

Learning Domains or Bloom's Taxonomy

The Three Types of Learning

There is more than one type of learning. A committee of colleges, led by Benjamin Bloom, identified three domains of educational activities:

- **Cognitive:** mental skills (*Knowledge*)
- **Affective:** growth in feelings or emotional areas (*Attitude*)
- **Psychomotor:** manual or physical skills (*Skills*)

Since the work was produced by higher education, the words tend to be a little bigger than we normally use. Domains can be thought of as categories. Trainers often refer to these three domains as KSA (Knowledge, Skills, and Attitude). This taxonomy of learning behaviors can be thought of as "the goals of the training process." That is, after the training session, the learner should have acquired new skills, knowledge, and/or attitudes.

The committee also produced an elaborate compilation for the cognitive and affective domains, but none for the psychomotor domain. Their explanation for this oversight was that they have little experience in teaching manual skills within the college level (I guess they never thought to check with their sports or drama department).

This compilation divides the three domains into subdivisions, starting from the simplest behavior to the most complex. The divisions outlined are not absolutes and there are other systems or hierarchies that have been devised in the educational and training world. However, Bloom's taxonomy is easily understood and is probably the most widely applied one in use today.

Cognitive ¹¹

The cognitive domain involves knowledge and the development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. There are six major categories, which are listed in order below, starting from the simplest behavior to the most complex. The categories can be thought of as degrees of difficulties. That is, the first one must be mastered before the next one can take

place.

Category	Example and Key Words
<p>Knowledge: Recall data or information.</p>	<p>Examples: Recite a policy. Quote prices from memory to a customer. Knows the safety rules.</p> <p>Key Words: defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.</p>
<p>Comprehension: Understand the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one's own words.</p>	<p>Examples: Rewrites the principles of test writing. Explain in own words the steps for performing a complex task. Translates an equation into a computer spreadsheet.</p> <p>Key Words: comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives Examples, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.</p>
<p>Application: Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the work place.</p>	<p>Examples: Use a manual to calculate an employee's vacation time. Apply laws of statistics to evaluate the reliability of a written test.</p> <p>Key Words: applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.</p>
<p>Analysis: Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.</p>	<p>Examples: Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training.</p> <p>Key Words: analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, states, rates.</p>
<p>Synthesis: Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.</p>	<p>Examples: Write a company operations or process manual. Develop a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and process to improve the outcome.</p> <p>Key Words: categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites,</p>

	summarizes, tells, writes.
Evaluation: Make judgments about the value of ideas or materials.	<p>Examples: Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget.</p> <p>Key Words: appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports.</p>

Affective ⁽²⁾

This domain includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories listed the simplest behavior to the most complex:

Category	Example and Key Words
Receiving Phenomena: Awareness, willingness to hear, selected attention.	<p>Examples: Listen to others with respect. Listen for and remember the name of newly introduced people.</p> <p>Key Words: asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies, uses</p>
Responding to Phenomena: Active participation on the part of the learners. Attends and reacts to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).	<p>Examples: Participates in class discussions. Gives a presentation. Questions new ideals, concepts, models, etc. in order to fully understand them. Know the safety rules and practices them.</p> <p>Key Words: answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.</p>
Valuing: The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior	<p>Examples: Demonstrates belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to social improvement and follows through with commitment. Informs management on matters that one feels strongly about.</p> <p>Key Words: completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works.</p>

and are often identifiable.	
<p>Organization: Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating an unique value system. The emphasis is on comparing, relating, and synthesizing values.</p>	<p>Examples: Recognizes the need for balance between freedom and responsible behavior. Accepts responsibility for one's behavior. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Creates a life plan in harmony with abilities, interests, and beliefs. Prioritizes time effectively to meet the needs of the organization, family, and self.</p> <p>Key Words: adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes</p>
<p>Internalizing values (characterization): Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).</p>	<p>Examples: Shows self-reliance when working independently. Cooperates in group activities (displays teamwork). Uses an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Revises judgments and changes behavior in light of new evidence. Values people for what they are, not how they look.</p> <p>Key Words: acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, verifies.</p>

Psychomotor ⁽³⁾

The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. The seven major categories listed range from the simplest behavior to the most complex:

Category	Example and Key Words
<p>Perception: The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.</p>	<p>Examples: Detects non-verbal communication cues. Estimates where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjusts heat of stove to correct temperature by smell and taste of food. Adjusts the height of the forks on a forklift by comparing where the forks are in relation to the pallet.</p> <p>Key Words: chooses, describes, detects, differentiates, distinguishes</p>

	guishes, identifies, isolates, relates, selects.
<p>Set: Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).</p>	<p>Examples: Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations. Shows desire to learn a new process (motivation). NOTE: This subdivision of Psychomotor is closely related with the "Responding to phenomena" subdivision of the Affective domain.</p> <p>Key Words: begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers.</p>
<p>Guided Response: The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.</p>	<p>Examples: Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds hand-signals of instructor while learning to operate a forklift.</p> <p>Key Words: copies, traces, follows, react, reproduce, responds.</p>
<p>Mechanism: This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.</p>	<p>Examples: Use a personal computer. Repair a leaking faucet. Drive a car.</p> <p>Key Words: assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.</p>
<p>Complex Overt Response: The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance. For example, players are often utter sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of the act what the result will produce.</p>	<p>Examples: Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano.</p> <p>Key Words: assembles, builds, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.</p> <p>NOTE: The Key Words are the same as Mechanism, but will have adverbs or adjectives that indicate that the performance is quick, better, more accurate, etc.</p>
<p>Adaptation: Skills are well developed and the individual can modify movement patterns to fit special requirements.</p>	<p>Examples: Responds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners. Performs task with a machine that it was not originally intended to do (no machine is not damaged and there is no danger in performing the</p>

	task). Key Words: adapts, alters, changes, rearranges, reorganizes, revises, varies.
Origination: Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.	Examples: Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine. Key Words: arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates.

Other Psychomotor Domains

As mentioned earlier, the committee did not produce a compilation for the psychomotor domain model, but others have. The one discussed above is by Simpson (1972). There are two other popular versions:

Dave's⁽⁴⁾:

- **Imitation:** Observing and patterning behavior after someone else. Performance may be of low quality. Example: Copying a work of art.
- **Manipulation:** Being able to perform certain actions by following instructions and practicing. Example: Creating work on one's own, after taking lessons, or reading about it.
- **Precision:** Refining, becoming more exact. Few errors are apparent. Example: Working and reworking something, so it will be "just right."
- **Articulation:** Coordinating a series of actions, achieving harmony and internal consistency. Example: Producing a video that involves music, drama, color, sound, etc.
- **Naturalization:** Having high level performance become natural, without needing to think much about it. **Examples:** Michael Jordan playing basketball, Nancy Lopez hitting a golf ball, etc.

Harrow's⁽⁵⁾:

- Involuntary movement - reaction
- Fundamental movements - basic movements
- Perception - response to stimuli
- Physical abilities - stamina that must be developed for further development

- Skilled movements - advanced learned movements
- No discursive communication - effective body language

Reference

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4. Dave, R. H. (1975). *Developing and Writing Behavioural Objectives*. (R J Armstrong, ed.) Educational Innovators Press.
5. Harrow, A. (1972) *A taxonomy of psychomotor domain -- a guide for developing behavioral objectives*. New York: David McKay.