ROCKY MOUNTAIN
Alchemy
TURNING THE PLAIN
INTO THE PRECIOUS

LEARNING OBJECTIVES: TYPES AND APPROACHES

VERSION 1.1

WHITE PAPER

DECEMBER 2001

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Introduction

Definition

An objective is a description of what the learner should know, feel, or be able to do at the end of the learning event.

Role of the three learning domains

The foundational "verb" of an objective should be selected from the appropriate domain:

- Know: Cognitive Domain
- Feel: Affective Domain
- Do: Psychomotor Domain

(More detailed treatment on these domains can be found in other internal documentation on learning taxonomies and in the work of B. S. Bloom, M. Englehart, E. Furst, W. Hill, and D. R. Krathwohl.)

Traits of "good" objectives

"Good" instructional objectives share the following traits:

- Clearly written (i.e., not open to wide interpretation)
- Accurately reflect the job task
  - The quality of any training program depends directly upon how accurately the course objectives reflect the expected performance on the job.
  - Objectives should be one output of the learning/needs analysis.
- Observable and/or measurable
  - Mastery of an objective can only be determined if the objective is observable and/or measurable.
  - Attitudes are not observable, however they are measurable.
- Organized
  - Objectives should be organized by complexity (how they build upon each other), their superior/ subordinate relationship (i.e., terminal and enabling), or other acceptable methods (e.g., chronological order).

Importance of objectives

Well written objectives can accomplish the following:

- Define the scope of the training.
  - What should you include ("need to know")?
  - What should you discard ("nice to know")?
- Influence media selection.
- Influence design methodologies and strategies.
- Guide test development.
  - Test items should be "representative" of the objectives.
    - Test items should be "valid" (i.e., measure what you are intending to measure).
    - Test items should reflect the appropriate "weight" of the objective being tested.
- Improve the learner's training experience.
  - Set learner's expectations.
  - Boost learner confidence.
  - Reduce learner anxiety.
  - Allow the learner to organize his/her own efforts to accomplish the objectives.

Content overview

This document first addresses the three types of objectives:

- Behavioral
- Experiential
- Expressive

Next, the document covers each of the three prevalent methods of structuring objectives:

- Mager's three-part system
- Knirk and Gustafson's ABCD method
- Gronlund's general approach

Finally, the document presents a high-level comparison of the three prevalent methods and offers insight on when to use which style.

Types of Objectives

Categories

Objectives fall into the following three categories:

Category	Focus/Use
Behavioral	Specifies the outcome of the training. Behaviors are more easily described in the cognitive or psychomotor domains; it is uncommon to see behavioral objectives in the affective domain.
Experiential	Directs the learner through a series of events and/or experiences designed to bring about specified outcomes. (This is engineered learning.)
Expressive	Directs the learner through a series of events and/or experiences with no specified outcomes. (This is learning through "self-discovery.")

Behavioral objectives

Behavioral objectives describe what the learner will be able to do after completing the learning event.

This type of objective is valued for its directness and clarity. A well-written set of behavioral objectives can truly:

- Define the scope of the training.
- Set the learner's expectation of what he/she can expect to get out of the training.
- Guide the designer through establishing the instructional and evaluation approaches.
- Establish certification criteria.

Examples:

- The learner will be able to splice a 200 twisted-pair wire cable.
- The learner will be able to match states to their capitals.
- The learner will be able to diagram a closed circuit.

Behavioral objectives are the most commonly used objective type used in organizational training.

Experiential objectives

Experiential objectives are used to elicit a *predetermined* attitude or behavior through a carefully selected set of learning experiences. The learning environment is actually "engineered" to bring about the desired change in attitude and/or behavior.

This approach is commonly used to affect values and beliefs. Experiential training often leads to follow-up activities, including changes to lifestyle.

Examples:

- The learner will condemn drunk driving after watching the film "I Killed My Prom Date" and attending a lecture and slide-show by Officer Sadanco.
- The learner will believe in recycling after:
  - Visiting the Hoover Landfill Project and performing environmental tests on the nearby lake.
  - Touring the Like-New-Again Recycling Company plant.
  - Organizing and running a two-month community recycling program.

Expressive objectives

Expressive objectives are used to provide the learner with an engineered opportunity for personal discovery and/or enlightenment. In contrast to experiential training, expressive training does not attempt to yield a predetermined effect. The learning is entirely dependent on the self-discovery.

This approach is commonly used to expose learners to new experiences and to discover new interests or unknown talent.

Examples:

- Attend three events at the Kennedy Center.
- Select and learn to play a musical instrument.
- Read selected poems from four different poetic styles.

Robert Mager's Three-Part System

Introduction

Mager's three-part system to developing behavioral or performance objectives is probably the most commonly used approach in organizational training.

Components

A three-part objective consists of the following components:

Component	Description
Condition	The condition or situation under which the behavior is to be performed (e.g., what resources will be available).
Behavior	This is the "verb" of the objective, or what the learner is expected to do.
Criteria	The standard or level of performance by which the behavior is evaluated to determine mastery. Commonly used criteria include: • Accuracy (number and type of errors) • Speed • Distance • Quantity

Examples

- Given a worksheet of 100 three-digit multiplication problems *(condition)*, write the correct answers *(behavior)* for 80% of the problems *(criteria)*.
- Given an unlabeled diagram of a telephone circuit and a list of components *(condition)*, label *(behavior)* 90% *(criteria)* of the components.
- Without any reference materials or prompting *(condition)*, list the presidents of the United States *(behavior)* in order *(criteria 1)* within ten minutes *(criteria 2)*.
- Given the appropriate instruments and a cadaver *(condition)*, identify *(behavior 1)* and remove *(behavior 2)* four out of five *(criteria 1)* of the following organs without passing out *(criteria 2)*: heart, lungs, liver, spleen, and stomach.

Application

Three-part objectives are best suited for criterion-referenced and certification training.

- If you are writing a set of objectives for certification training and the overall "passing" score is set (e.g., 80%), it is unnecessary to include the criteria in every objective (e.g., "The learner will be able to perform the following with 80% accuracy: obj 1, obj 2, obj 3").

The three-part system works especially well when developing the objectives and test items prior to designing the actual training (this is because a three-part objective actually defines the test approach).

Three-part objectives are not appropriate for every situation. Common criticisms against the approach include:

- Most learning activities are too complex to be described by a specific outcome for each objective.
- Specific objectives tend to be written at lower levels of the taxonomy.
- Specific objectives tend to restrict the flexibility of the designer and/or the instructor.
- Preparing three-part objectives is time consuming, and may delay the development kickoff.
- If the client disapproves the objective's referenced behavior, the time taken to define the condition and criteria have been wasted.
- If a better testing approach is discovered during development of the training, the objectives must be modified and re-approved by the client.
- When using three-part objectives in Computer-Based Training (CBT), the conditions and criteria often become tediously redundant (e.g., "given a scenario and a multiple choice question, identify the appropriate widget").

Knirk and Gustafson's ABCD Method

Introduction

The ABCD method is not too different from Mager's three-part system. An ABCD objective contains all three components of a three-part objective (the condition, behavior, and criteria (referred to as "degree of measurement" in the ABCD method)). The ABCD method adds "audience" to the objective.

Components

An ABCD objective consists of the following components:

Component	Description
Audience	A stands for the audience who will perform the behavior. This is typically more data than simply "the learner." The audience description may include: • Who is to perform the behavior? • What is the target audience's level or rank? • When are they expected to perform the behavior?
Behavior	B stands for the expected behavior of the performer. As with behavior in the three-part objective, this is an observable and/or measurable action.
Condition	C stands for the condition or situation under which the behavior is to be performed (e.g., what resources will be available).
Degree of measurement	D stands for degree of measurement used to evaluate mastery of the behavior. This relates directly to the criteria component of a three-part objective.

Examples

- Given a worksheet of 100 three-digit multiplication problems *(condition)*, the learner *(audience)* will write the correct answers *(behavior)* for 80% of the problems *(degree of measurement)*.
- Given an unlabeled diagram of a telephone circuit and a list of components *(condition)*, the Technician 3rd Class *(audience)* will label *(behavior)* 90% *(degree of measurement)* of the components.
- Without any reference materials or prompting *(condition)*, the history student *(audience)* will list the presidents of the United States *(behavior)* in order *(degree of measurement 1)* within ten minutes *(degree of measurement 2)*.

- Given the appropriate instruments and a cadaver *(condition)*, the second year medical student *(audience)* will identify *(behavior 1)* and remove *(behavior 2)* four out of five of the following organs *(degree of measurement 1)* without passing out *(degree of measurement 2)*: heart, lungs, liver, spleen, and stomach.

Application

The ABCD method is very similar to the three-part system, and shares the same pros and cons:

- Both methods are best suited for criterion-referenced and certification training.
- Both methods work hand in hand with test item development.
- Both methods are time consuming and may actually be limiting the designer and/or instructor.

By adding the audience component, this method to writing objectives becomes most helpful when the training is designed to have different outcomes for multiple audiences.

Norman Gronlund's General Approach

Introduction

Gronlund advocates writing more general objectives than Mager does. His arguments for general objectives (with a list of specific outcomes) include the following reasons:

- Most learning activities are too complex to be described by a specific outcome for each objective.
- Specific objectives tend to be written at lower levels of the taxonomy.
- Specific objectives tend to restrict the flexibility of the teacher.

The procedure Gronlund developed for writing objectives is:

1. State the objective in general terms.
2. Clarify the objective by listing sample behaviors.

Components

Although Gronlund does not break the general objective into components, it is assumed that the objective contains a behavior as its foundation. Gronlund also states the objective should be clarified through sample behaviors.

So, a general objective consists of the following components:

Component	Description
Behavior	As with behavior in the three-part and ABCD objectives, this is an observable and/or measurable action.
Clarifiers	If the objective can be misinterpreted, it should be clarified through sample behaviors.

Examples

- Solve *(behavior)* three-digit *(clarifier)* multiplication problems.
- Label the components of a telephone circuit *(behavior)* (switch, line, telephone, etc.) *(clarifier)*.
- List the presidents of the United States *(behavior) (no clarifier needed)*.
- *If the presidents need to be listed in order, you could still add the criteria "in order" to this objective without corrupting the intent.*
- Identify *(behavior 1)* and remove *(behavior 2)* the following organs from a cadaver: heart, lungs, liver, spleen, and stomach *(clarifier)*.

Application

Due to its simplicity (specifically, the lack of conditions and criterion), this approach is typically inappropriate for certification testing. However, this same simplicity gives this style the following advantages over three-part and ABCD objectives:

- Increased readability
- Easier to review with the client (especially a novice to instructional design)
- Less intimidating to a learner
- Less time consuming to prepare
- Less restrictive to the designer and/or instructor

Comparing the Approaches to Writing Objectives

	Mager's Three-Part System	Knirk and Gustafson's ABCD Method	Gronlund's General Approach
Objective 1	Given a worksheet of 100 three-digit multiplication problems, write the correct answers for 80% of the problems.	Given a worksheet of 100 three-digit multiplication problems, the learner will write the correct answers for 80% of the problems.	Solve three-digit multiplication problems.
Objective 2	Given an unlabeled diagram of a telephone circuit and a list of components, label 90% of the components.	Given an unlabeled diagram of a telephone circuit and a list of components, the Technician 3rd Class will label 90% of the components.	Label the components of a telephone circuit (switch, line, telephone, etc.).
Objective 3	Without any reference materials or prompting, list the presidents of the United States in order within ten minutes.	Without any reference materials or prompting the history student will list the presidents of the United States in order within ten minutes	List the presidents of the United States.
Objective 4	Given the appropriate instruments and a cadaver, identify and remove four out of five of the following organs without passing out: heart, lungs, liver, spleen, and stomach.	Given the appropriate instruments and a cadaver, the second year medical student will identify and remove four out of five of the following organs without passing out: heart, lungs, liver, spleen, and stomach.	Identify and remove the following organs from a cadaver: heart, lungs, liver, spleen, and stomach.

Summary

When writing certification training or when preparing the test items simultaneously with the objectives, three point and ABCD methods are more appropriate.

- Notice how specific the three-point and ABCD objectives are in regards to who is to perform the behavior, under what conditions, and to what "passing" standard.

When this is not the case, however, a more general approach to writing objectives should be strongly considered.

- By eliminating the audience, condition, and criteria, notice how much more readable or "friendly" the general approach is without losing the *intent* of the objective.

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