

Classroom Assessment

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Case Study #1

Students in an upper-level business class are to analyze production processes in two local fast food restaurants, using concepts from their textbook.

Assignment sheet:

In 250 – 300 words, compare and contrast the layout and work design of McDonald’s and Popeye’s on York Road. Evaluate the two on the effectiveness with which each serves its customers. A careful evaluation of what each restaurant is trying to provide should precede or begin your analysis, and such concepts as line balancing, type of processing, and specialization should be included. Chapters 7 and 8 in the Stevenson text can provide guidance, and a visit to each site may be unavoidable. In class, instructor emphasizes the need for a “theme” for the paper. (Walvoord and Sherman, 1990, p. 62)

Problems and Processes

Grades and Information-Gathering Strategies of Representative Group of Students

Verbal SAT	Read text before visit	Visit both	Take notes at restaurant	Visit, then read text	Visit Popeye’s only	Notes after visit or no notes
Grade A						
570				X	X	X
510	X	X	X			
430	X	X	X			
410	X		X		X	
400	X		X		X	
n.i.	X	X			X	
B or lower						
520				X	X	X
490				X	X	X
440				X	X	X
410				X	X	X
310				X	X	X

Student Log on Writing the Paper

Oct. 15: I visited Popeye’s & ate lunch there. I took mental notes about the service & the layout of the restaurant. Tonight, I read part of each of the chapters in the textbook about the areas our paper is supposed to cover.

October 18: I wrote my first draft today. I hadn’t really thought about the theme until I started to write the paper. I knew basically what the body of my paper was going to be, though. We

were supposed to include certain points in the paper so that is what I based my paragraphs on. I really couldn't think of a good way to end my paper. I don't want to have too much of a conclusion really, because the paper can't be any more than 1 page long. My paper just sort of stops, but I really don't know what to say exactly to make it end smoothly and keep within the 1 page limit. (Walvoord and Sherman, 1990, p. 65)

Case Study #2

In a senior capstone class on “Biological Research,” the main assignment is for students to conduct an original scientific experiment and write it up in scientific report format.

How the Instructor Teaches Scientific Format:

- Early in the semester, students read five appropriately-formatted scientific articles and write abstracts of them.
- At the beginning of students' work on the research project, a lecture and handout explaining that scientific format includes these sections: title, abstract, introduction, methods and materials, results, and conclusions/implications.
- Several sessions after the lecture on the scientific format, ask students to bring in three draft pages from their own methods and materials section. In-class peer-conferencing for students to address format or other concerns about their papers.

Problems:

- Papers with no sections
- Omitted sections
- Extra sections
- Organized material poorly within sections

Appendix A: Sample Rubrics

Example 1: Rubric for Biological Research Project

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

- 5 - 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 is in appropriate 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 effective, quantifiable, 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 non-experimental 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 non-experimental 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.

Student Scores for Science Reports

Trait	Year 1	Year 2
Title	2.95	3.22
Introduction	3.18	3.64
Scientific Format	3.09	3.32
Methods and Materials	3.00	3.55
Non-Experimental Info	3.18	3.50
Designing the Experiment	2.68	3.32
Defining Operationally	2.68	3.50
Controlling Variables	2.73	3.18
Collecting Data	2.86	3.36
Interpreting Data	2.90	3.59
Overall	2.93	3.42

Example 2: Rubric for Scoring Essays on Porter's *Ship of Fools* for English Literature

5	4	3	2	1
<p>Thesis: The thesis of the paper is clear, complex, and challenging. It does not merely state the obvious or exactly repeat others' viewpoints, but creatively and thoughtfully opens up our thinking about the work.</p>	<p>The thesis is both clear and reasonably complex.</p>	<p>The thesis of the paper is clear. It takes a stand on a debatable issue, though the thesis may be unimaginative, largely a recapitulation of readings and class discussion, and/or fairly obvious.</p>	<p>Thesis is relevant to the assignment. It is discernible, but the reader has to work to understand it.</p>	<p>Thesis is irrelevant to the assignment and/or not discernible.</p>

5	4	3	2	1
<p>Complexity and Originality: The essay is unusually thoughtful, deep, creative, and far-reaching in its analysis. The writer explores the subject from various points of view, acknowledges alternative interpretations and varied literary critical lenses, and recognizes the complexity of issues in literature and in life. Other works we have read and ideas we have discussed are integrated as relevant. The essay shows a curious mind at work.</p>	<p>The essay is thoughtful and extensive in its analysis. It acknowledges alternative interpretations and recognizes complexity in literature and in life. Some other works are integrated as relevant.</p>	<p>The writer goes somewhat beyond merely paraphrasing someone else's point of view or repeating what was discussed in class. AND/OR the essay does not integrate other relevant works we have read.</p>	<p>Writer moves only marginally beyond merely paraphrasing someone else's point of view or repeats what was discussed in class.</p>	<p>The paper is mere paraphrase or repetition.</p>
<p>Organization and Coherence: The reader feels that the writer is in control of the direction and organization of the essay. The essay follows a logical line of reasoning to support its thesis and to deal with counter-evidence and alternative viewpoints. Sub-points are fashioned so as to open up the topic in the most effective way.</p>	<p>As for "5" but sub-points may not be fashioned to open up the topic in the most effective way.</p>	<p>The reader feels that the writer is in control of the direction and organization of the essay most of the time. The essay generally follows a logical line of reasoning to support its thesis.</p>	<p>The essay has some discernible main points.</p>	<p>The essay has no discernible plan of organization.</p>
<p>Evidence, Support: The writer's claims and interpretations are backed with evidence from the literature, works we have read, secondary sources, and sensible reasoning. The writer assumes the reader has read the work and does not need the plot repeated, but the writer refers richly and often to the events and words of the novel to support his/her points.</p>	<p>As for "5" but the writer may occasionally drop into mere plot summary</p>	<p>The writer's claims and interpretations about the works are generally backed with at least some evidence from the works AND/OR the writer includes significant</p>	<p>The writer's claims are only sometimes backed with evidence AND/OR large sections of the paper are mere plot summary.</p>	<p>The paper is primarily plot summary.</p>

5	4	3	2	1
		passages that are mere plot summary.		
Style: The language is clear, precise, and elegant. It achieves a scholarly tone without sounding pompous. It is the authentic voice of a curious mind at work, talking to other readers of the novel.	The language is clear and precise.	The language is understandable throughout.	The language is sometimes confusing. Sentences do not track.	The language is often confusing. Sentences and paragraphs do not track.
Sources: The essay integrates secondary sources smoothly. It quotes when the exact words of another author are important, and otherwise paraphrases. It does not just string together secondary sources, but uses them to support the writer's own thinking. Each source is identified in the text, with some statement about its author; there are no quotes just stuck into the text without explanation.	As for "5" but sources may be quoted with no contextual explanation AND/OR writer may use direct quotation and paraphrase in less than optimal ways.	The essay does not just string together secondary sources, but uses them to support the writer's own thinking.	The essay strings together secondary sources.	There is no use of secondary sources.
Grammar, Punctuation: There are no discernible departures from Standard Edited Written English (ESWE)	There are a few departures from ESWE	There are no more than an average of 2 departures from ESWE per page in the critical areas listed below.	There are more than 2.	Some portion of the essay is impossible to read because of departures from ESWE.

Critical Areas:

- Spelling or typo
- Sentence boundary punctuation (run-ons, comma splices, fused sentences, fragments)
- Use of apostrophe, -s, and -es
- Pronoun forms
- Pronoun agreement, and providing antecedents for pronouns
- Verb forms and subject-verb agreement
- Use of gender-neutral language
- Capitalization of proper nouns and of first words in the sentence

Course Outcomes (Focus of Faculty)

Individual faculty members focus on student learning in their courses. This is where the primary assessment of student learning takes place. Faculty members focus on improving student learning in their courses by doing the following:

1. **Articulate Learning Outcomes:** Clearly articulate the desired learning outcomes for each course (i.e. what are the overall goals and purposes of the course from a student learning perspective).
2. **Design Assessments:** Develop ways to measure student achievement for each outcome. This could be done using *direct assessments* (such as scores on exams or projects) as well as *indirect assessments* (such as student surveys or self-evaluations).
3. **Plan Learning Experiences:** Develop the lessons, activities, experiences, and assignments that make up the course curriculum with the specific goal in mind of helping students achieve the course learning outcomes.
4. **Collect and Analyze Data for Continuous Improvement:** Collect the assessment data as planned. You may be asked to report a few key assessment results to your department chair. For example, the department chair may ask for assessment results on a course outcome (as measured by one or two key assessment activities within the course) that maps to a particular program outcome. The percentage of students who achieved various levels of proficiency on that course outcome could be reported in a format similar to that shown below. The type, format, and amount of assessment data that needs to be reported by faculty members is determined by the department chair or program lead.

	Distinguished	Proficient	Developing	Unsatisfactory	Sum
Course Outcome 1	10%	65%	20%	5%	100%
Course Outcome 2	15%	60%	15%	10%	100%
⋮					

Distinguished: Excellent level of achievement; exceeds expectations

Proficient: Good level of achievement; meets expectations

Developing: Fair level of achievement; minimally meets expectations

Unsatisfactory: Low level of achievement; fails to meet expectations

Review the assessment results. Look for indications of improved student performance that may have resulted from course changes in previous years. Note these areas of improvement. Look for areas in which the course could be improved further (whether in course outcomes, assessment activities, or learning experiences). Document your plans for course improvement.

This type of course review and planning should be done by faculty members individually, but may also be part of an annual review with the department chair. This “review and plan” step is critical in the overall assessment process as it leads to action plans for improving student learning.