Session Learning Outcomes

- **Expect-to-see:** When asked, participants will explain how effective and efficient assessment depends on complete specification of student learning outcomes.
- **Expect-to-see:** When presented with written learning outcomes, participants will recognize the presence/absence of performance, conditions and criteria components of learning outcome statements.
- **Like-to-see:** Working alone or with a partner, participants will write at least one complete learning outcome statement for a module of a target course.
- **Like-so-see:** When asked, participants will describe three or more ways that statements of performance, conditions and criteria can facilitate the development of formative and summative assessments.
- **Love-to-see:** Face to face, participants will provide supportive and constructive formative feedback to colleagues.

“Levels” of Learning Outcomes

- Institution-Level
- Program-Level
- Course-Level
- Module-Level

“Levels” of Learning Outcomes

- Institution-Level
  - University of Victoria
- Program-Level
  - B.Sc. Psychology
- Course-Level
  - Psychology 31B – Conditioning and Learning
- Module-Level
  - Unit 6: Operants – Selection by Consequences
Learning Outcomes and Learning

- Learning outcomes are not a new idea.
- Instructional Objectives
- Learning Objectives
- Learning Goals
- Behavioural Objectives
- Performance Objectives, etc.
- The specification of learning outcomes derives from what we know about learning.
- Learning occurs when a performance receives feedback under a given set of conditions.

Mager’s Objectives

Robert Mager: The ideal learning objective provides a clear description of three key components: performance, conditions and criteria.

- **Performance**: What the learner does. (behaviour)
- **Conditions**: When/where the learner does it.
- **Criteria**: How much/how well the learner does it – the criteria for feedback.

1) Performance (behaviour)

- **Examples**
  - Thinking, Talking, Problem-solving, Writing, Evaluating, Imagining, Creating, Discriminating, Analyzing, Touching, Explaining, Organizing, Critiquing, Constructing, Coding, Computing, Adjusting, Measuring, Listening, Smelling, Feeling, Twisting, Turning, Selecting, etc.

Common Question Words (a la Bloom)

- **Knowledge/Remembering**: Define, List, Recall, Name, Identify, Label, Recognize
- **Comprehension/Understanding**: Translate, Restate, Discuss, Describe, Recognize, Explain, Express, Report
- **Application/Applying**: Interpret, Apply, Employ, Use, Demonstrate, Dramatize, Practice, Illustrate, Operate, Solve, Sketch
- **Analysis/Analyzing**: Distinguish, Analyze, Differentiate, Calculate, Compare, Contrast, Diagram, Inspect, Inventory, Relate, Examine, Categorize, Parse
- **Synthesis/Creating**: Compose, Plan, Propose, Design, Formulate, Arrange, Assemble, Collect, Construct, Create, Set Up, Organize, Manage, Prepare, Make
- **Evaluation/Evaluating**: Judge, Appraise, Evaluate, Rate, Rank, Compare, Value, Revise, Score, Select, Choose, Assess, Estimate, Measure, Review

2) Conditions

- **Context**
  - The “tools” learners will have at their disposal
    - Information (texts, objects, drawings, lectures, videos, tweets, data, images, instructions, body language, etc.)
  - Questions/ Problems /Prompts
  - Presence/absence of distractions
  - Examples: with an open book; using a standard calculator; given a novel poem; working alone; when asked x;

- **Domain**
  - The scope of a fair assessment
  - The range of “coverage”
  - Examples: including all Prime Ministers in the 20th Century, with Spanish sentences in the past and present tenses; limited to visual artists who were covered in lectures; with positive integers
3) Criteria (or Degree)

Quantitative aspects
- How much or how many
- How quickly or frequently
- How accurately or precisely
- Etc...

Qualitative aspects
- How completely
- How well
- How clearly
- Etc...

“Levels” of Learning Outcomes and Critical Components

- Institution-Level: Performance
- Program-Level: Performance and Criteria
- Course-Level: Performance, Conditions and Criteria
- Module-Level: Performance, Conditions and Criteria

Silly Warm-up Exercise:
Let’s try writing a simple learning outcome

- Imagine you have just brought home a new puppy. (Cat lovers may substitute “kitten.”)
- On the worksheet, write a learning outcome for your new pet that includes all three of Mager’s components: (performance, conditions, criteria)
- Suggestion: Focus on what you want the pet to do rather than what you want the pet not to do.

Example (course: Introduction to Behaviour Analysis)

This course introduces students to understanding behaviour from a distinctly behavioural perspective. In particular, students are expected to learn about behaviour principles (e.g., operant and respondent conditioning, reinforcement, discrimination, generalization, shaping, fading), and to analyze behaviour and possible determining conditions in terms of functions rather than forms.

Example (general learning outcome statement)

General Learning Outcome Statement:

Learners will be able to identify the function(s) of behavioural events occurring in an interaction between two people.

This is a "Module-Level" learning outcome.
General Learning Outcome Statement:
Learners will be able to identify the function(s) of behavioural events occurring in an interaction between two people.

**Conditions**

a) When presented with a written description of a social interaction between two people...

b) When presented with a video of a social interaction between two people...

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**Example**

Rosa and her 3-year-old daughter, Juanita, are in the mercado. Juanita sees candy near the checkout area and Juanita points at the candy. Rosa doesn't respond. Juanita cries and stomps her feet. Rosa selects a candy and puts it into the shopping basket. Juanita stops crying and smiles.

(In the future, we observe that Juanita is more likely to tantrum in similar situations. When tantrums occur, Rosa is more likely to give in. Rosa also is less likely to take Juanita to the mercado).

Analyze this episode in terms of the function(s) played by the behaviours of the two people, justifying your analysis.

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**Conditions and Performances**

a. When presented with a written description of a social interaction between two people, the learner will identify (write/say) the stimulus functions played by each person's behaviour for the other person.

b. When presented with a video of a social interaction between two people, the learner will identify (write/say) the stimulus functions played by each person's behaviour for the other person.

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**Summative Assessment Example**

Write a course-relevant learning outcome (1 of 2)

- Incorporating Mager’s key features of instructional objectives, write a complete learning outcome relevant to your course.

  **Suggestion:** Work on a "module-level" learning outcome.
Let’s define one for your learners

Define one essential learning outcome for your target course.

- Start with a general statement of the learning outcome. Then,
  - Specify the Conditions (when/where/with the learner would do it)
  - Specify the Performance (what behaviour(s) the learner would do)
  - Specify the Criteria (how much and/or how well the learner would do it)

Give your partner feedback

- Performances?
- Conditions?
  - Context
  - Domain
- Criteria?
  - Quantitative
  - Qualitative

Progressive outcomes

Usually, learners will require mastery of foundational learning outcomes before they can master your ultimate learning outcomes.

Foundational learning outcomes may vary from ultimate outcomes in terms of:

- Conditions (more obvious, simpler, easier, hints, prompts, following similar examples, limited range)
- Performances (concept names, concept definitions, rules, guidelines, Bloom’s “knowledge”)
- Criteria (relaxed standards, explicit criteria)

Introduce Example

Rosa and her 3-year-old daughter, Juanita, are in the mercado. Juanita sees candy near the checkout area and Juanita points at the candy. Rosa doesn’t respond. Juanita cries and stomps her feet. Rosa selects a candy and puts it into the shopping basket. Juanita stops crying and smiles.

Identify behaviours by circling the verbs and colouring them for each person.
Rosa and her 3-year-old daughter, Juanita, are in the mercado. Juanita sees candy near the checkout area and Juanita points at the candy. Rosa doesn't respond. Juanita cries and stomps her feet. Rosa selects a candy and puts it into the shopping basket. Juanita stops crying and smiles.

Identify behaviours by circling the verbs and colouring them for each person.

Next, for each behaviour of Juanita, identify the antecedent and the consequent event. Use a table.

<table>
<thead>
<tr>
<th>Antecedent Event</th>
<th>Behaviour</th>
<th>Consequent Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candy</td>
<td>Juanita points</td>
<td>(no consequence)</td>
</tr>
<tr>
<td>Candy in basket</td>
<td>Juanita stops crying and smiles</td>
<td>Rosa selects candy</td>
</tr>
</tbody>
</table>

Next, for each behaviour of Rosa, identify the antecedent and the consequent event.

<table>
<thead>
<tr>
<th>Antecedent Event</th>
<th>Behaviour</th>
<th>Consequent Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juanita points</td>
<td>Rosa doesn't respond</td>
<td>Juanita tantrums</td>
</tr>
<tr>
<td>Juanita tantrums</td>
<td>Rosa selects candy and puts it into the shopping basket</td>
<td>Juanita stops tantrum and smiles</td>
</tr>
</tbody>
</table>

Analyze this episode in terms of the function(s) played by the behaviours of the two people, justifying your analysis.
Making your learning outcome “progressive.”

- Work with your partner.
- How might you provide progressive practice and formative feedback to move your learners toward your learning outcome?
  - Practice and formative feedback with progressive changes in performance ...
  - Practice and formative feedback with progressive changes in conditions ...
  - Practice and formative feedback with progressive changes in criteria ...

Joe’s Summary

- Learning involves practice performing under certain conditions and receiving feedback based on criteria.
- The first step in designing effective and efficient assessment is to define the learning outcome in terms of performances, conditions and criteria.
- Once the performances, conditions and criteria are specified, summative assessments will arrange for the conditions and apply the criteria to the resulting performances.
- Teaching often will involve progressive changes in performances, conditions and criteria applied to practice and formative assessment.

Session Learning Outcomes

- **Expect-to-see**: When asked, participants will explain why effective and efficient assessment must be designed alongside the assignment.
- **Expect-to-see**: When presented with written learning outcomes, participants will imagine appropriate assignments and assessments.
- **Like-to-see**: Participants will redesign an assignment based on the information in the presentation.
- **Like-to-see**: Participants will identify one or two different ways to design assignments and assessments that they would like to incorporate into future curriculum.
- **Love-to-see**: Face to face, participants will provide supportive and constructive formative feedback to colleagues.

1. Assignment Design

- By yourself, design an assignment for your course that practices the learning outcome you developed with Joe.
- Share with a partner.
1. Assignment Design Considerations

- Learning outcomes
  - Which ones?

- Personalization
  - Co-curricular learning?
  - Students’ backgrounds?
  - What flexibility will you allow for? How can the assignment be more meaningful?

- Short, frequent assignments are best for skill development (Zamel, 1995b; Robertson et al., 2000; Straub, 2000)

- Multi-staged assignments

- Explicit instructions and annotated modeling work best for most students (Universal design; Rank & Pool, 2004; Pardee & Hain, 2003; Ramanathan & Kaplan, 1996; Rose & McClafferty, 2001)

- Format, style, quality
  - Can you incorporate structured peer review?

2. Assessment Design Considerations

- Your assessment strategy
  - Marked?
  - Reason for feedback?
  - Summative or formative?

- What are you evaluating?
  - Learning outcomes?
  - Things you didn’t teach or explain?
  - What about alternate forms of knowledge display/practice?
    - prepared presentations

- Single-point rubrics focus you and the students on what you expect to see, at a time when that information is relevant

- Traditional rubrics are useful if there are multiple markers or for large classes (marks per item, scale of repertoire)

3. Feedback Design Considerations

- Students and feedback (Silva et al., 1997; Zamel, 1985; Leki 1990; Robb et. al., 1986)
  - Don’t read it
  - Read it to understand the grade
  - Can’t prioritize it
  - Feedback at the end of the semester has nowhere to go

Worse:
  - Providing too much error correction dissuades students from taking linguistic, rhetorical, and intellectual risks with their writing and doesn’t allow for developmental errors (Elbow, 1998; Holt 1997)
3. Feedback Design Considerations

- 2-3 areas of feedback per paper
  - E.g., grammar/proofreading; organization; content issues
  - Should include the learning outcomes
  - Planned and applicable (restrain/retrain yourself!)
  - Avoid the feedback blizzard
  - Consider using an audio file for feedback: one for general feedback and one for specific feedback

3. Feedback Design

The best feedback is:

1. Planned
2. Applicable
3. Early
4. Ongoing

Some of the considerations we’ve covered

- Students’ backgrounds/personalization
- Authenticity of task/making it meaningful
- Annotated models
- Structured peer review
- Alternate forms of knowledge display/practice
- Rubrics
- 2-3 areas of feedback
- Grammar: focus on one chunk only
- Multiple opportunities to practice
- Multi-staged assignments

Application

- Take a few moments to revisit the assignment you designed based on the learning outcome you wrote with Joe. How might you change it, and why?
- Share your thoughts with a partner.
Session Learning Outcomes

- **Expect-to-see:** When asked, participants will explain some of the benefits and pitfalls of using technology in assessment.
- **Expect-to-see:** When presented with common assignments and assessments, participants will imagine what technologies might be used and why.
- **Like-to-see:** Working alone or with a partner, participants will select at least one tool or technology to use as part of assessment in a target course.
- **Like-to-see:** Working alone or with a partner, participants will evaluate whether or not the choice of tool(s) should be revised using the information in the presentation.
- **Love-to-see:** Face to face, participants will provide supportive and constructive formative feedback to colleagues.

Technology Everywhere...

- There is an increasing number of technologies/tools that can enrich the quality and range of student assignments, assessment & feedback.

Range of Attitudes

- **Wow:** I bet this new tool would be fantastic for my students’ ePortfolios projects. I’m so excited to try it out this term!
- **I steal good student ratings:** for my classes and I’m busy enough with my...

Activity 1: At your table, jot down some of the pros and cons of using technology for assessment and feedback.

Technology & Assessment

Purposeful Part of Assessment and Feedback Design

Share with the group
5 Common Examples

Biology 150 Course

Learning Outcome:
When asked during class time, participants will correctly define foundational terms needed for lab.

Assessment Idea:
Structured worksheet?

Tool Option:
Classroom response system (i>Clicker)

Why (Features):
Immediate feedback, Frequent, low stakes, Options for Peer Feedback

Education 501 Course

Learning Outcome:
Research groups will identify, synthesize, summarize and critically assess a selection of scholarly articles.

Assessment Idea:
Group Report

Tool Option:
Collaboration Tools (Google Docs/Drive), Online File Submission (Moodle)

Why (Features):
Individuals & Groups Progress, Process & Products

Math 100

Learning Outcome:
Create a video project using Camtasia, ShowMe, Whiteboards, Periscope to clearly and concisely explain a specific topic within the course.

Assessment Idea:
Guided Problems Sets

Tool Option:
Student creates a video utilizing Camtasia, ShowMe, Whiteboards, Periscope

Why (Features):
New ways to "show your work" Focus on process (not just solution)

Sociology 300

Learning Outcome:
Students will critically assess published social science research reports, identifying methodological strengths and shortcomings.

Assessment Idea:
Paper (Students choose a study and critically assess it) Submit outline first.

Tool Option:
Outlining Tool (e.g. Popplet), Online File Submission (Moodle), Peer feedback

Why (Features):
Chance to improve; Peer feedback, Clarify expectation (Rubric), Multimedia feedback (e.g. audio)

*Similar Tools: Top Hat, Kahoot, Zaption, Poll Everywhere, Twitter

Similar Tools: LMS Wikis & Forums, Slack, Skype, Facebook
Many, Many Other Options
Significant task redesign & new tasks previously inconceivable

Discussion Activities
- Learning by interacting, coordinating, Assessing contributions (beyond 'tallying participation); Class backchannel
- Agreement, Debate

Peer Review
- Feedback and feedback from others
- Workshop; Turnitin PeerMark; iPeer

ePortfolios
- Collection of electronic 'evidence' built over time; Meaningful & authentic, assignment
- Mahara; Wordpress

Blogging & Vlogging
- Critical reflection; Opportunity for dialogue (comments)
- Wordpress, Blogger, Twitter; YouTube

Curation Activities
- Selecting, maintaining, annotating collection of digital assets
- Delicious, Diigo, Scoopit

Self-Assessment
- Monitoring & evaluating own progress and products
- Fluid Surveys; Learning analytics platforms, etc

Pedagogy First
Technology Second

Activity 2 | Pick a Tool
Take a look at the assignment idea you developed with Laurie. What tool or technology might you be interested in using? How would it enhance assessment and/or feedback?

Pedagogy Tech Wheel
(Other Tools: Top 100 Tools for Learning)

Use the worksheet questions to evaluate the technology/tool(s) you selected earlier. Do you need to adjust your decision?

Mariel’s Summary
- Technology can enhance assessment and feedback, but also has some pitfalls.
- Technology integration is purposeful, strategic, and anchored in pedagogy.
- Selecting among tools is a complex process involving a very wide range of interacting variables.
- The SECTIONS model (or similar) can provide a set of criteria or questions which can help inform your decision about which tools to use.

Pedagogy Tech Wheel
(Other Tools: Top 100 Tools for Learning)

When asked, participants will explain how effective and efficient assessment depends on complete specification of student learning outcomes.
When presented with written learning outcomes, participants will recognize the presence/absence of performance, conditions and criteria components of learning outcome statements.
When asked, participants will explain why effective and efficient assessment must be designed alongside the assignment.
When presented with written learning outcomes, participants will imagine appropriate assignments and assessments.
When asked, participants will explain some of the benefits and pitfalls of using technology in assessment
When presented with common assignments and assessments, participants will imagine what technologies might be used and why