



TUSM Office of Educational Affairs – Educational Resources Writing Learning Objectives Handout

Why are learning objectives so important?

Setting observable and measurable learning objectives:

- Provides a structure for the learning and teaching process (i.e. teachers and students know what they are striving for)
- Guides teachers in planning the teaching (i.e. content and teaching strategies)
- Provides a basis for assessment (i.e. assessment strategies should be aligned with learning objectives in order to measure whether or not the objectives are achieved)

Definition of Goals and Objectives

GOALS: Very general and global statements used as an overall frame of reference.

EXAMPLE: “The goal of the course in General Pathology is to acquaint the student with general principles of various diseases processes with particular emphasis on etiology and pathogenesis and the resultant metabolic, functional and structural abnormalities. This course is intended to provide not only the appropriate basic science background essential to the understanding and interpretation of disease patterns in a clinical setting, but also a working knowledge of the terminology used to describe diseases.” (General Pathology Syllabus, First Year, Spring Semester 2008, Academic Year 2007-2008).

OBJECTIVES: Precise statements that begin with an action verb. They characterize observable and measurable behaviors that you want learners to accomplish by the end of the course/rotation/lecture/small group session. Learning objectives guide and must be aligned with assessment strategies.

EXAMPLES:

“By the end of the course students will be able to recognize the basic mechanism of inflammation.”

“By the end of this lecture students will be able to describe the therapeutic window and the overlap between efficacy and toxicity.”

Tips for Writing Objectives

- Know the learners to align the course objectives with their developmental stage, abilities, experiences and educational needs.
- Precede your list of objectives with the following statement: “By the end of the course/rotation/lecture/small group session students will be able to:”
- Include two basic elements in the statement:
 - A verb that describes an observable action, e.g. “identify” (see key words mentioned below).
 - The acceptable performance level, e.g. “identify *the four main causes* of...”

- Use clear and concise words to describe student behavior (avoid the use of verbs open to many interpretations).

Words Open to Many Interpretations

To know
To understand
To appreciate
To learn
To enjoy
To believe

Words Open to Fewer Interpretations

To write
To compare
To identify
To sort
To solve
To build

EXAMPLE:

“By the end of the lecture students will be able to understand the biosynthesis and function of leukotrienes.”

EXPLANATION:

The act of understanding is not an observable and measurable behavior per se. There are different levels of measurable cognitive abilities that promote the achievement of “understanding.” (See chart below). Learners can manifest their development towards understanding of a core concept by (1) identifying/recalling it; (2) applying it into daily practice; (3) analyzing its components; (4) integrating it into a new idea/plan. Therefore, the objective mentioned above could be rephrased as follows:

“By the end of the lecture students will be able to distill the biosynthesis and function of leukotrienes.”

Each level of cognitive ability will in turn be aligned with a specific assessment strategy. For example, closed questions could be used to recall concepts, and case vignettes can be used to assess learners’ application of concepts.

- Identify whether you are writing cognitive, attitudinal and/or skills objectives.

Chart for Writing Cognitive, Attitudinal and Skills Objectives

Cognitive Objectives

Cognitive Level (from less to more complex)	Key Words	Example
Knowledge: Recall or recognize information, ideas, and principles in the approximate form in which they were learned.	defines, describes, identifies, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.	Identify the various segments of the nephron and their relationships to the structure of the kidney. Describe the histological organization of the lymphoid and organs.
Comprehension: Understands the meaning, translation, interpolation, and	converts, defends, distinguishes, estimates, explains, extends, generalizes,	Explain the relationship between glomerular filtration rate, absorption rate, secretion

interpretation of instructions and problems. States a problem in one's own words.	gives examples, illustrates, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.	rate and the rate of excretion of a compound in the urine. Distinguish ethologic factors of cardiovascular diseases.
Application: Uses a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the clinical workplace.	applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.	Apply anatomical knowledge to clinical diagnostic problem-solving. Calculate how acidic and basic drugs dissociate and distribute themselves at different pH values. Diagram the short loop and long loop negative feedback secretory control of the anterior pituitary hormones.
Analysis: Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.	breaks down, categorizes, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, illustrates, infers, outlines, relates, selects, separates.	Break down the biosynthesis and function of lipoxins. Compare and contrast the surface membrane procoagulant reactions of the platelet and endothelial cell.
Synthesis: Originates, integrates, and combines ideas into a product, plan or proposal that is new to him or her.	categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, invents, develops, hypothesizes, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.	Develop mathematical predictions of drug behavior in a variety of clinical circumstances. Predict the functional loss and cutaneous areas affected by a given nerve injury to the hip and posterior thigh region.
Evaluation: Assesses, appraises, or critiques on a basis of specific standards and criteria.	appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, recommends, summarizes, supports.	Assess the clinical significance of different stages of atherosclerosis. Interprets major consequences and complications of myocardial infarcts.

Attitudinal Objectives

Attitudes	Key Words	Example
Shows awareness, willingness to hear, and selected attention	Listen, follows, replies, uses.	Listen to others with respect
Participates actively by attending, reacting and	answers, assists, aids, complies, conforms, discusses,	Participate in discussions. Give a presentation.

showing awareness.	greet, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.	Question new concepts, models to fully understand them.
Accepts the importance of the attitude; displays behavior consistent with a belief or attitude	demonstrates, displays, differentiates, relates, selects, explains, justifies, proposes, reports, formulates, follows, forms, initiates, invites, joins, cooperates, shares, works, adheres, alters, accepts, defends	Treat cadavers with professionalism and decency. Show sensitiveness to individual and cultural differences. Accept responsibility for his/her behaviors. Accept professional ethical standards. Display a professional commitment to ethical practice on a daily basis. Cooperate in group activities (displays teamwork). Change behavior in light of new evidence.

Skills Objectives

Skills	Key Words	Example
Perception: Uses sensory cues to guide performance	chooses, describes detects, distinguishes, identifies, isolates, selects	Detect non-verbal communication cues.
Observation: Observes visual information	describes, looks, sees, observes, examines,	Observe the superficial arteries and veins. Describe the patient's body language. Distinguish primary, observable, confirmable visual information from secondary, derived inferences.
Imitation: Repeats what is done	does, imitates, repeats, replicates, recaps	Replicate a procedure as demonstrated by the instructor.
Practice/Manipulation: Exercises skills following	practices, exercises, reproduces, rehearses, carries	Make skin incisions.

guidelines	out, performs, follows, prepares	Practice how to perform a physical examination.
Mastery: Performs skills perfectly in different contexts (e.g. simulation, real patient).	performs, displays, shows	Show ability to conduct a complete mental examination regardless of patient peculiarities
Adaptation: Modifies patterns to fit a particular situation or specific problem	arranges, combines, creates, initiates, makes, develops	Develop a new dietary routine to meet the patient's specific needs.

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