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Module 7: Analysis of Textbooks

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Module 7

Analysis of Textbooks

Introduction

Probably you have had many students at the end of the semester tell you they could not read the text or else they read it and got nothing out of it. One cause of this could be a mismatch between the reasoning skills the student normally uses and the skills the textbook requires. As you read the text excerpts selected for your review, keep in mind the characteristics of concrete and formal reasoning as explained in Module 2. Also, remember that even students using formal reasoning find it easier and probably understand in a more broadly-based way if they can progress through self-regulation from a concrete to a formal view of the subject.

Objective

To assist you in evaluating text passages in regard to their reasoning requirements.

Procedure

1. Form Dyads (with an opposite) (e.g. Humanities or Art faculty person with one from science)

2. Select a significant section (1-2 pp) of your text.

Give it to the other person to read.

Read the passage given to you. List difficulties in understanding it.

3. Discuss difficulties of both readings. (Look for commonalties and differences.)

4. Group the common difficulties into categories. Be prepared to give a short oral listing of your categories.

5. The same concepts can be treated by different authors to reach different students. As examples, some passages from various texts are reproduced in this module. You may wish to read those close to your professional interests.

We have provided the following:

Biology - two passages, evolution and the work of Mendel

Physics - three passages, kinetic energy

Chemistry - two passages, pressure

Economics - two passages, elasticity

Mathematics - three passages, functions

Psychology - two passages, scientific method

English Composition - two passages, hypothesis/thesis

English Literature - two passages, symbolism

After the workshop, please come back to your selected textbook passage and reflect on it in the light of the ideas of the workshop.

Consider how your textual passage could be made appropriate for all of your students. Make specific point by point suggestions. As you analyze your passage, keep the following questions in mind.

- a. How does the passage introduce its content? How does it progress from the concrete, real to the formal, theoretical?
- b. How is the rationale for the sequence of ideas in the passage developed? In what ways does the rationale grow out of familiar experiences? Out of a hypothetical framework?
- c. What kinds of idealizations are made in the passage? What details are likely to confuse a neophyte?
- d. How much of the passage is based upon the manipulation of concepts, rules, or formulae? Upon the use of definitions, operations, or experiences?
- e. What models, or mental constructs, are essential for the understanding of this passage? What evidence do you have that your students have already constructed, or are now ready to construct, these models?