

# Direct and Indirect Measures of Student Learning

## Direct Measures

**Definition:** Direct measures require students to demonstrate their knowledge and skills. They provide tangible, visible and self-explanatory evidence of what students have and have not learned as a result of a course, program, or activity (Suskie, 2004, 2009; Palomba and Banta, 1999). Actual student behavior or work is measured or assessed.

**Examples:** Exams/Tests, Quizzes, Papers, Oral Presentations, Group Work, Assignments, Exit Exams, Standardized tests.

Direct Measures		
Types	Advantages	Disadvantages
<b>Authentic Course-Embedded:</b> Exams/Tests, Quizzes, Papers, Oral Presentations, Group Work, Assignments	<ul style="list-style-type: none"> <li>- Require higher-order cognitive skills and problem solving.</li> <li>- Direct measures are most effective if they are also course-embedded which means the work done by the student is actually work that counts towards a grade.</li> <li>-Students tend to take the activity more seriously if associated with grade.</li> <li>- Authentic and part of already existing faculty and student work (not add-on assessment).</li> <li>-Facilitates development of a “culture of evidence”.</li> <li>- Increasingly the mandate from accrediting agencies.</li> </ul>	<ul style="list-style-type: none"> <li>- Time consuming to develop standardized criteria for evaluating (e.g., rubrics).</li> <li>-Can be difficult to collect and aggregate for a large, public institution.</li> </ul>
<b>Electronic Portfolios</b>	<ul style="list-style-type: none"> <li>-Effective mechanism for collecting and storing student work (authentic direct measures).</li> <li>- Allows multiple formats (e.g., paper, video, audio).</li> <li>-Allows for students to reflect on learning experiences.</li> </ul>	<ul style="list-style-type: none"> <li>- Time consuming to develop standardized criteria for evaluating (e.g., rubrics).</li> <li>-Can be difficult to collect and aggregate for a large, public institution.</li> <li>-Technology can be difficult to develop, use, and navigate.</li> </ul>
<b>Locally Developed Exit Exams</b>	<ul style="list-style-type: none"> <li>- Match local goals.</li> <li>- Aligned with curriculum.</li> <li>- Faculty-developed.</li> <li>- Development and scoring processes are informative.</li> </ul>	<ul style="list-style-type: none"> <li>- Difficult to develop valid instruments.</li> <li>- Time consuming to develop.</li> </ul>
<b>Commercial Standardized Tests</b> (e.g., Collegiate Learning Assessment)	<ul style="list-style-type: none"> <li>- Low time investment.</li> <li>- National norms.</li> </ul>	<ul style="list-style-type: none"> <li>- Expensive.</li> <li>- May not match specific program goals</li> <li>- Students may not be motivated to perform at best ability levels and this can negatively affect reliability and validity.</li> <li>- May measure “generalized intelligence” which may not change due to curriculum or classroom experiences.</li> </ul>

## Indirect Measures

**Definition:** Assessments that measure opinions or thoughts about students' or alumni's own knowledge, skills, attitudes, learning experiences, perceptions of services received or employers' opinions. While these types of measures are important and necessary they do not measure students' performance directly. They supplement direct measures of learning by providing information about how and why learning is occurring.

**Examples:** self-assessment, peer-feedback, surveys, end-of-course evaluations, questionnaires, focus groups, or exit interviews, and other activities that gather impressions or opinions about the program and/or its learning goals. Other examples: academic performance levels (e.g., GPAs), graduation rates, retention and transfer studies, graduate follow-up studies, success of students in subsequent institutional settings, and job placement data.

Indirect Measures		
Types	Advantages	Disadvantages
<b>Grades</b>	<ul style="list-style-type: none"> <li>- Inexpensive.</li> <li>- Relatively easy to aggregate and collect.</li> <li>- Available for almost all students.</li> <li>- Good indicator of academic success and progress toward degree.</li> <li>- Can be good proxy for student learning.</li> </ul>	<ul style="list-style-type: none"> <li>- Not standardized.</li> <li>- Not ideal measure for determining students' actual knowledge, skills, and abilities.</li> <li>- Grades alone do not indicate if students are able to write well, think critically, problem solve, and apply values and ethics.</li> </ul>
<b>Surveys and/or questionnaires</b>	<ul style="list-style-type: none"> <li>-Inexpensive.</li> <li>-Understand issues that are difficult to observe systematically.</li> <li>- Critical to understand what individuals perceive, know, and think of programs and services.</li> <li>-Acknowledges importance of students' (or alumni), faculty, and staff opinions.</li> <li>- Can help understand students' perceptions of learning experiences</li> <li>-Students can offer suggestions for improvement.</li> <li>-Can provide information about how and why learning is occurring.</li> <li>- Statistical relationships, prediction control, description, hypothesis testing.</li> <li>- Precise, numerical.</li> <li>- Resulting data can be analyzed, reanalyzed to address specific questions.</li> </ul>	<ul style="list-style-type: none"> <li>-Not a direct measure of learning.</li> <li>-Difficult to develop valid instruments.</li> <li>-Low response rates for large sample, web-based surveys.</li> <li>-Do not involve higher order cognitive processes.</li> </ul>
<b>Interviews</b> (e.g., senior exit interviews)	<ul style="list-style-type: none"> <li>- Comprehensive, holistic, richly descriptive.</li> <li>- Provides in-depth information about students' learning experiences.</li> <li>- Allows individualization and follow-up probes.</li> <li>- May develop positive interactions with students.</li> </ul>	<ul style="list-style-type: none"> <li>- May be intimidating, biasing results.</li> <li>- Not ideal for embarrassing, personal, or politically charged issues.</li> <li>-Time-consuming to conduct and analyze data.</li> <li>- May not be representative.</li> </ul>
<b>Focus group interviews</b>	<ul style="list-style-type: none"> <li>-Same as interviews.</li> <li>-Allows more students to be "interviewed" in less time.</li> </ul>	<ul style="list-style-type: none"> <li>-Same as interviews.</li> <li>-A few students can skew the results if not carefully facilitated.</li> </ul>

## References

Nicol, D.J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199-218

Palomba, C.A., & Banta, T.W. (1999). *Assessment essentials: Planning, implementing, and improving assessment in higher education*. San Francisco: Jossey-Bass.

Suskie, L. (2004). *Assessing student learning: A common sense guide*. Bolton, MA: Anker Publishing Company.

Suskie, L. (2009). *Assessing student learning: A common sense guide*. (2nd ed.). San Francisco: Jossey-Bass.

Walvoord, B.E. (2004). *Assessment clear and simple: A practical guide for institutions, departments, and general education*. San Francisco: Jossey-Bass.

Wilson, M. & Sloane, K. (2000). From principles to practice: an embedded assessment system. *Applied Measurement In Education, 13*(2), 181–208.

Tables adapted from Central Michigan University. (2002). Tools for Assessing Student Learning Outcomes and Minnesota State University, Mankato Academic Affairs (2002). Retrieved on March 7, 2011  
<http://www.mnsu.edu/student/assessment/methods.html>