Instructional Development Services, Office for Distributed and Distance Learning

TEACHING ENHANCEMENT

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Writing Meaningful Learning Outcomes for College Courses

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The concept of learning outcomes isn't difficult; simply state what it is you want the students to be able to do at the end of the course that they couldn't do when they came in. A learning outcome is aimed at knowledge and skills you are going to teach. A learning outcome might be something like; I want the student to be able to write an analysis of a poem, including how it uses analogy or metaphor. Or, the student should be able to calculate the energy transfer in a collision of two unequal masses. Note the action verbs – write and calculate. A good learning outcome contains an observable behavior.

Stay away from the word "understand". Of course we want the student to understand but it is far too ambiguous for writing a learning outcome. What is the student to do when they "understand"?

Every learning outcome can be related to some sort of assessment. However, this should be as specific as possible. For example, the student will be able to construct a relational database with two or more tables using Oracle, is a very general statement. It gives the learner guidance that can be tested in many ways, and at many levels.

Robert Mager, has devised a method for writing learning outcomes that follows the ABCs.
A stands for Antecedent
B stands for Behavior
C stands for Criterion

Using this format we might say: (A) After reading Chapter 1 in the text, the student will be able to (B) summarize in writing the principle of supply and demand, giving an example not presented in the book, (C) with at least 90% accuracy. Now, I'd have to define what I mean by 90% accuracy, but at least I have set a goal for performance.

The *antecedent* then is the learning activity, the *behavior* is the skill or knowledge being demonstrated, and the *criterion* is the degree of acceptable performance.

Types of Learning Outcomes:

There are different levels or types of learning outcomes. For example, the recall of knowledge is one type of outcome. Our students are responsible for learning many things for which they will have to recall knowledge. A second type of knowledge is skills, and there are many levels of skill. At the lowest level we teach concepts, next we teach rules or principles that use these concepts, and at the highest level we teach problem solving.

Another kind of learning outcome is attitudes (choice behaviors) attitudes are a large part of ethical behavior. Some courses teach cognitive strategies (learning strategies) although usually not overtly or directly, and some courses teach motor skills (or you wouldn't want a nurse giving you an IV.)

Each of these types and levels of learning are represented with typical behaviors, for example:

The student will be able to *state* (recall) the formula for calculating the standard deviation of a set of numbers. (Knowledge)

The student will be able to *classify* (identify) a metaphor in a poem. (Concept)

The student will be able to *apply* the formula for calculating the standard deviation. (Principle/Rule)

The student will be able to *generate* an interpretation of a distribution of data for a given population. (Problem Solving)

The student will be able to *execute* a veinapuncture. (Motor skill)

The student will *adopt* the scientific method as a way of thinking. (Cognitive Strategy)

The student will *choose* to cite all literature sources used in writing a paper. (Attitude)

While the above examples don't include the antecedent and criterion, they represent the minimal statement of behavior that all learning outcomes must have. Obviously there are many action verbs that may be substituted for the ones I used. The intent is that when you show your learning outcomes to other knowledgeable persons, they should agree on what it is you expect from your students. Most important, when you give them to your students, you communicate to them what you expect of them, and if you test them on the outcomes you are teaching, you will find more students will meet your expectations.

Writing good learning outcomes is as simple as it looks – the hard part is figuring out what you *really* want your students to do.
W.W.