

Back to the Basics: Course SLOs

Developing Course Student Learning Outcomes (SLOs)

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Why Assess Student Learning Outcomes?

Assessment is a process that generates continuous improvement by reviewing evidence to demonstrate student learning and identifying areas for improvements to courses. We assess to improve teaching and student learning. It is a process that allows us to formalize what we already do and continue to build on what we've put in place. SLO assessment is an opportunity to think about what we're doing, reflect on how we can do it better, engage in dialogue with faculty, and document results.

What are the major overarching principles?

- Promotes collaboration
- Is dynamic and continuous
- Ensures quality education
- Focuses on learning; how, what and how well students learn
- Is integrated into our daily teaching and planning

What is the ultimate goal of assessment?

- Continuous quality improvement
- Positive changes in teaching and learning
- Ample documentation and evidence of:
 - Ongoing dialogue about student learning throughout the campus
 - Consistent processes for assessing SLOs for courses, programs, certificates and degrees
 - Continuous movement toward improved student learning and institutional effectiveness

Through SLO assessment, we can:

- Find out what and how students are learning (as opposed to what we're teaching) to implement strategies that respond to their diverse needs
- Move our discussion from the anecdotal to a larger contextual picture
- Link assessment to planning and resource allocation
- Improve effectiveness

Activity: How to Develop a Course SLO

The primary question is "What will the students learn?"

Writing SLOs and then measuring (or assessing) if students have mastered them forces us to look at what the students will be *able to do* at the end of the course that they *could not do at the beginning*.

Before diving into the nuts and bolts of writing SLOs, let's review to see what you already know. Choose the best answer for the questions below:

1. A Student Learning Outcome refers to student demonstration of:
 - a) Knowledge
 - b) Skills
 - c) Abilities
 - d) Attitudes
 - e) All of the above

2. Course SLOs:
 - a) Describe the broadest goals for the course, ones that require the use of **higher-level** thinking abilities.
 - b) Ask students to **synthesize** discreet skills or areas of content.
 - c) Result in the **production** of educational plans, papers, projects, portfolios, performances, exams etc. that require students to **apply** what they've learned.
 - d) Are measurable so that faculty can **evaluate** or **assess** the product to measure a student's achievement or mastery of the outcomes.
 - e) All of the above

3. Faculty members can write different SLOs for the same course.
 - a) True
 - b) False

4. An SLO is really the same thing as an objective in our course outlines.
 - a) True
 - b) False

Key Principles for Course Student Learning Outcomes

Here are the key principles to remember about student learning outcomes.

1. A course SLO is an over arching goal, one that asks students to synthesize many discreet skills using higher level thinking skills and to produce something that asks them to apply what they've learned.
2. The ACCJC Accreditation standards require that SLOs be written for all courses, programs, degrees and certificates and services.
3. Course SLOs should be agreed upon by the faculty responsible for delivering the learning experience. For example, all the instructors who teach the same course should agree and teach to the SLOs for that course.

Components of Course Student Learning Outcomes

The focus is on what students can **DO** with what they have learned. Remember that course student learning outcomes describe the knowledge, skills or abilities that a student can **demonstrate** by the end of your course.

Student Learning Outcomes describe the big picture. SLOs:

- ❑ Describe the broadest goals for the activity, ones that require **higher-level** thinking abilities.
- ❑ Require students to **synthesize** many discreet skills or areas of content.
- ❑ Ask students to then **produce** something – papers, projects, portfolios, demonstrations, performances, art works, exams, educational plan etc. – that **applies** what they have learned.
- ❑ Are measurable so that faculty can **evaluate** or **assess** the product to measure a student's achievement or mastery of the outcomes.

Course SLOs versus Course Objectives

How is a course SLO different from a course objective? Course objectives are on a smaller scale, describing small, discreet skills or “nuts and bolts” that require basic thinking skills. They are subsets of outcomes. Think of objectives as the building blocks used to produce whatever is used to demonstrate mastery of an outcome. Objectives can be practiced and assessed individually, but are usually only a portion of an overall project or application. See the table below for a more detailed contrast between outcomes and objectives.

	Objectives	Outcomes
Scope	Skills, tools, or content to engage and explain a particular subject	Overarching results
Target	Details of content coverage and activities, which make up a course curriculum.	Higher level thinking skills that integrate the content and activities.
Major Influence	Input – nuts and bolts	Output – Observable evidence (ability, skill, or discrete useable knowledge) of learning.
Number	Objectives can be numerous, specific, and detailed to direct the daily activities and material.	SLOs are limited in number (3-6) to facilitate modification and improvement of teaching and learning.

“Outcomes demonstrate an understanding and application of a subject beyond the nuts and bolts which hold it together; objectives represent the nuts and bolts.” (Bakersfield College Chemistry Professor).

Activity: SLO or Objective?

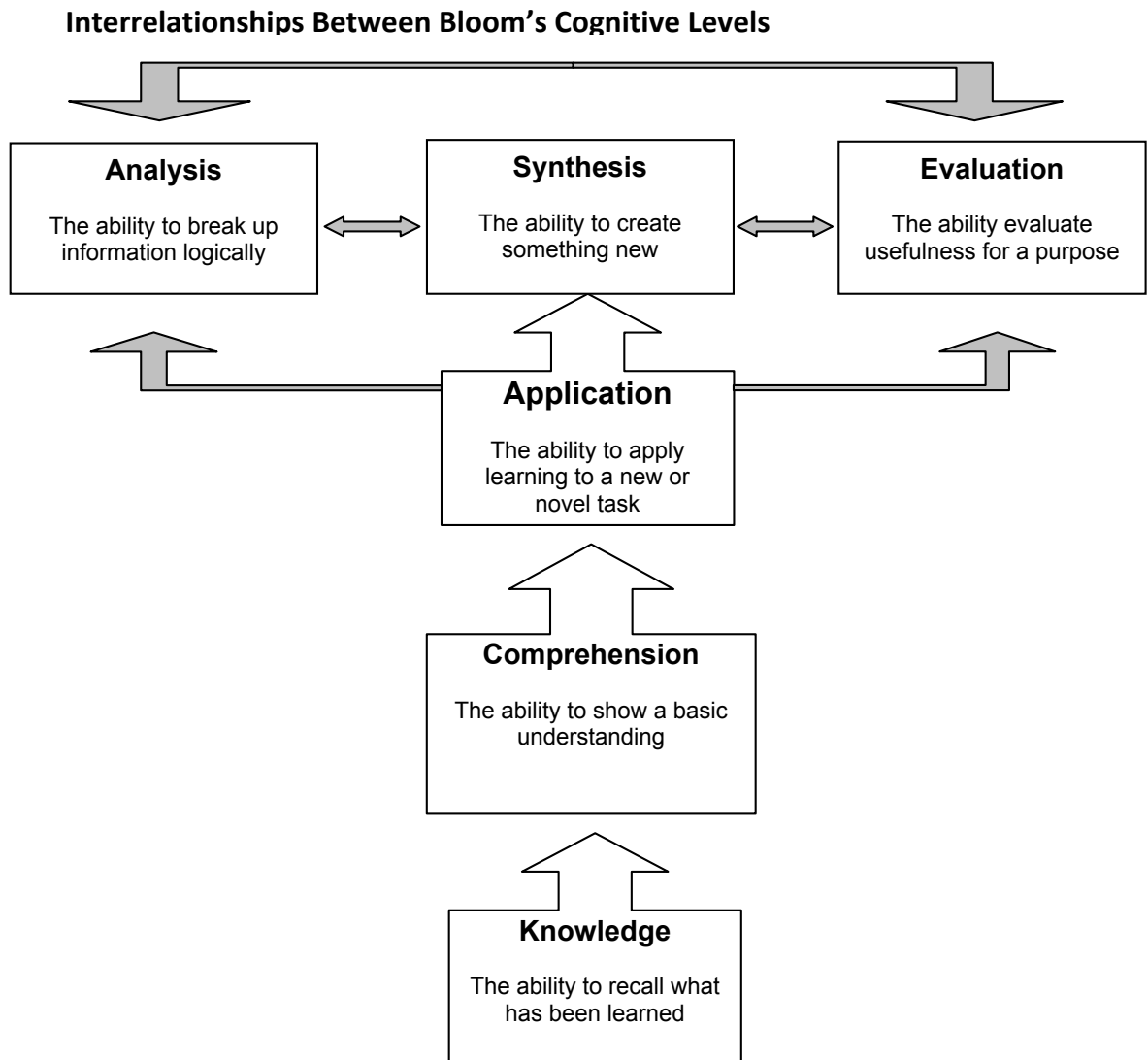
The statements below were written for programs and courses. Analyze the statements to determine whether they are objectives, or student outcomes. Write OB for objectives and SLO for student learning outcome in front of each statement.

Hint: Some of the statements listed below may be neither an SLO nor objective, but something broader, such as a goal.

	(Engineering course) This course introduces senior engineering students to design of concrete components of structure and foundation and integrate them into overall design structures.
	(History course) Identify key dates in American History to 1865.
	(Engineering course) Functioning as a member of a team, the student will design and present a concrete structure which complies with engineering standards.
	(English course) Write a thesis statement that introduces the paper's argument
	(Epidemiology course) Define and assess an epidemic for a given population and recommend factors influencing the use of health services.
	(Ecology course) Critically review and synthesize the findings in scientific literature and make appropriate ecological recommendations based on current knowledge.
	(Sociology course) Understand that individuals (and their families) must be regarded uniquely as individuals with many contributing variables such as multicultural issues.
	(Nutrition course) List the elements of the food pyramid.
	(Immunology course) This course will provide students with a medically relevant foundation of knowledge regarding the components and basic principles of the immune system and the vocabulary and language of immunology.
	(Math course) Given data students will analyze information and create a graph that is correctly titled and labeled, appropriately designed, and accurately emphasizes the most important data content.

Course SLOs and Bloom's Taxonomy

Now that you have a handle on the difference between an SLO and an objective, let's look at Bloom's taxonomy. Bloom's is especially vital in higher education where outcomes need to address the student ability to **apply** information, not just recall and regurgitate concepts. Lower levels of learning, the kind that make up objectives, are easier to assess but do not adequately display what the student can **DO** with the knowledge. Below is a diagram of Bloom's increasing levels of complex learning.



Hall, C. & Johnson, A. (1994) Module A5: Planning a Test or Examination. In B. Imrie & C. Hall, Assessment of Student Performance. Wellington, New Zealand: University Teaching Development Centre, Victoria University of Wellington.

Assessment Methods

Generally the two kinds of data that are used in educational assessment fall into these categories or methods of data collection: **quantitative** and **qualitative**.

	Quantitative	Qualitative
Outcomes	Observational information that can be counted. Another way of expressing outcomes in a quantitative way is to compare your actual outcomes against a comparison group in a like setting or a similar program.	Observational information that is subject to interpretation about quality. Some examples of qualitative outcomes include artwork, case studies, performances, and testimonial quotes.
Assessment Method	<ul style="list-style-type: none"> Collects data that can be analyzed using quantitative methods. Includes methods that rely on numerical scores or ratings. A quantitative measurement uses values from an instrument based on a standardized system that intentionally limits data collection to a selected or predetermined set of possible responses. Quantitative assessment approaches work by the numbers, collecting, analyzing, interpreting, and charting results, trends, and norms. 	<ul style="list-style-type: none"> Collects data that does not lend itself to quantitative methods but rather to interpretive criteria. Includes methods that rely on descriptions rather than numbers. Qualitative measurement is more concerned with detailed descriptions of situations or performance; therefore it can be much more subjective but can also be much more valuable in the hands of an experienced teacher.
Key Points	Remember that those items that fall into the quantitative assessment category rely heavily on quantitative methods such as focused sampling and statistical analysis based on numerical data collected using those methods.	Those that fall into the qualitative assessment category rely more heavily on descriptions of levels of quality, or detailed rubrics, to measure successful learning or demonstration of skill, attitude, or behavior.

Activity: Quantitative vs. Qualitative Assessment Methods

Determine if the sample assessments would be considered quantitative or qualitative. Put a checkmark in the appropriate box(es).

Assessment strategy or tool	Qualitative	Quantitative
True/false tests		
Multiple-choice tests		
Essay tests		
Journals		
Oral Presentations		
Ethnographic field studies		
Standardized tests		
Likert-scale surveys		
Participant observations		
Open-ended question interviews		

Questions to Consider When Balancing Quantitative & Qualitative Assessments

1. Which of these do I currently use in my classroom?
2. Which of these can be effectively adapted to my class?
3. Of what benefit to my students and class is my choice of quantitative tools and strategies?
4. Of what benefit to my students and class is my choice of qualitative tools and strategies?
5. Which of these strategies can you see yourself adapting to an online or blended class and how might you do that?

As you answer these questions, think about your purposes of collecting data about your students, their learning, and your class.

Resource: Assessment Methods Online Tutorial -
<http://its.fvtc.edu/langan/SCO/SCO0607/SCO0607/index.htm>.

Criterion Level

The criterion level reflects, in the faculty's judgment, satisfactory performance on the SLO.

For example:

- At least X percent of students achieve this course SLO.
- All students achieve at least the Y level on this SLO.
- At least X percent of students achieve the Y level on this course SLO.

Not reaching the criterion level suggests that faculty should consider whether changes in class characteristics (e.g. content coverage or sequencing, pedagogical methods), the SLO itself, and/or assessment method(s) are necessary.

For example, a level of 50% of students achieving an outcome may not be a desired amount and 90% percent would probably be too lofty of a goal. The 70 to 75% percent range of achievement is more ideal. The achievement level should be ambitious, but attainable.

Activity: Analyze and Revise SLOs

Assume that a faculty member has been drafting SLOs and asked you for feedback. Refer to the SLO checklist on the next page and use it to analyze the SLOs below.

- Form a group of two. Select one DRAFT SLO from the four examples below.
- Analyze it using the SLO checklist.
- Think of questions you could ask the faculty member that might clarify the SLO.
- Suggest some modifications to the language.

Upon completing this course or program students will:

1. Improve their ability to read, listen to, and/or follow directions.
2. Design experiments and interpret data according to the scientific method in order to evaluate a hypothesis.
3. Write papers that
 - 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
4. Apply graphing capabilities of the spreadsheet software to visually enhance the presentation of results obtained from analytical tasks. Students will develop a budget spreadsheet and chart expenses and revenue. At least 70% of students will score at least 75% on the grading rubric.

Course Student Learning Outcomes Checklist	Yes	No
Do the course SLOs include active verbs?		
Do the course SLOs address the expected level of learning for the course using Bloom's Taxonomy as a guideline?		
Do the SLOs reflect that a student has mastered a significant level or portion of the course content?		
Is the course SLO measurable?		
Do the SLOs identify an assessment method?		
Is there a criterion level associated with the course SLO?		
<p>Are the SLOs written as outcomes rather than as objectives?</p> <ol style="list-style-type: none"> 1. Language indicates an important overarching concept versus small lesson or chapter objectives. 2. Outcomes address what a student will be able to do at the completion of the course. 3. SLOs address student competency rather than content coverage. 		
<p>Are the SLOs appropriate for the course?</p> <ul style="list-style-type: none"> • Consistent with the curriculum document of record • Represents a fundamental result of the course • Aligns with other courses in a sequence, if applicable • Represents collegiate level work 		
<p>Comments or suggestions:</p>		

As you talk to others about SLOs keep these things in mind:

- Each course and classroom has unique factors.
- Disciplines have unique language and culture.
- Cross-disciplinary conversations are invaluable.
- Ultimately discipline-specific conversations best define competencies for students.
- Everyone is a learner when it comes to assessment.
- As professionals, we are guided by the principles of academic freedom.

Activity: Writing Course SLOs

So far, you have analyzed the SLOs written by others. But now it is time to get your hands dirty and write some yourself. Beginning is often the most difficult step. Remember that you have been doing this all along. Now is your chance to put what you know intuitively as a professional into words.

Use the worksheet on the next page and:

- 1) In one sentence, describe one **major** piece of knowledge, skill, or ability that a student will have gained by the end of your course. Describe what students will **do** – not content, activities or hours.
- 2) Use action verbs. See sample course SLOs on page 17.
- 3) Write the SLO in language that a student will understand.
- 4) Make sure that the outcome is something that can be assessed or measured.

Hint: Sometimes it's easier to start backwards by thinking about the major assessments you use in the course. These would be the products or demonstrations of your outcomes. Make a list of your major assignments for this course. Then try to describe in one sentence what the students are being asked to demonstrate in those assignments. **Remember that the essence of student learning outcomes lies in focusing on the results you want from your course**, rather than on what you will cover in the course. Ask yourself how you will know when you have accomplished those outcomes.

Remember to:

1. Strive for higher-level thinking skills. (Students will evaluate, utilize, solve, analyze, construct... Rather than "understand").
2. Make sure the course SLO is derived from the course objectives.
3. Start the SLO with, "At the end of this course, the successful student will be able to..."
4. Keep the number of outcomes short if possible. Use the outcomes to describe the **major** skills or knowledge students will take away from the course and what they will **produce** to show you that they have mastered those skills.
5. Share the outcomes with faculty from other disciplines and within your own discipline. This helps focus the meaning of the statements.

Writing Course Student Learning Outcomes Worksheet

Course Name and Number: _____

Course Title: _____

Course Objectives: (List the course objectives as they appear in the course outline of record.)

- 1.
- 2.
- 3.
- 4.

<u>Course Student Learning Outcome</u>	<u>Assessment</u>	<u>Criterion Level</u>
<p>One sentence that describes a major piece of knowledge, skill, or ability that students can demonstrate by the end of the course</p> <ul style="list-style-type: none"> • <i>Finish the sentence, "At end of the course, the successful student will be able to..."</i> 	<p>Major Assignment, Project or test used to demonstrate or apply outcome</p> <ul style="list-style-type: none"> • <i>Make sure the assessment method is "doable" this semester.</i> • <i>Remember to have a mix of qualitative and quantitative assessment methods.</i> 	<p>Reflects satisfactory performance on the SLO</p> <ul style="list-style-type: none"> • <i>At least X percent of students achieve this course SLO.</i> • <i>All students achieve at least the Y level on this SLO.</i> • <i>At least X percent of students achieve the Y level on this course SLO.</i>
<p>Improve their ability to communicate in writing.</p>	<p>Writing samples from the start of the semester will be compared with writing samples at the end of the semester. Samples will be evaluated for clarity, vocabulary, organization and grammar using a rubric designed by the department.</p>	<p>At least three-fourths of the students will demonstrate at least a 20 percent increase in all evaluated aspects listed in the rubric.</p>
<p>Exhibit expertise in their knowledge of earthquake fault systems and how they relate to plate tectonic processes.</p>	<p>Students will answer embedded questions in midterm and final exams. A scantron scanner will be used to assess the results for each of the relevant questions.</p>	<p>Each question will be answered correctly by 75% of students.</p>
<p>Understand an article published in the Wall Street Journal evaluating the state of the economy.</p>	<p>As part of a regularly scheduled exam, students will be asked a series of questions about a WSJ article. A random selection of exams from all sections will be evaluated using a rubric.</p>	<p>Of the randomly selected exams, at least 75 percent of the students will score an average of 3 points on a 5 point rubric.</p>

These are samples from 3 different courses.

Next Steps

- ❑ September 17 – October 15: Faculty and division chairs meet to formulate and finalize course SLOs. Complete one worksheet for each course. These will be provided for you with the corresponding course objectives.
- ❑ Solicit feedback from deans and division chairs.
- ❑ October 15 – November 1: Submit completed Course SLOs worksheets to the SLO Coordinator. These will be reviewed and forwarded to the Curriculum Committee for approval.
- ❑ October 15 – November 1: Curriculum Committee reviews course SLOs and submits recommendations to Academic Senate.
- ❑ Upon approval of updated course SLOs, faculty conduct course assessments.

Sample Course Student Learning Outcomes

Below are sample outcomes developed by community college faculty. Note the verbs used and how they reflect higher level thinking skills, thus making them SLOs rather than objectives. Some of these sample outcomes are the only ones for the course, while others are one of several.

Forensic Anthropology

-Using the basic principles of forensic anthropology, **analyze** skeletonized human remains to determine sex, age at death, height and genetic ancestry.

Biology

-**Utilize** the scientific method and **evaluate** the scientific validity of information presented by the media and other sources.

Chemistry 1A

- **Solve** quantitative chemistry problems and demonstrate reasoning clearly and completely. **Integrate** multiple ideas in the problem solving process. Check results to make sure they are physically reasonable.

- **Analyze** the results of laboratory experiments, evaluate sources of error, synthesize this information, and express it clearly in written laboratory reports.

Child Development

-Given a description of an infant with a particular disability, **analyze** ways to provide support and education to parents including; on-site, in-home, and community services available.

Construction Fundamentals: Principles and Practices (lab)

-**Construct** a building applying the skills and knowledge obtained in this class.

Dance: Street Dance and Hip Hop

1. **Perform**, with an increasing degree of proficiency, simple Hip Hop movements, **demonstrating** increasing control of skills pertaining to memorization, physical safety, body awareness, alignment, and aesthetic valuing.

Labor Studies - Collective Bargaining

-**Apply** collective bargaining theories from both management and labor perspectives.

-**Analyze** and apply the principles of collective bargaining and labor law during negotiations.

-**Utilize** negotiation skills in labor and employer relations.

Nutrition

-**Analyze** a documented nutritional problem, **determine** a strategy to correct the problem, and **write** a draft nutritional policy addressing the broader scope of the problem

Theatre Art (a series of courses)

Intro to Acting

-**Select, analyze, and perform** selections from dramatic texts **utilizing** the performance skills of memorization, vocal projection, spatial awareness, stage directions and physical expression.

Beginning Acting

-**Select, analyze, and perform** selections from dramatic texts **demonstrating increasing control** over the skills of memorization, vocal projection, spatial awareness, stage directions and physical expression.

Intermediate Acting

-**Select, analyze, and perform** selections from dramatic texts **demonstrating consistent control** and use of the performance consistent skills of memorization, vocal projection, spatial awareness, stage directions and physical expression.

Advanced Acting

-**Select, analyze, and perform** selections from dramatic texts **demonstrating a mastery** of the performance skills of memorization, vocal projection, spatial awareness, stage directions and physical expression.

This packet includes resources adopted from the RP Group, Cabrillo College, San Diego Community College, and Contra Costa College.

Bloom's Taxonomy Action Verbs

Definitions	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Bloom's Definition	Remember previously learned information.	Demonstrate an understanding of the facts.	Apply knowledge to actual situations.	Break down objects or ideas into simpler parts and find evidence to support generalizations.	Compile component ideas into a new whole or propose alternative solutions.	Make and defend judgments based on internal evidence or external criteria.
Verbs	<ul style="list-style-type: none"> • Arrange • Define • Describe • Duplicate • Identify • Label • List • Match • Memorize • Name • Order • Outline • Recognize • Relate • Recall • Repeat • Reproduce • Select • State 	<ul style="list-style-type: none"> • Classify • Convert • Defend • Describe • Discuss • Distinguish • Estimate • Explain • Express • Extend • Generalized • Give example(s) • Identify • Indicate • Infer • Locate • Paraphrase • Predict • Recognize • Rewrite • Review • Select • Summarize • Translate 	<ul style="list-style-type: none"> • Apply • Change • Choose • Compute • Demonstrate • Discover • Dramatize • Employ • Illustrate • Interpret • Manipulate • Modify • Operate • Practice • Predict • Prepare • Produce • Relate • Schedule • Show • Sketch • Solve • Use • Write 	<ul style="list-style-type: none"> • Analyze • Appraise • Breakdown • Calculate • Categorize • Compare • Contrast • Criticize • Diagram • Differentiate • Discriminate • Distinguish • Examine • Experiment • Identify • Illustrate • Infer • Model • Outline • Point out • Question • Relate • Select • Separate • Subdivide • Test 	<ul style="list-style-type: none"> • Arrange • Assemble • Categorize • Collect • Combine • Comply • Compose • Construct • Create • Design • Develop • Devise • Explain • Formulate • Generate • Plan • Prepare • Rearrange • Reconstruct • Relate • Reorganize • Revise • Rewrite • Set up • Summarize • Synthesize • Tell • Write 	<ul style="list-style-type: none"> • Appraise • Argue • Assess • Attach • Choose • Compare • Conclude • Contrast • Defend • Describe • Discriminate • Estimate • Evaluate • Explain • Judge • Justify • Interpret • Relate • Predict • Rate • Select • Summarize • Support • Value

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