

TIP Sheet # 18

Assessment of General Studies/Academic Foundations: Creating Meaningful Direct Assessments Based on Embedded Student Work

The assessment effort at UWF can be characterized by two important goals. The first goal is to create assessment methods that will provide information that will inform faculty about the nature of student learning in their programs. The second goal is to ensure that the assessment process be sustainable. Developing direct assessments based on embedded student work will serve both goals well. Because embedded assessments are based on work that students do as part of graded class assignments, students are more likely to take these assignments seriously and give us their best efforts. We can then use a component of the student work that is directly related to the learning outcome we want to assess as the assessment measure. For example we might evaluate the student's selection of appropriate source material and the student's ability to evaluate evidence in a course paper as a direct measure of information literacy. Secondly, when we use existing assignments as the basis for the collection of assessment data, we do not have to devote time and resources to the task of creating a test or measure that would be used only for assessment purposes. Extraction of assessment data during the grading process is likely to be less effortful and less time-consuming than scoring an entirely new instrument.

Review of the Academic Foundations Matrix

As discussed in Tip Sheet #17, Academic Foundations is comprised of First Year Experience, General Studies, the university diversity requirement, and student activities. Academic Foundations represents the first in a series of educational experiences in which skills are introduced (General Studies and other Academic Foundations experiences), reinforced and developed (courses in the major), and brought to mastery (capstone projects). Academic Foundations is intended to establish basic skills that will prepare students for the more sophisticated learning experiences they will encounter in courses in their major. The student learning outcomes associated with Academic Foundations are represented in the 16 cells of the matrix provided below (4 student learning outcomes in each of 4 domains). The overarching goal of Academic Foundations is to establish the *initial stages* of student learning that will be reinforced and developed when students begin work on courses associated with their major.

CRITICAL THINKING	COMMUNICATION	VALUES/ INTEGRITY	PROJECT MANAGEMENT
Analysis/Evaluation	Writing	Academic Integrity	Project Skills
Problem Solving	Speaking	Personal/Cultural Values	Self-Regulation (deadline skills)
Creativity	Quantitative Reasoning	Ethical Reasoning	Team Work Skills
Info Literacy	Tech/Visual Literacy	Diversity Skills	Service Learning/ Civic Engagement

Earlier Tip Sheets discussed the way student learning outcomes might be defined within each of these domains for ALCs for undergraduate programs.

- TIP Sheet # 5: Critical Thinking
- TIP Sheet # 6: Communication
- TIP Sheet # 7: Project Management
- TIP Sheet # 8: Integrity/Values

When considering how to use these definitions and descriptions of student learning outcomes for describing student learning in the Academic Foundations domains, keep in mind that the purpose of General Studies/Academic Foundations is to *introduce* these skills and begin the process of skill development. It is reasonable to expect that full mastery of these skills will occur later in the undergraduate career.

Why can't we just use the grade on a class exam or student paper for the assessment measure?

Exams are typically written to evaluate student learning on multiple outcomes. Similarly, a grade on a student paper will be determined by a variety of criteria. As such, the overall grade does not give precise information about any single student learning outcome. For example, a paper assignment might require that students demonstrate knowledge of content, ability to select and use source material, present a logical argument for a position, and write clear and understandable prose using language correctly. As illustrated in the table below, three students could all earn the same grade (a score of 80%) but display different profiles of strengths and weaknesses on the learning objectives for the assignment.

Criterion for Grading	Martha	Gerald	Marvin	Average
Content is Complete and Accurate (SLO 1)	70	90	95	85
Selection and Evaluation of Evidence (SLO 2)	75	85	95	85
Organization and Logic of Argumentation (SLO 3)	90	75	75	80
Clarity of Communication (SLO 4)	90	75	65	77
Mechanics of Writing (SLO 5)	75	75	70	73
Score on Paper	80	80	80	80

Notice that the overall grade does not provide meaningful evidence about individual student learning outcomes. Knowing the paper assignment grades of these students is not diagnostic for the specific skill areas that might need improvement. However, examination of scores for individual SLOs that contribute to the grade suggests that students in this class might all benefit from additional instruction on the mechanics of writing. In addition, student work on content and the use of evidence is better than is represented by the overall score on the paper.

Notice also that while all students were weaker on the mechanics of writing than indicated by the overall grade on the assignment, students varied from each other on level of skill demonstrated for the other SLOs. Martha has strong skills in the areas of organization and logic of arguments

and clarity of communication, but is weak in her command of content and selection and use of evidence. In contrast, Gerald and Marvin have a strong command of content and use of evidence, but need to improve their skills in organization and clarity of communication.

If I want to use multiple choice questions for the assessment, do I have to create a special quiz to administer these questions?

No. If you can identify a set of questions in a regular exam that are all related to the student learning outcome, you can extract the student responses to these questions to create the assessment measure. The only additional work for the instructor would be to identify these questions and then create an assessment score for the student based on this subset of questions when the exam is graded. If you use scantrons to machine score your exams, you may be able to process the exams a second time just to extract responses to the assessment questions. In this case, extracting the assessment data from the larger exam might be done quite quickly.

Must I include assessment questions for an SLO on every exam I administer in my class?

No. In some cases, the student learning outcome might be evaluated during only one class exam. If you test material in a cumulative fashion in class exams and include questions related to a given SLO as a normal part of these student examinations, you have an opportunity to get evidence about the development of skill on this SLO from the beginning to the end of the term. This is not likely to be typical of course exams.

If getting assessment data from a subset of multiple choice questions works as an assessment method, why should I be interested in any other form of assessment?

Multiple choice questions that measure knowledge of basic content are easier to write than questions that require application of knowledge, analysis of theory, or similar higher-level thinking skill. If you use a commercial test bank, you will find that most of the questions in the test bank focus on knowledge of basic facts, definitions, and similar content. If your goal is to create an assessment of a more sophisticated student learning outcome such as analysis and evaluation of evidence, creativity, or problem solving, you might find that it is easier to use a student project or paper as the basis of assessment than to write multiple choice questions that accurately tap higher-level skills.

Should I include a pretest?

Some instructors might be interested in obtaining a measure on the assessed SLO at the start of the course and compare performance before students receive instruction to performance following instruction. This strategy can provide meaningful longitudinal evidence about changes in student learning related to instructional activities within the term. However, you can also obtain meaningful evidence about changes in student learning in your program by comparing the performance of students in one year with that of students enrolled in following years. These cross-sectional comparisons will provide you with evidence about the changes in student learning associated with modifications made to the instructional activities in the course from one year to the next.

How can I create a direct measure of a student learning outcome for a student project, paper, or presentation?

You can create a rubric to use in grading the student work. The components of the rubric should represent the various elements or criteria that will be used to determine the overall grade. One or more of these elements that are related to a particular student learning outcome could then be used as the assessment measure.

For example, students might be required to make a presentation as a graded class assignment. The instructor might have several criteria that are important in determining the overall grade for class presentations: accuracy and completeness of content; presentation of the material in an organized and logical fashion, clarity of spoken communication, appropriate use of visual aids (handouts, Power Point, or other technology), and professional appearance for the presentation. These could be represented in the following rubric:

Sample Rubric for a Class Presentation

Grading Criteria	Below Expectations	Meets Expectations	Exceeds Expectations	Points Earned
Completeness of content	1-3	4-6	7-9	
Accuracy of content	1-3	4-6	7-9	
Organization and logic	1-2	3-4	5-6	
Clarity of communication (speaking)	1-2	3-4	5-6	
Use of handouts, Power Point, or other visual aids or technology	0-1	2-3	4-5	
Professional appearance	1	2	3	
Total Points Earned				

If an instructor were interested in assessing communication (speaking skills), the score on this one element could be used as the assessment measure for this SLOs. This score on the rubric element will provide specific information about the quality of student work in this one area.

It would be helpful to the students and the person using the scoring rubric to have some descriptive material that defines what quality of performance, types of behavior, or characteristics of appearance would earn the varying numbers of points. Development of rubrics with clear descriptions of the work associated with different levels of expectations will require some time and careful thought. Once the rubric is developed, instructors will benefit because the grading process will become more efficient and they will find that they are more consistent in the way grades are assigned. A well-written rubric creates additional benefits. If the rubric is distributed at the time the assignment is made, students will have a clearer idea about what is expected of them (*Should I dress up for my presentation or can I come in whatever is clean? Do I need to prepare handouts?*). Students may use this information to improve the quality of their work. When the rubric is returned to the students with their grade, they can easily determine which areas they are skilled in (they earned most of the available points for that element) and which areas need work. Descriptive material about the quality of work associated with different

numbers of points can provide additional diagnostic information and can save the instructor time in providing individual written feedback about strengths and weaknesses.

How many students must I include in the sample?

For many majors, this question is a practical matter that will be determined by the number of students enrolled in courses where assessments take place. For some majors, the sample sizes will necessarily be small. Departments with large class enrollments might adopt a sampling strategy if the evaluation of student work (e.g., assessment of student portfolios with a rubric) is likely to be time-consuming. It is important that samples of student work be obtained through a random process so that the sample is likely to accurately represent the population of students in the major. When assessments are based on an existing assignment, all students complete the assignment and the assessment score is derived from a component of the grading process, it would make more sense to collect data on all available student work.

How reliable and valid are assessments based on a few exam questions or an element of a grading rubric likely to be?

One useful feature of embedded assessments is that they tend to have good face validity. In a well-designed course, assignments, projects, and exams are clearly connected to the learning goals of the course. Performance on these activities should in turn provide meaningful information about student learning outcomes. Assessment data tend to be messier than data from other types of research. Although the findings may be subject to limited generalization and the statistical qualities may be less than optimal, the data obtained from embedded assessments can still be sufficiently meaningful to inform decisions about teaching strategies and other curriculum questions. The primary goal for assessment is to collect evidence that will be useful for immediate decision making in departments and colleges. Decisions based on imperfect data will be better informed than decisions made in the absence of data.

Will departments eventually be required to assess every SLO every year?

No. To keep the assessment process manageable and sustainable, it is useful to focus on only 2-3 outcomes in a program at any time. Departments should plan to continue to assess a given set of SLOs for a few years. In the first year or two, departments will establish baseline data for student performance and may use these data to refine their assessment measures. Based on this preliminary data, a department might decide to implement changes to improve the quality of student learning on these outcomes. If so, assessment of these SLOs should continue for a year or two following implementation of any changes to determine if the changes were effective. Eventually, a department might decide that it has made sufficient improvement on one aspect of student learning and select a different SLO for its next cycle of assessment.

Once an assessment method has been identified for a given student learning outcome, must the department continue to use this measure for all future assessments?

No. If a measure does not provide you with evidence that is meaningful or relevant to your questions about student learning, you should identify a different measure that will provide meaningful evidence or revise the current measure so that it will meet your needs. Consistent measures are needed to make meaningful comparisons of student performance from one year to the next, but there is no merit in obtaining consistent measures that do not provide useful information.