LBHC: How to Write Learning Outcomes at the Course, Program, or General Education Level

Learning outcomes are measurable statements defining what students should be able to **do** by the end of a course, program, or degree (or set of general education requirements).

The purpose of identifying outcomes is to…

a. Increase consistency among different instructors and modes of learning.
b. Inform students of the standards and expectations, which helps them learn more effectively.
c. Serve as an implicit contract between instructor and students, creating mutual accountability.
d. Guide curriculum development and the formation of instructional activities and methods.
e. Provide a framework for developing assessments to evaluate and improve student learning.
f. Provide a framework for evaluating overall effectiveness of an educational program.
g. Provide evidence of student learning for accreditation and other reporting purposes.

Learning outcomes…

1. Begin with the phrase, *After completing the [course], each student should be able to…*
2. Are limited in number (i.e., choose 3-8 outcomes; focus on the big ideas).
3. Use active verbs that are measureable, quantitatively or qualitatively, that focus on what students should be able to do, rather than on course content or activities (avoid the verbs listed below).
4. Are specific and stated clearly (e.g., Rather than, *Students should be able to understand the Kreb's cycle*, maybe try *describe the chemical reactions and steps of the Kreb's cycle*).
5. Are stated concisely and succinctly, written at a competent level, and exclude filler words such as *effectively*, *competent*, *accurate*, and *well* (e.g., *draw a circle ~~well~~*).
6. Include complex or higher order skills as appropriate (see levels of verbs listed in this handout).
7. Separate distinct sets of skills (e.g., articulate in two outcomes: [1] *weave a basket* and [2] *draw a picture*).
8. Bundle multiple related skills that are steps in a process in one statement (e.g., *generate, test, and analyze hypotheses*).
9. Are stated so they can be measured by multiple assessment methods (e.g., *Explain the significance of traditional Crow customs ~~by writing a short story~~*).
10. May specify criteria or standards – such as accuracy, quality, time constraint, or quantity – under which the behavior occurs (e.g., "with no more than one incorrect entry").
11. May specify conditions (i.e., given "X" or without "Y") under which the behavior occurs (e.g., "without the use of a legend" or "given a single line diagram").

Avoid using verbs that are open to many interpretations or are difficult to measure or observe…

appreciate	become acquainted	cover	do	learn	study
be aware of	be taught/shown	demonstrate understanding	gain knowledge	practice	try
be familiar with	comprehend		know	realize	understand

Examples of course outcomes: Students should be able to…

a. Explain the impact of historical events on the present-day Crow Tribe.
b. Interpret quantitative ideas in written form.
c. Articulate the important distinctions between micro and macro perspectives in sociology.
d. Sing music as informed by stylistic integrity, technical accuracy, and musicality.

The three learning domains[1]

Bloom's taxonomy is a set of three hierarchical models used to classify learning outcomes into levels of complexity and specificity. The three models cover learning outcomes in the following domains:

1. The cognitive domain (mind/head), which targets knowledge and intellectual skills.

2. The affective domain (spirit/heart), which targets attitudes, interests, feelings, values, and ethics.

3. The psychomotor domain (body/hands), which targets physical and manipulation skills.

The following pages describe the levels of each domain, from the simplest ability level to the most complex. The outcomes help guide both instructional activities and assessments; therefore, it is important to identify the level of learning and the appropriate verb.

Use the lists of examples of verbs on the following pages to articulate performance expectations for students (i.e., course outcomes). Note: These are not exhaustive lists of verbs.

1. The cognitive domain (mind)

There is a lot of focus in higher education on the cognitive domain (i.e., knowledge and the development of intellectual skills); therefore, it is important to examine the following six levels of cognitive understanding: it begins with remembering and advances up the taxonomy to understanding, applying, and then the higher order skills involved in analyzing, evaluating, and creating. The six levels of the cognitive domain are described below and verbs are on the next page.

Level I. Remember – The student retrieves, recalls, or recognizes relevant knowledge from memory (e.g., *recall dates of important events in U.S. history*).

Level II. Understand – The student demonstrates comprehension through one or more forms of explanation (e.g., *compare ritual practices in two different religions*).

Level III. Apply – The student uses information or a skill in a new situation (e.g., *use Newton's second law to solve a problem*).

Level IV. Analyze – The student breaks material into its constituent parts and determines how the parts relate to one another or to an overall structure or purpose (e.g., *analyze the relationship between different characters in a play*).

Level V. Evaluate – The student makes judgments based on criteria and standards (e.g., *determine whether a scientist's conclusions follow from observed data*).

Level VI. Create – The student puts elements together to form a new coherent or functional whole or reorganizes elements into a new pattern or structure (e.g., *compose a piece of music*).

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[1] The models were named after Benjamin Bloom, who chaired the committee of educators that devised the taxonomy in 1956. A revised version of the taxonomy for the cognitive domain was created in 2001 by Lorin Anderson and David Krathwohl. The affective domain was first described in 1964 and is attributed to Krathwohl, Bloom, and Masia.

Examples of verbs for the cognitive domain from lowest to highest levels

Remember	Understand	Apply	Analyze	Evaluate	Create
arrange	abstract	add	analyze	appraise	arrange
choose	arrange	administer	appraise	apprise	assemble
cite	articulate	apply	break down	arbitrate	build
complete	associate	calculate	categorize	argue	collect
count	categorize	carry out	classify	assess	combine
define	characterize	change	compare	compare	compile
describe	clarify	choose	connect	conclude	compose
draw	classify	classify	contrast	consider	constitute
duplicate	compare	complete	critique	contrast	construct
identify	complete	compute	deconstruct	convince	create
indicate	compute	conduct	design	critique	design
label	conclude	discover	detect	decide	develop
list	contrast	divide	develop	defend	devise
match	convert	dramatize	diagram	determine	formulate
memorize	defend	employ	differentiate	discriminate	generate
name	depict	examine	discriminate	estimate	hypothesize
order	describe	execute	distinguish	evaluate	integrate
outline	diagram	experiment	divide	examine	invent
quote	differentiate	generalize	examine	grade	make
read	discuss	graph	experiment	inspect	manage
recall	distinguish	illustrate	explore	interpret	modify
recite	establish	implement	illustrate	judge	organize
recognize	estimate	infer	infer	justify	perform
record	exemplify	interpolate	integrate	prioritize	plan
repeat	explain	interpret	inventory	rank	prepare
reproduce	express	manipulate	investigate	rate	produce
restate	extend	modify	outline	recommend	propose
retain	extrapolate	operate	organize	review	rearrange
retrieve	generalize	organize	question	score	reconstruct
select	give example	outline	relate	standardize	reorganize
show	identify	perform	research	support	revise
state	illustrate	predict	select	test	rewrite
tabulate	*see footnote[2]	*see footnote[3]	separate	validate	synthesize
write			subdivide	value	write

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[2] infer, interpret, locate, match, outline, paraphrase, predict, rearrange, recognize, relate, reorder, rephrase, report, represent, review, rewrite, sort, summarize, transform, translate

[3] prepare, prescribe, produce, role play, show, sketch, solve, subtract, transfer, translate, use

2. The affective domain (heart/spirit) and examples of verbs

This domain includes the manner in which students deal with things emotionally, such as feelings, values, appreciation, enthusiasm, motivations, and attitudes. The five levels are listed in order from lowest to highest.

Level I. Receiving – The student shows awareness of the benefits of a particular value, attitude or interest; the student's attention is held and directed (e.g., *the student should be able to listen attentively*).

accept differences of	ask	describe	identify	perceive	show sensitivity
acknowledge	attend closely	experience	listen attentively	pursue	tolerate
	capture	feel		sense	

Level II. Responding – The student actively participates and is motivated to learn (e.g., *willingly answer questions*).

agree (to)	comply	discuss	indicate	question	respond
answer	conform	enjoy	inquire	react	satisfy
ask	consent	exhibit	obey rules	reply	select
assist	contribute	follow-up	participate	report	show interest
communicate	cooperate	help	pursue	request	volunteer for

Level III. Valuing – The student sees personal worth in a value, belief, attitude, or interest; displays behavior in situations where s/he is not forced to comply or obey (e.g., *express strong opinions*).

accept	choose	display	initiate	prefer	search
adhere to	commit	endorse	integrate	propose	select
adopt	describe	explain	invite	report	share
approve	desire	express	justify	respect	show concern for
believe	differentiate	form	persuade	sanction	work

Level IV. Organizing – The student is committed to building a set of values as displayed by behavior (e.g., *criticize arguments and positions presented in class*).

accept responsibility	categorize	examine	identify	prepare	solve
adapt	compare	explain	integrate	rank	synthesize
adhere	create	formulate	modify	rate	systemize
arrange	defend	generalize	order	relate	weigh alternatives
	establish	group	organize	resolve	

Level V. Internalizing – The student's total behavior is consistent with internalized values (e.g., *cooperate in group activities*).

act	co-operate	encourage	internalize	perform	retain
advocate	defend	endure	judge	preserve	review
behave	devote	exemplify	justify	propose	revise
characterize	disclose	function	maintain	qualify	serve
conclude	discriminate	incorporate	modify	question	support
conform	display	influence	pattern	resolve	uphold

3. The psychomotor domain[4] (body) and examples of verbs

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 levels are listed in order from lowest to highest. Examples: *"Conduct a lab experiment"* or *"Detect non-verbal communication cues"*.

Level I. Imitation – The student observes skills and attempts to repeat them. The skill is simply copied.

adhere	calibrate	imitate	reenact	organize
assemble	construct	mimic	repeat	sketch
attempt	dissect	move	replicate	start
carry out	duplicate	practice	reproduce	try
copy	follow	proceed	respond	volunteer

Level II. Manipulation – The student continues to practice a particular skill or sequence until it becomes habitual and the action can be performed with some confidence and proficiency. The task can be performed by memory or by following instructions.

same as level I	complete	execute	manipulate	produce
acquire	implement	improve	operate	progress
assemble	conduct	maintain	pace	re-create
build	do	make	perform	use

Level III. Precision – The student reproduces a skill with accuracy, proportion, and exactness, requiring a minimum of energy; usually performed without hesitation or help from others.

same as level I/II	advance	control	master	succeed
achieve	automatize	exceed	reach	surpass
accomplish	calibrate	excel	refine	transcend

Level IV. Articulation – The student has a higher level of precision. The skills are so well developed the student can modify movement patterns to fit special requirements or meet a problem situation.

adapt	change	rearrange	revise	surpass
alter	modify	reorganize	solve	transcend

Level V. Naturalization – The student's response is automatic, intuitive, or unconscious. The student begins to experiment, creating new motor acts or ways of manipulating materials out of understandings, abilities, and skills developed. The student acts "without thinking".

arrange	compose	create	manage	refine
combine	construct	design	originate	transcend

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[4] The psychomotor domain has been revised over the years by Dave (1975), Harrow (1972), and Simpson (1972). Dave's is the most commonly referenced and used, is the easiest to apply, and it is the one presented above. It represents different degrees of competence in performing a skill and captures the levels of competence in the stages of learning from initial exposure to final mastery.