## **A Model of Learning Objectives**

based on

## A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives

Among other modifications, Anderson and Krathwohl's (2001) revision of the original Bloom's taxonomy (Bloom & Krathwohl, 1956) redefines the cognitive domain as the intersection of the Cognitive Process Dimension and the Knowledge Dimension. This document offers a three-dimensional representation of the revised taxonomy of the cognitive domain.

Although the Cognitive Process and Knowledge dimensions are represented as hierarchical steps, the distinctions between categories are not always clear-cut. For example, all procedural knowledge is not necessarily more abstract than all conceptual knowledge; and an objective that involves analyzing or evaluating may require thinking skills that are no less complex than one that involves creating. It is generally understood, nonetheless, that lower order thinking skills are subsumed by, and provide the foundation for higher order thinking skills.

**The Knowledge Dimension** classifies four types of knowledge that learners may be expected to acquire or construct—ranging from concrete to abstract (Table 1).

concrete knowledge					
factual	conceptual	procedural	metacognitive*		
knowledge of terminology knowledge of specific details and elements	knowledge of classifications and categories knowledge of principles and generalizations knowledge of theories, models, and structures	knowledge of subject-specific skills and algorithms knowledge of subject-specific techniques and methods knowledge of criteria for determining when to use appropriate procedures	strategic knowledge knowledge about cognitive tasks, including appropriate contextual and conditional knowledge self-knowledge		

## Table 1. The Knowledge Dimension – major types and subtypes

(Table 1 adapted from Anderson and Krathwohl, 2001, p. 46.)

\*Metacognitive knowledge is a special case. In this model, "metacognitive knowledge is knowledge of [one's own] cognition and about oneself in relation to various subject matters . . . " (Anderson and Krathwohl, 2001, p. 44).

This taxonomy provides a framework for determining and clarifying learning *objectives*.

Learning *activities* often involve both lower order and higher order thinking skills as well as a mix of concrete and abstract knowledge.

**The Cognitive Process Dimension** represents a continuum of increasing cognitive complexity—from lower order thinking skills to higher order thinking skills. Anderson and Krathwohl (2001) identify nineteen specific cognitive processes that further clarify the scope of the six categories (Table 2).

## Table 2. The Cognitive Processes dimension — categories & cognitive processes and alternative names

lower order thinking skills ──── higher order thinking skills						
remember	understand	apply	analyze	evaluate	create	
recognizing • identifying recalling • retrieving	interpreting • clarifying • paraphrasing • representing • translating exemplifying • illustrating • instantiating classifying • categorizing • subsuming summarizing • abstracting • generalizing inferring • concluding • extrapolating • interpolating • predicting Comparing • contrasting • mapping • matching • constructing models	executing • carrying out implementing • using	differentiating • discriminating • distinguishing • focusing • selecting Organizing • finding coherence • integrating • outlining • parsing • structuring attributing • deconstructing	checking • coordinating • detecting • monitoring • testing critiquing • judging	generating • hypothesizing planning • designing producing • constructing	

(Table 2 adapted from Anderson and Krathwohl, 2001, pp. 67–68.)

A statement of a learning objective contains a verb (an action) and an object (usually a noun).

• The verb generally refers to [actions associated with] the intended cognitive process.

