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The following taxonomies were compiled from the internet. The description for Simpson's psychomotor domains and the Bloom-Krathwol's affective domains along with the verbs will help you develop an assessable learning outcomes for you course.

Bloom's Taxonomy: Psychomotor Domain

http://www.olemiss.edu/depts/educ_school2/docs/stai_manual/manual10.htm

Based on RH Dave's version of the Psychomotor Domain ('Developing and Writing Behavioral Objectives', 1970.

Modification of works by Simpson, Gronlund, and others

Descriptors of Major Categories in the Psychomotor Domain	Examples of activity or demonstration and evidence to be measured	Illustrative Verbs for Stating Objectives
<p>1. Imitation - early stages in learning a complex skill, overtly, after the individual has indicated a readiness to take a particular type of action. Imitation includes repeating an act that has been demonstrated or explained, and it includes trial and error until an appropriate response is achieved.</p> <p>Observing and patterning behavior after someone else. Performance may be of low quality.</p>	<p>Watch teacher or trainer and repeat action, process or activity</p> <p>Example: Copying a work of art.</p>	<p>Imitation – adhere, begin, bend, assemble, attempt, carry out, copy, calibrate, construct, dissect, duplicate, follow, mimic, move, practice, proceed, repeat, replicate, reproduce, respond, organize, sketch, start, try, volunteer</p>
<p>2. Manipulation - individual continues to practice a particular skill or sequence until it becomes habitual and the action can be performed with some confidence and proficiency. The response is more complex than at the previous level, but the learner still isn't "sure of him/herself."</p> <p>Being able to perform certain actions by following instructions and practicing.</p>	<p>Carry out task from written or verbal instruction</p> <p>Example: Creating work on one's own, after taking lessons, or reading about it.</p>	<p>Manipulation - (same as imitation), acquire, assemble, build, complete, conduct, do, execute, grasp, handle, implement, improve, maintain, make, manipulate, operate, pace, perform (skillfully), produce, progress, re-create, use</p>
<p>3. Precision - skill has been attained. Proficiency is indicated by a quick, smooth, accurate performance, requiring a minimum of energy. The overt response is complex and performed without hesitation.</p> <p>Refining, becoming more exact. Few errors are apparent.</p>	<p>perform a task or activity with expertise and to high quality without assistance or instruction; able to demonstrate an activity to other learners</p> <p>Example: Working and reworking something, so it will be "just right."</p>	<p>Precision - (same as imitation and manipulation), achieve, accomplish, advance, automatize, calibrate, complete, control, demonstrate, differentiate (by touch), exceed, excel, master, perfect, reach, refine, show, succeed, surpass, transcend</p>
<p>4. Articulation - involved an even higher level of precision. The skills are so well developed that the individual can modify movement patterns to fit special requirements or to meet a problem situation.</p> <p>Coordinating a series of actions, achieving harmony and internal consistency.</p>	<p>relate and combine associated activities to develop methods to meet varying, novel requirements</p> <p>Example: Producing a video that involves music, drama, color, sound, etc.</p>	<p>Articulation - adapt, alter, change, construct, combine, coordinate, develop, excel, express (facially), formulate, integrate, master, modify, rearrange, reorganize, revise, solve, surpass, transcend</p>



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5. Naturalization - response is automatic. The individual begins to experiment, creating new motor acts or ways of manipulating materials out of understandings, abilities, and skills developed. One acts "without thinking."

Having high level performance become natural, without needing to think much about it.

Define aim, approach and strategy for use of activities to meet strategic need

Examples: Michael Jordan playing basketball, Nancy Lopez hitting a golf ball, etc.

Naturalization - arrange, combine, compose, construct, create, design, invent, manage, originate, project-manage, refine, specify, transcend

Dave's Psychomotor Domain above is probably the most commonly referenced and used psychomotor domain interpretation. There are two others; Simpson's, and Harrow's. It's worth exploring and understanding the differences between the three Psychomotor Domain interpretations. Certainly each is different and has a different use.

In my view the Dave model is adequate and appropriate for most adult training in the workplace. For young children, or for adults learning entirely new and challenging physical skills (which may require some additional attention to awareness and perception, and mental preparation), or for anyone learning skills which involve expression of feeling and emotion, then the Simpson or Harrow models can be more useful because they more specifically address these issues.

Simpson's version is particularly useful if you are taking adults out of their comfort zones, because it addresses sensory, perception (and by implication attitudinal) and preparation issues. For example anything fearsome or threatening, like emergency routines, conflict situations, tough physical tasks or conditions.

Harrow's version is particularly useful if you are developing skills which are intended ultimately to express, convey and/or influence feelings, because its final level specifically addresses the translation of bodily activities (movement, communication, body language, etc) into conveying feelings and emotion, including the effect on others. For example, public speaking, training itself, and high-level presentation skills.

The Harrow and Simpson models are also appropriate for other types of adult development. For example, teaching adults to run a difficult meeting, or make a parachute jump, will almost certainly warrant attention on sensory perception and awareness, and on preparing oneself mentally, emotionally, and physically. In such cases therefore, Simpson's or Harrow's model would be more appropriate than Dave's.

<http://coe.sdsu.edu/eet/articles/BloomsLD/index.htm>

The Psychomotor Domain

The psychomotor domain refers to the use of basic motor skills, coordination, and physical movement. Bloom's research group did not develop in-depth categories of this domain, claiming lack of experience in teaching these skills. However, Simpson (1972) developed seven psychomotor categories to support Bloom's domain.

These physical behaviors are learned through repetitive practice. A learner's ability to perform these skills is based on precision, speed, distance, and technique. (Clark, 1999).

<http://www.businessballs.com/bloomstaxonomyoflearningdomains.htm#bloom's%20psychomotor%20domain>

3. bloom's taxonomy - psychomotor domain - (physical - skills - 'do')

The Psychomotor Domain was ostensibly established to address skills development relating to manual tasks and physical movement, however it also concerns and covers modern day business and social skills such as communications and operation IT equipment, for example telephone and keyboard skills, or public speaking. Thus, 'motor' skills extend beyond the originally traditionally imagined manual and physical skills, so always consider using this domain, even if you think your environment is covered adequately by the Cognitive and Affective Domains. Whatever the training situation, it is likely that the Psychomotor Domain is significant. The Dave version of the Psychomotor Domain is featured most prominently here because in my view it is the most relevant and helpful for work- and life-related development, although the Psychomotor Domains suggested by Simpson and



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Harrow are more relevant and helpful for certain types of adult training and development, as well as the teaching and development of young people and children, so do explore them all. Each has its uses and advantages. Dave's psychomotor domain taxonomy.

Simpson's psychomotor domain taxonomy

Elizabeth Simpson's interpretation of the Psychomotor domain differs from Dave's chiefly because it contains extra two levels prior to the initial imitation or copy stage. Arguably for certain situations, Simpson's first two levels, 'Perception' and 'Set' stage are assumed or incorporated within Dave's first 'Imitation' level, assuming that you are dealing with fit and healthy people (probably adults rather than young children), and that 'getting ready' or 'preparing oneself' is part of the routine to be taught, learned or measured. If not, then the more comprehensive Simpson version might help ensure that these two prerequisites for physical task development are checked and covered. As such, the Simpson model or the Harrow version is probably preferable than the Dave model for the development of young children.



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psychomotor domain (Simpson)				
Level	category or 'level'	Description	Examples of activity or demonstration and evidence to be measured	Action verbs which describe the activity to be trained or measured at each level)
1	Perception	Awareness, the ability to use sensory cues to guide physical activity. The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.	<p>use and/or selection of senses to absorb data for guiding movement</p> <p>Examples: Detects non-verbal communication cues. Estimate 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>“By the end of the music theatre program, students will be able to relate types of music to particular dance steps.”</p>	chooses, describes, detects, differentiates, distinguishes, feels, hears, identifies, isolates, notices, recognizes, relates, selects, separates, touches,
2	Set	Readiness, a learner's readiness to act. 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>mental, physical or emotional preparation before experience or task</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>“By the end of the physical education program, students will be able to demonstrate the proper stance for batting a ball.”</p>	arranges, begins, displays, explains, gets set, moves, prepares, proceeds, reacts, shows, states, volunteers, responds, starts,
3	Guided Response	Attempt. The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.	<p>imitate or follow instruction, trial and error.</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>“By the end of the physical education program, students will be able to perform a golf swing as demonstrated by the instructor.”</p>	assembles, builds, calibrates, constructs, copies, dismantles, displays, dissects, fastens, fixes, follows, grinds, heats, imitates, manipulates, measures, mends, mixes, reacts, reproduces, responds sketches, traces, tries.
4	Mechanism	basic proficiency, the ability to perform a complex motor skill.	competently respond to stimulus for action	assembles, builds, calibrates, completes, constructs, dismantles,



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level	category or 'level'	Description	Examples of activity or demonstration and evidence to be measured	Action verbs which describe the activity to be trained or measured at each level)
		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.	Examples: Use a personal computer. Repair a leaking faucet. Drive a car. "By the end of the biology program, students will be able to assemble laboratory equipment appropriate for experiments."	displays, fastens, fixes, grinds, heats, makes, manipulates, measures, mends, mixes, organizes, performs, shapes, sketches.
5	Complex Overt Response	expert proficiency, the intermediate stage of learning a complex skill. 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.	Execute a complex process with expertise Examples: Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano. "By the end of the industrial education program, students will be able to demonstrate proper use of woodworking tools to high school students."	assembles, builds, calibrates, constructs, coordinates, demonstrates, dismantles, displays, dissects, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches. NOTE: The key words are the same as Mechanism, but will have adverbs or adjectives that indicate that the performance is quicker, better, more accurate, etc.
6	Adaptation	adaptable proficiency, a learner's ability to modify motor skills to fit a new situation. Skills are well developed and the individual can modify movement patterns to fit special requirements.	alter response to reliably meet varying challenges Examples: Responds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners. Perform a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task). "By the end of the industrial education program, students will be	adapts, adjusts, alters, changes, integrates, rearranges, reorganizes, revises, solves, varies.



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			able to adapt their lessons on woodworking skills for disabled students.”	
7	Origination	creative proficiency, a learner's ability to create new movement patterns. Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.	develop and execute new integrated responses and activities Examples: Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine.	arranges, builds, combines, composes, constructs, creates, designs, formulates, initiate, makes, modifies, originates, re-designs, trouble-shoots.

Adapted and simplified representation of Simpson's Psychomotor Domain ('The classification of educational objectives in the psychomotor domain', 1972). Elizabeth Simpson seems actually to have first presented her Psychomotor Domain interpretation in 1966 in the Illinois Journal of Home Economics. Hence you may see the theory attributed to either 1966 or 1972.

Harrow's psychomotor domain taxonomy

Harrow's interpretation of the Psychomotor domain is strongly biased towards the *development of physical fitness, dexterity and agility, and control of the physical 'body', to a considerable level of expertise*. As such the Harrow model is more appropriate to the development of young children's bodily movement, skills, and expressive movement than, say, the development of a corporate trainee's keyboard skills. By the same token, the Harrow model would be perhaps more useful for the development of adult public speaking or artistic performance skills than Dave's or Simpson's, because the Harrow model focuses on the translation of physical and bodily activity into meaningful expression. The Harrow model is the only one of the three Psychomotor Domain versions which specifically implies emotional influence on others within the most expert level of bodily control, which to me makes it rather special.

As ever, choose the framework that best fits your situation, and the needs and aims of the trainees or students.

psychomotor domain (harrow)				
level	Category or 'level'	Description	Examples of activity or demonstration and evidence to be measured	Action verbs which describe the activity to be trained or measured at each level)
1	Reflex Movement (Involuntary Movement)	involuntary reaction, Segmental, intersegmental, and suprasegmental reflexes.	respond physically instinctively	react, respond
2	Basic Fundamental Movements	basic simple movement. Locomotor movements, nonlocomotor movements, manipulative movements.	alter position, move, perform simple action	grasp, walk, stand, throw
3	Perceptual Abilities	basic response. Kinesthetic, visual, auditory and tactile discrimination and coordinated abilities.	use than one ability in response to different sensory perceptions	catch, write, explore, distinguish using senses
4	Physical Abilities	Fitness. Endurance, strength, stamina, flexibility, and agility.	develop strength, endurance, agility, control	endure, maintain, repeat, increase, improve, exceed
5	Skilled Movements	complex operations. Simple, compound, and complex adaptive skills, advanced learned movements	execute and adapt advanced, integrated movements	drive, build, juggle, play a musical instrument, craft
6	Non-discursive Communication	meaningfully expressive activity or output; Expressive and interpretive movement, effective body language.	activity expresses meaningful interpretation	express and convey feeling and meaning through movement and actions

Adapted and simplified representation of Harrow's Psychomotor Domain (1972). (Non-discursive means intuitively direct and well expressed.)

The Affective Domain

<http://www.humboldt.edu/~tha1/bloomtax.html>

&

<http://academic.udayton.edu/health/syllabi/health/lesson01b.htm>

The **Affective Domain** addresses **interests, attitudes, opinions, appreciations, values, and emotional sets**. This domain includes the manner in which we deal with things emotionally, such as **feelings, values, appreciation, enthusiasms, motivations, and attitudes**. The Taxonomy is hierarchical (levels increase in difficulty/sophistication) and cumulative (each level builds on and subsumes the ones below). The levels, in addition to clarifying instructional objectives, may be used to provide a basis for questioning that ensures that students progress to the highest level of understanding. If the teaching purpose is to change attitudes/behavior rather than to transmit/process information, then the instruction should be structured to progress through the levels of the Affective Domain.

Level	Category	Description	Examples	Action Verbs
1	Receiving	The student passively attends to particular phenomena or stimuli [classroom activities, textbook, music, etc.] The teacher's concern is that the student's attention is focused. Intended outcomes include the pupil's awareness that a thing exists. Emphasis is on awareness, willingness to hear, selected attention.	<p>Listens attentively, shows sensitivity to social problems.</p> <p>Listens to others with respect. Listens for and remembers the name of newly</p> <p>“By the end of the women's studies program, students will listen attentively to alternative views on select issues.”</p>	Attends, accepts, asks, chooses, describes, follows, gives, holds, identifies, listens, locates, names, points to, selects, selectively attends to, replies, uses.
2	Responding	The student actively participates. The pupil not only attends to the stimulus but reacts in some way. Emphasis is on active participation on the part of the learners. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).	<p>Completes homework, obeys rules, participates in class discussion, shows interest in subject, enjoys helping others.</p> <p>Gives a presentation. Questions new ideals, concepts, models, in order to fully understand them. Knows safety rules and practices them.</p> <p>“By the end of the elementary education program, students will be able to comply with PL 94-142.”</p>	Acclaims, aids, answers, applauds, approves, assists, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes, Volunteers.
3	Valuing	The worth a student attaches to a particular object, phenomenon, or behavior. Ranges from acceptance to commitment (e.g., assumes responsibility for the functioning of a group). Attitudes and appreciation. Valuing is based on the internalization of a set of	<p>Demonstrates belief in democratic processes, appreciates the role of science in daily life, shows concern for others' welfare, demonstrates a problem-solving approach.</p> <p>Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to bring about social improvement and follows through with</p>	Assists, completes, debates, demonstrates, denies, differentiates, explains, follows, forms, increases proficiency in, initiates, invites, joins, justifies, proposes, protests, reads,



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Level	Category	Description	Examples	Action Verbs
		specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable.	commitment. Informs management on strongly felt matters. "By the end of the political science program, students will be able to debate numerous sides to an argument."	relinquishes, reports, selects, shares, studies, supports, works.
4	Organization	Brings together different values, resolving conflicts among them, and starting to build an internally consistent value system--comparing, relating and synthesizing values and developing a philosophy of life. Organizes values into priorities by contrasting different systems. The emphasis is on comparing, relating, and synthesizing values.	Recognizes the need for balance between freedom and responsible behavior, understands the role of systematic planning in solving problems; accepts responsibility for own 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. "By the end of the environmental studies program, students will be able to organize the conservation efforts of urban, suburban and rural communities."	Accommodates, adheres, alters, arranges, balances, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes.
5	Internalizing values: Characterization by a Value or Value Complex	At this level, the person has held a value system for a sufficiently long time to control his/her behavior, has developed a characteristic "life style." 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).	Concerned with personal, social, and emotional adjustment: displays self reliance in working independently, cooperates in group activities (displays teamwork), maintains good health habits. 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 appear. "By the end of the counseling program, students will be able to objectively interpret evidence presented by clients during a therapy session."	Acts, discriminates, displays, influences, interprets, listens, maintains objectivity modifies, performs, practices, proposes, qualifies, questions, respects, revises, serves, solves, uses evidence, verifies.

Reference

1. Bengamin S. Bloom, Bertram B. Mesia, and David R. Krathwohl (1964). Taxonomy of Educational Objectives (two vols: The Affective Domain & The Cognitive Domain). New York. David McKay



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Task Analysis

Writing Student Learning Outcomes for CMU Programs

<http://www.provost.cmich.edu/assessment/toolkit/writingoutcomes.htm>

Writing Student Learning Outcomes for CMU Programs

When writing Student Learning Outcomes, the focus should be on observable outcomes and an “action verb” can provide that focus. Student Learning Outcomes usually begin with something like:

By the end of the secondary education program, students will be able to *design* curriculum and instruction appropriate for the cognitive development of all learners.

Design is the “action verb” in this example.

By the end of the chemistry program, students will be able to *apply* knowledge of ions, solutions and solubility to *explain* the formation and properties of homogeneous mixtures.

Apply and *explain* are the “action verbs” in this example.

Student Learning Outcomes should describe what students should know, be able to do and/or be like (dispositions) by the end of the defined program. These types of Student Learning Outcomes are typically linked to domains. The common domains of learning include cognitive, affective and psychomotor.

The affective domain includes a focus on students’ attitudes, values and dispositions. These outcomes are a little more difficult to measure; however, it is possible, and many disciplines are including these in their national standards (e.g., “Students will develop respect and understanding for people from all backgrounds and cultures and be able to engage in constructive discussion of significant social and ethical issues.” and as part of the General Education Requirements, “ Students will develop intellectual concerns to include a cross-cultural perspective through the study of diverse cultures”).

The Psychomotor Taxonomy focuses on the development of students’ physical abilities and skills. These Student Learning Outcomes may include performances, skill in a sport, typing skills, painting, playing an instrument, manipulating another person’s limbs during physical therapy and demonstrating a dissection...

Reference:

Gronlund, N.E. (2000). *How to Write and Use Instructional Objectives*. Upper Saddle River, NJ: Prentice-Hall, Inc.