Teaching Tip

Active Learning

October 15, 2004

Rubrics: Establishing Criteria for Student Work

For many reasons, assessment of student learning, often defined as measuring outcomes or results (e.g. what students have learned), is one of the most difficult tasks that faculty face as teachers. This is especially true when confronted with issues of how to make assessment accurate and fair. One way to accomplish an effective assessment strategy is to incorporate rubrics into your course. Although rubrics come in many shapes and sizes, they ultimately serve to clearly state the criteria students are responsible for when developing projects and assignments. So, what does a rubric look like? What follows are some definitions and samples that should give you an idea about how to create your own criteria-based rubrics in the future. These descriptions and samples were created by Barbara Walvoord of the University of Notre Dame and edited by Stephen C. Ehrmann of The TLT Group. It is excerpted from The TLT Group Starter Kit Workbook.

Appendix A: Sample Rubrics for Student Classroom Work

"Rubrics" …are more specific, detailed, and disaggregated than a grade. Thus they can show strengths and weaknesses in student work. This appendix includes several such rubrics, each using a different strategy to help someone explicitly judge the student's work. To give you a better idea of what rubrics are and what you can do with them, this appendix includes three designs of increasing complexity.

Creating rubrics: Teachers can construct rubrics for their own students' work. To do so, they often draw on the language in the teacher's assignments, comments on students' papers, or handouts intended to help students complete an assignment. No matter where the rubric came from, however, these ideas should show up in those assignments, comments, and handouts.

Uses of rubrics: The teacher herself can use the rubric to assess her own students' work. If she wants an outside view, she can ask one or more colleagues to use the rubric independently to score student work. We recommend that the rubric always be shared with students, so they will know what are the marks of good work in your field and can themselves consciously strive for those qualities.

More examples: For other examples of scoring sheets in various disciples, see Barbara Walvoord and Virginia Anderson, *Effective Grading: A Tool for Learning and Assessment* (Jossey-Bass, 1998).

I. Grading Sheet for Journals in Beginner's Spanish III, by Dorothy Sole, Univ. Cincinnati

1. The content of the journal is by and large comprehensible. Although there are errors, verb tenses sentence structure, and vocabulary are in the main correctly used. The author has taken some chances, employing sentence structures or expressing thoughts that are on the edge of what we have been studying. The entries are varied in subject and form.

3. There is some use of appropriate verb tenses and correct Spanish structure and vocabulary but incorrect usage and/or vocabulary interferes with the reader's comprehension.

2. The reader finds many of the entries difficult to understand, and/or many entries are simplistic and/or repetitious.

1. The majority of the entries are virtually incomprehensible.

In addition to this scale, part of the grade is based on the number of entries and their length.

II. Grading Sheet for First-Year Western Civilization Course Required as Part of Gen Ed, by John Breihan, History, Loyola College in Maryland

The scale describes a variety of common types of paper but may not exactly describe yours; my mark on the scale denotes roughly where it falls. More precise information can be derived from comments and conferences with the instructor [Breihan would offer written comments on the paper, in addition to his mark on this scale.]

Grade:

1. The paper is dishonest

2. The paper completely ignores the questions set.

3. The paper is incomprehensible due to errors in language or usage.

4. The paper contains very serious factual errors.

5. The paper simply lists, narrates, or describes historical data, and includes several factual errors

6. The paper correctly lists, narrates, or describes historical data but makes little or not attempts to frame an argument or thesis.

7. The paper states an argument or thesis, but one that does not address the question set.

8. The paper states an argument or thesis, but supporting subtheses and factual evidence are:

    a. Missing
    b. Incorrect or anachronistic
    c. Irrelevant
    d. Not sufficiently specific
    e. All or partly obscured by errors in language or usage

9. The paper states an argument on the appropriate topic, clearly supported by relevant subtheses and specific factual evidence, but counterarguments and counterexamples are not mentioned or answered.

10. The paper contains an argument, relevant subtheses, and specific evidence; counterarguments and counterexamples are mentioned by not adequately answered:

    a. Factual evidence incorrect or missing or not specific
    b. Linking sub-theses either unclear or missing
    c. Counterarguments and counterexamples not clearly stated; "strawman"

11. The paper adequately states and defends an argument, and answers all counterarguments and counterexamples suggested by lectures and textbook.

III. Grading Sheet for Scientific Experiment in Biology Capstone Course, by Virginia Johnson Anderson, Towson University, Towson, MD

Assignment: Semester-long assignment to design an original experiment, carry it out, and write it up in scientific report format. Students are to determine which of two brands of a commercial product (e.g. two brands of popcorn) are "best." They must base their judgment on at least four experimental factors (e.g. "% of kernels popped" is an experimental factor. Price is not, because it is written on the package).

Title

2. Is appropriate in tone and structure to science journal; contains necessary descriptors, brand names, and allows reader to anticipate design.

4. Is appropriate in tone and structure to science journal; most descriptors present; identifies function of experimentation, suggests design, but lacks brand names.

3. Identifies function, brand name, but does not allow reader to anticipate design.

2. Identifies function or brand name, but not both; lacks design information or is

misleading

1. Is patterned after another discipline or missing.

Introduction

5. Clearly identifies the purpose of the research; identifies interested audiences(s); adopts an appropriate tone.

4. Clearly identifies the purpose of the research; identifies interested audience(s).

3. Clearly identifies the purpose of the research.

2. Purpose present in Introduction, but must be identified by reader.

1. Fails to identify the purpose of the research.

Scientific Format Demands

5. All material placed in the correct sections; organized logically within each section; runs parallel among different sections.

4. All material placed in correct sections; organized logically within sections, but may lack parallelism among sections.

3. Material place is right sections but not well organized within the sections; disregards parallelism.

2. Some materials are placed in the wrong sections or are not adequately organized wherever they are placed.

1. Material placed in wrong sections or not sectioned; poorly organized wherever placed.

Materials and Methods Section

5. Contains effectively, quantifiably, concisely organized information that allows the experiment to be replicated; is written so that all information inherent to the document can be related back to this section; identifies sources of all data to be collected; identifies sequential information in an appropriate chronology; does not contain unnecessary, wordy descriptions of procedures.

4. As above, but contains unnecessary information, and/or wordy descriptions within the section.

3. Presents an experiment that is definitely replicable; all information in document

may be related to this section; however, fails to identify some sources of data and/or presents sequential information in a disorganized, difficult pattern.

2. Presents an experiment that is marginally replicable; parts of the basic design must be inferred by the reader; procedures not quantitatively described; some information in Results or Conclusions cannot be anticipated by reading the Methods and Materials section.

1. Describes the experiment so poorly or in such a nonscientific way that is cannot be replicated.

Non-experimental Information

5. Student researches and includes price and other nonexperimental information that would be expected to be significant to the audience in determining the better product, or specifically states non-experimental factors excluded by design; interjects these at appropriate positions in text and/or develops a weighted rating scale; integrates nonexperimental information in the Conclusions.

4. Student acts as above, but is somewhat less effective in developing the significance of the non-experimental information.

3. Student introduces price and other non-experimental information, but does not integrate them into Conclusions.

2. Student researches and includes price effectively; does not include or specifically exclude other non-experimental information.

1. Student considers price and/or other non-experimental variables as research variables; fails to identify the significance of these factors to the research.

Designing an Experiment

5. Student selects experimental factors that are appropriate to the research purpose and audience; measures adequate aspects of these selected factors; establishes discrete subgroups for which data significance may vary; student demonstrates an ability to eliminate bias from the design and bias-ridden statements from the research; student selects appropriate sample size, equivalent groups, and statistics; student designs a superior experiment.

4. As above, but student designs an adequate experiment.

3. Student selects experimental factors that are appropriate to the research purpose and audience; measures adequate aspects of these selected factors; establishes discrete subgroups for which data significance may vary; research is weakened by bias OR by sample size of less than 10.

2. As above, but research is weakened by bias AND inappropriate sample size

1. Student designs a poor experiment.

Defining Operationally

5. Student constructs a stated comprehensive operational definition and well-developed specific operational definitions.

4. Student constructs an implied comprehensive operational definition and well-developed specific operational definitions.

3. Student constructs an implied comprehensive operational definition (possible less clear) and some specific operational definitions.

2. Student constructs specific operational definitions, but fails to construct a comprehensive definition.

1. Student lacks understanding of operation definition.

Controlling Variables

5. Student demonstrates, by written statement, the ability to control variables by experimental control and by randomization; student makes reference to, or implies, factors to be disregarded by reference to pilot or experience; superior overall control of variables.

4. As above, but student demonstrates an adequate control of variables.

3. Student demonstrates the ability to control important variables experimentally; Methods and Materials section does not indicate knowledge of randomization and/or selected disregard of variables.

2. Student demonstrates the ability to control some, but not all, of the important variables experimentally.

1. Student demonstrates a lack of understanding about controlling variables.

Collecting Data and Communicating Results

5. Student selects quantifiable experimental factors and/or defines and establishes quantitative units of comparison; measures the quantifiable factors and/or units in appropriate quantities or intervals; student selects appropriate statistical information to be utilized in the results; when effective, student displays results in graphs with correctly labeled axes; data are presented to the reader in text as well as graphic forms; tables or graphs have self-contained headings.

4. As 5 above, but the student did not prepare self-contained headings for tables or graphs.

3. As 4 above, but data reported in graphs or tables contain materials that are irrelevant and/or not statistically appropriate.

2. Student selects quantifiable experimental factors and/or defines and establishes quantitative units of comparison; fails to select appropriate quantities or intervals and/or fails to display information graphically when appropriate.

1. Student does not select, collect, and/or communicate quantifiable results.

Interpreting Data: Drawing Conclusions/Implications

5. Student summarizes the purpose and findings of the research; student draws inferences that are consistent with the data and scientific reasoning and relates these to interested audiences; student explains expected results and offers explanations and/or suggestions for further research for unexpected results; student presents data honestly, distinguishes between fact and implication, and avoids overgeneralizing; student organizes non-experimental information to support conclusion; student accepts or rejects the hypothesis.

4. As 5 above, but student does not accept or reject the hypothesis.

3. As 4 above, but the student overgeneralizes and/or fails to organize non-experimental information to support conclusions.

2. Student summarizes the purpose and findings of the research; student explains expected results, but ignores unexpected results.

1. Student may or may not summarize the results, but fails to interpret their significance to interested audiences.

Teaching Tips is brought to you by the Center for Teaching, Learning and Technology at BGSU. Contact Dan Madigan dmadiga@bgnet.bgsu.edu if you have an idea for a tip or suggestions for this service.

Teaching Tip

October 22, 2004

Rubrics

After our last teaching tip on the topic of rubrics, faculty emailed me asking for more information regarding rubrics. This follow up shares more ideas and links to sites that you can access when time allows. Craig Mertler (Education Foundations & Inquiry at BGSU) passes along an online article that he published on the topic of "Designing Scoring Rubrics for Your Classroom." In this article, he shares with you the details of how to create two types of rubrics: a holistic rubric and analytic rubric. You can access Craig's article at http://www.pareonline.net/getvn.asp?v=7&n=25

Here are some other web sites where you can gain access to a variety of rubrics for use in the classroom:

- Dr. Barbara Frandsen of St. Edward's University makes public a rubric for assessing individuals in a group that you might want to use or modify for your class <http://www.stedwards.edu/cte/resources/grub.htm>.

- Prentice Hall publishers

- (http://www.phschool.com/professional_development/assessment/rub_oral_presentation.html) shares a rubric on oral presentations that you could modify for your college class. Also, you can access another oral presentation rubric at http://www.ncsu.edu/midlink/rub.pres.html

- Another interesting rubric site (although many examples are for secondary school topics and subjects) with many links can be found at http://school.discovery.com/schrockguide/assess.html

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