

Rubric Essentials

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Presentation Overview

Rubric Overview

- Definition, Description, and Use
- Holistic vs. Analytic Rubrics
- Analytic Rubric Scoring vs. Grading
- Advantages and Disadvantages of Analytic Rubrics

Components of an Analytic Rubric

- Steps to Creating an Analytic Rubric
- Norming
- Using Rubrics in Student Learning Outcomes Assessment

Conclusion

- Example Rubrics
- Questions and Discussion

Session Outcomes

After this session, participants will be able to:

- Define what a rubric is and how it can be used
- Explain how analytic rubric scoring is different than grading
- Explain the steps associated with creating an analytic rubric
- Explain how analytic rubrics are used in student learning outcomes assessment

Rubric Overview: Definition and Description

A rubric is a:

- “Scoring guide used to evaluate the quality of students’ constructed responses” to an assignment. (1)
- Matrix that describes the specific criteria for an assignment and the performance expectations for each.

(1) Popham, W. J. (1997). *“What’s Wrong - and What’s Right - with Rubrics”*. *Educational Leadership*, 55(2), 72–75.

Rubric Overview: Example

Example: Evaluating the Use of Graphics in a Student Presentation

Developed by Information Technology Evaluation Services,
NC Department of Public Instruction
(<https://www.ncsu.edu/midlink/rub.pres.html>)

	1	2	3	4
Graphics	Student uses superfluous graphics or no graphics	Student occasionally uses graphics that support text and presentation	Student's graphics relate to text and presentation	Student's graphics explain and reinforce screen text and presentation

Rubric Overview: Use

Rubrics:

- Assess student performance on specific pieces of student work (e.g., papers, capstone projects, artistic performances, lab reports, design projects, presentations, etc.)
- Is an authentic assessment / direct measure of student learning
- Are for artifacts that have dimensionality and contain more than one learning outcome
- Are not for questions that are either correct or incorrect

Rubric Overview: Use

Rubrics can be used by students to:

- Determine what they need to include when completing a specific assignment
- Evaluate the quality of their own work prior to turning in an assignment

Rubrics can be used by faculty to:

- Outline the specific components required for an assignment
- Evaluate both specific required criteria and provide an overall assignment score
- Give students formative feedback on drafts of an assignment

Rubrics can be used by departments to:

- Evaluate overall programmatic outcomes
- Come to consensus on course requirements where there are multiple instructors teaching different sections

Holistic vs. Analytic Rubrics

Rubrics can provide both summative and formative feedback to students and faculty regarding student learning (Huba and Freed, 2000)

Holistic rubrics:

- Contain performance levels but do not break out individual assignment criteria
- Are typically used to assign a grade to an assignment
- Provide little in the way of formative information for either the program or the student
- Are typically easier to develop, faster to score, and easier to reach consensus on when using multiple raters

Holistic Rubric Example

Exemplary	Proficient	Acceptable	Weak	Unacceptable
The presentation addresses the assigned genre. The genre is introduced with a clear definition. All characteristics of the genre and any subcategories are identified and explained. Multiple examples are used to illustrate the genre. A variety of suggestions are provided regarding the use of the genre in the classroom. A bibliography of 10 books from the genre is provided in correct APA format.	The presentation addresses the assigned genre. The genre is defined. Characteristics and subcategories are identified and explained. At least two examples of the genre are presented. At least two suggestions for classroom use are included. A bibliography of 10 books from the genre is provided.	The presentation addresses the assigned genre. The genre is defined. Characteristics and subcategories are identified. An example of the genre is presented. A suggestion for classroom use is included. A bibliography of less than 10 books is provided.	The presentation addresses the assigned genre. Characteristics or subcategories are identified. Examples or instructional suggestions are not included. A bibliography of less than 10 books is provided.	The presentation does not address the assigned genre. Characteristics or subcategories of the genre are not clearly identified. Examples and instructional suggestions are not included. A genre bibliography is missing.

Holistic vs. Analytic Rubrics

Analytic rubrics:

- Allow raters to assess specific components or dimensions of an assignment separately
- Can provide detailed feedback to both the student and the program
- Are formative in nature / focus on improvement
- Sum of scores can be used as an overall assignment grade
- Can be used to assess a program's student learning outcomes and is the recommended way of designing a rubric

Analytic Rubric Example

	Exemplary	Good	Marginal	Unacceptable
Quality of Information	Information clearly related to the main topic and adds new concepts/information. Includes several supporting details and/or examples. Consistently provides source documentation.	Information clearly related to the main topic. Provides at least one supporting detail or example. Occasionally provides source documentation.	Information clearly related to the main topic. No details and/or examples are given. Provides source documentation when requested.	Information has little or nothing to do with the main topic or simply restates the main concept. It does not advance the discussion. Does not provide source documentation.
Critical Thinking	Enhances critical thinking process through reflection and questioning of self and others. Is a quality response that advances thought; adds to the discussion.	Some critical thinking and reflection are demonstrated in the discussion by the writer.	Responds to questions but does not engage in reflection.	Does not respond to questions posed by the facilitator.
Professional Language	Professional vocabulary and writing style are used consistently throughout the discussion.	Professional vocabulary and writing style are used frequently throughout the discussion.	Professional vocabulary and writing style are used occasionally throughout the discussion.	Professional vocabulary and writing style are not used.
Etc.				

Revised from: <https://saicebrian.wordpress.com/tag/analytical-rubric/>

Analytic Rubric Scoring vs. Grading

- Assignment grades give a holistic rating of student performance
- Example:
 - A student receives a “B” on a capstone paper
 - This “rating” is a compilation of all skills exhibited in that project
 - This could include synthesis of concepts, adequacy of literature review, quality of writing, etc.

Analytic Rubric Scoring vs. Grading

- However, if you use an analytic rubric on an assignment, the specific learning components can be scored individually
- For example, student is rated as:
 - “Exceptional” in “synthesis of concepts”
 - “Average” on the “adequacy of the literature review”
 - And, “exceptional” in writing quality

Analytic Rubric Scoring vs. Grading

- Each of these areas could be based on different student learning outcomes of either the program or the course
- These scores could then be combined with a point system to give an overall “grade”
- But, separately, each of these scores give an added level of objectivity to the evaluation of an assignment

Advantages and Disadvantages of Analytic Rubrics

For students

– Advantages:

- Gives an outline of specific performance criteria for an assignment
- Provides details on how to meet each level of performance
- As a formative measure, gives detailed improvement information

– Disadvantages:

- Students may feel that it limits their creativity

Advantages and Disadvantages of Analytic Rubrics

For faculty

– Advantages:

- Give some objectivity to the evaluation of student performance
- Allow faculty to give students more detailed feedback on their performance
- Help teachers clarify assignments / avoid confusing assignments
- Focus on learning and not teaching
- Can be used for both grading and collecting information on specific student learning outcomes
- Common ground for students, faculty, and programs

– Disadvantages:

- Require time to develop
- Takes more time to evaluate an assignment
- But, could be more efficient because it eliminates having to do several reviews of an assignment to ensure consistency in grading

Advantages and Disadvantages of Analytic Rubrics

For departments

– Advantages:

- Standardize performance requirements for courses with multiple sections / instructors
- Highlight the specific criteria that are not being met by students
- Can be used to report assessment findings
- Align teaching and assessment

– Disadvantages:

- Take time to develop
- Takes time to come to consensus when using multiple raters (e.g., capstone project assessment)

Steps to Creating an Analytic Rubric

1. Identify course assignment that will be evaluated with the rubric.
2. Identify all essential performance elements / criteria the assignment is supposed to cover (e.g., what are the student learning outcomes contained in the assignment).
3. Determine the number of achievement levels that should be included (e.g., 5 point scale, 4 point scale, etc.). Levels should be consistent across all learning areas.
4. Write specific performance criteria for each of the levels (i.e., filling in the boxes) – it is helpful to work from the outside in.
5. Qualitatively, what would performance at each level look like? Can look at previous assignments to determine what an “excellent” looks like.
6. Share the rubric with others.
7. Pilot and revise as needed.

Steps to Creating an Analytic Rubric

Once developed, evaluate the rubric on several criteria:

- Are all student learning outcomes covered by the assignment present?
- Are the categories / performance criteria well-defined?
- Is there adequate distinction between the different categories?
- Is the rubric feasible or practical to use?
- Would external scorers be able to effectively use the rubric?
- Example: Rubric to evaluate rubric

Search the internet

- Hundreds, if not thousands, of rubrics are available on the internet

Norming an Analytic Rubric

When multiple individuals will be using a rubric to evaluate student performance it is a good idea to “norm” the rubric

This process is used to:

- Develop consistency in evaluation across numerous raters
- Allows for common understanding of what each performance level means and what student work looks like at each level
- Highlight any problems with the rubric itself

Norming an Analytic Rubric

Norming sessions are used to get all individuals together to evaluate sample works and discuss expectations of performance

Steps:

- Bring raters together.
- For each criteria, discuss the rubric levels.
- Have raters independently rate some examples of student work.
- Discuss the scoring across the raters.
- Determine what “consensus” means for your project (e.g., 1 point difference, no differences, etc.). This is also determined by the number of levels you have.
- Continue to rate and discuss until you meet your consensus threshold.
- If consensus can’t be met, potentially alter rubric or performance levels.

Using Analytic Rubrics in Student Learning Outcomes Assessment

- Rubrics are often used in student learning outcomes assessment
- Developing rubrics takes time; rubrics often need to be revised
- Rubrics allow the department to use the same piece of student work to examine multiple student learning outcomes

Using Analytic Rubrics in Student Learning Outcomes Assessment

- Grades do not give the level of detail needed to understand all of the student learning outcomes that are included in a course assignment
- An overall assignment score is not a direct measure of student learning on a particular outcome. However, when criteria are linked to rubric rows these ratings are specific enough to be direct measures of student learning.

Rubric Example – SLO Matching

Example assignment: The Chemical Engineering BS program has a capstone course that requires students to complete a research project and orally present their findings. The program would like to use this capstone project to assess several of its student learning outcomes.

Student Learning Outcomes: Students completing the BS program in Chemical Engineering will be able to...

- Apply concepts and governing equations to solve rate and / or equilibrium problems
- Solve math models to analyze or evaluate process / system performance
- Choose the optimal solution based on evaluation of technical and economic criteria
- Demonstrate an ability to communicate effectively in writing

Rubric Example – SLO Matching

Example rubric for Chemical Engineering BS capstone project focusing on four of the program's student learning outcomes:

Student Learning Outcome	Proficient (3)	Apprentice (2)	Novice (1)
Apply concepts and governing equations to solve rate and/or equilibrium problems	Applies correct concepts and chooses correct governing equations to solve a problem.	Applies correct concepts but chooses incorrect governing equations to solve a problem.	Applies incorrect concepts and chooses incorrect governing equations to solve a problem.
Solve math models to analyze or evaluate process/system performance	Applies correct mathematical concepts to formulate a math model with no conceptual or procedural errors affecting the problem solution.	Applies correct concepts to formulate a math model; solution is conceptually correct but contains minor procedural errors.	Applies incorrect concepts to formulate a math model or solution; contains conceptual or procedural errors affecting the problem solution.
Choose the optimal solution based on evaluation of technical and economic criteria	Best solution is recommended based on stated criteria.	Satisfactory solution is recommended; better solutions were available and should have been considered.	Only one solution considered; no optimization included; better solutions were available.
Demonstrate an ability to communicate effectively in writing	Written report presents design recommendations and analysis logically, is well organized and easy to read, contains few minor grammatical and/or rhetorical errors.	Written report is generally well written but contains some grammatical, rhetorical, and/or organizational errors.	Written report does not present design recommendations or analysis clearly, is poorly organized, and/or contains major grammatical and/or rhetorical errors.

Learning outcomes and example adapted from: http://chemeng.mines.edu/assess/Docs/project_rubric.pdf
chemeng.mines.edu/assess/Docs/design_rubric.pdf

Discussion and Questions

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