Instructional Objectives: The Foundation of Instructional Effectiveness

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1st Annual AALHE Conference,
June 2011
Agenda

• Goals vs objectives
• Role of instructional objectives
• Learning domains
• Writing instructional objectives
  – Characteristics of objectives
  – Models for writing objectives
  – Practice
• Mission, goals, outcomes
## Goal vs Objective

<table>
<thead>
<tr>
<th>Goal:</th>
<th>Objective:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Broad, generalized, and long-range statement about what knowledge, skills, values students are expected to achieve</td>
<td>• Operationalizes the goals • Specific, measurable, short-term, observable learner behavior</td>
</tr>
<tr>
<td>• Abstract, intangible</td>
<td>• Describes the desired learning outcome of instruction • Attention is focused on the specific types of behavior/performance learners are expected to demonstrate at the end of instruction</td>
</tr>
<tr>
<td>• Use primarily in policy-making and general program planning</td>
<td>• Foundation upon which lessons and assessments are built</td>
</tr>
</tbody>
</table>

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I want students to be able to:

<table>
<thead>
<tr>
<th>General Goals</th>
<th>How do you know?</th>
<th>Specific Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn</td>
<td></td>
<td>Analyze</td>
</tr>
<tr>
<td>Understand</td>
<td></td>
<td>Solve</td>
</tr>
<tr>
<td>Appreciate</td>
<td></td>
<td>Respect</td>
</tr>
<tr>
<td>Value</td>
<td></td>
<td>Critique</td>
</tr>
<tr>
<td>Perform</td>
<td></td>
<td>Diagnose</td>
</tr>
<tr>
<td>Construct</td>
<td></td>
<td>Evaluate</td>
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Source: [http://www.schreyerinstitute.psu.edu](http://www.schreyerinstitute.psu.edu)
Examples

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<th>Goal</th>
<th>Objective</th>
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<tr>
<td>• Students know basic biological principles and concepts.</td>
<td>• Students correctly describe the basic structure and function of cells and the structures within many cells called organelles.</td>
</tr>
<tr>
<td></td>
<td>• Students correctly describe the information stored in the DNA of genes and explain how the structure of DNA molecules allows this information to be used by a cell and passed along from one generation to the next.</td>
</tr>
<tr>
<td>• Students demonstrate ability to apply math and science in engineering.</td>
<td>• Students correctly analyze data sets using statistical concepts.  \</td>
</tr>
<tr>
<td></td>
<td>• Students execute calculations correctly—by hand and by using mathematical software.</td>
</tr>
<tr>
<td></td>
<td>• Students apply concepts of integral and differential calculus and/or linear algebra to solve civil engineering problems.</td>
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## Specific vs fuzzy objectives

Put a check mark beside the **specific** statements:

<p>| | |</p>
<table>
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<tr>
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<tr>
<td>1.</td>
<td>Understand logic.</td>
</tr>
<tr>
<td>2.</td>
<td>Know your enemy.</td>
</tr>
<tr>
<td>3.</td>
<td>Thread this needle.</td>
</tr>
<tr>
<td>4.</td>
<td>Reassemble this cat.</td>
</tr>
<tr>
<td>5.</td>
<td>Think.</td>
</tr>
<tr>
<td>6.</td>
<td>Smile when addressing a customer.</td>
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Mager (1997).
## Specific vs fuzzy objectives

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Mager (1997).
Which of the following statements looks most like an objective?

1. In at least two computer languages, be able to write and test a program to calculate arithmetic means.

2. Discusses and illustrates principles and techniques of computer programming.
In at least two computer languages, be able to write and test a program to calculate arithmetic means.

This statement describes an intended outcome—something the student is expected to be able to do.

Discusses and illustrates principles and techniques of computer programming.

This statement appears to be talking about what the course covers or what the instructor will be doing.
Role of Instructional Objective

Instructional Objectives:
- describe what students are expected to be able to do.
- Provide a focus for instruction
- Provide guidelines for learning
- Provide targets for formative and summative assessment
- Convey instructional intent to others
- Provide for evaluation of instruction

Mager, 1997; Gronlund & Brookhart, 2009
Domains

- **Cognitive**: thought or knowledge (*know*)
  - Bloom’s Taxonomy of the Cognitive Domain (Bloom, et al., 1956)
  - Bloom’s Taxonomy, revised (Anderson & Krathwohl, 2001).
  - Marzano’s Dimensions of Learning (1997)
  - NC Thinking Skills – hybrid of Bloom’s and Marzano’s
Examples of Well-written Objectives

• Cognitive (comprehension) - “Given examples and non-examples of constructivist activities in a college classroom, the student will be able to accurately identify the constructivist examples and explain why each example is or is not a constructivist activity in 20 words or less.”
  – Audience - Green
  – Behavior - Red
  – Condition - Purple
  – Degree - Brown
Examples of Well-written Objectives

• Cognitive (application) - “Given a sentence written in the past or present tense, the student will be able to re-write the sentence in future tense with no errors in tense or tense contradictions (i.e., I will see her yesterday).”
  – Audience - Green
  – Behavior - Red
  – Condition - Purple
  – Degree - Brown

http://www.personal.psu.edu/staff/b/x/bxb11/Objectives/
Domains

• **Psychomotor**: physical skills (*do*)
  
  Dave (1967): *Psychomotor domain.*
  
  Harrow (1972): *A taxonomy of the psychomotor domain.*
  
  Simpson (1972): *The classification of educational objectives in the psychomotor domain*
Examples of Well-written Objectives

• Psychomotor - “Given a standard balance beam raised to a standard height, the student (attired in standard balance beam usage attire) will be able to walk the entire length of the balance beam (from one end to the other) steadily, without falling off, and within a six second time span.”
  – Audience - Green
  – Behavior - Red
  – Condition - Purple
  – Degree - Brown

http://www.personal.psu.edu/staff/b/x/bxb11/Objectives/

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Domains

• **Affective**: attitudes, feelings, appreciations (*value*)
  
  Krathwohl’s Taxonomy of Affective Domain
  (Krathwohl, et al., 1964)
Examples of Well-written Objectives

- **Affective**- “Given the opportunity to work in a team with several people of different races, the student will demonstrate a positive increase in attitude towards non-discrimination of race, as measured by a checklist utilized/completed by non-team members.”
  - Audience - Green
  - Behavior - Red
  - Condition - Purple
  - Degree - Brown

http://www.personal.psu.edu/staff/b/x/bxb11/Objectives/
Characteristics of a Learning Objective

These characteristics answer three questions:

1) What should the learner be able to do? (*performance*)

2) Under what conditions do you want the learner to be able to do it? (*condition(s)*)

3) How well must it be done? (*criterion/standard*)

Mager (1997)

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Characteristics (cont.)

1. Specific performance

   An objective always states what a learner is expected to be able to do and/or produce to be considered competent.

   E.g., to write, to name, to compare and contrast, to analyze, to evaluate.

Mager (1997)
Characteristics (cont.)

2. Conditions

An objective describes the important conditions under which the behavior is to occur.

E.g., during a cooperative activity, after reading chapter 1.
3. Criterion, or standard

An objective describes the criteria of acceptable performance; that is, it states how well someone would have to perform to be considered competent.

E.g., correct to the nearest ml, 80% correct, with no grammatical errors.

Mager (1997)
Writing Instructional Objectives

• Backward planning: begin with end in mind
• ABCD model (Heinich, et al., 1999)
• SMART model (Drucker, 1954; Doran, 1981)
# ABCD Model

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<thead>
<tr>
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<th>Description</th>
<th>Example</th>
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<tbody>
<tr>
<td>A = Audience</td>
<td>• Who is your audience? • Who is performing the action?</td>
<td>Given the symbol representing a particular isotope of an atom or ion, the student will be able to determine the number of electrons, protons and neutrons in that species eight out of ten times.</td>
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<td><strong>B =</strong> Behavior</td>
<td>What will the learner be able to do? • Behaviors always use a verb or action word. • Sometimes you will describe the product or the result of the behavior.</td>
<td>Given the symbol representing a particular isotope of an atom or ion, the student will be able to determine the number of electrons, protons and neutrons in that species eight out of ten times.</td>
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<td><strong>C =</strong></td>
<td><strong>Condition</strong></td>
<td><strong>Given the symbol representing a particular isotope of an atom or ion, the student will be able to determine the number of electrons, protons and neutrons in that species eight out of ten times.</strong></td>
</tr>
<tr>
<td><strong>Condition</strong></td>
<td>• How will the student accomplish the task?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• What information is given?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• What information is not given?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Give the conditions in which performance will occur.</td>
<td></td>
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# ABCD Model

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<tr>
<td>D</td>
<td>Describe the minimum criteria for acceptable student performance.</td>
<td>Given the symbol representing a particular isotope of an atom or ion, the student will be able to determine the number of electrons, protons and neutrons in that species <em>eight out of ten times</em>.</td>
</tr>
<tr>
<td></td>
<td>• How often?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• How well?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• How many?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• How much?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Define expectations regarding accuracy, quality, and speed.</td>
<td></td>
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Are your SLOs S.M.A.R.T.? 

• **Specific**
• **Measurable**
• **Aggressive and Attainable**
• **Results–oriented**
• **Time-bound**

(Drucker, 1954; Doran, 1981)
Terminology

MISSION

provides a clear and concise description of the ultimate principles that guide the work of the organization

“What is the purpose of the university as reflected by every program, department, and division?”
Example: Mission

The Division of Student Affairs empowers students to be successful by supporting and challenging students' exploration and development of their unique potential in a community of mutual respect, thus creating and contributing to opportunities for learning beyond and within the classroom.

GOAL

• Serves as the blueprint for implementing the mission
• Reflects desired/intended impact on student learning/development
• General statement about what students should learn or how they should develop

“What services or programs will we provide to support the organization’s mission?”

OBJECTIVE

• Concrete action step taken to accomplish goals
• Achievable, observable, measurable

“What intentional actions will we take to ensure students achieve?”


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Example

- **Goal:**
  To provide an opportunity for students to develop problem-solving skills

- **Objective:**
  Lead a discussion on the UNCG Student Calendar/Handbook


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