Common Data Sources in Classroom-Based Educational Research

MEASURES OF LEARNING AND/OR PERFORMANCE

Direct measures

1. Artifacts of students' work analyzed/coded by a rubric — e.g., writing samples, project reports or deliverables, creative works, prototypes & presentations
   (*Note: rubric may differ from one used for grading in the course)

2. Scores on locally designed quizzes or exams, including pre/post tests or tasks
   (*Note: it's often useful to score individual exam items, not just the total exam score)

3. Scores or pass rates on standardized tests or validated concept inventories

4. Observations of learner behaviors while completing a task — e.g., steps taken along the way, hints requested, eye movements

5. Transcripts from online discussion forums (or class discussions), analyzed for key features

6. Think-aloud protocol as learners work on a task

7. Performance in future courses - e.g., exam or project scores, final course grades, pass/fail rates

8. Learning analytics from online educational resources (e.g., item analyses for online quizzes)

Indirect measures (**Caution** may not be valid or reliable measures)

9. Students' qualitative self-reports/reflections on perceived learning gains (e.g., collected via surveys, focus groups, or interviews of students)

10. Students' quantitative ratings of perceived learning gains (e.g., collected by surveys)

11. Instructors' perceptions of students' activities, behaviors, and/or process (e.g., collected via surveys, focus groups, or interviews of instructors)
MEASURES OF ENGAGEMENT

Direct measures

12. Observations of learner behaviors (e.g., time on task, which activities students complete vs. skip)
13. Enrollments in future courses/activities or selection of a major/minor
14. Contributions above and beyond required activities
15. Attendance
16. Learning analytics (e.g., clicks, web page visits, number or length of posts/comments, time spent/time stamps from logged sessions)
17. "Experience sampling" (i.e., students record their current activity or respond to questions at fixed or random intervals when prompted by a beeper device)

Indirect measures (**Caution** may not be valid or reliable measures)

18. Student's self-reports and documentation of activity, behavior, and/or process (e.g., collected by surveys, journals, focus groups, or interviews)
19. Satisfaction surveys (note: not a measure of learning and may not be correlated with learning)
20. Instructors' perceptions of students' activities, behaviors, and/or process (e.g., collected by surveys, focus groups, or interviews of instructors)

MEASURES OF ATTITUDES

Direct measures (**Caution** be mindful of potential biases, e.g., sample of students, social desirability biases, ambiguity in question wording)

21. Students' self-reports/reflection on perceptions, attitudes, and feelings (e.g., collected by surveys, journals, focus groups, or interviews of students)

Indirect measures (**Caution** may not be valid or reliable measures)

22. Instructors' perceptions of students' perceptions, attitudes, and feelings (e.g., collected by surveys, focus groups, or interviews of instructors)