have been:

- Introduction to the assessment process
- Tips on forming research questions

What we are headed:

- Measuring student learning outcomes
- Judging the quality of student learning outcome data
- Review of the overall process

Ways of measuring student learning outcomes

An observation:

- "(If) done well, the assessment of student learning is a form of scholarship"

  (Ewell, 1998).

With this in mind:

- Measurement techniques must be rigorous
- Research methods must be of high quality

Ways of measuring
student learning outcomes
Three types (Maki, 2004)

1. ## Direct methods
   - Students' demonstration of learning via some form of standardized test focusing on aspects of student learning
   - Examples: CAAP, CLA, MAPP, plus GRE subject tests, PRAXIS tests, etc.

2. ## Indirect methods
   - Students' perceptions of their learning and the educational environment that supports that learning
   - Examples: NSSE, NSLLP

3. ## Performance-based methods
   - Students represent learning in response to assignments/projects that are embedded into their educational experiences

Direct methods

Voluntary System of Accountability (VSA) endorses three tests:

1. **Collegiate Assessment of Academic Proficiency (CAAP)**
   - Six 40 minute, multiple choice modules: reading, writing skills, writing essay (not multiple choice), mathematics, science, & critical thinking
   - http://www.act.org/caap/

2. **Collegiate Learning Assessment (CLA)**
   - Two essays designed to assess critical thinking, analytic reasoning, problem solving, and written communication skills
   - Machine and hand scored
   - http://www.cae.org/content/pro_collegiate.htm

Direct methods (cont'd)

Voluntary System of Accountability (VSA) endorses three tests:

3. **ETS Proficiency Profile** (formerly the Measure of Academic Proficiency and Progress (MAPP))
   - Three to eight, multiple choice modules: proficiency in critical thinking, reading, writing and mathematics in the context of humanities, social sciences and natural sciences
   - Optional essay test
   - http://www.ets.org/

Note: VSA found, through a test validity study, that students scored relatively consistently on the CAAP, CLA, and MAPP, as well as institutional mean scores being stable, inferring these tests' reliability and validity
[http://www.voluntarysystem.org/docs/reports/TVSReport_Final.pdf]

Indirect methods

- Students' perceptions of their learning and the educational environment that supports that learning

- *Examples*: self-reported surveys of college students, satisfaction surveys (e.g., CSEQ, NSSE, NSLLP, Noel-Levitz Student Satisfaction Inventory)

- *Note*: indirect methods should not be used as the sole evidence of student learning

Performance-based methods

- Students represent learning in response to assignments/ projects that are embedded into their educational experiences

- Particularly beneficial for types of learning that are integrative, reflective, generative

- *Examples:**
  - Student portfolios (including digital)
  - Capstone projects
  - Performances, creations
  - Case studies
  - Internships and service projects

Examples provided are ones that I feel are better suited for student affairs work.

Pros & cons of the three types

TYPE	PROS	CONS
Direct [Standardized assessments]	Quantifiable data (efficiency) Sound psychometrics Norms for data	Lack of knowing the process behind learning Lack of flexibility in different interpretations of learning
Indirect	Evidence of students' perceptions of their learning	Lack of direct evidence of students' learning
Authentic	Good for representing integrative, reflective learning Student generated, instead of test-generated	Data is not easily quantifiable Norming of data challenging (One way around this is developing rubrics)

Using rubrics to evaluate authentic methods -- *an example:*

Results from service learning portfolio:

Criteria	Unsatisfactory (1)	Satisfactory (5)	Outstanding (10)	Score
Student shows ability to apply learning to new circumstances	Materials show no demonstration of ability to apply coursework to service learning experiences	Materials show ability to apply coursework to SL experience in at least one or a few circumstances	Materials show several instances of abilities to apply coursework to SL experience	[1-10]
Student demonstrates appreciation for role of cultural differences in life chances	Materials show no acknowledgement of understanding of cultural differences and contribution to SL experience	Materials show limited (e.g, 1-3) instances of acknowledgement of differences & contribution to SL experience	Materials rife with examples of how cultural differences factored into SL experience	[1-10]

Steps in developing rubrics

- Work as a group to develop criteria for rubric
  - Or, work separately and compare criteria at a later point

- Interview students to find out what they believe they have mastered as a result of the experience

- Get inspiration from other sources:
  - Extant literature
  - Similar rubrics used by other sources

- Finally, it's a good idea to pilot test your rubric before using it for your assessment

Judging the quality of student learning outcome data

Evaluate the following:

- The clarity of the research questions on which the data is based

- The representativeness and/or comparability of the study's sample

- The psychometric rigor of the instrumentation

- The quality of the procedure used to collect the data

- The soundness of the data analysis

Judging the quality of student learning outcome data

- **Are the research question(s) clearly stated?**
  - Are the question(s) related to the problem?
  - Has the author made clear any assumptions on which the research question depends?

- **Are the participants/sampling suitable?**
  - Is the method of choosing the sample clear?
  - Is the sample chosen appropriate?
    - Probability or non-probability
  - Is the sample reflective of the population you wish to infer to?

Judging the quality of student learning outcome data

- **Is the instrumentation psychometrically rigorous?**
  - Do the questions on the instrument measure what they are designed to measure [validity]?
    - If the instruments are chosen from among several possible choices, is the choice well-defended?

  - Is there consistency in the measurement [reliability]?

  - If the instruments have been used previously, have their validity and reliability (for a similar purpose) been reported?

  - Were the criteria or rubrics decided upon using triangulation, or inter-rater scoring?

Judging the quality of student learning outcome data

- **Were data collection and analysis procedures appropriate?**

    - Were data-gathering procedures clearly described and appropriate?

    - Could factors outside the researcher's control have affected the data?

    - Were the data analysis methods clearly described?

    - Are the analysis methods appropriate, especially in light of the research question(s)/hypothes(es)?

From soup to nuts (adapted from Maki, 2004)
Conducting student learning outcomes assessment

1. State expected outcomes via goals & objectives

2. Identify where expected outcomes are addressed

3. Determine methods and criteria to assess outcomes

4. Learn audience's expectations for assessment

5. Determine whom you will assess

6. Collect & analyze data

7. Interpret how results inform decision making

8. Determine how you will share information learned

9. Incorporate feedback loop and start process over again

Contact information

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Annotated bibliography

- Astin, A. W. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. New York: Macmillan.

  ✽ In *Assessment for Excellence,* Astin covers not only the basis tenets of assessment and evaluation, but also provides a rich description of his Inputs-Environments-Outcomes (I-E-O) college impact model. While it is accessible to all, it is targeted at the scholar-practitioner. It includes, for example, not only a discussion of political considerations in assessment work but a review of basic statistical concepts used in assessment work.

- Banta, T. & Associates (2002). *Building a scholarship of assessment*. San Francisco: Jossey-Bass.

  ✽ In *Building a Scholarship of Assessment*, Banta and her colleagues explore three broad themes within the field of assessment work: (a) the history and current status of the assessment movement, (b) theoretical foundations of assessment, and (c) assessment methods. Like *Assessment for Excellence*, this book is for the scholar-practitioner who is interested in a mix of theory and practice or the assessment professional who wants a review of assessment as an area of scholarship.

Annotated bibliography (cont'd)

- Banta, T. W., Lund, J. P., Black, K. E., & Oblander, F. W. (1996). *Assessment in practice: Putting principles to work on college campuses*. San Francisco: Jossey-Bass.

  ✻ Modeled after AAHE's Principles of Good Practice, *Assessment in Practice* begins with a discussion of best practices and then moves to a series of case studies and campus exemplars. Useful to those practitioners who feel they would benefit by seeing how colleagues at other institutions addressed particular assessment concerns before crafting their own unique strategies.

- Maki, P. L. (2004). *Assessing for learning: Building a sustainable commitment across the institution*. Sterling, VA: Stylus Publishing, LLC.

  ✻ An exceptionally valuable resource, Maki's *Assessing for Learning* provides an accessible, practical guide to campus assessment. While it is decidedly practitioner oriented, the book is also grounded in scholarship and will add meaningful complexity to the beginning professional's thinking about the work of assessment and evaluation.