

# The Role of Grading and Feedback

## Introduction:

Grading and giving feedback to students are essential components of teaching; thus it is imperative that instructors develop criteria to evaluate the performance of students.

Prior to developing a scale one must be able to identify certain traits. A trait is defined as what the grader is looking for in a correct answer (expressed as nouns or noun phrases). For example, in a comparative essay on objectivist/constructivist instructional designs traits could be the basic assumptions of both perspectives.

## Three reasons why grading and feedback are important:

1. Fairness (consistency)
2. Efficiency (time effectiveness)
3. Quality of feedback to students

## Develop a grading tool:

1. Identify traits that will count for scoring.
2. Build a scale for scoring students' performance on each trait.
3. Pilot the scale across a range of performances.
4. Revise scale to reflect your needs.
5. Develop a feedback sheet.

## Build a scale:

- Create a scale representing levels of performance for each trait (e.g. 2-to-5)
- Levels of performance are defined in descriptive statements about what you would expect to see or conversely, might be missing at each level.

## Examples of different grading rubrics and criteria to consider:

1)

Points	Levels of Performance
5	Data are representative, title, labels and error bars are present.
4	Data are representative, title is present but either labels or error bars are missing
3	Data are representative, title is present but both labels and error bars are missing
2	Data are representative, but title, labels and error bars are missing.
0	Data are not representative

## 2) Criteria (traits) to consider when developing your grading rubric:

- The student explains the rationale of the issue at hand
- The student provides a fair description of the procedure used
- The student uses appropriate techniques/procedures to test the issue at hand
- The calculations were set up correctly
- The calculations were worked out correctly/resulted in the correct answer
- The conclusions are logically drawn from the obtained results
- The conclusions are logically put into context of the greater issue at hand
- The graphs are displayed in a clear and understandable fashion
- The text follows is written in a logical and comprehensive fashion
- The text contains spelling or grammar mistakes

### 3) Points per trait:

-There is no fixed scale that you have to use. Distribute the amount of points that a question is worth depending on the importance of the question. Then, you can represent any point system in percentages, thereby making it understandable to the students. It is advisable to inform your students before the submission of their work as to what criteria you will use for grading. As each professor puts emphasis on different aspects within assignments, informing the students beforehand as to what aspects are important to your class, prevents misunderstandings, increases the students' attention to the important concepts to be learned, and thereby improving student learning.

### What is Feedback and why is it important?

- Feedback is the information (usually in the form of constructive criticism), which is given to students on their assignments, lab reports, projects, etc.
- Students use this information to improve their future performance.

### Examples of different forms of feedback:

#### 1) Key to Common Errors: (Courtesy of Peter White)

<u>A</u> : Spelling Mistake	textual account of the salient
<u>B</u> : Grammatical Error	features of graphs/figures was
<u>C</u> : Sentence or description was unclear (also possible that the wrong word was used)	needed.
<u>D</u> : <i>VERY</i> awkward sentence or run-on sentence	<u>I</u> : Graphs were convoluted and/or hard to understand
<u>E</u> : Graph/figure lacked caption	<u>J</u> : Report was not long or detailed enough
<u>F</u> : Graph/figure improperly referenced in text	<u>K</u> : Unnecessary detail
<u>G</u> : Graph axes are unnecessarily large or improperly labeled	<u>L</u> : Writing needs to be more concise
<u>H</u> : The results were not adequately verbally expressed in the results. A	<u>M</u>
	<u>N</u> : Results are presented rather than a discussion
	<u>P</u> : Improper reference format

#### 2) Short individual, standardized feedback possibilities:

-A more complete explanation of the rationale of the issue at hand would have been appropriate.

-A more detailed elaboration on the procedure was expected.

or

-The complexity of the problem was clearly stated.

-You understood the calculations and applied them appropriately.

**Important:** Make sure your students are aware of your expectations **before** you hand out the assignment; it is important that you communicate your goals clearly to the students! The more clearly you defined your goals and expectations, the better you can provide constructive feedback to the students. You may in this case not even have to give individual feedback, as it may be represented within the rubric that you used.

### 3) CHEM 110 Lab reports, (Dr. Jean Marc Gauthier, lab supervisor)

Reports are graded using *negative marking*, i.e. marks subtracted for errors

- do not penalize beyond the marks allowed for each section (i.e. no marks less than 0)
- do not penalize twice the same error, but penalize for inconsistency

example:

2 weights recorded to 3 decimals instead of 4 = 1 penalty

1 weight recorded to 3 decimals, another one to 2 decimals = 2 penalties

Marks Assignment		Penalties	
Procedure & Data tables	20 mks	WR (wrong reasoning)	-5 marks
Data quality	25 mks	CE (calculation error)	-3 marks
Calculations	20 mks	SF (significant figures error)	-3 marks
Conclusion and Questions	35 mks	U ( missing/ wrong units)	-2 marks
		Procedure outline not done	-10 marks
		Not wearing safety glasses	- 5 marks
		Wearing shorts or sandals	-10 marks

### 4) Weird sentences corrected (Courtesy of Philip Egberts)

This form of feedback is directed toward showing the students some of the general, reoccurring mistakes that are made by them and their peers and at the same time it provides positive feedback through the presentation of the corrected version of the erroneous sentences.

3.1) There's a considerable amount of aluminium is produced by recycling of end-of-life aluminium annually. This paper will examine the aluminium recycling process in depth at the end.

*Corrected:* There is a considerable amount of aluminum that can be obtained from recycling end-of-life aluminum products. This paper will examine the continuum of aluminum fabrication process, from mineral extraction to the recycling of end-of-life products.

3.2) Pure aluminum is a silvery-white metal with many desirable characteristics. Such as, it is light, nontoxic, nonmagnetic and nonsparking. Also, it is somewhat decorative.

*Corrected:* Pure aluminum is a silvery-white metal, having a number of desirable characteristics, including: a high strength-to-weight ratio, non-toxic, non-magnetic, non-sparking. Furthermore, it can be used for decorative applications.

3.3) In the first step, Leaching, the Bauxite is washed, ground and dissolved in caustic soda, which is NaOH solution at high pressure and temperature...

*Corrected:* Leaching involves washing bauxite, grinding the deposit and finally dissolving it in caustic soda (NaOH) at high pressure and temperature.....

#### More info on how to create a rubric:

Allen, D. and Tanner, K. (2006). Rubrics: Tools for Making Learning Goals and Evaluation Criteria Explicit for Both Teachers and Learners. *CBE-Life Science Education*, 5, 197-203.