Assessing Student Learning

Assessment Tools and Quality Data

"Classroom assessment is the purest form of assessment-for-improvement, because the information gleaned can be immediately used to improve teaching and learning …the further away from the individual classroom you get, the harder it becomes to turn assessment data into useable information" (Miller, 1997).

"Post secondary assessment done right must be rooted in the course and in the classroom, in the individual cells, to speak metaphorically, where the metabolism of learning actually takes place" (Wright, 1999).

This breakout addresses the types of tools and assessment methods which produce valid and reliable data. You may view this time as a smorgasbord of choices. When SLOs are well-written the method or tools for assessment become clear. One size does not fit all, so selecting the appropriate assessment tool requires a basic understanding of: 1) the types of tools available, 2) the nature of data, 3) the process used to select appropriate assessment tools, 4) and the tool's ability to investigate (measure, assess, describe) the observable learning outcome.

Presenters:
Marcy Alancraig, Cabrillo College
Jan Connal, Cerritos College
Janet Fulks, Bakersfield College
Lars Kjeseth, El Camino College
Jenny Simmons, El Camino College
Frank Mixson, Cerritos College
Georgie Monahan, Orange Coast College
Steve Reynolds, College of the Siskiyous

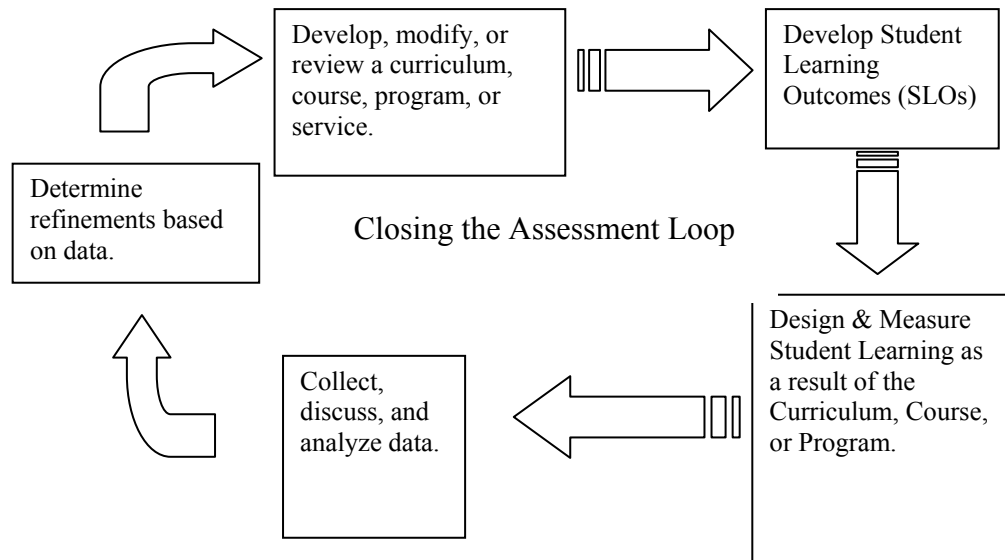You may have heard these quotes about statistics and data:

Torture numbers and they'll confess to anything. ~Gregg Easterbrook

Statistics are like bikinis. What they reveal is suggestive, but what they conceal is vital. ~Aaron Levenstein

Facts are stubborn things, but statistics are more pliable. ~Author Unknown
In the simplest definition, quality data are based upon best practices, answer important questions, and benefit the students and institution by providing evidence to complete the assessment loop.

The Assessment Loop

Develop, modify, or review a curriculum, course, program, or service.

Develop Student Learning Outcomes (SLOs)

Determine refinements based on data.

Closing the Assessment Loop

Design & Measure Student Learning as a result of the Curriculum, Course, or Program.

Collect, discuss, and analyze data.

The assessment loop is a data-driven method of decision-making based upon a learning paradigm where questions are posed concerning what works and what does not. To determine the answer to the questions an assessment or investigation is initiated. The investigation generates appropriate data to answer the question. When carried out as an integrated part of the educational process it is often referred to as the scholarship of teaching. By analyzing our teaching methods and learning outcomes, we can improve the process based on information gleaned through assessment, rather than running on intuition. The goal is to create a culture of evidence for institutional decision-making.
In this material, quality data are defined as:

Valid - the data accurately represents what you are trying to measure. For instance the numbers of people that graduate don't necessarily represent good data on what has actually been learned.

Reliable - the data are reproducible. Repeated assessment yields the same data.

Authentic - the assessment simulates real-life circumstances.

Relevant - the data answers important questions, and is not generated simply because it is easy to measure.

Effective - the data contributes to improving teaching and learning.

Types of Assessment Data and Assessments

These definitions are paired for emphasis and contrast. Skim them now and refer to them if they are needed later.
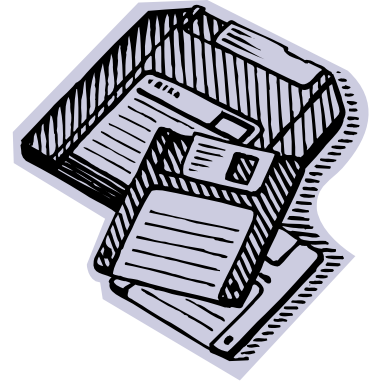
Evidence of program and institutional outcomes performance.
Quantitative or qualitative, direct or indirect data that provides information concerning the extent to which an institution meets the goals and outcomes it has established and publicized to its stakeholders.

Direct data. Direct data measures the exact value. For instance, a math test directly measures a student's learning in math by defining a criteria and standard, then having the student analyze a problem.

Indirect data. Data that measures a variable related to the intended value. For instance a person's math skills may be indirectly measured through an employer's questionnaire asking about the computational skills of graduating students.

Qualitative data. Data collected as descriptive information, such as a narrative or portfolio. These types of data, often collected in open-ended questions, feedback surveys, or summary reports, are more difficult to compare, reproduce, and generalize. It is bulky to store and to report; however, it is often the most valuable and insightful data generated, often providing potential solutions or modifications in the form of feedback.

Quantitative data. Data collected as numerical or statistical values. These data use actual numbers (scores, rates, etc) to express quantities of a variable. Qualitative data, such as opinions, can be displayed as numerical data by using Likert scaled responses which assigns a numerical value to each response (e.g. 5 = strongly agree to 1 = strongly disagree). This data is easy to store and manage; it can be generalized and reproduced, but has limited value due to the rigidity of the responses and must be carefully constructed to be valid.

Formative assessment. Formative evaluation involves assessment and analysis that generates useful feedback for development and improvement. The purpose is to provide an opportunity to perform and receive guidance (such as in class assignments, quizzes, discussion, lab activities, etc.) that will improve or shape performance on a final or summative evaluation.

Summative assessment. Summative evaluation is a final determination of particular knowledge, skills, and abilities. This could be exemplified by exit or licensing exams, senior recitals, or any final assessment which is not created to provide feedback for improvement, but is used for final judgments.

Criterion-based assessments. Assessment evaluated or scored using a set of criteria to appraise or evaluate work. Criterion-referenced evaluation is based on proficiency not subjective measures such as improvement.

Norm-referenced assessment. Assessment of an individual is compared to that of another individual or to the same individual's improvement over time. Individuals are commonly ranked to determine a median or average. This technique addresses overall mastery, but provides little detail about specific skills.

Embedded assessment. Embedded assessment occurs within the regular class or curricular activity. Class assignments linked to student learning outcomes through primary trait analysis, serve as grading and assessment instruments. Individual questions on exams can be embedded in numerous classes to provide departmental, program, or institutional assessment information. An additional benefit to embedded assessment is immediate feedback on the pedagogy and student needs.

Standardized assessment. Assessments created, tested, and usually sold by an educational testing company e.g. GRE's, SAT, ACT for broad public usage and data comparison, usually scored normatively.

Homegrown or Local assessment. This type of assessment is developed and validated for a specific purpose, course, or function and is usually criterion-referenced to promote validity.

Grading. Assessment of individual performance.

Assessment.

Grading and Assessment
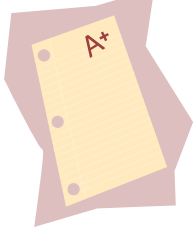
But how does assessment fit with GRADING?

> *Paul Dressel (1976) has defined a grade as "an inadequate report of an inaccurate judgment by a biased and variable judge of the extent to which a student has attained an undefined level of mastery of an unknown proportion of an indefinite material."*
> *Miller, Imrie, & Cox 1998, p. 24*

"An interesting aspect of the GPA is that it tells us very little about what a student knows or what that student's competencies or talents really are. The GPA is thus primarily a relativistic or normative measure. That is, the primary information contained in a course grade pertains to the student's performance in relation to other students." Astin, 1993, p. 11

Walvoord and Anderson (1998) in their book *Effective Grading* suggest that grading, when based upon explicit criteria, can become a structural framework for course embedded assessment. This creates a criterion-referenced and valid means of assessing student learning that occurs in the process of teaching, rather than as an additional task layered upon daily course activities.

Effective Grading Ideas

Make the course assignment-centered. Do not ask, "What should I cover in this course?" but "What should my students be able to do?"

- **Rethink the use of in-class time.** (What wastes your time or the students' time? Assess the competency of your students at the beginning; some may be lacking in pre-requisite skills)
- **Give students explicit directions for each assignment**. (This saves you time grading and allows students to create a better product.)
- **Determine assessable criteria, use grading scales, checklists, or rubrics that are assignment-specific**. Construct a Primary Trait Analysis (PTA) scale referencing highly explicit criteria and develop rubrics based upon the PTA.
- **Make grading time-efficient**. (Grade things to a certain point in the paper; if the same mistakes are occurring repetitively, draw a line and indicate this is a systemic recurring problem and that you have stopped making specific comments. Use a checklist for simple content or components of assignments, but provide detailed feedback for formative development.)
- **Use authentic types of assignments.**
- **Employ multiple types of assessments.**
- **Address a variety of learning styles.**

In the process of rethinking assignments to make them valid and reliable assessments, faculty grading becomes more efficient and effective, and student performance improves due to the explicit expectations that faculty have articulated. The next sections discuss assignments and exams based upon standards and criteria using primary trait analysis.

Primary Trait Analysis and Rubrics

Definition: Primary Trait Analysis (PTA) is the process of identifying major traits or characteristics that are expected in student work. After the primary traits are identified, specific criteria with performance standards are defined for each trait.

On the next page is a flow chart of an example that incorporates a general education outcome (oral communication) within a science specific course-embedded assessment. The assignment is an oral report on a current controversial biological topic. Rather than intuitively grading the oral report specific traits or characteristics are identified.

The primary traits and performance standards should be discussed with other faculty to obtain feedback. Faculty from other disciplines often provide excellent feedback. Healthy discussion validates and clarifies your thinking.
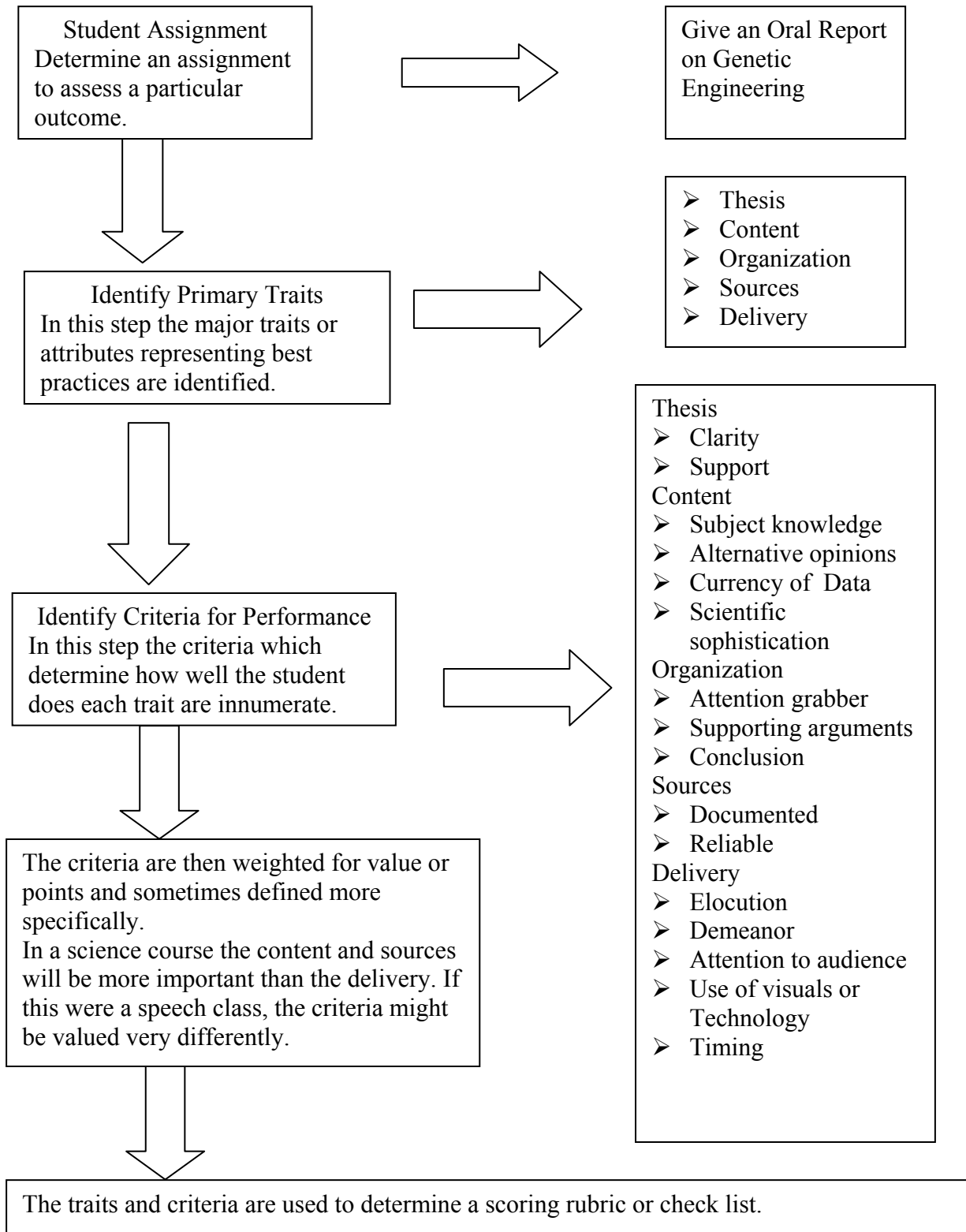
The next step is to develop a rubric used to score the student performance. A rubric is a grading tool used to assign points or values for meeting performance criteria. The rubric will be given to the student when the assignment is announced.

Discuss the primary traits with other faculty for feedback. It is helpful to discuss it with faculty from other disciplines. This validates and clarifies your thinking.
The next step is to develop a rubric. A rubric is a grading tool used to assign points or values for meeting performance criteria.

Rubrics are useful because they help to:
1. Focus instruction on the most important outcomes.
2. Provide diagnostic formative feedback so students can improve.
3. Communicate explicit expectations.
4. Connect the assessment to the assessment increasing validity as an assessment tool.
5. Articulate how scoring is determined; provide a rationale for grading accountability.
6. Produce more consistent and reliable grading.

Example of Primary Trait Analysis for an Oral Report in a Science

Student Assignment
Determine an assignment to assess a particular outcome.

Give an Oral Report on Genetic Engineering

Identify Primary Traits
In this step the major traits or attributes representing best practices are identified.

➢ Thesis
➢ Content
➢ Organization
➢ Sources
➢ Delivery

Identify Criteria for Performance
In this step the criteria which determine how well the student does each trait are innumerate.

Thesis
➢ Clarity
➢ Support
Content
➢ Subject knowledge
➢ Alternative opinions
➢ Currency of Data
➢ Scientific sophistication
Organization
➢ Attention grabber
➢ Supporting arguments
➢ Conclusion
Sources
➢ Documented
➢ Reliable
Delivery
➢ Elocution
➢ Demeanor
➢ Attention to audience
➢ Use of visuals or Technology
➢ Timing

The criteria are then weighted for value or points and sometimes defined more specifically.
In a science course the content and sources will be more important than the delivery. If this were a speech class, the criteria might be valued very differently.

The traits and criteria are used to determine a scoring rubric or check list.

Creating a Rubric for an Oral Report in a Science Course

Values – some people describe these, others assign numbers

Performance Criteria – some people make comments or just give checks, others describe each level explicitly.

Primary Traits

You may want to vary the weight of some criteria.

Expectations		Excellent 5	Good 4	Average 3	Poor 2	Absent 1
Thesis	clarity					
	support					
Content	subject knowledge					
	alternative opinions	Two or more opposing opinions are described	An opinion differing from the students is described	The student admits others have differing opinions	Only the student's opinion is described	No opinions are evident
	currency of data					
	scientific sophistication					
		3	3	2	1	1
Organization	attention grabber					
	supporting arguments					
	conclusion					
Sources	cited correctly					
	reliability					
Delivery	pronunciation					
	eye contact					
	use of visuals					
	demeanor					
	content appropriate to audience					
		5	5	5	3	0
	Timing					

Several sample rubrics are included in the appendix.

Choosing the Right Assessment Tools

This section has discussed the use of standardized assessments and local or homegrown assessments. There are advantages to using each depending on the circumstances and the way that they are constructed. Multiple choice questions are often seen as assessing only lower cognitive levels (recall and perhaps comprehension). However you can construct multiple choice questions that require analytical or synthetic thinking.

For example, if I want to see if my students can use the microscope, I can write some higher level thinking multiple choice questions that force the student to solve a problem. For instance,

> Imagine that you are observing a malaria smear under the microscope at a total magnification of 1000X. The object appears dark and it is difficult to see the detail of the red blood cells. What is the first step you would take to solve the problem?
>
> a. Check the interface between oil on the slide and the lens.
>
> b. Look at each lens for dirt or smudging.
>
> c. Adjust the position of the diaphragm and light source or condenser.
>
> d. Select another slide with better staining quality.

 However, if an outcome of the class is that the students will be able to use a microscope to focus on an object; this question does not authentically test that outcome. The best way to test the outcome is to give the students a slide, have them focus on the object as clearly as they can, write down an identification of an object indicated by the microscope pointer, and then call me over to evaluate their work.

This is also more efficient class management.

- I am able to give the students immediate feedback.
- Students can immediately identify and correct problems.
- I know what the students are capable of doing and how to proceed with the next material.
- Students either feel confident about their ability or know that they must come in for extra help.

The assessment is graded and returned during the class time. Choosing the Right

Assessment Tools -

Examples of various assessment tools are included in the table below. Quickly evaluate each type of assessment with regards to the type of data generated by the assessment and the pros and cons associated with the assessment. This exercise will stimulate some thought about the pros and cons of each assessment, and review your understanding of the types of data. Answers may vary depending upon your perspective and the way in which you construct the assessment.

Assessment Tool	D or I Direct Indirect	C, P or A Cognitive, Psychomotor, Affective	F or S Formative or Summative	Bloom's K, C, A, ASE Knowledge, Comprehension, Application or Analysis/synthesis /evaluation	Pros	Cons
Multiple Choice Exam	D	C	F & S	K, C, A	easy to grade objective	reduces assessment to multiple choice answers
Licensing Exams						
Standardized Cognitive Tests						
Checklists						
Essay						
Case Study						
Problem Solving						
Oral Speech						
Debate						

Assessment Tool	D or I	C, P or A	F or S	Bloom's K, C, A, ASE		Pros	Cons
	Direct Indirect	Cognitive, Psychomotor, Affective	Formative or Summative	Knowledge, Comprehension, Application or	Analysis/synthesis /evaluation		
Product Creation & Special Reports							
Flowchart or Diagram							
Portfolios							
Performance							
Capstone Course							
Team Project							
Reflective self-assessment essay							
Satisfaction or Perception Surveys							

Some potential answers to the table are in Appendix B and Appendix C has samples and links to assessments.

Assessment Tool Checklist	☑
1. Does the assessment adequately evaluate academic performance relevant to the desired outcome? (validity)	
2. Does this assessment tool enable students with different learning styles or abilities to show you what they have learned and what they can do?	

3. Does the content examined by the assessment align with the content from the course? (Content validity)	
4. Does this assessment method adequately address the knowledge, skills, abilities, behavior, and values associated with the intended outcome? (Domain validity)	
5. Will the assessment provide information at a level appropriate to the outcome? (Bloom's)	
6. Will the data accurately represent what the student can do in an authentic or real life situation? (Authentic assessment)	
7. Is the grading scheme consistent; would a student receive the *same* grade for the *same* work on multiple evaluations? (Reliability)	
8. Can multiple people use the scoring mechanism and come up with the same general score? (Reliability)	
9. Does the assessment provide data that is specific enough for the desired outcomes? (alignment with SLO)	
10. Is the assessment summative or formative - if formative does it generate diagnostic feedback to improve learning?	
11. Is the assessment summative or formative - if summative, is the final evaluation built upon multiple sources of data? (AAHE Good practice)	
12. If this is a summative assessment, have the students had ample opportunity for formative feedback and practice displaying what they know and can do?	
13. Is the assessment unbiased or value-neutral, minimizing an attempt to give desirable responses and reducing any cultural misinterpretations?	
14. Are the intended uses for the assessment clear? (Grading, program review, both)	
15. Have other faculty provided feedback?	
16. Has the assessment been pilot-tested?	
17. Has the evaluation instrument been normed?	
18. Will the information derived from the assessment help to improve teaching and learning? (AAHE Good Practice)	
19. Will you provide the students with a copy of the rubric or assignment grading criteria?	
20. Will you provide the students examples of model work?	

Quiz on Assessment Tools

1. Where is the best place to examine direct data about student learning?

2. List at least three advantages and three disadvantages to using standardized assessment tools.

3. List at least three advantages and three disadvantages to using local or homegrown assessment tools.

4. What are some advantages to embedded assessment?

5. Match the following characteristics and descriptions of quality data.

Characteristic	Definition
a. Valid	i. The data are reproducible. Repeated assessment yields the same data.
b. Reliable	ii. The data answers important questions, and is not generated simply because it is easy to measure.
c. Authentic	iii. The data contributes to improving teaching and learning.
d. Relevant	iv. The assessment simulates real-life circumstances.
e. Effective	v. The data accurately represents what you are trying to measure.

Answers are in Appendix D

Your SLOs and Assessing Students

Cognitive scientists have excellent data to support the fact that multiple factors contribute to successfully achieving learning outcomes.

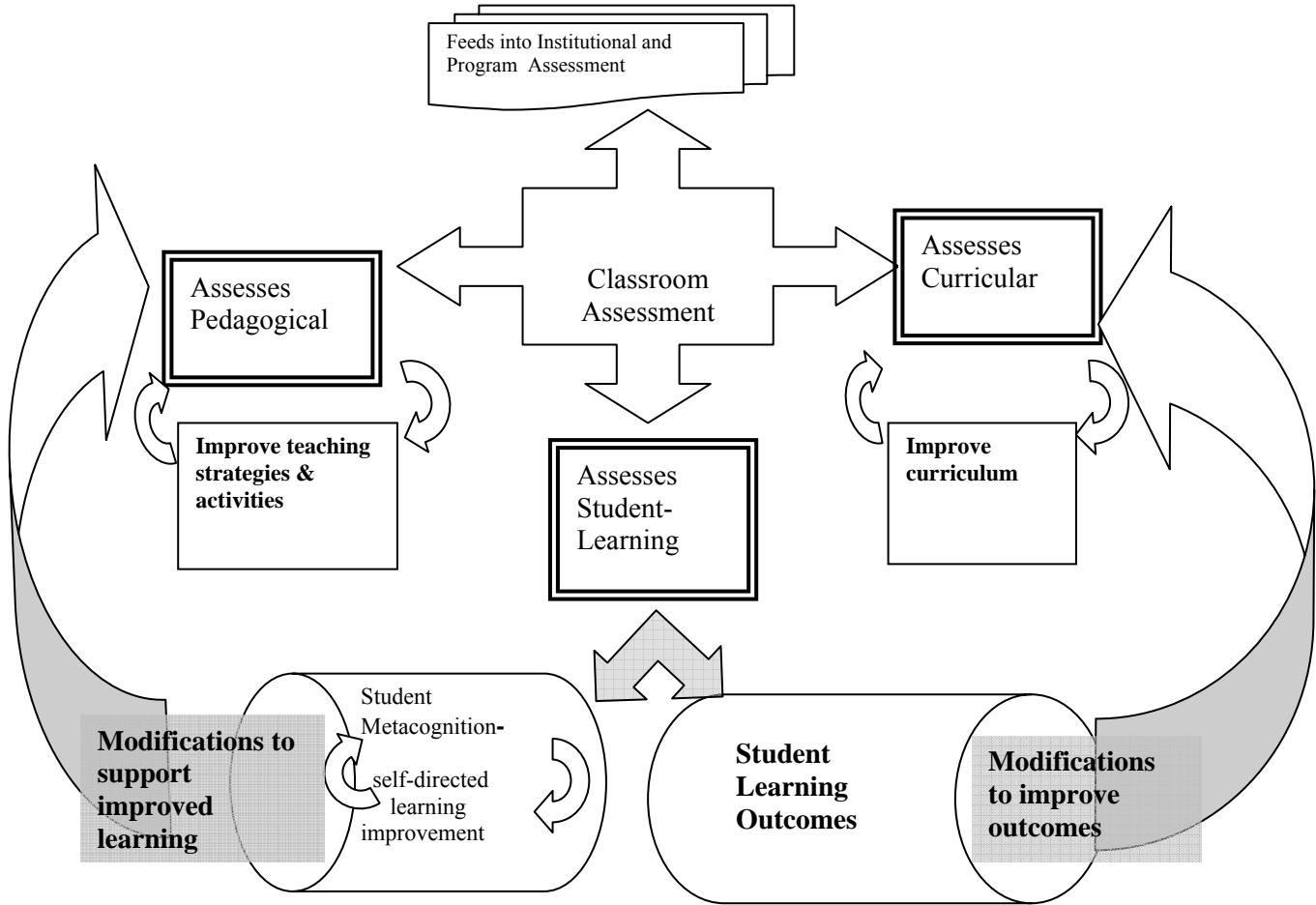### Key Findings on Learning Research from the National Research Council

1. Students come to class with pre-conceptions that must be engaged or they will fail to grasp new concepts and information, or they will learn them for a test only to revert to preconceptions outside of class.

2. Students develop competence in an area when they have: (a) a deep factual knowledge, (b) understand the facts within a conceptual framework, and (c) organize knowledge so that they can retrieve and apply it.

3. Students that take control of their own learning, through a metacognitive approach monitoring their own goals and progress in achieving them, are able to achieve deep and permanent learning.

4. Assessment represents an essential component for improving teaching and learning but it must target proficiency of content and metacognitive skills.

5. An important role for assessment is timely, informative feedback to facilitate practice and acquisition of proficiency of skills and deep learning. Assessment should reveal the development of knowledge and skills to allow formative improvement, not just summative judgment, if it is to improve teaching and learning.

6. Technology represents a unique opportunity to engage knowledge and cognitive skills, and assess proficiency in an enriched environment.

In the next section we will look at the assessment process in a course which entails assessing several important components of teaching and learning:

- pedagogy
- curriculum
- student preconceptions
- student metacognition
- student learning

Pathways for Improvement Through Classroom Assessment

Feeds into Institutional and Program Assessment

Classroom Assessment

Assesses Pedagogical

Assesses Curricular

Improve teaching strategies & activities

Assesses Student-Learning

Improve curriculum

Student Metacognition- self-directed learning improvement

Modifications to support improved learning

Student Learning Outcomes

Modifications to improve outcomes

Appendix A

Comparing Standardized and Homegrown or Local Assessments
Opinions about standardized testing and local tests are colored by experiences with these tools. Below is a summary comparison of these instruments. There are many types of standardized tests available, everyone is familiar with the SAT and GRE. However, there are discipline specific standardized tests, and standardized tools to collect data on student, faculty, and community perceptions for student services areas. Links in the research section represent fairly opinionated positions for and against standardized testing.

	Standardized Assessments	**Homegrown or Local Assessments**
Source	Externally created and validated instruments, with an established format, administered under controlled conditions.	Internally created and validated instruments, usually developed by faculty requiring extra time and expertise.
Methodology Face Value	May appear formulaic. Requires extra care to incorporate higher level thinking skills.	May appear unreliable. Requires extra care to incorporate validity and reliability.
Reporting Format	Manageable, commercial report generated, sometimes customizable.	Manageability depends on tool and design. Report is prepared by a local committee or institutional research office.
Data collection	Direct and indirect, predominantly quantitative data. Very limited or no flexibility.	Direct and indirect, qualitative and quantitative data. Very flexible.
Comparability of Data	Provides systematic and comparable data over time between students, courses, & institutions...	Generally not comparable except between those who agree to use same tool without modifications.
Assessment Basis	Common general educational objectives or standards.	Based on specifically identified and valued local educational outcomes.
Domains Evaluated	Cognitive and opinion surveys generate affective information.	Cognitive, affective, and psychomotor.
Level of information	Tends to be lower level recall of knowledge and some comprehension.	Can potentially target all levels and all domains.
Viability in changing fields	Limited due to the process of generating and validating test questions	May be regularly updated
Examples	ACT, PSAT, SAT, ASSET, TOEFL TSE, TWE, LSAT, MCAT, GRE, DSST	MESA College General Education tests, Embedded testing
Accountability/ Improvement	Summative – Accountability. Little help in improvement of education	Formative and summative – accountability and improvement. Immediate feedback to all parties.
Other Comments		

Appendix B Choosing the Right Assessment Tools Part 2 – Possible Answers

Assessment Tool	Data Direct or Indirect	Domain Cognitive, Psychomotor, or Affective	Formative or Summative	Bloom's Knowledge, Comprehension, Application or Analysis/Synthesis/Eval	Pros	Cons
Abbreviation	D or I	C, P or A	F or S	K, C, A, ASE		
Multiple Choice Exam	D	C	F & S	K, C If carefully constructed A, S, & E	easy to grade objective	reduces assessment to multiple choice answers
Licensing Exams	D	C	S	K, C, A	easy to score and compare	no authentic testing, may outdate
Standardized Cognitive Tests	D	C	S	K, C, A?	comparable between students	heavily dependent on exposure to topics on test
Checklists	D	C, A, P	F, S	variable	very useful for skills or performances students know exactly what is missing	can minimize large picture and interrelatedness Evaluation feedback is basically a yes/no - present/absent - without detail
Essay	D	C, A	F, S	K, C, A, ASE	-displays analytical and synthetic thinking well	time consuming to grade, can be subjective
Case Study	D	C, A	F, S	K, C, A, ASE	-displays analytical and synthetic thinking well -connects other knowledge to topic	creating the case is time consuming, dependent on student knowledge form multiple areas
Problem Solving	D	C	F, S	K, C, A, ASE	displays analytical and synthetic thinking well authentic if real world situations are used	difficult to grade due to multiple methods and potential multiple solutions
Oral Speech	D	C	F, S	variable K, C, A, ASE	easily graded with rubric allows other students to see and learn what each student learned connects general education goals with discipline-specific courses	difficult for ESL students stressful for students takes course time must fairly grade course content beyond delivery
Debate	D	C, A	F, S	K, C, A, ASE	provides immediate feedback to the student	requires good rubric more than one evaluator is

Assessment Tool	Data Direct or Indirect	Domain Cognitive, Psychomotor, or Affective	Formative or Summative	Bloom's Knowledge, Comprehension, Application or Analysis/Synthesis/Eval	Pros	Cons
					reveals thinking and ability to respond based on background knowledge and critical thinking ability	helpful difficult for ESL students stressful for students takes course time
Product Creation & Special Reports	D	C, P, A	F, S	variable K, C, A, ASE	Students can display skills. knowledge, and abilities in a way that is suited to them	must have clearly defined criteria and evaluative measures "the look" can not over-ride the content
[Flowchart or Diagram](#)	D	C	F, S	C, A, ASE	displays original synthetic thinking on the part of the student perhaps the best way to display overall high level thinking and articulation abilities	more difficult to grade, requiring a checklist or rubric for a variety of different answers difficult for some students to do on the spot
[Portfolios](#)	D	C, P	S	variable	provides the students with a clear record of their work and growth best evidence of growth and change over time students can display skills. knowledge, and abilities in a way that is suited to them promotes self-assessment	time consuming to grade different content in portfolio makes evaluating difficult and may require training bulky to manage depending on size
Exit Surveys	D, I	A	S	ASE	provides good summative data easy to manage data if Likert-scaled responses are used	Likert scales limit feedback, open-ended responses are bulky to manage,
Performance	D	C, P	F, S	variable K, C, A, ASE	provides best display of skills and abilities provides excellent opportunity for peer review students can display skills.	stressful for students may take course time some students may take the evaluation very hard - evaluative

Assessment Tool	**Data** Direct or Indirect	**Domain** Cognitive, Psychomotor, or Affective	Formative or Summative	**Bloom's** Knowledge, Comprehension, Application or Analysis/Synthesis/Eval	**Pros**	**Cons**
					knowledge, and abilities in a way that is suited to them	statements must be carefully framed
Capstone project or course	D	C, P , A	F, S	ASE	best method to measure growth overtime with regards to a course or program - cumulative	requires coordination and agreement on standards focus and breadth of assessment, displays complex understanding, assessment may result in additional course requirements
Team Project	D	C, A	F, S	variable K, C, A, ASE	connects general education goals with discipline-specific courses	must fairly grade individuals as well as team grading is slightly more complicated student interaction may be a challenge
Reflective self-assessment essay	D, I	C, A	S	ASE	provides invaluable ability to evaluate affective growth in students	must use evidence to support conclusions, not just self-opinionated assessment
Satisfaction and Perception Surveys	I	C, P, A	S	C, A, ASE	provides good indirect longitudinal data, can be used to determine outcomes over a long period of time	respondents may be influenced by factors other than those considered; watch validity and reliability

Appendix C   Assessment Examples

Multiple Choice Exams - Many faculty and most standardized tests use the multiple choice format for assessments. The Educational Testing Service uses this for CLEP (College Level Examination Program) and College Level Field Tests etc http://www.ets.org/tests/ctest.html

There are discipline specific standardized multiple choice tests for college credit such as chemistry tests supplied by ETS http://sydneyplus.ets.org/query.asp?FieldGUID=.ea85e0a4-4f31-4101-818f-01c336e9e4b1&SearchTerm=Chemistry&SearchType=16&CurSort=1&SelField=&mode=public&Templ

In addition many of the entrance or placement tests are multiple choice.

Licensing Exams - There are licensing exams required for numerous professional licenses. For this reason it is appropriate to have assessments simulating these types of exams in a course.

NCLEX (nursing)

X-Ray Board Exams

ASE Automotive Service Excellence Exam

CNA - Certified Nursing Assistant

EMT - Emergency Medical Technician

Standardized Cognitive Tests - GRE, SAT, LSAT, MCAT, Miller's Analogies, Stanford-Binet etc

Checklist- A checklist basically determines whether a criterion is present or not, in contrast to how well or at what performance level. Checklists are good for simple psychomotor skills or low level recall.

Hand washing Checklist	✔️
Adjusted to appropriate water temperature	
Hands wetted	
Soap applied	
Lather worked-up	
Applied cleansing friction of at least 20 seconds	
Applied friction between fingers	
Applied friction on back of hands	
Used fingernail brush for nail beds	
Rinsed off all soap	
Dried appropriately	

Other sample checklists are linked below
Web content checklist (scroll down) http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990505/full-checklist.html

Web accessibility http://www.webaim.org/standards/508/508checklist.pdf

Web page evaluation http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/EvalForm.pdf

Study Skill Checklist http://www.ucc.vt.edu/stdysk/checklis.html

Skills Checklist for immunizations with values included https://www.immunize.org/catg.d/2020skill.pdf

Case Study & Problem Solving

Case studies use an "in situ" approach to simulate real life situations and problems. The National Center for Case Study Teaching in Science is a good example of pre-packaged assessments and assignments that can be adapted in a variety of courses http://ublib.buffalo.edu/libraries/projects/cases/case.html

Also checkout Engineering case studies http://www.civeng.carleton.ca/ECL/

and ethics case studies http://ethics.sandiego.edu/resources/cases/HomeOverview.asp

Problem Solving uses the same approach but may leave more developmental problem solving to the student. For instance, the student must develop the experiment or tests to obtain data. Rice University has a great collection of these. http://www.ruf.rice.edu/~lane/rvls.html

University of Delaware has sample problems
http://edweb.sdsu.edu/clrit/learningtree/PBL/webassess/WebAssessmentHome.html

Stanford University has a website describing PBL - Problem based learning http://pbl.stanford.edu/

SDSU has a site on assessing problem based learning
http://edweb.sdsu.edu/clrit/learningtree/PBL/webassess/WebAssessmentHome.html

Team Projects

This is another term for collaborative projects, either within the course, in conjunction with other courses, or with community partners. It uses collaborative learning to assess multiple levels of understanding and application. Many of the assessments above can be conducted in teams or collaboratively. There is, however, a difference between collaborative and cooperative.

http://www.cpcs.umb.edu/partners_projects/partners_projects_collaborations.htm

Flowchart or Diagram

A flowchart is a visual or graphic illustration of a process or system used to solve a problem or produce a product. Cognitive researchers have said that placing information in a flowchart or diagram represents one of the highest levels of cognitive achievement requiring analysis and synthesis of many concepts. Flowcharts are excellent ways to communicate the logic involved in a system; students must recall the appropriate information and associated content but must also analyze how the components fit with the entire system or process. Flow charts allow students the opportunity to gain confidence in their ability to describe the entire system or process. Follow-up case study questions concerning the system or process, involving potential problems or adaptations, allow the students to use the flowchart to evaluate system changes.

Directions for this type of assessment must be very specific.

1. Describe a process using a flowchart or diagram. A flowchart is a visual or graphic illustration of a process or system used to solve a problem or produce a product.
2. Chart the process the way it really occurs.
3. Prepare a single lined title for the flowchart or diagram that adequately describes the process being described.
4. Begin with an event that initiates the process.
5. Record each succeeding action or reaction clearly identifying its relationship to the process.
6. Use standard symbols for reoccurrences
7. If multiple stimulators or multiple consequences occur, try to include these.
8. Make notes or reference anything that needs explanation and any assumptions that are not evident.
9. Determine and end point or whether the process is cyclic and draw it in this way.
10. Run through the flowchart to be sure you have not left anything out and that it flows in the way you have drawn it.

W.E. Deming, the quality guru is reported to have said, ""Draw a flowchart for whatever you do. Until you do, you do not know what you are doing, you just have a job." In the same way we might tell our students to draw a flow chart, until they do they have only memorized factoids.

Portfolios

Portfolios are a collection of student artifacts over a period of time.

http://webcenter1.aahe.org/electronicportfolios/index.html

Sample of a digital portfolio for students
http://www.hpcnet.org/upload/attachments/TheDAT_392877_20031103082323.doc

Numerous samples of portfolios for student grading are found at
http://www.aahe.org/teaching/pfoliosearch3.cfm

Capstone – Project, Course or Project

A capstone is defined as a culminating event or crowning achievement. Capstone Courses or Projects are high stakes courses or projects integrating multidisciplinary education with a problem or course. These are usually a requirement for transferring or graduating students. Capstones are good opportunities to evaluate programs.

Example of capstone projects in General Education http://genedhonors.binghamton.edu/projdes.html

Capstone Course in Education
http://www.wgu.edu/wgu/smartcatalog/class_description.asp?course_key=7033

Sample Capstone Projects http://www.unomaha.edu/~wwwpa/project/prevsemesters.html

Reflective Self-Assessment Essay

These types of essays ask the students to assess their own growth and development using evidence to support their conclusions.

An example of this kind of essay is given below. This essay is from a multidisciplinary capstone class in Advanced Composition and Critical Thinking taught by four instructors at Bakersfield College. The assignment is

Topic: Discuss your development as a writer this semester.
Audience: All four instructors
Due Date: 16 May 2002 at the beginning of class
Points: 100
Format: MLA format

Prewriting Process:

1. Carefully reread all of your writing assignments for this class.

2. Choose the one you feel is the strongest. List the reasons.

3. Choose the one you feel is the weakest. List the reasons.

4. Characterize yourself as a writer and as a thinker, referring to any work you have done for this class.

5. Which parts of the class were most helpful? Why? Which parts need to be improved? Why?

Using your answers to questions 2-4 as a basis for your essay, discuss your development as a writer this semester. Answer question 5 on separate page(s).

In addition to your final essay, turn in the following:
          Initial Baseline Essay paper
          Strongest paper

          Weakest paper

          Answers to the Prewriting Process questions (2-5).

Used with Permission from Kate Pluta Bakersfield College

Satisfaction or Perception Surveys

There are numerous commercial standardized assessments available to gather data on student, faculty, staff, employer, and community satisfaction or perceptions. Examples are the

CCSSE and NSSE on student engagement

Noel-Levitz SSI (Student Satisfaction Inventory)

CSEQ College Student Experiences Questionnaire

When planning a survey consider:

- ✓ Purpose – who is the target audience, what will you do with the information? Never ask questions that result in data you will not be able to use.
- ✓ Organization - ask questions from general to more specific.
- ✓ Inclusive – be sure that you ask questions inclusive of the diverse population target (watch terminology)
- ✓ Question Clarity –
  - o Don't ask two issues in one question (e.g. Agree or Disagree Faculty should receive increased wages for participating in governance and teaching overload classes consistently. What if you agree with one but not the other?)
  - o Yes/no questions provide easy data collection but are simplistic.
  - o Scales must be consistent with the question and clear to the reader. If answers are ranked construct the choices to force someone away from the middle or non-committal response.
    - ▪ Likert scaled responses like strongly agree, agree undecided, disagree, strongly disagree
    - ▪ scale with antonyms at either end, but be careful of semantics
    - ▪ quality scales (excellent, good, fair, poor or better, the same, worse)
    - ▪ behavior frequency (never, sometimes, frequently, always)
    - ▪ importance (not important, somewhat important, very important, essential)
  - o Remember to consider whether not applicable or unable to assess should be an option
  - o Questions should be value neutral.
- ✓ Remember - the POWER of sampling and the importance of simplicity and length, keep it short.
- ✓ Disbursement – electronic, in focus groups, paper and pencil questionnaires, a questionnaire attached to other work, pre and post questionnaires, by mail, by phone
- ✓ Structure – close-ended (Likert scaled answers are easy to organize and store – but provide limited data) open-ended can give rich unexpected results but may be difficult to interpret and store
- ✓ Reliability – is dependent on the response rate. Remember if the survey is electronic you need to ping (like sonar) the participants three times. The first survey email will get a small number of respondents. The second and third reminders are capable of increasing the response rate by 30% each time.
- ✓ Pilot test on a diverse group of people.
- ✓ Pilot test the data collection and discuss how it will be reported and interpreted.
- ✓ Results – who gets to view the results, will the participants? Will the results be made public? Is the survey confidential? If so, tell the participants.

Focus Group
Focus groups can be used to generate ideas and concerns and then structure information into useable questions or impressions. The method is less representative, but provides more in-depth information including unexpected information and novel ideas. Focus groups can give information and brainstorm prioritize information or provide potential answers or solutions.

One-on-One Interviews
This technique provides very narrow representation, but the most in-depth information. Interviewing techniques are important (consult the Communication Department for advice). The types and tone of the questions are important. The interviewer must be very cautious not to offer information or add additional follow up questions unless all interviewees have the same treatment.

Appendix D
Sample Rubrics

Public Speaking Rubric

Name:

Point Scale: Missing Incomplete Poor Fair Good Very Good Perfecto!!

0 ——————————————————————————→ **10**

Key: + = Excellent job √= Satisfactory - = Needs Improvement X + Didn't complete

Topic

Narrowed_____ Fit the Assignment_____ Relevant to Audience_____ ___ /5

Introduction

Captured attention/interest ____ Established credibility_____

Listener relevance stated _____ Revealed thesis clearly_____ ___ /10

Content/Supporting Materials

Main points clear _____

Claims fully supported with relevant evidence_____

Use of: Facts___ Testimony___ Examples___ Statistics___ Analogies___

Required number of sources verbally cited during speech_____ ___ /10 X 2

Organization/Structure

Easy to follow, clear organizational pattern___

Transitions effectively moved audience from point to next____ ___ /10 X 2

Conclusion

Restated thesis___

Reviewed main points from body___

Clincher provided sense of closure ___ ___ /10

Delivery

Conversational/Extemporaneous (no reading)__ Poise/Confidence___ Eye Contact____
Gestures/Movement___ Vocal variety/emphasis___ Enthusiasm___
(Group effort/balance___) ___ /10

Audio/Visual Aid Quality/Use___ ___ /5

Time requirement met___ ___ /10

Outline and Bibliography Quality (proper format)____ ___ /10

Deductions Late speech = 20% off, late outline and/or bibliography = 10% off (handed in before speech)

Comments/Suggestions: **Total Points earned ___ /100**

Used with permission from Jill Sharley Bakersfield College

Bakersfield College Microbiology B16

Criteria and Point Value for Team Case 1: Graphing and Tables

Expected Outcome	Unsatisfactory - did not meet expectations (0-1 points possible)	Developing - demonstrates partial completion of expectations (2-3 points)	Accomplished - demonstrates achievement of performance level (4-5 points)	Mastery - demonstrates exemplary achievement of highest expectations (6 points possible)	Points
The team created a properly prepared data table.	A data table was not present.	Data table was present but unclear or incorrect.	The data table is present, titled & labeled correctly, containing all the appropriate data.	The data table is present, titled, & labeled correctly, containing all the appropriate data. The data table is presented clearly, well organized, & easy to follow.	
The team created a properly prepared graph.	A graph was not present.	A graph is present but it is not the appropriate type of graph or is missing labels & title.	The proper graph is present, titled & labeled correctly, containing all the appropriate data.	The proper graph is present, titled, & labeled correctly, containing all the appropriate data. The graph is presented clearly, is well organized, & easy to follow.	
The data & graph are analyzed & interpreted accurately	The data & graph are not referenced.	The data & graph are correctly referenced & analyzed but either hypotheses, conclusions, &/or further studies are missing.	The data & graph are correctly referenced & analyzed. Appropriate hypotheses & conclusions are made within the confines of the data. Further studies or questions are suggested as a result of the analysis on the data.	The data & graph are correctly referenced & analyzed. Appropriate hypotheses & accurate conclusions are made within the confines of the data. Further studies or questions are suggested as a result of the analysis on the data. Reference materials are cited.	
The team used EXCEL or another graphing software to create the table & graph.	The team attempted to use the computer.	Only the data table is created using the computer.	The team successfully created a table using the computer & produced an incomplete graph using the computer.	Both a table & a graph were crated using computer software. Both present the data clearly with obvious interpretation.	
There was evidence of healthy teamwork.	No indication of communication or teamwork. Individual work was added together for a final product.	There is some evidence the team communicated either in the work or presentation.	There is evidence of teamwork in both the work & presentation.	The team clearly worked well together on the assignment & presentation. The team answered the questions well & supported one another.	
Total Points					
Comments					

Initial Essay Rubric

Rubric for Initial Essay Assigned the First Day of Class. This provides a baseline to measure final semester English papers against entering essay writing skills .

English 2   Spring 2004
Name_____

At the end of this course you should be able to write papers that . . .

	Good Start	Okay	Needs Work
develop a **thesis**			
present coherent and logical **claims**			
are organized with **clear links** between claims and support			
are well developed with sufficient and relevant **evidence**			
use standard American English **correctly**			
make **stylistic** choices in persona, syntax, and diction			
gauge the needs of and address a specific **audience**			

Inviting title?

	Yes	No
MLA format		
Margins		
Heading		
Header		
Spacing		

Used with permission from Kate Pluta at Bakersfield College

California State University, Fresno

General Education Scoring Guide for Critical Thinking

Scoring Level	Interpretation	Analysis & Evaluation	Presentation
4 - Accomplished	Analyzes insightful questions Refutes bias Critiques content Examines inconsistencies Values information	Examines conclusions Uses reasonable judgment Discriminates rationally Synthesizes data Views information critically	Argues succinctly Discusses issues thoroughly Shows intellectual honesty Justifies decisions Assimilates information
3 - Competent	Asks insightful questions Detects bias. Categorizes content. Identifies inconsistencies Recognizes context	Formulates conclusions Recognizes arguments Notices differences Evaluates data Seeks out information	Argues clearly Identifies issues Attributes sources naturally Suggests solutions Incorporates information
2 - Developing	Identifies some questions Notes some bias Recognizes basic content States some inconsistencies Selects sources adequately	Identifies some conclusions Sees some arguments Identifies some differences Paraphrases data Assumes information valid	Misconstructs arguments Generalizes issues Cites sources Presents few options Overlooks some information
1 - Beginning	Fails to question data Ignores bias Misses major content areas Detects no inconsistencies Chooses biased sources	Fails to draw conclusions Sees no arguments Overlooks differences Repeats data Omits research	Omits argument Misrepresents issues Excludes data Draws faulty conclusions Shows intellectual dishonesty

Resources for Assessment Tools

Angelo, T.A. (1995b). Reassessing (and Defining) Assessment. *Assessment Bulletin, 48*(3), 7.

Angelo, T.A. (May, 1999). *Doing Assessment As If Learning Matters Most.*
http://aahebulletin.com/public/archive/angelomay99.asp

Bond, L.A. (1996) *Norm- and Criterion-Referenced Testing.* At PARE online
http://pareonline.net/getvn.asp?v=5&n=2

California Assessment Institute at http://cai.cc.ca.us/

Dressel, P. quoted (p. 24)from Miller, A.H., Imrie, B.W., & Cox, K. (1998). *Student assessment in higher education: A handbook for assessing performance.* London; Kogan Page.

Educational Testing Service http://www.ets.org/tests/ctest.html

Erwin, T.D. (2000). The NPEC sourcebook on assessment, volume 1: Definitions and Assessment methods for critical thinking, problem-solving, and writing. Download document from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000195

Fair Testing website. *The Limits of Standardized Testing.*
http://www.fairtest.org/facts/Limits of Tests.html

Fair Testing Website. *University Testing: Fact Sheets*
http://www.fairtest.org/univ/univfactsheets.htm

Fowler, F.J., Jr. (1995) Improving Survey Questions: Design and Evaluation. Thousand Oaks, CA: Sage Publications

Johnson, J.H. (1997). *Data-driven School Improvement.* Retrieved from
http://www.ericfacility.net/ericdigests/ed401595.html (ERIC Document number ED401595)

Kreuger, Richard A. (1988). Focus Groups: A Practical Guide for Applied Research. Thousand Oaks, CA: Sage Publications

Leskes, A. (2002). *Beyond Confusion: An Assessment Glossary*. At the AACU website
http://www.aacu.org/peerreview/pr-sp02/pr-sp02reality.cfm

Levisque, Bradby, Rossi, MPR Associates (1996). Using Data from Program Improvement: How Do We Encourage Schools To Do It? http://ncrve.berkeley.edu/CenterFocus/CF12.html

Math League (2001). Elementary, help with data and statistics
http://www.mathleague.com/help/data/data.htm

Morgan, D.L. (1993) Succeful Focus Groups. Thousand Oaks, CA: Sage Publications

National Research Council [NRC]. (2000). *How people learn: Brain, mind, experience, and school.* Washington, DC: National Academy Press.

National Research Council [NRC]. (2001b). *Knowing what students know: The science and design of educational assessment.* Washington, DC: National Academy Press.

Rudman, H.C. (1999) *Integrating Testing with Teaching.*
http://pareonline.net/getvn.asp?v=1&n=6

Rudner, L.M. (1994) Questions to Ask When Evaluating Tests. Eric Document number ED385607 http://www.ericfacility.net/databases/ERIC_Digests/ed385607.html and PAREonline

Suskie, L.A. (1992). *Questionnaire Survey Research: What Works.* ERIC ED350915
http://eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED350915&ERICExtSearch_SearchType_0=eric_accno&accno=ED350915

Walvoord, B. E. & Anderson, V.J. *Effective Grading: A Tool for Learning and Assessment.* San Francisco, CA: Jossey-Bass. 1998.

Wiggins, G. (1990). *The Case for Authentic Testing.* at http://pareonline.net/getvn.asp?v=2&n=2