Welcome Back to the Data Information Literacy Symposium

Housekeeping: Jake Carlson
Exercise 1: Program Development

Moderator: Sarah Wright
Exercise 1: Program Development

Case studies:

1. Chemistry / Lab Group
2. Engineering / Lab Group
3. Interdisciplinary / Large Research Center
4. Life Sciences / Lab Group

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Exercise 1: Program Development

(Pink handout)

Imagine you want to develop a data information literacy program for the population in your case study.

1. Which data competencies?
2. Additional information needed?
3. Learning objectives?
4. Approach?

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Scenario Discussion

40 minutes
Halfway Point

20 minutes left
Prep to Report Out

5 minutes
Panel 2: Implementing the DIL Program

Questions for Panelists:
1. Working with your faculty member and/or department?
2. Working with graduate students?
3. Working with others at the institution?

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Relationships Matter!

Dean Walton, University of Oregon
Break

10:15-10:45 AM
Assessment

Michael Fosmire
Dean Walton
Assessing Your Program

- Learning Objectives
- Instructional Activities
- Assessments

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Assessment is...

- Valid
- Reliable
- Transparent
- Authentic
- Motivating
- Fair
- Equitable
- Formative, even when Summative
- Timely
- Incremental
- Demanding
- Efficient
- Manageable
Assessment Does…

• Guide Improvement
  • Of Students
  • Of teachers
• Set Standards
• Provides Evidence
• Differentiate Performance
Assessing SLO’s

- www.wikihow.com
<table>
<thead>
<tr>
<th>Specific</th>
<th>Detailed enough so understandable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Who, what, when, where, why, how</td>
</tr>
<tr>
<td>Measurable</td>
<td>Is this something that is demonstrable?</td>
</tr>
<tr>
<td></td>
<td>Can it be quantified?</td>
</tr>
<tr>
<td>Achievable</td>
<td>Set the bar high</td>
</tr>
<tr>
<td></td>
<td>…but within reason</td>
</tr>
<tr>
<td>Relevant</td>
<td>Aligned with goals/objectives?</td>
</tr>
<tr>
<td></td>
<td>Appropriate level of assessment</td>
</tr>
<tr>
<td>Timely</td>
<td>Overall timeline for instruction/assessment</td>
</tr>
<tr>
<td></td>
<td>Logical scheduling of assessment?</td>
</tr>
</tbody>
</table>

(Doran, 1981)
# Bloom’s Taxonomy Action Verbs

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
<th>Sample verbs</th>
<th>Sample behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KNOWLEDGE</strong></td>
<td>Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned.</td>
<td>arrange, define, describe, duplicate, identify, label, list, match, memorize, name, order, outline, recognize, relate, recall, repeat, reproduce, select, state</td>
<td>The student will define the 6 levels of Bloom’s taxonomy of the cognitive domain.</td>
</tr>
<tr>
<td><strong>COMPREHENSION</strong></td>
<td>Student translates, comprehends, or interprets information based on prior learning.</td>
<td>explain, summarize, paraphrase, describe, illustrate, classify, convert, defend, describe, discuss, distinguish, estimate, explain</td>
<td>express, extend, generalized, give example(s), identify, indicate, infer, locate, paraphrase, predict, Recognize, rewrite, review, select, summarize, translate</td>
</tr>
<tr>
<td><strong>APPLICATION</strong></td>
<td>Student selects, transfers, and uses data and principles to complete a problem or task with a minimum of direction.</td>
<td>use, compute, solve, demonstrate, apply, construct, apply, change, choose, compute, demonstrate, discover, dramatize</td>
<td>employ, illustrate, interpret, manipulate, modify, operate, practice, predict, prepare, produce, relate, schedule</td>
</tr>
<tr>
<td><strong>ANALYSIS</strong></td>
<td>Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, or structure of a statement or question</td>
<td>analyze, categorize, compare, contrast, separate, apply, change, discover, choose, compute, demonstrate, dramatize</td>
<td>employ, illustrate, interpret, manipulate, modify, operate, practice, predict, prepare, produce, relate, schedule</td>
</tr>
<tr>
<td><strong>SYNTHESIS</strong></td>
<td>Student originates, integrates, and combines ideas into a product, plan or proposal that is new to him or her.</td>
<td>create, design, hypothesize, invent, develop, arrange, assemble, categorize, collect, combine, comply, compose, construct, create, design, develop, devise, explain, formulate, generate, plan</td>
<td>prepare, rearrange, reconstruct, relate, reorganize, revise, set up, summarize, synthesize, tell, write</td>
</tr>
<tr>
<td><strong>EVALUATION</strong></td>
<td>Student appraises, assesses, or critiques on a basis of specific standards and criteria.</td>
<td>Judge, Recommend, Critique, Justify, Appraise, Argue</td>
<td>Assess, Attach, Choose, Compare, Conclude, Contrast, Defend, Describe, Discriminate, Estimate, Evaluate, Explain</td>
</tr>
</tbody>
</table>

Knowledge, Skills, Attitudes (KSA)

- Knows About
- Sees Value In
- Knows How to

Does your assessment engage all three facets?
Informal Assessments

• Muddiest point/Minute Papers
• Reflections
• Clickers/Quizzes
• Checks for Understanding (CFUs)
• Readiness Assessment Technique (RATs)

Know your audience, so you know what they need
# Rubrics

## INFORMATION LITERACY RUBRIC

**Definition**
Information literacy is the ability to recognize the extent and nature of information need, then to locate, evaluate, and effectively use the needed information. It involves designing, evaluating and implementing a strategy to answer questions or achieve a desired goal.

<table>
<thead>
<tr>
<th></th>
<th>Proficient</th>
<th>Emerging</th>
<th>Developing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Determine the Extent of Information Needed</strong></td>
<td>Effective</td>
<td>Defines</td>
<td>Defines</td>
</tr>
<tr>
<td></td>
<td>defines the scope of the research question or thesis. Effectively determines key concepts. Types of information (sources) selected directly relate to concepts or answer research question.</td>
<td>the scope of the research question or thesis completely. Can determine key concepts. Types of information (sources) selected relate to concepts or answer research question.</td>
<td>the scope of the research question or thesis incompletely (parts are missing, remain too broad or too narrow, etc.). Can determine key concepts. Types of information (sources) selected partially relate to concepts or answer research question.</td>
</tr>
<tr>
<td><strong>Access the Needed Information</strong></td>
<td>Accesses</td>
<td>Accesses</td>
<td>Accesses</td>
</tr>
<tr>
<td></td>
<td>information using effective, well-designed search strategies and most appropriate information sources.</td>
<td>information using variety of search strategies and some relevant information sources. Demonstrates ability to refine search.</td>
<td>information using simple search strategies, retrieves information from limited and similar sources.</td>
</tr>
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</table>
Scaffolding

• Starting slowly and building complexity
• From more structure to less

Cc: augapfel; www.flickr.com/photos/qlin/71522478
Team vs. Individual Assessments

E-Science is a team sport. How do you balance cooperative outcomes with tracking individual achievement/comprehension?
The Flipped Classroom

**Before**
Students prepare to participate in class activities

**During**
Students practice applying key concepts with feedback

**In Class**

**Out of Class**
Students check their understanding and extend their learning

**Goal**
- ctl.utexas.edu/ctl/node/426
Maintain Alignment

- Review outcomes
- Assessment at correct Bloom level

-cc: Metric X: http://farm3.staticflickr.com/2021/1815019879_666ba6948f_o_d.jpg
What is a program?

Assessment

--Characteristics of Programs of Information Literacy that Illustrate Best Practices (ALA/ACRL)
Developing the Program

- Identifying Need
- Proposing Solutions
- Assessing Results

-Derived from IMLS Outcomes Based Evaluation
When do you assess?

- When it matters…
- Who are influencers?
- What do they want to know?
- How will they use the results?

5min- brainstorm: Who are your influencers?
Step by Step Assessment

• Mission/Goals
  - Defines purpose of program
  - Aligns with library/institutional mission or strategic plan

5 min – This program *does what, for whom, for what outcome?*
• How should I assess my program and when should it begin?

• Planning evaluation begins with planning the project

• Outcome Based Evaluations

• The Logic Model
Outcomes

• Students who participate in this program will be able to:

• Administrators who support this program will:

• Disciplinary faculty affiliated with this program will:

• Participating librarians/instructors will:
• It is important that what you want to assess is measurable!

• Think tallies of items
• Think percent change
• Think surveys
# Parts of a Logic Model

<table>
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<tr>
<th>Key Influencers (Stakeholders)</th>
<th>Target Audience</th>
<th>Objectives</th>
<th>Outcomes</th>
<th>Indicators (increase or decrease)</th>
<th>Goals/Targets (the stated change in numbers or percentage)</th>
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Identify Outcomes

• Using outcomes from yesterday, or starting over:

• Identify three outcomes, either learning outcomes or other programmatic outcomes.
  (10 minutes)
Identify Indicators:

- What will indicate that the outcome has been met?
  - Performance assessment of students
  - Knowledge assessments (tests)
  - Application (using data mgmt)
  - Other Bloom-ish activities
  - Satisfaction measures
  - Efficiency/cost measures

5 minutes - Indicators
Sources of Data

• How will you gather this data?

• Who is your audience?

• How often/when will you gather data?

• What will you need (equipment, IRB approval, etc).

5 minutes – sources of data
Goals and Targets

• May be set by standards
• May be very subjective
• Should be reasonable and obtainable
Criteria for Success

What is the threshold of success?

- 70% on an exam
- <5% FTE librarian time per semester
- Utilizing 50% of proper data management strategies
- 80% of points on a rubric from an artifact?
Check for Alignment

• Go back to your Outcome….does the assessment still reveal whether students have achieved the learning outcome?

• Is the assessment practical, effective and useful?
Bloom Activities

- **Knowledge:** Recall, Recognize, Identify
- **Comprehension:** Interpret, Exemplify, Classify, Summarize, Infer, Compare, Explain
- **Application:** Apply, Execute, Implement
- **Analysis:** Differentiate, Organize, Attribute,
- **Evaluation:** Critique, Assess
- **Synthesis:** Create, Generate, Plan, Produce, Design
What to Assess

• Look at your Learning Outcome.

• How can you tell whether an Outcome has been met?

• What Bloom ‘verb’ corresponds to this learning outcome?

• **Write down a task** in ‘Bloom language’ in the ‘What to Assess’ blank.
Bloom-ish Connections

- **Knowledge**: Recall, Recognize, Identify
- **Comprehension**: Interpret, Exemplify, Classify, Summarize, Infer, Compare, Explain
- **Application**: Apply, Execute, Implement
- **Analysis**: Differentiate, Organize, Attribute,
- **Evaluation**: Critique, Assess
- **Synthesis**: Create, Generate, Plan, Produce, Design

- Tests: Fill-in; multiple choice, matching, labeling
- Papers
- Problem Sets
- Class Discussions
- Concept Maps
- Performances
- Labs
- Prototypes
- Simulations
- Projects
- Debates
- Reviews

See Handouts
Activity

- Fill out Worksheet: How Will You Assess?

- Which Assessment technique is most appropriate for your outcome? (See handout)
What Constitutes Success?

• What is the threshold students should achieve?
  • Complete mastery?
  • More often than not? 70%, 90%
  • The ability to perform on command?
  • Consistent behavior change?
• Fill Out the ‘Success Threshold’ part of your form
When Do You Assess?

Considerations

• Availability of Audience/Instructor
• Purpose of Instruction
• Purpose of Assessment
• Types of Outcomes

• Fill out ‘When’ section of assessment
Exercise 2: Developing an Assessment Strategy

Moderator: Dean Walton
Lunch

12:00-1:30 PM

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Lightning Round Presentations

Next steps for developing our DIL programs with our faculty partners and/or at our respective institutions.
Discussion: Where do we go from here?

Moderator: Jon Jeffryes