Assessment in Active Learning Classrooms

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Outline for Presentation

▪ Briefly introduce ourselves and discuss experience with Active Learning Classrooms
  ▪ Sam (assessment researcher, worked on assessment of ALCs in their early stages)
  ▪ Jane (researcher of learning outcomes in ALCs)

▪ Examples of Basic Assessment When ALCs were New at University of Iowa
  ▪ Observations
  ▪ Surveys
  ▪ Meeting with instructional support and classroom support staff

▪ Examples of Studies of Learning Outcomes

▪ Demonstration of Impact of ALCs

▪ Time for Questions
What types of assessment are people most interested in?

Assessment at Multiple Points of Process

- Faculty Development Program
- Formative Assessment activities
  - Observations
  - Interviews
  - Focus Groups

- Preparation for Teaching in an ALC

- Teaching in the ALC
  - Formative Assessment activities
    - Observations
    - Interviews
    - Focus Groups
Assessment at Multiple Points of Process

- **Faculty Development Program**
- **Preparation for Teaching in an ALC**
- **Teaching in the ALC**

**Formative Assessment activities**
- Observations
- Interviews
- Focus Groups

Alignment of Program Around ALCs

- **Assessment Centered on Faculty**
  - Faculty development program
  - Design and implementation of teaching strategies that complement features of the ALC
  - Ability to use the affordances of the ALC

- **Assessment Centered on Students**
  - Ability to use the affordances of the ALC
  - Willingness to engage in classroom activities that are MUCH different than others
Examples of Results of Assessment

- Additional training for faculty closer to the start of classes in the ALC
- Additional strategies for acclimating students to active-learning based activities
- New switching technology in classrooms
  - Ability for students to change screen from the desk
  - Mobile application for instructors

Assessment for Student Learning in ALCs (Learning outcomes)

- Students in a Standard Classroom
- Students in an ALC

- DFW rate
- Achievement Scores (same assessment)
- Subset of assessment (same items)
- Students’ prior learning outcomes (e.g., cumulative GPA, placement test scores)
Assessment for Student Learning in ALCs (Surveys)

- Students’ perception of the helpfulness of active learning pedagogy to achieve learning objectives

Assessment for Student Learning in ALCs (Observation)

- To understand what students & Instructor do in class
- The Classroom Observation Protocol for Undergraduate STEM (COPUS)
COPUS – Students are Doing

L Listening to instructor/taking notes, etc.
Ind Individual thinking/problem solving. Only mark when an instructor explicitly asks students to think about a clicker question or another question/problem on their own.
CG Discuss clicker question in groups of 2 or more students
WG Working in groups on worksheet activity
OG Other assigned group activity, such as responding to instructor question
AnQ Student answering a question posed by the instructor with rest of class listening
SQ Student asks question
WC Engaged in whole class discussion by offering explanations, opinion, judgment, etc. to whole class, often facilitated by instructor
Prd Making a prediction about the outcome of demo or experiment
SP Presentation by student(s)
TQ Test or quiz
W Waiting (instructor late, working on fixing AV problems, instructor otherwise occupied, etc.)
O Other – explain in comments

COPUS – Instructor is Doing

Lec Lecturing (presenting content, deriving mathematical results, presenting a problem solution, etc.)
RtW Real-time writing on board, doc. projector, etc. (often checked off along with Lec)
FUp Follow-up/feedback on clicker question or activity to entire class
PQ Posing non-clicker question to students (non-rhetorical)
CQ Asking a clicker question (mark the entire time the instructor is using a clicker question, not just when first asked)
AnQ Listening to and answering student questions with entire class listening
MG Moving through class guiding ongoing student work during active learning task
1o1 One-on-one extended discussion with one or a few individuals, not paying attention to the rest of the class (can be along with MG or AnQ)
D/V Showing or conducting a demo, experiment, simulation, video, or animation
Adm Administration (assign homework, return tests, etc.)
W Waiting when there is an opportunity for an instructor to be interacting with or observing/listening to student or group activities and the instructor is not doing so
O Other – explain in comments
A comparison of COPUS results from two courses that have different instructional approaches.

(Smith et al., 2013)
Examples of Assessment Instruments

▪ Student Questionnaires or Scales
  ▪ Constructivist-Oriented Learning Environment Survey (Aldridge et al., 2012)
  ▪ Constructivist Learning Environment Survey (Johnson & McClure, 2004)
  ▪ Social Context and Active Learning Survey (University of Minnesota, 2016)

▪ Observation Protocols
  ▪ The Classroom Observation Protocol for Undergraduate STEM (COPUS) (Smith et al., 2013)
  ▪ Classroom Observation Form (University of Minnesota, 2016a)

Demonstrating Impact of ALCs

▪ What are some ways to demonstrate the impact of ALCs to stakeholders on your campus?
References and Resources


University of Minnesota. (2016b). Classroom Observation Form. Retrieved from https://drive.google.com/file/d/0B1CiRxiBPv00OTY0ZjIzNzBfIeDg/view
