LEARNING OUTCOME TAXONOMIES

PURPOSE
Knowledge is multi-faceted and multi-layered. Taxonomies, or classifications, have been developed to help categorize the different kinds, depths and locations of learning. These taxonomies aid us in defining how different kinds of knowledge require different instructional strategies or assessments. This tool introduces taxonomies and gives examples to help us design instruction and assessments.

DESCRIPTION
Taxonomies of learning usually come in one of three varieties. First, you can organize the many facets of learning from the perspective of the student. Is the learning about what the students know, what they can do, or what they are becoming? This kind of domain taxonomy helps you focus on the whole student, not just the student’s brain.

Next there are taxonomies of level that explore the levels of knowledge. Such taxonomies guide you in helping students reach greater depth or complexity of understanding.

Lastly are taxonomies of kind. These help identify the different types of thinking or the many purposes of the thought that constitute student learning.

EXAMPLE
Taxonomies of learning by domain:
One of the most common systems for thinking about learning and knowledge is to organize it according to where the learner experiences it, the domain. Some learning is clearly mostly about the mind. Other learning, however, resides in a student’s values or spiritual center, in the judgments or choices that they make based on grounds other than simple rationality. Yet some learning can be thought of as residing in one’s bodies or skills (the piano player whose knowledge of the music is in her fingers...). Taxonomies of domain are often therefore split thus:

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<thead>
<tr>
<th>To Know</th>
<th>To Be</th>
<th>To Do</th>
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While this taxonomy has shown up in many forms, there have been instructive consistencies. For example, this simple model reminds one that acquiring skill (Do) is different from gathering knowledge (Know) and that both rely on integration of learning into a values system or a spiritual center—into the life of an individual (Be).

This taxonomy also reminds one that all learning has a personal or affective component (Be) which must be addressed if an instructor hopes to be effective. Further, it implicitly asks the question: Why are students learning this? What can they do with it?

Once students have mastered a body of knowledge, the taxonomy reminds us to turn attention to how that knowledge impacts the students, how they react to it, or the choices they’d make as a result. Then instruction turns to application of the concepts.

D&C 4:2 refers to learning to serving with all our heart, might, mind and strength. Mind/Heart/Strength and Might provide categories of learning not unlike Know/Be/Do. Still, others talk about learning of the head, the heart, and the hand, while educational literature often speaks in terms of cognitive, affective, and psycho-motor outcomes.

In each case, learning has to happen in all the domains. It is never monolithic; it needs to be integrated into a life rather than just a brain.

Taxonomies of learning by level
Another means of organizing learning is to categorize it by the complexity and depth of the cognitive process required. Such taxonomies allow you to think about student learning sequentially, as advancing from one level to the next, more complex level. The most well-known taxonomy of this type is Bloom’s taxonomy of cognitive outcomes:

| VI. | Evaluation. Making judgments |
| V.  | Synthesis. Putting parts together |
| III. | Analysis. Whole into component parts |
| IV. | Application. Abstraction in a concrete situation |
| I.  | Comprehension. Explaining the meaning |
| II. | Knowledge. Remembering information |

Bloom reminds us that cognitive learning describes a spectrum of activities from simple remembering (knowledge), through useful application of the information, to nuanced evaluation based on larger, value-laden contexts. With Bloom in mind, it is easier to create a sequence of activities that leads a student from one cognitive process to the next.

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This example of Bloom is not meant as an endorsement of this taxonomy over others. No taxonomy is “correct” or universal. Different instructors find different taxonomies of greater or lesser relative value as they think about defining outcomes and designing assessments.

**Taxonomies of learning by kind:**

Educators often conceive of learning by the type of knowledge generated. For example, learning the vocabulary of a new language is **factual knowledge** and requires instructional methods that emphasize memorization. Learning the grammar, however, is **conceptual knowledge** and requires focus on capturing abstract relationships. Knowing how to put words and grammar together to express ideas in a conversation is **procedural knowledge**. And learning about how you best learn languages, or self-awareness about one’s own knowing, is **meta-cognitive knowledge**.

Each of these three kinds of taxonomies has many, many examples. The following are some of the most useful, lesser-know examples: Wiggins’ Six Facets of Understanding, Fink’s Taxonomy of Significant Learning, McCarthy’s 4MAT, Merrill’s First Principles, Gange’s Nine Events, Biggs’ SOLO taxonomy, and Bateson’s Levels of Learning.

Taxonomies give educators a systematic way to think about learning. It is extremely helpful for instructors to memorize some of the taxonomies that seems well-adapted to their respective disciplines and teaching goals. The memorized taxonomies help not only in defining outcomes, but in formulating questions and in designing instruction.

**TIPS**

- **Use multiple methods.** No single learning outcome can or should be taught with a single instructional method. Yet some methods lend themselves better than others in accomplishing certain outcomes. Think through the relationship between the outcomes you’ve identified and the methods you propose using a taxonomy as your guide.
- **Don’t get tied down.** All of these taxonomies are ways of structuring thinking. Don’t feel that you need to develop outcomes to fit every aspect of a taxonomy. The important thing is to consider learning outcomes in holistic terms.
- **Start simply.** No course can be all things to all people. Pick two or three outcomes for each taxonomy level to insure depth, and one or two domains to insure penetration and retention. When identifying learning outcomes, starting with domain taxonomies is generally easiest.

**PITFALLS**

- **Outcomes not content.** It can be easy to forget that learning outcomes are not lists of the material to be taught. Define your outcomes in terms of the human gaining the knowledge or the level of understanding, not in terms of the information.

**CAMPUS PRACTITIONERS**

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**KEY ARTICLES**


**OTHER RESOURCES**

- Anderson’s Taxonomy Matrix
- Bloom’s Revised Taxonomy

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