SLOs, Bloom’s Taxonomy, Cognitive, Psychomotor, and Affective Domains.

Benjamin Bloom (1948) developed classifications of intellectual behavior and learning in order to identify and measure progressively sophisticated learning. College faculty are hired because of their discipline expertise and are sometimes unfamiliar with important pedagogical theories that contribute to effective learning. Bloom's taxonomy is especially important in higher education where outcomes need to address the student ability to use information, not just recall and regurgitate concepts. Lower levels of learning are easier to assess but do not adequately display what the student can DO with the knowledge. Refer to the next page for a diagram of Bloom's increasing levels of complex learning.

However, learning is not a purely cognitive function; learning occurs differently when it entails performing a skill or re-evaluating behavior. Three domains of learning are recognized:

- Cognitive domain defining knowledge classification. See the following page for a table describing increasing complexity in cognitive learning. Each level has examples of verbs that could be used in writing an SLO at this level. These verbs are not magic or mandatory, our faculty found them helpful, so we used a variety of models and created our own.

- Psychomotor domain (Gronlund, 1970; Harrow, 1972; Simpson, 1972) defining physical skills or tasks classification. Check out the psychomotor table on the following page.

- Affective domain (Krathwhol, Bloom, and Masia, 1964) defining behaviors that correspond to attitudes and values. Please refer to the affective table. Affective outcomes tend to be the hardest to articulate initially and often appear difficult to assess at first glance. However, cognitive outcomes often represent the outcomes most closely related to deeper thinking and life-long learning, as well as the outcomes we value most.

NOTE: Student learning outcomes should address relevant outcomes for each of these domains but must be appropriate to the course.

Think about possible means of assessing the outcomes. The essence of student learning outcomes lies in focusing on the results you want from your course rather than on what you will cover in the course. Ask yourself how you will know when you have accomplished those outcomes.
Knowledge
The ability to recall what has been learnt

Comprehension
The ability to show a basic understanding

Application
The ability to apply learning to a new or novel task

Analysis
The ability to break up information logically

Synthesis
The ability to create something new

Evaluation
The ability to evaluate usefulness for a purpose

Interrelationships Between Bloom’s Cognitive Levels

## Cognitive Domain

### Learning Outcomes Related To Knowledge

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Comprehension</th>
<th>Application</th>
<th>Analysis</th>
<th>Synthesis</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student remembers or recognizes information or specifics as communicated with little personal assimilation.</td>
<td>Student grasps the meaning behind the information and interprets, translates, or comprehends the information.</td>
<td>Student uses information to relate and apply it to a new situation with minimal instructor input.</td>
<td>Student discriminates, organizes, and scrutinizes assumptions in an attempt to identify evidence for a conclusion.</td>
<td>Student creatively applies knowledge and analysis to integrate concepts or construct an overall theory.</td>
<td>Student judges or evaluates information based upon standards and criteria, values and opinions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cite</th>
<th>Label</th>
<th>List</th>
<th>Enumerate</th>
<th>Identify</th>
<th>Imitate</th>
<th>Match</th>
<th>Name</th>
<th>Quote</th>
<th>Recall</th>
<th>Reproduce</th>
<th>State</th>
<th>Write</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convert</td>
<td>Define</td>
<td>Describe</td>
<td>Discuss</td>
<td>Estimate</td>
<td>Explain</td>
<td>Generalize</td>
<td>Identify</td>
<td>Illustrate</td>
<td>Locate</td>
<td>Paraphrase</td>
<td>Restate</td>
<td>Summarize</td>
</tr>
<tr>
<td>Apply</td>
<td>Chart</td>
<td>Compute</td>
<td>Demonstrate</td>
<td>Determine</td>
<td>Dramatize</td>
<td>Establish</td>
<td>Make</td>
<td>Manipulate</td>
<td>Prepare</td>
<td>Project</td>
<td>Solve</td>
<td>Use</td>
</tr>
<tr>
<td>Analyze</td>
<td>Compare</td>
<td>Contrast</td>
<td>Correlate</td>
<td>Diagram</td>
<td>Dissect</td>
<td>Differentiate</td>
<td>Distinguish</td>
<td>Infer</td>
<td>Investigate</td>
<td>Limit</td>
<td>Outline</td>
<td>Separate</td>
</tr>
<tr>
<td>Assemble</td>
<td>Create</td>
<td>Construct</td>
<td>Design</td>
<td>Develop</td>
<td>Formulate</td>
<td>Generate</td>
<td>Hypothesize</td>
<td>Initiate</td>
<td>Invent</td>
<td>Modify</td>
<td>Reframe</td>
<td>Synthesize</td>
</tr>
<tr>
<td>Access</td>
<td>Appraise</td>
<td>Conclude</td>
<td>Critique</td>
<td>Decide</td>
<td>Defend</td>
<td>Diagnose</td>
<td>Evaluate</td>
<td>Judge</td>
<td>Justify</td>
<td>Rank</td>
<td>Recommend</td>
<td>Support</td>
</tr>
</tbody>
</table>

**Basic Knowledge Level**
- Basic
- Knowledge
- Level

**More Sophisticated Higher Level Thinking**
- More Sophisticated
- Higher Level Thinking
- Critical Thinking
### Psychomotor Domain

#### Learning Outcomes Related To Skills

<table>
<thead>
<tr>
<th>Observe</th>
<th>Model</th>
<th>Recognize Standards</th>
<th>Correct</th>
<th>Apply</th>
<th>Coach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students translate sensory input into physical tasks or activities.</td>
<td>Students are able to replicate a fundamental skill or task.</td>
<td>Students recognize standards or criteria important to perform a skill or task correctly.</td>
<td>Students use standards to evaluate their own performances and make corrections.</td>
<td>Students apply this skill to real life situations.</td>
<td>Students are able to instruct or train others to perform this skill in other situations.</td>
</tr>
<tr>
<td>Hear Identify Observe See Smell Taste Touch Watch</td>
<td>Attempt Copy Follow Imitate Mimic Model Reenact Repeat Reproduce Show Try</td>
<td>Check Detect Discriminate Differentiate Distinguish Notice Perceive Recognize Select</td>
<td>Adapt Adjust Alter Change Correct Customize Develop Improve Manipulate Modify Practice Revise</td>
<td>Build Compose Construct Create Design Originate Produce</td>
<td>Demonstrate Exhibit Illustrate Instruct Teach Train</td>
</tr>
</tbody>
</table>

*Usually no outcomes or objectives written at this level.*

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**Basic Knowledge**
- Basic Skills
- Level

**More Sophisticated Skills**
- Higher Level Abilities
- Critical Understanding of Performance
Affective Domain

Learning Outcomes Related To Attitudes, Behaviors, and Values

<table>
<thead>
<tr>
<th>Receiving</th>
<th>Responding</th>
<th>Valuing</th>
<th>Organizing</th>
<th>Characterizing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students become aware of an attitude, behavior, or value.</td>
<td>Students exhibit a reaction or change as a result of exposure to an attitude, behavior, or value.</td>
<td>Students recognize value and display this through involvement or commitment.</td>
<td>Students determine a new value or behavior as important or a priority.</td>
<td>Students integrate consistent behavior as a naturalized value in spite of discomfort or cost. The value is recognized as a part of the person’s character.</td>
</tr>
</tbody>
</table>

- Accept
- Attend
- Describe
- Explain
- Locate
- Observe
- Realize
- Receive
- Recognize

- Behave
- Comply
- Cooperate
- Discuss
- Examine
- Follow
- Model
- Present
- Respond
- Show
- Studies

- Accept
- Adapt
- Balance
- Choose
- Differentiate
- Defend
- Influence
- Prefer
- Recognize
- Seek
- Value

- Adapt
- Adjust
- Alter
- Change
- Customize
- Develop
- Improve
- Manipulate
- Modify
- Practice
- Revise

- Authenticate
- Characterize
- Defend
- Display
- Embody
- Habituate
- Internalize
- Produce
- Represent
- Validate
- Verify

Elementary Values and Behaviors
- Inherited Value System
- Egocentric View

More Highly Developed Attitudes
- Well Thought-out Value System
- Higher Level Abilities to Identify and Articulate Others’ Values