Preparing Instructional Objectives

A critical tool in the development of effective instruction

Third Edition

Robert F. Mager 1997
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Contents

Preface v

1 Objectives 1
(What the book is about)

2 Why Care About Objectives? 13
(Importance of being explicit)

3 Where Objectives Come From 33
(Origins count)

4 The Qualities of Useful Objectives 43
(Do they communicate?)

5 Performance 51
(What will the learner be doing?)

6 Conditions 83
(What conditions will you impose?)

7 Criterion 109
(How will you recognize success?)

8 Pitfalls and Barnacles 137
(Common problems)

9 Sharpen Your Skill 155
(Guided practice)

10 Self-Test 173
(How well did you do?)

The Stoner and the Stonees 183
Index 187
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, 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 through 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.

Note

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

Another Note

Every once in a while you’ll find some “boxed” material on a left-hand page. This is adjunct material that you may find interesting or useful. Read it as you go, or, if you find that distracting, save it for a rainy day.
"You're in luck. If you 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. He 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 some place else.

It's true, isn't it? If you don't know where you're going, the best-made maps won't help you get there. Without a blueprint, the finest materials and the most skilled artisans wouldn't be able to create the house of your dreams. Similarly, without a way to communicate your instructional objectives to others:

- You wouldn't be able to decide which instructional content and procedures would help you to accomplish your objectives.
- You wouldn't be able to create measuring instruments (tests) that tell you whether your students had become competent enough to move on.
- And your students wouldn't be able to decide for themselves when to stop practicing.

A clear statement of objectives, on the other hand, will help you avoid these and other problems, because they will give you, and others, a sound basis for selecting instructional content and procedures, as well as the means for finding out whether your important outcomes have actually been accomplished. Objectives will also provide you with a communication tool through which you can let others know what you, or someone else, has decided is worth teaching.

This book is about the characteristics of usefully stated objectives. It will show you how to draft objectives that communicate your instructional intent, and it will show you where objectives fit in the larger scheme of the instructional enterprise.

This book is NOT about who should select objectives, nor is it about how one goes about deciding what is worth teaching. These are critical issues, but they are beyond the scope of this book.

Specifically, the objective of this book is this:

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

Once you recognize the presence or absence of the characteristics of well-stated objectives, you will be able to prepare your own.

If you care about developing and/or delivering instruction that will give your students the skills and knowledge important for them to have, this book is for you.

Robert F. Mager
Carefree, Arizona
January 1997
Instruction is effective to the degree that it succeeds in:

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

Instruction that doesn't change anyone has no effect, no power. If it changes students in undesired directions (that is, if it has unwanted side effects), 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 required 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) your students don't already know what you intend to teach and (2) instruction is the best means for bringing about the desired change. For another, you must clearly specify the outcomes or objectives you intend your instruction to accomplish. You must then select and arrange learning experiences for your students in accordance with the 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 four main phases:

Analysis
Design/development
Implementation
Evaluation/improvement

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. 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 instruction is unrelated to solving 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.


If 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) by which the success of the instruction can be assessed are then drafted.

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, 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.”

What Is an Instructional Objective?

An instructional objective is a collection of words and/or pictures and diagrams intended to let others know what you intend for your students to achieve.

- It is related to intended outcomes, rather than the process for achieving those outcomes.
- It is specific and measurable, rather than broad and intangible.
- It is concerned with students, not teachers.

The Objective of This Book

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, and after a bit of practice, 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, be able to identify (label) correctly the performance, the conditions, and the criteria of acceptable performance when those characteristics are present.*

To help you 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 give you some practice in recognizing such objectives. At the end, you will have an opportunity to determine just how well our efforts have succeeded.

Before we begin, it will be useful to look in some detail at the difference between instructional process and instructional results.

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**Outcomes vs. Process**

An objective is related to an intended outcome of instruction, rather than the process of instruction. For example, when a chef adds seasoning to a soup, that is part of the process of cooking. But it isn’t the result of the cooking. The soup itself is the outcome, or result, of the cooking.

Lecturing is something an instructor does to help the students to learn; it is part of the process of instruction. But a lecture is not the purpose of the instruction. The purpose of instruction is to facilitate learning. So when teachers teach (process), they do it because they hope that students will learn (the result or outcome). Therefore, statements such as the following are descriptions of instructional process, rather than of intended results.

- To provide a lecture series on phrenolatianism.
- Be able to perform well in a role-play situation.
- This course provides extensive practice exercises.

Because recognizing the difference between process statements and outcome statements is critical to the effective use of objectives, it will be useful to check your ability to spot the difference. Following are two statements. Turn to the page number shown beside the outcome statement.

*Be able to sing.*  
*Turn to page 9.*  

*Develop confidence.*  
*Turn to page 7.*
Uh, oh. What are you doing here? Nowhere in this book are you directed to this page.

In this kind of book, when you are asked a question, you are to select what you think is the correct response, and then turn to the page number indicated beside that alternative.

You see, I'm trying to tailor my comments to your needs so that you won't have to waste your time reading about things you already know. By answering the periodic questions, you'll be able to test yourself through the book a lot faster than if you had to read all the pages.

**Don't miss this note!**

Every once in a while you'll find some material boxed on a left-hand page. This is adjunct material that you may find interesting or useful. Read it as you go, or, if you find that distracting, save it for a rainy day.

Please return to the page from whence you cometh.

You said that "Develop confidence" is an outcome statement.

Let me try again. Think of your instruction as being like a train that takes your students from one place to another. The question to be answered by an objective is, "What are students expected to be like when they arrive at their destination?"

It might help to think of the difference between statements describing the process of building a house and those describing the characteristics (outcomes) of a completed house. For example, here are some process statements about the construction process:

- The foundation is laid before the walls go up.
- Walls are to be constructed of crushed tin cans.
- Scaffolding will be used when installing the roof.

In contrast, the following statements describe characteristics (outcomes) of the completed house:

- The house contains three fireplaces.
- The front of the house faces south.
- All windows are constructed of double-pane glass.

Outcomes are the results we get from processes.

*Turn to page 5 and select the correct response.*
OBJECTIVES

Right on! "Be able to sing" is an outcome statement. It describes something we might want our students to be able to do. Keep this up and you'll fall out of the back of the book in no time.

Specific vs. General

Another characteristic of an objective is that it is specific, rather than general, broad, or "fuzzy." If objectives are fuzzy, they don't do us any good and we might as well not bother with them. We want them to be specific, so they will help us to make good instructional decisions.

Here are a few examples of specific and fuzzy statements. Put a check mark beside the specific statements, and then turn the page to check your responses.

Understand logic.
Know your enemy.
Thread this needle.
Reassemble this cat.
Think.
Smile when addressing a customer.

Turn the page to check your responses.
The items checked are specific; the others are fuzzy.

Understand logic.        
Know your enemy.         
Thread this needle.      ✓
Reassemble this cat.     ✓
Think.                   
Smile when addressing a customer. ✓

As you will see, specific statements are precise; you can immediately determine whether or not you have met the objective. If you have not met it, the specific statement indicates what you must do to meet it. On the other hand, general or abstract statements (fuzzies) leave you in the dark. They must be reworded until they say exactly what is expected.

Measurable vs. Unmeasurable

An objective is considered measurable when it describes a tangible outcome. For example, objectives that describe intended outcomes that you can see or hear are measurable.

For example, an objective that says, “Be able to tie a knot,” is measurable, because we can see knot-tying behavior and therefore assess whether it meets our expectations.

On the other hand, a statement that says, “Be able to internalize a growing awareness of confidence,” is not only not measurable, it can’t even be called an objective. What would you measure? What would you watch a student do to decide whether or not the internalizing had occurred to your satisfaction? The statement doesn’t say.

Students vs. Instructors

“Instructional” objectives describe the student’s performance rather than the instructor’s performance. Objectives that describe the instructor’s performance are called “administrative” objectives. Instructors help students to accomplish the instructional objectives.

For example, some of the following statements relate to what instructors might do, and some relate to what students might be expected to learn to do. Put a mark beside those that relate to student performance.

Lecture on the theory of tail wagging.
Be able to draw a duck.
Arrange field trips.
Arrange role-playing exercises.
Be able to write a business letter.
Explain the importance of the bottom line.
Be able to make change without error.

Turn to page 12.
Lecture on the theory of tail wagging.  
*Instructors lecture; students listen.*

Be able to draw a duck.  
*A skill that students might be expected to learn.*

Arrange field trips.  
*Instructors arrange field trips and other activities.*

Arrange role-playing exercises.  
*Instructors arrange role-playing and other exercises.*

Be able to write a business letter.  
*Something students might be asked to do.*

Explain the importance of the bottom line.  
*Same with this one.*

Be able to make change without error.  
*Same with this one.*

This might have seemed like a trivial exercise, yet there are many instructors who cannot yet distinguish between statements about *instructor* activity and *student* performance. (If you’re unlucky, you’ll run into hundreds of so-called “objectives” that begin something like, “Seventy percent of the class must be able to __________.” Such statements relate to teacher goals, not intended student outcomes.)

For now it’s enough to know that if an objective is going to be useful, it needs to contain specific and measurable student outcomes.

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**2**

Why Care About Objectives?

To wonder why we should care about instructional objectives is like wondering why we should know:

- where we’re going before buying a bus ticket
- what we’re intending to manufacture before turning on the factory
- whom we intend to hit before throwing the pie

After all, instruction is only successful to the degree that it succeeds in changing students in desired ways, rather than in undesired ways. If instruction doesn’t change anyone in desired ways, it isn’t any good, regardless of how elegant the lectures are or how complicated the hardware used to present it is.

Simply, if instruction is to accomplish desired outcomes, it is imperative that those designing the instruction, as well as the ones doing the instruction, have a clear picture of those desired outcomes.

Because objectives are tools for describing intended outcomes, they provide a key component for making instruction successful and are useful in several ways.
Materials/Procedure Selection

When clearly defined objectives are lacking, there is no sound basis for the selection of instructional materials and procedures. If you don’t know where you’re going, how will you know which road to take to get there? (Or, as Yogi Berra said, “When you reach a fork in the road, take it!”)

After all, machinists and surgeons don’t select tools until they know what they’re intending to accomplish. Composers don’t orchestrate scores until they know what effects they are trying to create. Too often, however, one hears instructors arguing the relative merits of books versus lectures, computers versus video, self-pacing versus group-pacing—without ever specifying just what results they expect these things to achieve. 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.

Instructor Ingenuity

Once the important outcomes of instruction have been derived and clearly stated, it is then possible to say to instructors, “Here are the objectives you are expected to achieve. Now go use your best wisdom, experience, and ingenuity to achieve them.” In other words, the existence of the objectives can free instructors to be creative and flexible.

With objectives in place, it is no longer necessary to expect all instructors to be doing the same thing at the same time during a lesson. It’s like a football game, where the quarterback selects the best play to get his team where he knows it has to go. You can imagine what a game would be like if all quarterbacks had to use the same sequence of plays and have to succeed or fail “merely” on the basis of how well each play was executed.

Consistent Results

Objectives provide the basis for achieving consistent instructional results. With the instructional goal posts clearly visible, it is possible to provide enough instruction and practice so that all students learn to perform at least as well as the objectives require. Some will learn more or reach a higher performance level than the objectives require, of course, but everyone can be expected at least to accomplish each objective.

With objectives, it is possible to achieve desired results without requiring consistency in the process for getting those results.

Measurable Results

How many courses have you taken in which the tests had little or nothing to do with the substance of the instruction? No surprise there. Unless objectives are clearly and firmly fixed in the minds of both instructors and students, tests are likely to be at best misleading; at worst, they will be irrelevant, unfair, or uninformative. Without clear objectives it simply isn’t possible to decide which measuring instrument will tell you what you want to know.

She: Why are you waving that meter stick around?
He: I wanna know how windy it is.

Clearly stated objectives provide a sound basis for selecting the means by which to find out whether they have been achieved. Suppose part of an objective said, “Be able to make a low-altitude parachute jump...” How could you find out whether your students can actually do what they were supposed to learn to do? How about a multiple-choice test? After all, they’re easy to score, and you could even claim to be using an “objective” test. No? What about something in a true-false
variety? You could have lots of fun dreaming up wrong answers.

True/false: Parachutes always come in pairs.
True/false: Red parachutes are heavier than white ones.

How about an essay test? Students should be able to describe how a parachute works and how they are packed, shouldn't they?

No doubt you saw right off that the only way to test whether someone can make a low-altitude jump is, in effect, to say, "Lemme see you make a low-altitude jump." And how did you know that? Because the objective clearly stated the intended outcome of the instruction. With clear objectives you don't have to be an expert in test construction to select and create measuring instruments that will tell you whether your objectives have been accomplished.

**Goal Posts for Students**

Clearly defined objectives also can be used to provide students with the means to organize their own time and efforts toward accomplishment of those objectives. When the instructional intent has been clarified—and revealed to the students—it is no longer necessary for them to guess what an instructor might have in mind for them to accomplish.

He: Think we should memorize the chapters?
She: Don't bother. This one's a footnote fanatic.

As you know too well, many students are required to spend considerable time and effort learning the peculiarities of their instructors when those instructors fail or refuse to let them in on the secret of what they're expected to learn. Unfortunately, such knowledge can be useful in helping students breeze through a course with little more than a bagful of tricks designed to rub the instructor the right way. Clear objectives in the hands of the students eliminate the need for such time-wasting and anxiety-producing activity.

Which leads to the final point: With clear objectives, it is possible to organize the instruction itself so that instructors and students alike can focus their efforts on bridging the gap between (a) what each student can already do and (b) what each needs to be able to do to accomplish each of the assigned objectives.

**Instructional Efficiency**

We have seen time and time again that when good objectives have been derived, existing instruction often can be drastically shortened. In fact, instruction can sometimes be eliminated altogether when the objectives help reveal that inadequate job performance is due to factors other than lack of knowledge or skill.

This "miracle" is effected by comparing information about what people need to be able to do (as described by the objectives) with information about what they already know how to do (as provided by target-population descriptions and/or performance tests). When there is no difference between the "should be able to do" and "can already do," it is clear that more instruction won't help; it is clear that the source of inadequate performance must be found elsewhere. (There are many reasons why people don't do what they already know how to do: Unclear performance expectations; absence of tools, space, or authority to perform as expected; and so on.)

Objectives are also useful in helping organizations respond to the pressures of downsizing and the resulting need to do more with less. With such pressures operating, it is critical for workers to become competent as quickly as possible. At the
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 big, complex electronic system. The goal of the course was simply stated: To be able to operate and maintain the \textit{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 students did during the course by giving them some “practice” in the classroom as well as in the laboratory.

During the classroom troubleshooting exercises, the instructor would pose various problems for the 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 component were bad?” Students would then trace through the circuitry (on paper) in an effort to divine the \textit{symptoms} that would appear as a result of the instructor’s hypothetical trouble. The students, in other words, were given a trouble and asked to induce symptoms.

This procedure, however, was exactly opposite to that which was expected of the learners on the final examination or on the job. There they were typically shown a \textit{symptom} and asked to locate the \textit{trouble}. The instructors were expecting learners to run forward by teaching them 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.

same time, it is important that they not be removed from their job sites any longer than absolutely necessary to attend training. Objectives not only allow the training to be streamlined to the needs of the individual trainee, they often allow instruction to be delivered a module at a time, at more convenient locations, and during short periods that do not disrupt the flow of work.

\textbf{Summary}

Objectives are useful for providing:
\begin{itemize}
  \item A sound basis for selection of instructional materials and procedures,
  \item Room for instructor creativity and ingenuity,
  \item Measurable instructional results,
  \item Tools for guiding student efforts, and
  \item A basis for realizing instructional efficiency.
\end{itemize}

There are additional advantages, not the least of which is that the act of drafting objectives causes one to think seriously and deeply about what is worth teaching. When objectives are drafted for courses already in existence, they can serve to spotlight opportunities for instructional improvement.

\textbf{A Basic Distinction}

Before practicing to recognize the characteristics of a usefully stated objective, we should make sure we’re beating on the same drum. So far, we’ve noted that objectives are statements describing intended instructional outcomes, rather than the processes or content that will be used to achieve those outcomes. They describe ends rather than means. Therefore, there is a significant difference between course descriptions and their intended outcomes.
**Why Care About Objectives?**

*Course descriptions* tell what a course is about, e.g., “Includes study of all the great philosophers, from Aristotle to Berra.”

*Objectives* describe what students are expected to be able to do, e.g., “Given a stick, be able to beat a dead horse to oblivion.”

Now read the following statement and the questions at the end of the statement. Then turn to the page number shown beside your answer to those questions.

*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? Is the statement an *objective* of a course or a *description* of a course?

- *An objective of a course.* Turn to page 23.
- *A description of a course.* Turn to page 27.
Some years ago, the chief instructor of a 32-week military course noticed the peculiar fact that students were doing rather poorly on every third examination. Scores were low on the first exam and then considerably better on the next two, low on the fourth and high on the next two, and so on. Since scores were consistently low and then high even for the brighter students, the instructor correctly concluded that this peculiarity was not because of student intelligence or the lack of it. He then decided that he was so close to the course he probably wasn’t seeing the woods for the trees, so he called in consultants.

During their analysis of the situation, the consultants noticed that the course was divided into five sub-courses. Each sub-course was taught by a different team of instructors, and during each sub-course the students were given three examinations. They discovered that students did poorly on the first test because they hadn’t been told what to expect; they had to use the first test as a means of finding out what the instructors expected. Once they had learned what the objectives were, they did much better on the next two exams of that sub-course. But then another team of instructors took over. Believing the second team’s examinations would be similar to those of the first team, the students prepared themselves accordingly, only to discover that the rules had been changed without their knowledge. They then did poorly on the fourth test (the first test given by the new instructor team). And so it went throughout the course. Objectives were vague, and the students were never told what to expect.

Once these conditions were made known to the chief instructor, the problem was easily solved.

You said the statement was an objective of a course. Apparently I didn’t make myself clear earlier, so let me try again.

A course description tells you something about the content and procedures of a course. A course objective describes a desired outcome of a course.

Perhaps the sketch below will help make the distinction clear:

**Instruction**

(course)

<table>
<thead>
<tr>
<th>PREREQUISITES</th>
<th>DESCRIPTION</th>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>What a learner has to be able to do to qualify for a course.</td>
<td>What the course is about.</td>
<td>What a successful learner will be able to do at the end of the course.</td>
</tr>
</tbody>
</table>

Whereas an objective tells what the learner will be able to do as a result of some learning experiences, the course description tells only what the course is about.

The distinction is quite important, because a course description does not explain what will be accepted as adequate accomplishment. Though a course description might tell students which field they will be playing on, it doesn’t tell them where the boundary lines are, where the goal posts are located, or how they will know when they have scored.

It is useful to be able to recognize the difference between an objective and a description, so try another example.
WHY CARE ABOUT OBJECTIVES?

Which of the following statements looks most like an objective?

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

*Turn to page 29.*

*Discusses and illustrates principles and techniques of computer programming.*

*Turn to page 31.*
College catalogs frequently mislabel the content. For example,

Course Objective: To cover the military strategies and tactics of the Civil War.

Statements such as these may say something about the objective of the instructors, but nothing about what the students should be able to do at the conclusion of the course. Calling it an objective doesn’t make it one.

You said the statement was a description of a course. And right you are! I’m sure you recognized the statement as a course description lifted from a college catalog.

One final word about course descriptions before moving on. Though a description sometimes tells us a good deal about what a course includes, it does not tell us what the course is supposed to accomplish. More important, it does not tell us how to determine when the intended outcomes have been achieved.

So, though a course description may be perfectly legitimate for a catalog, here we are interested only in the intended results of that course.

Zip ahead to page 33.
You said "In at least two computer languages, be able to write and test a program to calculate arithmetic means" was a statement of an objective.

Correct! The statement describes an intended outcome—something the student is expected to be able to do—rather than the procedure by which the student will develop that skill.

Since you can tell the difference between a course description and a course outcome, it's time to move on.

*Turn to page 33.*
WHY CARE ABOUT OBJECTIVES?

Well . . . no. The collection of words that led you to this page is a piece of a course description—and not a very good description, at that. Look at it again:

*Discusses and illustrates principles and techniques of computer programming.*

Notice that the statement seems to be talking about what the course covers or what the instructor will be doing. There isn't a word about what the student will be able to do as a result of the instruction. I hope you are not being misled by the fact that college catalogs are full of statements like this one. They are not statements of learning outcomes, and they are not what we are concerned with here.

Let me try to explain the difference this way. A course description outlines various aspects of a process known as instruction. A course objective, on the other hand, is a description of the intended *results* of the instructional process. It's sort of like the difference between bread and baking. Baking is what you do to get the bread, but it isn't the same as bread. Baking is the process; bread is the result. Similarly, instruction is the process; student competence is the result.

*Turn to page 5 and read the material again.*
Where Objectives Come From

Instructional objectives come from many sources. Some of these sources are rational, systematic, and useful; others are egocentric, disorganized, and astonishingly haphazard. Systematic derivation procedures lead to objectives truly worth accomplishing. The "I know what's best for students" approach, on the other hand, often leads to objectives that describe outcomes of little value to the student. This is because "I know best" decisions can so often be totally disconnected from any real need for instruction. Such questionable decisions can be derived from prior experience which may be out of date, from biases inspired by the chapters that happen to be included in a textbook, from instructor preferences about what they like to teach, or from inertia—"I've always taught it this way."

When derived from any of these non-systematic "methods," the resulting instruction can prove totally useless to the student, regardless of the importance of the subject matter to the instructor. Unfortunately, people embedded in the middle of an educational system can easily lose sight of the fact that good objectives are ultimately derived from the real world. (That's another way of saying that the purpose of instruction is to help
someone learn to do something of value—to someone other than the instructor.) Instructors can get so engrossed in “teaching points” that they forget that the purpose of the enterprise is to get beyond the “talk about” to the “DO about.”

Properly derived objectives—all genuine objectives—are ultimately about doing. They describe the desired results of instruction, rather than the activities of instruction. They provide descriptions of instructional destinations, thus allowing us to derive components of the instructional process that will be truly relevant to reaching those desirable destinations.

Most instructional objectives are derived from two general sources:

1. Personal desires
2. External needs

**Personal Desires**

People often decide that they want to accomplish something on their own, with or without formal instruction. New Year's resolutions, for example, often describe personally selected objectives:

“I will lose ten pounds by June 1.”

“I will be out of debt by the end of this year.”

Self-selected goals that involve learning might include the following:

“I'll learn to play the harp so that I can wow my neighbors at the block party next month.”

“My spouse is leaving me, so I'm going to the bookstore to learn everything I can about how to handle a divorce.”

“My boss returned my monthly report with all the spelling errors circled. I'd better learn how to spell.”

Having decided, they are the ones who must take action to accomplish their goals. Those who prefer a systematic approach will take steps to decide as precisely as they can just what it is they hope to accomplish through their learning. They will, in other words, establish a list of objectives. Having done that, they are in a much better position to decide what actions they need to take to accomplish them.

**External Needs**

Suppose, though, that you have decided to become a licensed Zamboni driver, so that you can get paid for tooling around an ice rink while waving at the cheering throngs. In this instance, it doesn't matter much what you may want to learn, because the learning need will be defined by what it takes to accomplish the task. In other words, the instructional objectives for your learning will be derived not from your personal preferences, but from what other people have determined to be the tasks that any Zamboni driver has to be able to perform.

If you sign up for instruction, the objectives will be derived and established by the coach or instructor. But how do they derive these and other objectives? They do it by analyzing various levels of needs. The analysis might begin by reviewing the needs of an entire organization, or it might begin at a lower level, such as a division or department. At the end of the process, the analysis finally reveals needs that must be fulfilled if the desired goals are to be achieved. “Need” here refers to a performance “hole” that must be filled if an expected or planned accomplishment is to be realized. For example:

“To qualify for enrollment in Algebra II, students need to be able to perform these tasks.” (List would be added here.)
Because traditionally most instruction has been done in classrooms, we sometimes forget that we often use those very same classrooms for things other than instruction. For example, here are the kinds of activities for which classrooms are often used:

**Information sessions:**
"Let me explain the benefits package."

**Sales sessions:**
"Let’s begin by singing the company song."

**Motivation sessions:**
"You really oughta wanna get out and sell."

**Orientation sessions:**
"Here’s an overview of this course."

**Bull sessions:**
"Let’s knock some new-product ideas around."

**Instructional sessions:**
"Here’s how to do it."

Notice that only the instructional sessions tend to change behavior in carefully specified ways. Therefore, instructional objectives are appropriate only for teaching sessions. The fact that "it" is done in a classroom shouldn’t stampede you into deriving and drafting objectives. Create objectives only when there are things that people don’t yet know how to do and also need to know how to do.

"To perform your job competently, you need to be able to solder well enough to meet military specifications."

"An analysis reveals that 50% of our sales force can’t speak English well enough to communicate with our customers. We need to correct this problem as soon as possible."

"We’re planning to make significant changes in the organization, and people will need to have these listed skills and knowledge to function successfully." (List would be added here.)

Once these performance needs have been derived, they are compared against what individuals can and cannot now do. Those things that people cannot now do, and need to be able to do, become objectives for instruction.

**Systematic Derivation of Instructional Objectives**

Those responsible for meeting external performance needs (e.g., performance analysts, instructional developers) use a systematic procedure to derive objectives and to decide what is worth teaching. This procedure follows some version of the following steps:

1. **Task listing.** Any job, position, profession, or hobby consists of a collection of tasks. This collection names the things that people do when carrying out their work or play. (Note: A task is a series of steps leading to a useful/meaningful outcome.) Here are the names of some tasks that people might have to perform:
Here is an example of a skill hierarchy, or pyramid, showing the relationships between the skills involved in making a pizza.¹

Read the hierarchy this way: Before students can practice the main skill (making pizza), they need to be able to use an

- make pizza
  - use oven
  - make dough
  - make sauce
    - read recipe
    - measure ingredients
      - decode abbreviations

oven, make dough, and make sauce. These skills are subordinate (prerequisite) to the terminal skill in that they must all be learned before the terminal skill can be practiced in its entirety. But these three skills are independent of one another; they can be learned in any order.

Before the skills of making dough or making sauce can be practiced, students will have to be able to read a recipe and measure ingredients. These skills are both subordinate to the sauce-and-dough making but are independent of one another. Either could be learned first. Finally, to read a recipe, the learner first has to learn how to decode abbreviations.

¹ Hierarchy courtesy of Diane Pope.

- Prepare a lesson plan
- Take spinal X-rays
- Change a tire
- Interview an applicant
- Write a report
- Write correctly spelled letters
- Play a song
- Send/receive Morse code
- Drive a golf ball at least 200 yards

If the job is new, or if there is some question about whether the current tasks being performed are appropriate, a “higher” level of analysis will be indicated. In other words, first we’ll decide what the job should consist of, and then we’ll list the tasks that will be required to do the job.

2. Task analysis. Once the tasks have been identified, the next step is to draw a picture for each task describing the steps and key decisions that make up the task. This procedure, called task analysis, reveals the components of the task by describing what a competent person does when performing the task. It gives the reason for starting to perform the task; it describes the steps followed and decisions made during completion of the task; and it indicates how to tell when the task has been completed, i.e., when to stop doing the task.

3. Skill derivation. With a task analysis in hand, it is possible to answer the question, “What would anyone have to know or be able to do before being ready to practice this entire task?” For example, before being ready to practice the task of interviewing a job applicant, anyone would have to be able to (a) interact tactfully, (b) speak
the applicant's language, and (c) complete an interview form. To complete the interview form may in turn require that the interviewer be able to (d) write legibly and/or (e) make computer entries.

In this way all of these skills that anyone would need to have are systematically derived from what competent interviewers actually do.

4. **Objectives drafting.** Now that the required skills have been derived from the task analyses, the next step is to draft objectives describing the limits—the "amount"—of skill that anyone would need to perform the various tasks. The objective describes the performance desired, the conditions under which the performance should occur, and the level of skill required.

The objectives describing the skills needed for performance of all of the job-related tasks provide the basis for development of a curriculum, a course, or coaching sessions.

The beauty of this procedure is that instructors who have derived objectives in this manner are able to prove that what they are teaching is relevant to the fulfillment of an important need.

5. **Skill-hierarchy drafting.** The next step is to draw a skill hierarchy that shows the prerequisite relationships between the objectives. A hierarchy looks a good deal like an organization chart and shows which skill needs to be mastered before another can be profitably practiced. For example, one needs to learn to speak a language before learning how to interact tactfully; one needs to be able to write before practicing writing reports or filling in forms. (See example on page 38.)

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6. **Curriculum derivation.** To this point, the focus has been on what anyone would have to be able to do to perform competently in the target area (job, assignment, hobby, etc.). With objectives and hierarchy in hand, it is now possible to derive an efficient curriculum for each student or trainee by comparing the objective with what a given student can already do. If a given student can already do what one or more objectives require, these objectives are deleted from that student's curriculum.

Trainers expecting to work in business and industry must at the very least be able to perform the systematic objectives—deriving steps just described.

Now that we've taken a brief look at where objectives come from, it's time to consider the anatomy of an objective, so that you will be able to recognize a useful one when you see one and to draft your own.
The Qualities of Useful Objectives

Experience during recent decades has shown that instructional objectives are extremely important tools in the design, implementation, and evaluation of instruction. They are useful in pointing to the content and procedures that will allow instruction to be relevant and successful. They are useful in helping to manage the instructional process itself, and to point to the means for assessing instructional success.

Objectives in the hands of the students prevent the students from having to guess at how they might best organize their time and effort.

But what are the qualities of a useful objective? What characteristics would make one objective more useful than another?

Simply put, a usefully stated objective is one that succeeds in communicating an intended instructional result to the reader. It is useful to the extent that it conveys to others a picture of what a successful learner will be able to do; and to the extent that the picture it conveys is identical to the picture the objective writer had in mind.

Now, any number of combinations of words and pictures and symbols might be used to express an intended outcome.
What you are searching for is that group of words or symbols that will communicate your intent exactly as YOU understand it. For example, if you provide other instructors with an objective and they then teach some students to perform in a manner that you agree is consistent with what you had in mind, then you have communicated your objective in a meaningful manner. If, on the other hand, you “had something more in mind” or they didn’t “grasp the essence” of your intent, then your statement failed to communicate adequately, regardless of how that statement was worded.

A meaningfully stated objective, then, is one that succeeds in communicating your intent; the best statement is the one that excludes the greatest number of possible meanings other than your intent.

Unfortunately, there are many slippery words that are open to a wide range of interpretation. (If you have tried to write more than a few sentences that say what you mean, you know how exasperating those little devils can be.) It isn’t that such words aren’t useful in everyday conversation. After all, you wouldn’t want to be skewered with a “What do you mean by that?!?” every time you said something like “It’s a nice day,” or “I really appreciate you,” or “I’m fine.” But if you use only such broad terms (or “fuzzies”) when trying to communicate a specific instructional intent, you leave yourself open to misinterpretation.

Consider the following phrases in this light:

<table>
<thead>
<tr>
<th>WORDS OPEN TO MANY INTERPRETATIONS</th>
<th>WORDS OPEN TO FEWER INTERPRETATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>to know</td>
<td>to write</td>
</tr>
<tr>
<td>to understand</td>
<td>to recite</td>
</tr>
<tr>
<td>to really understand</td>
<td>to identify</td>
</tr>
<tr>
<td>to appreciate</td>
<td>to sort</td>
</tr>
<tr>
<td>to fully appreciate</td>
<td>to solve</td>
</tr>
<tr>
<td>to grasp the significance of</td>
<td>to construct</td>
</tr>
<tr>
<td>to enjoy</td>
<td>to build</td>
</tr>
<tr>
<td>to believe</td>
<td>to compare</td>
</tr>
<tr>
<td>to have faith in</td>
<td>to contrast</td>
</tr>
<tr>
<td>to internalize</td>
<td>to smile</td>
</tr>
</tbody>
</table>

What do you mean when you say you want learners to know something? Do you mean you want them to recite or to solve or to construct? Just to tell them you want them to “know” tells them little—because the word can mean many different things. Until you say what you mean by “knowing” in terms of what students ought to be able to DO, you have said very little at all. Thus, an objective that communicates best will be one that describes the student’s intended performance clearly enough to preclude misinterpretation.

How can you create this type of objective? What characteristics might help an objective to communicate and be useful? Several schemes might be used in stating objectives, but the format described on the following pages is known to work, and it is the one I have found easiest to use.
The format includes three characteristics that help an objective to communicate an intent. These characteristics answer three questions:

- What should the learner be able to do?
- Under what conditions do you want the learner to be able to do it?
- How well must it be done?

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

   *Example:* Be able to ride a unicycle.
   (The performance stated is *ride.*)

   *Example:* Be able to write a letter.
   (The performance is *writing*; the product of the performance is a letter.)

2. **Conditions.** An objective describes the important conditions (if any) under which the performance is to occur.

   *Example:* Given a product and prospective customer, be able to describe the key features of the product.
   (The performance is to occur in the presence of a *product* and a *customer*; these are the conditions that will influence the nature of the performance, and so they are stated in the objective.)

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

   *Example:* Given a computer with word-processing software, be able to write a letter.
   Criteria: All words are spelled correctly, there are no grammatical or punctuation errors, and the addressee is not demeaned or insulted.
   (In this case the criteria of acceptable performance are labeled as such; often they are not.)

   Sometimes there will be no special conditions to include, and sometimes it is impractical or useless to include a criterion (as when the criterion is obvious). But the more you say about your desired intent, the better you will communicate.

**Characteristics That Should NOT Be Included in Objectives**

It would be possible to add other features to objectives, such as instructional procedures, descriptions of the target audience, or format requirements.

**Instructional procedure.** For example, it would be possible to include a description of the procedure by which the objective will be accomplished, as in:

"Given six lectures on the subject of ________ ..."

This feature would not serve a useful purpose, and it could be extremely limiting. What about an instructor who could accomplish the objective with only two lectures? Or with no
lectures at all? Or could succeed by some other means? And what about the students who need no instruction at all? The objective should mention only outcomes, so that those charged with accomplishing those outcomes will be free to use their best wisdom and experience in doing so.

Imagine what would happen if industrial blueprints included information about how the products described should be manufactured. Aside from cluttering the blueprints and making them difficult or impossible to read, it would hamper those who had better ways to proceed than those described in the blueprint.

**Target audience.** Some people also describe the target audience for which the objective is intended, as in:

“First-line supervisors will be able to interview applicants . . .”

Such a feature would also get in the way. While it may be true that first-line supervisors need to be able to interview applicants, that might also be true for other groups. Should you have a different objective for each group, even though each of those objectives would say exactly the same thing?

In attempting to answer that question, I remember a school system whose teachers were required to write classroom objectives, course objectives, school objectives, district objectives, and county objectives. All those objectives described exactly the same performance, but the teachers went nuts trying to make them look different. In short, the answer is no.

**Format.** It would also be possible to insist that all objectives conform to a specific form or format. For example, one could expect all objectives to be written in a single sentence, or to begin with the conditions, or to not exceed a certain number of words. This again would be lunacy, as it would be another way to defeat the purpose of the objective, which is to describe a desired outcome.

I once visited a school in which teachers were expected to write their objectives on a form printed by the principal. His form had a line printed every two inches down the page, the implication being that every objective was no more than seven inches long and two inches high. Would you be surprised to learn that the teachers were hostile to the idea? But you are not looking for objectives that are a particular size and shape. You are looking for objectives that are clear, that say what you want to say about your instructional intents as concisely as possible. And that is all. So, anybody who says that an objective must be no more than two inches high and seven inches wide or who says an objective must or must not contain certain words should be reminded that the function of an objective is to communicate. If it does, rejoice. If it doesn’t, fix it! You don’t work on an objective until it matches someone’s idea of “good looks”; you work on it until it communicates one of your instructional intents, and you write as many objectives as you need to describe ALL instructional results you think are important to accomplish.

The following chapters are intended to help you to do just that.