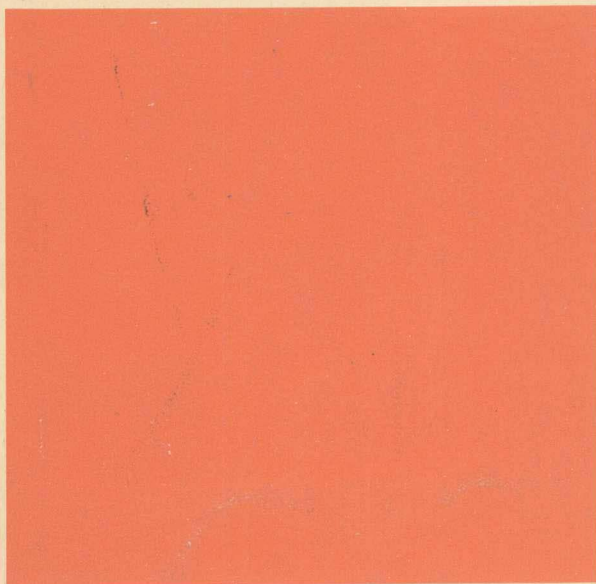


Preparing Instructional Objectives

SECOND EDITION



ROBERT F. MAGER

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Preparing Instructional Objectives, Second Edition

Measuring Instructional Intent

Goal Analysis

Analyzing Performance Problems

(with Peter Pipe)

Developing Attitude Toward Learning

Developing Vocational Instruction

(with Kenneth M. Beach, Jr.)

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Preface

Once upon a time a Sea Horse gathered up his seven pieces of eight and cantered out to find his fortune. Before he had traveled very far he met an Eel, who said,

“Psst. Hey, bud. Where ‘ya goin’?”

“I’m going out to find my fortune,” replied the Sea Horse, proudly.

“You’re in luck,” said the Eel. “For four pieces of eight you can have this speedy flipper, and then you’ll be able to get there a lot faster.”

“Gee, that’s swell,” said the Sea Horse, and paid the money and put on the flipper and slithered off at twice the speed. Soon he came upon a Sponge, who said,

“Psst. Hey, bud. Where ‘ya goin’?”

“I’m going out to find my fortune,” replied the Sea Horse.

“You’re in luck,” said the Sponge. “For a small fee I will let you have this jet-propelled scooter so that you will be able to travel a lot faster.”

So the Sea Horse bought the scooter with his remaining money and went zooming thru the sea five times as fast. Soon he came upon a Shark, who said,

“Psst. Hey, bud. Where ‘ya goin’?”

“I’m going to find my fortune,” replied the Sea Horse.

“You’re in luck. If you’ll take this short cut,” said the Shark, pointing to his open mouth, “you’ll save yourself a lot of time.”

“Gee, thanks,” said the Sea Horse, and zoomed off into the interior of the Shark, and was never heard from again.

The moral of this fable is that if you’re not sure where you’re going, you’re liable to end up someplace else.

Before you prepare instruction, before you select instructional procedures or subject matter or material, it is important to be able to state clearly just what you intend the results of that instruction to be. A clear statement of objectives will provide a sound basis for choosing methods and materials and for selecting the means for assessing whether the instruction has been successful. This book is about how to state such objectives. It will describe and illustrate a procedure for preparing objectives that communicates your instructional intents to yourself and to others. You will be offered some guided practice along the way, as well as a chance to test your skill at the end of the book.

This book is *not* about *who* should select objectives, nor is it about *how* one goes about deciding which objectives are worth teaching. These are important questions, but they are beyond the scope of this book.

It is assumed that you are interested in preparing effective instruction, that you are interested in communicating certain skills and knowledge to your students, and in communicating them in such a way that your students will be able to demonstrate their achievement of the objectives that you or someone else has selected for them to achieve. (If you are *not* interested in demonstrating achievement of your objectives, you have just finished this book.)

ROBERT F. MAGER

Los Altos Hills, California
May 1975

NOTE

Much of this book has been put together differently from most books you have read. On many of the pages you will be asked a question. When this happens, select the best answer, and then turn to the page whose number is given beside that answer. In this way, the material will be adjusted to your needs, and you can proceed without being distracted by unnecessary explanations.

Go on to page 1.

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Objectives

Instruction is effective to the degree that it succeeds in:

- changing students
- in desired directions
- and not in undesired directions.

If instruction doesn't change anyone, it has no effect, no power. If it changes a student in undesired, rather than in desired directions (that is, if it has unwanted side effects such as squashing motivation), it isn't called effective; instead, it is called poor, undesirable, or even harmful instruction. Instruction is successful, or effective, to the degree that it accomplishes what it sets out to accomplish.

Once you decide to teach someone something, several kinds of activity are indicated if your instruction is to be successful. For one thing, you must assure yourself that there is a need for the instruction, making certain that (1) there is a reason for the learning and (2) your students don't already know what you intend to teach. For another, you must clearly specify the outcomes or objectives you intend your instruction to accomplish. You must select and arrange learning experiences for your students in accordance with principles of learning and must evaluate student performance according to the objectives originally selected. In other words, first you decide where you want to go, then you create

and administer the means of getting there, and then you arrange to find out whether you arrived.

The steps for accomplishing this arrange themselves into these three phases—analysis, design, and implementation; and a number of procedures and techniques are available through which to complete them. The analysis phase, for example, should answer questions such as these:

Is there a problem worth solving?

Is instruction a relevant part of the solution?

If so, what should the instruction accomplish?

After all, instruction is only one of several possible solutions to problems of human performance, and not even the one most often called for. Unless a suitable analysis is performed *before* instruction is developed, it is quite possible to construct a magnificent course that doesn't help anybody at all. It is possible to construct a course that nobody needs, either because the course is unrelated to the problem that gave rise to it or because it "teaches" things the students already know. Techniques such as performance analysis¹ and goal analysis² can help avoid such wasteful practices.

After the analysis is completed (it may take only a few minutes, or a few months), if the analysis reveals that instruction is needed, objectives are drafted that describe the important outcomes intended to be accomplished by that instruction. In other words, objectives are drafted that answer the question "what is worth teaching?" Instruments (tests) are then drafted by which the success of the instruction can be assessed.

Only after the preceding steps have been completed is the actual instruction drafted, tested, revised, and then put into use. And, please note, only after the analysis phase is complete or near completion are objectives drafted. This is an important point

1. See *Analyzing Performance Problems*, R. F. Mager and Peter Pipe (Fearon Publishers, Inc., 1970).

2. See *Goal Analysis*, R. F. Mager (Fearon Publishers, Inc., 1972).

because when you read or hear that "the first thing you do is write objectives" or "objectives are written before instruction is designed," you should translate that into "*after* the analysis is completed, *then* objectives are prepared *before* the instruction is designed."

This book is concerned with the *characteristics* of a usefully stated objective, rather than with its derivation or selection. The purpose of the book is limited to helping you specify and communicate those instructional intents you or someone else has decided are worth achieving. If this book achieves its objective, you will be able to recognize the characteristics of well-stated objectives when they are present. Once you can recognize desirable characteristics, you will be able to prepare your own objectives by modifying your drafts until they are well stated.

Specifically:

Given any objective in a subject area with which you are familiar, in all instances be able to identify (label) correctly the performance, the conditions, and the criterion of acceptable performance, when any or all those characteristics are present.

To help reach this objective, I will describe some of the advantages to be gained from the careful specification of objectives, describe and illustrate the characteristics of a usefully stated objective, and provide some practice in recognizing such objectives. At the end, you will have an opportunity to see just how well our efforts have succeeded.

2

Why We Care About Objectives

An objective is a description of a performance you want learners to be able to exhibit before you consider them competent. An objective describes an intended *result* of instruction, rather than the *process* of instruction itself.

Objectives are important for a number of reasons. Here are three of the main ones: First, when clearly defined objectives are lacking, there is no sound basis for the selection or designing of instructional materials, content, or methods. If you don't know where you're going, it is difficult to select a suitable means for getting there. After all, machinists and surgeons don't select tools until they know what operation they are going to perform. Neither do composers orchestrate scores until they know the effects they are trying to achieve. Similarly, builders don't select materials or specify schedules for construction until they have their blueprints (objectives) before them. Too often, however, one hears instructors arguing the relative merits of textbooks *versus* filmstrips or of classrooms *versus* laboratories without ever specifying just what they expect the method or procedure to accomplish. Instructors simply function in a fog of their own making unless they know what they want their students to accomplish as a result of their instruction.

A second important reason for stating objectives sharply has to do with finding out whether the objective has, in fact, been accomplished. Tests or examinations are the mileposts along the road of learning and are supposed to tell instructors and students, alike, whether they have been successful in achieving the course objectives. But, unless objectives are clearly and firmly fixed in the minds of both parties, tests are at best misleading; at worst, they are irrelevant, unfair, or uninformative. (How many courses have you taken in which tests had little or nothing to do with the substance of the instruction?) Test items designed to measure whether important instructional outcomes have been accomplished can be selected or created intelligently only when those instructional outcomes have been made explicit.

A third advantage of clearly defined objectives is that they provide students with the means to organize their own efforts toward accomplishment of those objectives. Experience has shown that, with clear objectives in view, students at all levels are better able to decide what activities on their part will help them get to where it is important for them to go. With clear objectives in view, it is no longer necessary to "psych out" the instructor. As you know too well, many students spend considerable time and effort in learning the peculiarities of their instructors when those instructors fail or refuse to let students in on the secret of what they are expected to learn. Unfortunately, this knowledge is often useful to those students with "school savvy." They may breeze through the instruction with no more than a bag full of tricks designed to rub the instructor the right way.

Objectives, then, are useful in providing a sound basis (1) for the selection or designing of instructional content and procedures, (2) for evaluating or assessing the success of the instruction, and (3) for organizing the students' own efforts and activities for the accomplishment of the important instructional intents. In short, if you know where you are going, you have a better chance of getting there.

There are additional advantages, not the least important of which is that the drafting of objectives causes one to think seri-

ously and deeply about what is worth teaching, about what is worth spending time and effort to accomplish. And if objectives are drafted that describe a course or curriculum already in existence, the objectives can serve as a spotlight to illuminate the worth of that existing instruction, and they can provide a basis for improving it.

A BASIC DISTINCTION

Before looking in detail at the characteristics of a usefully stated objective, it would be well to make sure we are thinking about the same thing. An objective is a statement describing an instructional outcome, rather than an instructional process or procedure. It describes results, rather than the means of achieving those results.

Now look at the following statement, and then answer the question that comes after it. Turn to the page whose number appears beside the response you select:

A general survey of the organizing and administration of elementary- and secondary-school libraries, with emphasis on methods of developing the library as an integral part of the school. Includes functions, organization, services, equipment, and materials.

What does the above statement represent? Does the statement look more like an *objective* of a course, or does it look more like a *description* of a course?

An objective of a course. Turn to page 11.

A description of a course. Turn to page 13.

Here is an example of how, when objectives aren't stated carefully, activities in the classroom can hinder the student's efforts to achieve an objective.

At a large training establishment operated by the government, a course was once offered in which students were to learn how to operate and repair a large, complex electronic system. The goal of the course was simply stated: To be able to operate and maintain the XYZ Electronic System.

Since it was impossible (because of the exorbitant cost) to provide each student with a separate system to practice on, it was decided to increase the amount of troubleshooting the student did during the course by giving him some "practice" in the classroom as well as in the laboratory.

During the classroom troubleshooting exercises, the instructor would pose various problems for his students to solve. He would point out a component on one of the many schematic diagrams of the equipment and ask, "What would happen if this tube were bad?" Students would then trace through the circuitry (on paper) in an effort to divine the symptoms that would appear as a result of the instructor's hypothetical trouble. The students were given a trouble and asked to induce symptoms.

This procedure, however, was exactly opposite to that which was expected of the learner on the final examination or on the job. There he was typically shown a symptom and asked to locate the trouble. The instructors were expecting the learner to run forward by teaching him how to run backward.

Thus, for want of a specific statement of objectives, students were not only learning the wrong thing, but the habits they were developing in the classroom were in conflict with those they were expected to use on the job.

Oooooops! You didn't follow instructions. Nowhere in this book are you directed to this page. When you are asked a question, you are to select what you think is the correct or appropriate alternative and turn to the page indicated beside that alternative.

You see, I am trying to tailor my comments to your needs by asking you to answer some questions as we go. This way, it will not be necessary to bore you with additional explanations when a single one will do.

But, as long as you are here, you might as well run your eyeballs across the page opposite; then go back a page and read the instructions again.

Occasionally you will find material presented in italics on a left-hand page. This is auxiliary material that you may find interesting, informative, or useful. Read it as you go, or, if you find that distracting, save it for a rainy day.

