

**Problems with Bloom's Taxonomy**  
**Brenda Sugrue, PhD**  
**October, 2002**

I did a 99 second critique of Bloom's taxonomy at the 2002 ISPI conference and it generated more unsolicited feedback than any other presentation I have made. The response varied from those who completely agreed with me and have abandoned Bloom many years ago to those who are still true believers and avid users. In the 99 seconds presentation I criticized the taxonomy but did not have time to present more valid alternatives. This article summarizes the criticisms and presents two alternative strategies for classifying objectives in order to design appropriate instruction and assessment.

### **Invalidity**

Bloom's taxonomy is almost 50 years old. It was developed before we understood the cognitive processes involved in learning and performance. The categories or "levels" of Bloom's taxonomy (Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation) are not supported by any research on learning. The only distinction that is supported by research is the distinction between declarative/conceptual knowledge (which enables recall, comprehension or understanding), and procedural knowledge (which enables application or task performance).

### **Unreliability**

The consistent application of Bloom's taxonomy across multiple designers/developers is impossible. Given any learning objective, it might be classified into either of the two lowest levels (knowledge or comprehension) or into any of the four highest levels (application, analysis, synthesis, evaluation) by different designers. Equally, there is no consistency in what constitutes instruction or assessment that targets separate levels. A more reliable approach is to separate objectives and practice/assessment items into those that elicit or measure declarative/conceptual knowledge from those that elicit or measure task performance/procedural knowledge.

### **Impracticality**

The distinctions in Bloom's taxonomy make no practical difference in diagnosing and treating learning and performance gaps. Everything above the "knowledge" level is usually treated as "higher order thinking" anyway, effectively reducing the taxonomy to two levels.

### **The Content-by-Performance Alternative**

Recent taxonomies of objectives and learning object strategies distinguish among types of content (usually facts, concepts, principles, procedures, and processes) as well as levels of performance (usually remember and use). This

content-by-performance approach leads to general prescriptions for informational content and practice/assessment such as those presented in Table 1.

Table 1. Prescriptions for Information and Practice based on Content-Performance Matrix

Content Type	Information to Present (Regardless of Level of Performance)	Practice/Assessment (Depending on Level of Performance)	
		Remember	Use
Fact	the fact	recognize or recall the fact	recognize or recall during task performance
Concept	the definition, critical attributes, examples, non-examples	recognize or recall the definition or attributes	Identify, classify, or create examples
Principle/Rule	the principle/rule, examples, analogies, stories	recognize, recall, or explain the principle	decide if the principle applies, predict an event, apply the principle to solve a problem
Procedure	list of steps, demonstration	recognize, recall, or reorder the steps	perform the steps
Process	description of stages, inputs, outputs, diagram, examples, stories	recognize, recall, or reorder the stages	identify origins of problems in the process; predict events in the process; solve problems in the process

### The Pure Performance Alternative

A more radical approach would be to have no taxonomy at all, to simply assume that all objectives are at the use level (i.e., “performance” objectives) and that learners will practice or be assessed on the particular performance in representative task situations. If there are “enabling” sub-objectives, those too can be treated as performance objectives without further classification. If, for example, a loan officer needs to be able to distinguish among types of mortgages and describe the pros and cons of each type of mortgage as an enabling skill for matching house buyers with mortgages, then we design/provide opportunities to practice categorizing mortgages and listing their pros and cons before practice on matching buyers to mortgages. If a car salesperson needs to be able to describe the features of different car models as an enabling skill for selling cars, then we design/provide opportunities to practice describing the features of different cars before practice on selling cars.

### References

- Bereiter, C., & Scardamalia, M. (1998). Beyond Bloom’s taxonomy: Rethinking knowledge for the knowledge age. In A. Hargreaves, A. Lieberman, M. Fullen, & D. Hopkins, (Eds.), *International handbook of educational change*. Boston, MA: Kluwer Academic.
- Merrill, M.D. (1994). *Instructional design theory*. Englewood Cliffs, NJ: Educational Technology Publications.
- Moore, D.S. (1982). Reconsidering Bloom’s Taxonomy of educational objectives, cognitive domain. *Educational Theory*, 32(1) 29-34.

## Biography

Brenda Sugrue, PhD, CPT, is president of eLearnia, Inc., which provides custom content development services, and has developed CaseLearn<sup>®</sup>, a system for authoring and delivering dynamic online case-based practice and assessment activities. Brenda was on the ISPI Board of Directors from 2000-2002 and was guest editor for the August 2002 special issue of *Performance Improvement* on Performance-Based Instructional Systems Design. Her email address is [bsugrue@elearnia.com](mailto:bsugrue@elearnia.com). Her company website is [www.elearnia.com](http://www.elearnia.com).