Chapter 3

Taxonomies of Education

Introduction

This chapter explores the key to taxonomies and their effectiveness as a teaching strategy. The explanation lies in their use of learning objectives constructed to embody three primary characteristics: an observable task, particular learning conditions, and established standards of performance. A properly constructed learning objective involves an observable task that the student must perform to demonstrate that the goal has been mastered. There must be little doubt as to the conditions under which the learning will occur, namely, the actions students are expected to demonstrate. Finally, learning objectives must stipulate what constitutes successful learning. Standards authenticate successful learning.

Taxonomies for the Cognitive Domain

Following the 1948 convention of the American Psychological Association, Benjamin S. Bloom took the lead in formulating a classification of “the goals of the educational process.” Three “domains” of educational activities were identified. The first of these, the cognitive domain, involves the concept of
knowledge and the development of intellectual attitudes and skills. Eventually, Bloom (1956, 1974) and his co-workers established a hierarchy of educational objectives generally referred to as Bloom’s Taxonomy that characterizes objectives from the simplest behavior to the most complex. Cognitive objectives concern themselves with the development of knowledge and the structure of learning. Knowledge, comprehension, application, analysis, synthesis, and evaluation are among the most practical aspects of teaching and learning.

**Levels of the Cognitive Taxonomy**

*Knowledge* is defined as remembering previously learned material and may involve the recall of a wide range of material from specific facts to complete theories. Knowledge represents the lowest level of learning outcomes in the cognitive domain and often the minimal level of learning required for student success. Rote memory and the simple recall of facts, rules, definitions, and procedures are essential.

*Comprehension* is the ability to grasp the meaning of material. Evidence of this skill is demonstrated by translating material from one form to another (words to numbers), by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). Such learning outcomes go beyond simple memorization of content material. They involve abstractions demonstrated by restating problems, offering examples, and suggesting future actions.

*Application* refers to the ability to use learned material in new and concrete situations and includes the application of rules, methods, concepts, principles, laws, and theories. Learning outcomes in this area require an even higher level of understanding than those in previous levels and involve the fairly straightforward process of linking principles and concepts to situations not previously experienced.

*Analysis* is the fourth level of complexity and requires the student to break down concepts into component parts, from general to specific, so that its organizational structure may be more readily understood. Analysis includes identifying parts, understanding the relationship between those parts, and applying organizational principles that make them interact as a whole. Learning outcomes at this level require an understanding of both content and structural form.