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ABSTRACT
        The intent of this guidebook is to assist teachers
and program directors to prepare instructional objectives in a way
that will be most useful both for them and for those involved in the
evaluation of humanities programs. Contemporary humanities education
seeks to achieve its objectives in four categories of student
behavior: (1) reasoning, meaning the individual can modify her or his
conduct to meet new situations; (2) the affective domain, how a
person feels about wanting to learn and what each feels after
learning; (3) interdisciplinary learning, understanding the
interrelationships between disciplines and their personal and social
significance; and (4) values, helping young people develop values
that will give them a sense of direction. Humanities education seeks
to support these objectives through three major strategies: (1)
process approach, recognizing a need to develop an educational
approach based on adaptable process skill, secondarily on content;
(2) utilizing community cultural resources, asserting that school and
community must be integrally related in planning and implementing
educational change, and (3) a focus on individualized instruction.
(JD)

DEVELOPING INSTRUCTIONAL OBJECTIVES

PROJECT SEARCH DEVELOPMENT

FOR HUMANITIES PROGRAMS

The Board of Regents

Albany, New York 12234

1976

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THE HUMANITIES SERIES

The Humanities Series addresses essential aspects of contemporary humanities education, a process-oriented approach to human concerns, adaptable to varied content areas. The Humanities Education Unit personnel, responding to the growing demands of humanities educators in the schools, developed the series to provide rationales, flexible guidelines and appropriate skills to meet the needs of students, kindergarten through grade 12, in an age of change.

HUMANE LIFE-COPING SKILLS

THE HUMANITIES STRAND OF PROJECT SEARCH

CRITICAL THINKING AND REASONING: A Handbook for Teachers*

DESIGNING INTERDISCIPLINARY STUDIES PROGRAMS*

VALUING: A Discussion Guide*

DEVELOPING INSTRUCTIONAL OBJECTIVES FOR HUMANITIES PROGRAMS*

HUMANITIES EXPERIENCES AT NEW HARTFORD: Student Produced Films*

INSERVICE APPROACHES FOR HUMANITIES EDUCATION*

HUMANITIES EDUCATION: A Planning Guide

AESTHETICS OF FILM AND TELEVISION

VALUES: Simulations for the Classroom

PROJECT SEARCH EVALUATION*

*Project SEARCH Developments, with support from the JDR 3rd Fund and Title III of the Elementary and Secondary Education Act. Project SEARCH, a pilot consortium of school districts across New York State, 1971-75, implemented the major objectives of contemporary humanities education.

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Foreword to the Humanities Series

The specific intent of this guidebook is to assist teachers
to prepare instructional objectives in a way that will be most
useful both for them and for those involved in the evaluation of
humanities programs which focus on the reasoning process, the
students' affective needs, interdisciplinary approaches to personal
and social problems, and the valuing process. This guide will be
most useful in moving from the original idea for a new lesson plan
or experience to its "installation" (actually putting the idea into
practice) in the classroom.

The need to humanize education defines a vital educational
goal. Few schools have succeeded in developing learning environ-
ments humanistic in process, in content, or in perspectives. The
Humanities Series addresses aspects of concerns related to the
value commitments open to each individual and to the consequences
such choices have on the individual and on others. Contemporary
humani.ies education seeks to achieve its objectives in four
categories of student behavior.

Project SEARCH, a consortium of school districts in New York
State (1971-75) developed in-service staff programs, curricula
and student learning experiences based on these four objectives.
Several titles in the Humanities Series incorporate outcomes of
Project SEARCH. The objectives are:

1. *Reasoning*: If the freedom of man consists in determination
   of his choices by factors within himself, we often say
   that it is man's intelligence or reason which governs his
   purposive activity. Reasoning means the individual can
   modify her or his conduct to meet new situations. The
   person can not only change, but grow. Each one can profit
   from past experience. Each can become responsible.

2. *The Affective Domain*: Education has long concerned itself
   with the cognitive, with knowledge--as if there were only
   one kind of knowledge, factual data. However, a com-
   plementary aspect of knowledge, each person's affective
   powers, can deter or enhance his cognitive development.
   How a girl or boy, woman or man feels about wanting to learn,
   how she or he feels as each learns, and what each feels
   after learning--these lie in the affective domain. These
   neglected aspects, the vital area of attitudes and personally
   held values, form a integral concern of the humanizing
   learning process. Such self-awareness helps the professor
   cope with change.

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3. *Interdisciplinary Learning*: Fragmentation of learning, the separation of disciplines into isolated compartments, too often leaves even the able student frustrated. Knowing many facts, the learner still understands neither the interrelationships between disciplines nor their personal and social significance. The curriculum envisioned by humanities education integrates the arts, the physical, social and behavioral sciences and other disciplines, pursuits and circumstances whenever such interdisciplinary instruction and experiences contribute to a whole life view.

4. *Values*: The basic values which undergird the American way of life and which have guided the actions of people for centuries are being severely tested in an era of rapid technological change, social readjustment, and population expansion. The shattering impacts of these changes are most visible among the young. Schools, to be successful in helping young people develop values that will give them a sense of direction, must offer opportunities for students to make free choices from among alternatives.

Reasoning, affect and interdisciplinary learning are seen as supporting the process approaches to values development. These concepts cover a very broad range of human activity. The purpose of the Humanities Series is to help teachers design student learning experiences related to these categories.

In addition, humanities education seeks to support these four objectives through three major strategies:

1. PROCESS APPROACH: Change is so rapid that no one can predict precisely what knowledge and information individuals will need to know in just a few years. Humanities education sees a compelling need to develop an educational approach based on adaptable process skills, secondarily on content. These process skills, transferable and dynamic, including the individual's perceptual, motor, affective, cognitive and social interaction skills, will enable a student to cope with a changing world.

2. UTILIZING COMMUNITY CULTURAL RESOURCES: Any system of education which represents a marked departure from traditional learning will fail if it ignores the community's needs, resources and aspirations. School and community must be integrally related both in planning and implementing educational change. Most adults have been educated under a system very similar to the system operating today. These adults must be involved in the new thinking and research on

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the nature of learning if we are to anticipate their co-operative support. In addition, the school must view the community as what it is, an extension of the school. Such interaction between school and community which encourages free reciprocal flow of learners and instructors can result in realistic, exciting learning activities. Not only will students enter the community for learning experiences, but professionals, craftsmen, artists, farmers, retired citizens will likewise share their competencies with youthful learners within the school.

3. INDIVIDUALIZED INSTRUCTION: Humanistic education focusses on the worth of the individual, on the self-actualization of each girl or boy. Implicit in the program are varied opportunities for each student to participate in sequenced learning experiences adapted to individual capacities and responsive to individual interests. Such learning experiences can help each student discover his or her potential, challenge latent abilities, prepare each to make his appropriate, unique and effective contribution in a changing society. The Humanities Series is dedicated to helping our youth by providing administrators and teachers with a process approach to all learning, a humanizing process which will enable our boys and girls to live not only the good life, but the life worth living.

<div align="right">

Charles J. Trupia, Supervisor
Humanities and Performing
Arts Education Unit

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Albany, New York
May, 1976

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PREFACE

This guidebook was prepared at the request of the participating school districts in Project SEARCH. The specific intent of this guidebook is to assist teachers to prepare instructional objectives in a way that will be most useful both for them and for those involved in the evaluation of humanities programs.

The content of this guidebook is derived from three primary sources: first, the humanities objectives of Project SEARCH; second, several published works dealing with instructional objectives (referred to later in this guidebook); and third, a series of workshops and consultations held with Project directors, evaluation specialists and teachers from Project SEARCH schools.

This guidebook is similar to many others which have been prepared for teachers and project directors who are confronted with the demands of formal evaluation procedures. It defines its own objectives in behavioral terms (see Appendix A) and allows the reader to engage in some self-evaluation to assess how well he is doing in meeting these objectives (see Appendix B). It differs from most guidebooks, however, in at least one major respect: many of the examples which are used and much of the content are focussed directly on the objectives and challenges of humanities education.

These materials have been designed primarily for the teachers and project directors involved in humanities education. In doing so, we recognize that many of you are familiar with the terminology and methods of preparing objectives, that some of you are deeply involved in designing creative learning experiences, and that others are also familiar with evaluation research and have special interests and/or responsibilities in this area. In contrast, many of you may have little experience (or perhaps even negative experiences) with all of these concerns.

In reviewing many experiences in course planning, it has been discovered that there are three major sources of friction concerning objectives:

1) Expectations about what one is "supposed" to teach;
2) Assumptions about what the students need to learn;
3) Reservations about the amount of effort required of the teacher and his or her colleagues.

One method of dealing with all of these problems simultaneously is a rigorous attack on the question, "What are your students supposed to derive from your teaching?" To this end, it is suggested that the concept of the "instructional objective" is a very useful one to explore. Note that "instructional" and not "behavioral" objective is used.

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We urge you to expand and to improve this guidebook. Let some of your students read it. Ask them if it is useful and how they would improve it. Challenge it with your fellow teachers in your school or with State Education Department humanities personnel in Albany.

This publication was developed by David S. Abbey of Evaluation Research Limited, Toronto, Canada. The material was prepared for printing by Katherine V. King and William R. Clauss, Associates for Humanities Education.

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TABLE OF CONTENTS

I. Project SEARCH

(i) Aims and Scope of Project SEARCH

Project SEARCH is an attempt to bring about an overall
improvement of education. "The underlying need to which
Project SEARCH is directed is that of humanizing education."
However, SEARCH is not an isolated example of academic re-
search. It is, instead, a cooperative program developed
for and by teachers and administrative personnel across
New York State. It involves teachers from both public and
parochial schools, and it encompasses the learning acti-
vities of students from K-12.

(ii) Focus of SEARCH

The broad objectives of SEARCH involve teachers, students,
and the inter-relations of these with parents, the school,
and other community resources. In addition, there are many
objectives stated in terms of the following four categories
of student behavior:

1. The reasoning process
2. The student's affective needs
3. Inter-disciplinary approaches
4. The valuing process.*

These concepts cover a very broad range of human activity
and it is the purpose of this guidebook to help teachers to
define specific instructional objectives and to design
learning experiences related to these categories.

II. Role of the Teacher

(i) Teaching

Humanities education demands not only that normal teaching
functions be carried out, but also that a great deal of at-
tention and effort be directed towards innovative teaching
styles, new approaches to community resources, and new or
increased attention to the goals of education and to the
needs of students. Many teachers already engaged in in-
novation will likely find new support for their efforts

*See Section 9 below for more detailed definition of this process
 and "Valuing: a Discussion Guide." The Division of Humanities and
 Arts Education, Albany.

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while others may find new opportunities to work more closely with their colleagues on problems of mutual interest.

This guidebook will probably be most useful in the process of moving from the original idea for a new lesson plan or experience to its "installation" (actually putting the idea into practice) in the classroom. In the development of these new learning experiences, this guidebook can be used as a basis for stating objectives in a clear and unambiguous manner. The guidebook will not provide a basis for evaluating the worth of the experience. All it can do is to make it easier to determine what the goals of the experience were and whether or not these were reached.

(ii) Evaluation

By stating objectives with as much precision as she/ he can, the teacher is in an ideal position to evaluate progress towards achieving goals. Achievement can be thought of either in terms of pupil achievement or in terms of instructional efficiency. Objectives which include clear-cut criteria or standards of performance can be used by the teacher to see more clearly where additional efforts may be needed or where higher standards or goals can be set.

One final comment should be made about evaluation. A commitment to evaluation means a commitment towards openness and trust--towards sharing information about what works and what does not, and why. This is fundamental as a plan to humanize education and to make the curriculum realistic and responsible.

III. Role of Objectives

(i) Designing a Learning Experience

Most well-designed learning experiences probably came about through application of a series of judgments over time. Of course, there are likely some lessons or exercises that students engage in which are known to be effective simply because of the enthusiasm they generate and the interest which students show. These exercises or classes may not have been systematically designed--

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they may be the result of intuition or a "gut-level feeling" about what would be appropriate at a given time in a given situation, and this guidebook is not designed to eliminate such spontaneous teaching. Nor is this selection planned to force a single model of instructional design. The model which is presented here is one which has been found useful by many teachers and curriculum planners, especially those who have also attempted to evaluate the effectiveness of their programs or their instruction. It is recommended as one technique for creating, implementing and evaluating new learning experiences.

The suggested model has only five elements:

1. Specify objectives
2. Pre-assess student behavior
3. Select learning activities (or instructional content)
4. Evaluate outcomes
5. Revise No. 1 (objectives) or No. 3 (activities or instruction) if required.

This model has been discussed in detail elsewhere (see Popham and Baker, 1970)* as well as in many articles or texts. It can be represented in a simple diagram as follows:

Figure 1. A model for instructional design
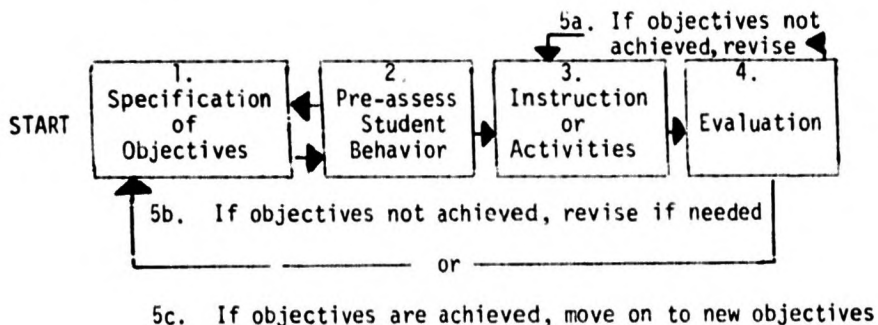
5a. If objectives not achieved, revise

START
| 1. Specification of Objectives | 2. Pre-assess Student Behavior | 3. Instruction or Activities | 4. Evaluation |

5b. If objectives not achieved, revise if needed

or

5c. If objectives are achieved, move on to new objectives

*Popham, W. J. and Baker, E. J., Establishing Instructional Goals, Englewood , New Jersey: Prentice-Hall. 1970.

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(ii) <u>Relation of design elements to one another</u>

In stage 1 of the design, the objectives of the instruction are specified in behavioral terms. By doing so, it is possible to do a number of things:

First, it allows us to focus clearly on some observable behavior rather than some internal process on the part of the student. (We will deal with this in more detail in the following sections of this guidebook.)

Second, it prompts us to measure the current performance of our students (see box number 2 of Figure 1) prior to engaging in any instruction. This initial level of behavior (termed "entry behavior") may frequently cause us to restate or to revise our initial statement of objectives. This is the meaning of the two arrows between boxes 1 and 2 of Figure 1.

Many times, we do not actually test our students to see what their performance is at exactly the same time as we are forming our objectives. However, if we keep our students' behavior in mind-- what we are reasonably certain they can do at this time--we tend to write objectives which are realistic and hence attainable.

Once the objectives have been specified and a pre-assessment of the students' behavior is made, we can choose a teaching method (or design an experience) - Box 3 - which seems most clearly related to the behavior we wish to change. This is not a mechanical choice of method, and a considerable degree of artistry and invention is left open to each teacher.

Once the instruction is undertaken (or completed, if it is a short class or experience designed to bring about a highly specific change), evaluation can be undertaken (Box 4). Since the behavior to be changed has been specified as part of the objective, the selection of appropriate evaluation tests becomes an integral part of the design of the whole experience. Indeed, many objectives can and should be framed with the evaluation standards (criteria) in mind. This does, in fact, mean that you teach what is going to be measured. It also means that the measurement is going to be used to affect how you teach (see arrow marked 5a. in Figure 1) and perhaps what you teach (arrows marked 5b. and 5c.).

(iii)   Role of objectives and evaluation

The value of approaching instructional design in this manner is that your intentions and your expectations become more explicit and easier to discuss. Communication about learning and about standards can become a rich source of learning for your students, and the existence of objectives and criteria can frequently lead to students becoming involved in planning and in contracting to meet standards.* Although engaging in this type of design can become time-consuming and even frustrating if it is done for every learning experience, it can be a vehicle through which several teachers, or teachers and students, or even teachers, students and parents can cooperate in broadening or deepening the curriculum.

Instructional design which includes a statement of objectives can also be useful for independent observation and evaluation. That is, by preparing a design and specifying desired outcomes, criteria, and evaluation methods, it becomes possible for those attempting to measure the success of humanities programs to focus on the behavior and goals which you and your students have decided to pursue.

Finally, note that stating objectives allows you to concentrate on (i.e., to observe) the effectiveness of your program as opposed to being satisfied with its affects. An experience that is exciting for your students is not necessarily effective. If the objective was "to cause excitement" then one could argue it was effective. However, unless "excitement" was specified as a goal, then it belongs in the affects category.

IV. Instructional Objectives

(i) Four parts of an objective

In the most general terms, an objective is a statement that answers this question, "Who will do what, how will it be observed and how well should it be done?" This statement contains the four essentials of an objective:

*Author's note: In my experience, students rise to the challenge which is posed when objectives and criteria are stated. They appreciate knowing when they have matched your expectations. Likewise, they feel free to comment on the instructional method or on new levels of performance which they believe they could reach.

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1. A subject variable is specified ("Who..?");
2. An action verb states what the subject will
   do ("...will do what..?");
3. An observation scheme specified ("...how will
   it be observed..?");
4. A criterion or standard of performance is
   specified ("...and how well should it be done?").

Here are some examples of phrases taken from objectives.
In each pair, one of the phrases contributes to a "better"
objective in the sense that it allows for more precision,
or greater certainty, about what is actually planned or ac-
complished.

1 (A) After the lecture on Boyle's Law, test scores
   will...

   (B) Test scores for those students attending the
   lecture on Boyle's Law will...

The underlined words in (B) specify the subject
variable. This then, is an objective which applies
only to those who went to a specific lecture. It
makes no assumptions about the performance of other
students.   *   *   *

2 (A) After reading Hamlet, the students will know
   the relationship between...

   (B) After reading Hamlet, the students will write
   an essay which describes the relationship
   between...

The underlined words in 2 (B) specify an action verb.
"Knowing" is not observable in and of itself.
"Writing an essay" is an observable action which
yields a product--something that can be scored, or
rated or reacted to.   *   *

3 (A) On completion of the unit, "The Impressionists,"
   students will show how various painters differed
   in creating the outlines of figures.

   (B) On completion of the unit, "The Impressionists,"
   students will match seven enlarged photographic
   segments from various paintings to the ap-
   propriate artist when given a list of seven
   artists.

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The underlined words in (B) demonstrate what is meant
by "show" in 3 (A). Clearly, the teacher framing such
an objective did not expect the student to "show" in
the sense of actually painting in different styles,
nor was the student expected to merely point at the
differences in the ways various painters created
outlines. Notice that by specifying how the student's
performance was going to be tested, the actual testing
materials were also described in enough detail so that
someone else could construct a similar testing pro-
cedure for their own class if they wished.

* * *

4 (A) After completing the first semester course,
"Spanish 3", 90% of the students will write
the examination and will pass.

(B) After completing the first semester course,
"Spanish 3," 90% of the students will write
the examination and will score 80% or more.

The underlined words specify a criterion which is much
more precise than simply "will pass." Of course, this
type of standard or criteria can be easily met by
creating an easy examination or by teaching precisely
those items which will be tested. A precise criteria
for success does not guarantee quality of instruction,
but it does indicate the expectation of those who
wrote the objective.

* * *

Here are two objectives taken from the book, Establishing
Instructional Goals by Popham and Baker,*

"...specifically, after finishing the program the
reader will be able to perform the following behaviors:

1. The reader will distinguish accurately between
   written objectives stated in terms of student
   behavior and those not so stated.
2. The reader will convert nonbehavioral objectives
   into objectives that adequately describe post-
   instruction pupil behavior. (1970, p.22)"

Can you? These are two of the objectives of this Guidebook.

*Popham, W. J. and Baker, E. J., Establishing Instructional Goals,
Englewood , New Jersey: Prentice-Hall. 1970.

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(ii)   <u>The range of objectives</u>

It is comparatively easy to create objectives when the instruction we are dealing with lies in an area of performance such as manual skills or sports. In the area of values or complex judgment, it may be considerably more difficult. Here are some examples which reflect this wide range of subject matter. Each example is assumed to start with the following subject variable:

"After completing the instruction unit in _____, at least 75% of the students will:

1. Increase their weight-lifting ability by 10% compared to their pre-instructional performance. Performance is measured as the average of three weights lifted using the clean-and-jerk method.

2. Correctly list all of the states of the Union as of 1906 and give the capital cities of each.

3. Be able to give, in essay form, at least five factors which contribute to student alienation. The choice of each factor is to be supported by reference to at least one published research article.

4. Design a questionnaire to measure "Attitudes towards Physical Disability." The design should include a rationale for the following choices: target audience, scaling method, criterion for validity," and so forth.

5. Exhibit increased interest in urban affairs. Interest will be measured by the frequency with which students: attend guest lectures on the topic, borrow books from the school library related to UA, raise questions about UA in related classes such as "Economics 220" and "Political Geography 206," choose UA as a topic on which to write theme papers.

6. Increase their interpersonal communication skills. Skill is defined by: use of clarifying questions, number of expressions reflecting others' feelings, frequency of using "discounting" statements or gestures, and so forth.

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These are sample objectives and do not necessarily
represent the actual intentions or criteria which might
be established. Furthermore, most of them are incomplete
in that the actual testing procedure (observation scheme)
is not specified. The important factor to note at this
point is that the creation of instructional objectives in
any area of the curriculum is possible. Our next task is
to show this application of objectives to a wide range of
areas in more precise terms.

(iii)   Three varieties of objectives

In Section IV, several different examples of instructional
objectives were discussed. These objectives differed in
that they were drawn from a number of different content
areas: art, physical training, physics, and so forth. They
also differed in terms of the type of student behavior that
was being described in the objective. For example, in
Section IV (ii), objective number 1 focusses on physical
performance--weightlifting; objective number 2 requires
the student to recall and list the states of the Union--
a task involving memory; whereas in example 6 the objective
is to increase students' interest--a result which is defined
by (inferred from) several behaviors or indicators. These
examples of objectives differ along three dimensions. These
are the psychomotor, the cognitive and the affective di-
mensions, respectively (cf. Bloom, 1971).*

In this guidebook, most attention is going to be given to
the cognitive and affective dimensions (referred to as
"domains" by Bloom) because of the difficulty of preparing
objectives in these as compared to the psychomotor domain
(see Simpson, 1966a, 1966-67).**   A very brief summary of
the psychomotor domain is presented in Appendix C.

*Bloom, B. S., et. al., Handbook on Formative and Summative
Evaluation of Student Learning. New York: McGraw-Hill Book
Company, 1971.

**Simpson, Elizabeth J. The Classification of Educational
Objectives: Psychomotor Domain, Research Project No. OE-5-85-104,
Urbana: University of Illinois, 1966 .

Simpson, Elizabeth J., "A Slightly Tongue-in-Cheek Device for
Teacher Cognition." Illinois Teacher of Home Economics, X,
No. 4 (Winter 1966-67).

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V. Instructional Objectives in Cognitive Areas

Objectives in the cognitive domain are concerned with the student's intellectual behavior, and within this domain six types of objectives have been defined. The first four types or classifications fall under the general heading of "convergent thinking" while the last two are termed "divergent thinking." Before examining these six types of objectives, it will be useful to consider just what is gained by these classifications and how this relates to humanities education.

Like many attempts to alter the curriculum, humanities education has started from some assumptions about the fundamental types of student behavior which ought to be affected. Thus, the "umbrella objectives" are directed towards: 1) students' critical thinking/reasoning skills, 2) students' affective development ("awareness of and interest in his environment; sensitivity to and compassion for his fellow man; understanding of and ability to adjust to change"), 3) the ability of the student to apply "interdisciplinary approaches...to personal and social problems," and 4) students' ability to apply the valuing process. Clearly not all of these objectives relate to intellectual behavior, many of them are clearly based on attitudes or affective responses. If we are to develop instructional objectives for our own curricula and for our own teaching/learning experiences which will attack these "umbrella objectives,"a scheme or set of categories such as the one described in this guidebook may be helpful. It should be helpful in at least three ways: first, by providing some model objectives for different types of skills; second, by making it easier to discriminate among different types of skills and among the various ways of evaluating these; and third, by providing a map of just where we are concentrating our efforts. In the total evaluation of a humanities program, it will be very helpful for those involved to see precisely what areas of student behavior received the most intensive work and which appeared to be most difficult to attack.

The following table presents an outline of the categories of objectives which are dealt with in Sections VI, VII, and IX of this guidebook.

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Outline of the Categories of Objectives*
Treated in this Guidebook

Section	Categories
XI	Convergent Thinking (i) Knowledge (ii) Comprehension (iii) Application (iv) Analysis
XII	Divergent Thinking (i) Synthesis (ii) Evaluation
IX	Affective Behavior (i) Receiving (ii) Responding (iii) Valuing (iv) Organization (v) World View

VI. Specific Examples of Objectives for Convergent Thinking

This section will deal with four types of intellectual behavior:

 (i) Knowledge
 (ii) Comprehension
 (iii) Application
 (iv) Analysis

(i) Knowledge

Consider the following objectives:

1. When shown a drawing of the Parthenon in its original state, the student will be able to give orally the name for at least four major architectural components (e.g., pediment, stylobate, and so forth). The judgment of the teacher will be used to assess correct replies.

      (KNOWLEDGE: TERMINOLOGY)

*cf. Bloom, 1971, pp. 271-277, "Condensed version of the Taxonomy of Educational Objectives.

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2. After seeing the slides on "The Creation of Frescoes" the student will be able to list at least five artists who specialized in that technique.

(KNOWLEDGE: Facts)

3. Upon completion of the segment of the course on "Creating Mood in Film" the student will be able to describe at least four camera techniques employed by all of the following: Hitchcock, Von Stroheim, Fellini, Bergman.

(KNOWLEDGE: CONVENTIONS)

4. After completing this guideline, the reader will be able to identify the "correct" sequence in developing an instructional unit by placing the numerals 1 (first) through 5 (last) in the appropriate parentheses:

( ) Pre-assess student behavior
( ) Instruct
( ) Specify objectives
( ) Evaluate
( ) Revise

(KNOWLEDGE: TRENDS OR SEQUENCE)

5. Given five different examples of literary genre, the student will correctly identify each by matching genre terms with each example. No aids may be used. Criterion: 4 correct matches.

(KNOWLEDGE: CLASSIFICATIONS
OR CATEGORIES)

6. After completing his study of the handbook, the student will be able to reproduce in writing, from memory, at least eight criteria for judging a lake to be polluted.

(KNOWLEDGE: CRITERIA)

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7. After watching the instructor's demonstrations, the student will be able to stack and fire a ceramic kiln.

(KNOWLEDGE: METHODOLOGY)

8. At the end of the course, the student should be able to write a paper which shows how the author of the text uses the concept of "pointillism" to explain the color theory of the post-impressionists.

(KNOWLEDGE: THEORY AND STRUCTURE)

As you can see, there are many ways of indicating that our student has knowledge of something. In fact, though, the eight types of knowledge presented are all various ways in which the student shows us that he can remember, or recall, or recognize something that he has experienced. Note that the method for evaluating the student's learning is practically spelled out in the objective itself.

(ii) Comprehension

There are three types of objectives which can be constructed to reflect the way in which we comprehend something. Whereas knowledge referred primarily to recall or recognition, comprehension refers to the ability of the student to use facts or ideas per se without necessarily showing any ability to link these facts to one another or to a broad basis of theory.

Here are some objectives which reflect concern with comprehension:

1 (A) After reading one of Aesop's fables, the student will tell the story of the animals in their own words using their friends as the characters. Criterion: teacher's judgment as to effectiveness of use of characters and situations.

(COMPREHENSION: TRANSLATION)

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1 (B) After studying the graphs on river
pollution in the U.S., the student
will prepare a precis of not more
than 250 words. Criterion: teacher's
judgment as to effectiveness of
capturing mood and facts in the
precis.

(COMPREHENSION: TRANSLATION)

Translation involves transferring meaning from one form
of communication through another. The student shows that
he comprehends the material being learned through the
accuracy of this translation. Of course, he may have
knowledge (recall facts), but be unable to translate
because of a failure to learn an alternative language
or set of symbols for this task. It is important,
therefore, to be quite certain that we know whether it
is the student's recall or ability to communicate that
we want to measure.

2 (A) Having seen the movie, "2001: A Space
Odyssey", the student will describe
to the class his interpretation of
the black obelisk which appears
several times. Criterion: degree of
novelty or creativity as judged by
fellow classmates using a 10-point scale.

(COMPREHENSION: INTERPRETATION)

2 (B) The student will choreograph a solo
dance, not exceeding 3 minutes to
illustrate the Dance Macabre.
Criterion: degree to which a panel
of judges feel the movement corres-
ponds to the musical themes.

(COMPREHENSION: INTERPRETATION)

Interpretation provides a new arrangement or a new way
of expressing ideas or themes. It is not a one-to-one
operation like translation. Note that the criteria for
evaluating interpretation frequently involve a judgment
on the part of the teacher or others. Since the task is
interpretive, the criteria are not likely to be specified
in advance. This does not mean, however, that careful
comparison and judgment of the effectiveness of the
student's products cannot be made.

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3 (A) Having read the report on Narcotics
in the School, the student will sug-
gest possible long-term outcomes if
current usage continues. Criteria:
correspondence of suggestions with
those given in the teacher's guide
which accompanies the above report,
plus teacher's judgment of soundness
of the predictions.

(COMPREHENSION: EXTRAPOLATION)

3 (B) After studying advances presently
being made by scientists (e.g.,
artificial life, genetic control,
ocean farming, and so forth),
students will predict future
society support for those techniques
which will foster humane goals
Criteria: degree of correspondence--
definition of humane--with data
implications.

(COMPREHENSION: EXTRAPOLATION)

Extrapolation indicates comprehension by showing how well
the student can use data to predict trends, consequences,
effects, and so forth. Extrapolation can be highly specula-
tive with the criteria for evaluation being based almost
totally on judgment. On the other hand, where actual data
are available--or where there is time to wait for it to be
collected--a high degree of accuracy and objectivity can
be obtained.

(iii)   Applying principles to problem solving

There is a fine line between extrapolation, which is a
way of testing for comprehension, and application. The
basic difference is that objectives related to application
require the student to remember principles, ideas and
theories and to use general models or procedures to solve
new situations or problems. In contrast, extrapolation
"merely" requires that the student use the data provided
and extend his thinking and predictions to a future time,
with most other conditions remaining the same. Application
involves using abstractions in the face of very particular
situations. Here is an example to illustrate objectives
involving application.

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1 (A) Students write an essay comparing
        two contemporary authors' treatment
        of an ancient legend (·.g., Ulysses,
        Job, and so forth). Comparison as
        to specific incidents used, point
        of view, attitudes toward characters,
        Criterion: judgment by teacher of
        soundness of comparisons and ap-
        plication of thematic, critical and
        cultural concepts.

(APPLICATION)

The ability of the student to apply his learnings can be
tested in a wide variety of ways. In this method of testing
for application, the test statements should be new to the
student, otherwise we may simply be testing his recall of
specific text-book examples.

(iv) Analysis

At pre-high school ages, students may not be able to con-
duct many types of formal analysis, and even for older
students, the skill may be hard to learn. For the teacher
attempting to write objectives or to prepare specific les-
sons to teach analysis, the problems have always been
difficult, but the rewards of accomplishing these tasks
make the effort worthwhile.

When the student is capable of analysis, he is able to
break down complex ideas or statements into their com-
ponent parts, establish the relationships among these
parts and perhaps even build a hierarchy or logical
sequence of parts which demonstrate an underlying
structure.

A competent chess player can perform analysis in great
depth, a student who detects political bias in the way
stories are presented in particular magazines is performing
another type of analysis, and a third form can be detected
in the student who examines questions of social "crimes"
from the point of view of "situational ethics" vs. "church
dogma." In all of these, the student is demonstrating an
ability to reach below the surface and to make comparisons,
seek trends or predict outcomes, and make generalizations.
Analysis is a complex set of skills which can be taught
and which should be tested for in many ways.

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Tests of objectives related to analysis tend to be longer than those which measure mere recall or recognition. Their length is dictated by the various components of analysis which are being taught. Several examples are given below. For each one, try to imagine a comparable one from your own field of interest or specialization. As usual, the most detailed overview of the problem is given in Bloom (1971) pp. 181-191.

1 (A) The student will perform a "content analysis" of ten reports of robberies with violence, each taken from the local paper and provided for the examination. The student will identify all adjectives or adjective phrases which specify the race, creed, sex or color of those charged with the crime. A frequency table or chart showing the results of the analysis will be prepared. Criterion: teacher's judgment of effectiveness of the exercise in summarizing the data and in showing relationships.

(ANALYSIS: CLASSIFY USING CRITERIA)

1 (B) The student is given the transcript of a recent Supreme Court decision on busing to establish racial balance. She/he may use the material throughout the examination period to perform the following task: To rank order the apparent reasons for the decision. (Using "1" for the reason which is judged to be most likely.) Criterion: degree of correspondence with published analysis available to the teacher.
(Several reasons may be given for consideration: e.g.: consistency with previous decisions; dictated by interpretation of Constitution; indirect pressure from the Congress, and so forth.)

(ANALYSIS: RECOGNIZE ASSUMPTIONS)

1 (C) The student will indicate agreement or disagreement with each of the following arguments and write an explanation to support his or her position.
Argument A.
1. Nicotinic acid causes skin cancer in mice
2. Cigarettes contain nicotinic acid
3. People should not smoke

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Argument B.
1. Test A correlates positively with Test B
2. Test B correlates positively with Test C
3. Test A and C have zero correlation with each other.

(ANALYSIS: UNDERSTAND RELATIONS)

1 (D) Students will pick the most appropriate answers:

In the painting (shown to the class) the artist creates a figure-ground reversal. This:
a. involves the viewer
b. demonstrates his weak technical control
c. is consistent with his theme
d. demonstrates the importance of context.

The use of simultaneous contrast is:
a. a deliberate technique to create visual illusions
b. accidental.

The false perspective:
a. heightens the surrealist quality
b. distorts the importance of background at the expense of the primary figure
c. moves the viewer's eye to the secondary figures in the work.

(ANALYSIS: RECOGNIZE ORGANIZATION)

The teacher who is concerned with teaching and testing analysis should answer the following question prior to framing objectives:

1. Am I trying to teach the student to do something which he can apply to new situations? (If not, then the learning becomes very specific and the testing remains at the level of comprehension at best.)

2. Have I designed the teaching and testing of analysis using materials which are public? That is, when the student attempts to demonstrate his skill, have I provided material that he can use in the test situation and which is open for others to examine and to evaluate as well? (If not, then I may be asking the student to rely on memory for a great many facts rather than teaching him to use the data as raw material for his analysis. Analysis is more than recall of reams of facts.)

3. Am I designing a learning experience and arranging for an evaluation which samples one or more of the following analytic skills?
   a. Analysis of elements using classifications or criteria.
   b. Analysis of relationships.
   c. Analysis of organizational principles.
   (If not, then what kind of behavior is it that I am teaching and testing for?)

4. Wnat will I use for the "criteria" in the statement of the objective and in the evaluation? My own judgment plus other's opinions from the literature? The majority opinion of the class members? (If the criteria are to be based on expert judgment, then the credibility of the judges ought to be examined. Do the students accept the judge as expert? Why? Frequently an examination of this question can itself be a teaching situation.)

VII. Specific Examples of Objectives for Divergent Thinking

This section deals with two more types of intellectual (cognitive) behavior:

   (i) Synthesis
   (ii) Evaluation

In Section VI, the four types of objectives and behavior which we discussed (knowledge, comprehension, application, analysis) have one thing in common: each can be specified in a way in which a best answer can be stated in advance. The criteria for each objective are stated in ways that imply that there is a correct answer in an answer booklet, or that one answer is better than another in matters of applying principles or that similar a priori standards can be stated. In this way, all of these tend to converge on the correct fact, principle, organization, and so forth. In contrast to these, there are many teaching/learning situations in which each student can create an entirely new or unique reply or solution to the task given to him or her. Indeed creativity depends upon novel combinations of elements in ways that are not specified in advance.

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Synthesis and evaluation are two forms of divergent thinking. Objectives can be spelled out for these forms of behavior which demand that the student show evidence of using available data, applying analytic skills and exercising judgment concerning his final product.

(i) Synthesis

The ability to synthesize is tested by asking the students to:

1. Produce a unique communication.
2. Produce a plan or proposed set of operations
3. Derive a set of abstract relations.

Examples of each of these follow:

1 (A) After receiving the tabular data which shows mortality rates for each of several age groups, the student will prepare a graphic presentation of the data. Criteria: all of the data must be included in the presentation; it should be possible for any of the class members to read the graph with the same degree of precision as they would from the original data.

(SYNTHESIS: PRODUCTION OF A UNIQUE COMMUNICATION)

1 (B) At the end of five minutes of small group discussion, the student acting as observer shall have five minutes to prepare and to deliver an oral summary of the discussion. Criteria: judgment by the group members of the adequacy/accuracy of the summary. (Each group member will assign a percentage grade to the presentation. Feedback to the student will consist of a list of these percentages and their arithmetic mean.)

(SYNTHESIS: PRODUCTION OF A UNIQUE COMMUNICATION)

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1 (C) The student will prepare an essay of
approximately 2000 words on the topic,
"The Role of Humanities in Education."
Criteria: the essay will specify the
target audience of the essay, define
"humanities" and "education" and show
clearly what educational process,
function or intent would be affected
by an increase in the amount of
humanities in the curriculum.

(SYNTHESIS: PRODUCTION OF A
UNIQUE COMMUNICATION)

2 (A) The student will write a response to
the following: "It is argued that
marijuana leads to hard drugs.' Describe
the type of research you might under-
take to test that hypothesis. Criteria:
the research design must not lead to
illegal acts; it must not violate any
civil liberties nor infringe on the
security or privacy of any persons or
institutions. At the end of the re-
search it should be possible to draw
an inference from the data and state
a level of confidence for this inference.

(Note: the last condition makes this an ex-
tremely rigid criteria and demands a level of
design sophistication considerably above that
held by most high school seniors. Removing
this last requirement would make the problem
feasible for this group.)

(SYNTHESIS: PRODUCTION OF A PLAN
OR PROPOSED SET OF OPERATIONS)

2 (B) The student will prepare a floor plan
showing the reorganization of his
classroom. Criteria: reasons for
proposed changes from the present
arrangement must be available if and
when requested.

(SYNTHESIS: PRODUCTION OF A PLAN)

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3 (A) The student will attempt to derive and
to report an explanation of the following
observations:
  (i) Continuous practice on a task
       leads to lower performance than
       distributed bursts of practice.
 (ii) After continuous practice, per-
       formance increases immediately
       after a rest period.
(iii) After distributed practice, there
       is no increase (indeed there may
       be a decrease) in performance
       immediately after a rest period.

(SYNTHESIS: DERIVATION OF A SET
OF ABSTRACT RELATIONS)

3 (B) After studying the crew requirements for
space flight, students will answer the
following:
   It is proposed to send a crew on an
   extended (7-year) space voyage.
   Several men and women have been
   trained so that each can do the
   job required equally well. Here
   are several possible compositions
   of the crew. Write a paper defending
   your alternative.
     a. Three men
     b. Two men; one woman
     c. One man; two women
     d. Three women
     e. Any of the above
   Criteria: If any alternative other than
   e. is chosen, the specific role of sex
   in the tasks to be performed shall be
   considered and discussed. If b. or c.
   is chosen, possible social implications
   must be considered and discussed.

(SYNTHESIS: DERIVATION OF A SET
OF ABSTRACT RELATIONS)

Synthesis is a skill that cannot easily be learned in
an authoritarian atmosphere--one bound by traditional
curricula--nor can it easily be taught that way. It
demands openness to new and unusual combinations of
ideas and principles. Students enjoy opportunities
for this type of self-expression where the problems
are realistic and criteria for an acceptable level of
performance are made explicit.

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(ii) Evaluation

Objectives for evaluation require the students to make judgments on the basis of explicit criteria. The criteria can be provided to them or they can remember them. The judgments they make can be about the degree to which something measures up to a standard. In many ways, our earlier discussion of "effects" vs. "effectiveness" can be applied here as well.

If we ask students to tell us whether something is "good" or "bad," "useful" or "useless," or use some other pair of value terms, but fail to provide criteria of standards or ask them to tell us what theirs are, then we are simply asking what effect the thing in question has for them. This is not a cognitive judgment. If, however, we say, "Evaluate this guidebook in terms of its usefulness to you in learning to write instructional objectives," then we are asking for an evaluation in terms of effectiveness. This is a cognitive skill in which outcomes can be compared to intentions and standards (i.e.,when does a guidebook stop being useful/practical because of all the detail and work required to go through it?). As is the case with most skills, evaluation can be divided into the two sub-classifications:

1. Evaluation in terms of internal evidence.
and 2. Evaluation in terms of external criteria.

Some examples of each follow:

1 (A) The student will check the summarizing report of a class humanities survey project completed by another student and indicate any reporting errors to him by using a different colored pencil.

(EVALUATION: IN TERMS OF INTERNAL EVIDENCE)

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1 (B) The student will check the correctness
of reference numbers in the professor's
text with bibliographic titles similarly
numbered.* Criteria: 100% accuracy as
determined by comparing the student's
performance against editor's comments.

(EVALUATION: IN TERMS OF INTERNAL
EVIDENCE)

Objectives can also be framed in which the student eval-
uates critics' statements about art, politics, society,
and so forth. In this type of evaluation, the student
uses written criticisms to seek out variations in points
of view and relates these to one another and to the
data upon which they are (supposedly) based.

2 (A) The student will evaluate three paintings
by fellow students by rank ordering them
in terms of a) handling of media,
b) composition, c) appropriateness of
content to intent. A final rank ordering
will be prepared and "First," "Second"
and "Third" awards given.

(EVALUATION: IN TERMS OF EXTERNAL
CRITERIA)

In this task, the student makes comparisons among several
objects and the basis for these comparisons is provided.
His behavior could only be judged if the teacher asked
him to articulate the reasons for his choices on each
comparison.

2 (B) After completing the course, "Modern
Authors," the student will write a well-
organized essay on the style and merit
of Edward Albee's "Who's Afraid of
Virginia Woolf?" Any style of criticism
may be used and any theory or comparative
material may be cited.

*Author's Note: Objective 1 (B) is an example of exploitation of
minority groups by those in positions of authority. It used to
occur in some schools and universities in the dark ages, c. 1965.

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The student is further informed,* "You are to assume that you are writing for a literature reader, who has read (the novel) and the critical texts of ("Modern Authors"), but who must be convinced of your judgment of the novel.

"Remember that you will be judged not only on what you say, but on how effectively you say it...so that the essay in its final form represents your best intention."

(EVALUATION: IN TERMS OF EXTERNAL CRITERIA)

2 (C) Following any music lesson, the student may make a tape recording of his playing and may compare this with a master tape containing the instructor's rendition of the piece being studied. The student should make brief notes on (or report verbally to the instructor) with respect to timbre, pitch, rhythm and fluency.

(EVALUATION: IN TERMS OF EXTERNAL CRITERIA)

VIII   Instructional Objectives in Affective Areas

Cognitive objectives deal with thinking as described above while affective objectives deal with feeling, attitudes and values. Affective responses are seldom specified in any sort of terms that would allow us to infer that the student had acquired them and if so, to what degree. Here, for example, is a statement from the foreword of a program**which "is designed to motivate an increased emphasis on all the arts but particularly those to which our primary response is visual. The program has four goals:

1. To have children grow in esthetic sensitivity

*Adapted from Bloom (1971) pp. 221-222, op.cit.

**The University of the State of New York, The State Education Department, Bureau of Elementary Curriculum Development. Art for Elementary Schools, 1967.

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2. To have children acquire some of the skills of the visual arts
3. To motivate creative thinking and doing
4. To nurture individual and personal expression."

These are all affective goals; all of them are important and have been carefully considered, but none is stated in sufficient detail so that we would know precisely when a child had achieved the desired level of sensitivity, skill, creativity or expressiveness.

The next section of this guidebook will focus on affective learning and on ways in which affective objectives can be stated behaviorally.

IX Specific Examples of Objectives for Affective Behavior

The affective domain is divided into five major classes as follows:

(i) Receiving (attending)
(ii) Responding
(iii) Valuing
(iv) Organization
(v) Characterization (total philosophy or world view)

(i) Receiving (Attending)

Here are several affective objectives which suggest several meanings of receiving:

1 (A) The student will indicate through verbal questions or physical movements his awareness that the exhibit has been changed.   (AWARENESS)

1 (B) The student will indicate by his questions an awareness that something in the demonstration (play, piece of music, and so forth) is different from its usual mode.   (AWARENESS)

The student indicates that he is aware of a difference, or a novel stimulus, but he may not be able to articulate what that difference or novelty is. This is the lowest form of affective objective.

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2 (A) The student will remain in the concert
     hall for the duration of the performance.

(WILLINGNESS TO RECEIVE)

2 (B) The student will cease to initiate
     disruptive behavior in the classroom.

(WILLINGNESS TO RECEIVE)

The inference in 2 (B) is that if the student stops his
disruptive behavior then perhaps he will and can re-
ceive information or participate in scheduled activities.
This is still a low-level objective and yet 2 (B) may
reflect more of an attitude or value than does 1 (A).

3 (A) Given a free-choice situation, the student
     will select more magazines that embody a
     higher standard of literary criticism
     (teacher's judgment of value of literary
     criticism).

3 (B) As the course in "Civic Affairs" progresses
     students will begin to spend more time at-
     tending to local news broadcasts as compared
     to time spent with national broadcasts.

(CONTROLLED OR SELECTED ATTENTION)

In both 3 (A) and 3 (B), the student is seen to attend
more to a particular class of stimuli or input. He may
not be able to verbalize the basis of his choice, nor
even be aware of the shift in his behavior. It will
be up to the teacher to devise observation schemes that
pick up the data necessary to test this type of objective
without making the student overly conscious of his
behavior or the fact that he is being observed.*

(ii)   Responding

There is a progression within this class of objective
that moves from simple compliance, through willingness,
to satisfaction.

*For a wide variety of techniques which are non-reactive (i.e., do
not affect the behavior being observed), you may wish to see,
Webb, E. J., et al. Unobstrusive Measures: Nonreactive Research
in the Social Sciences, Chicago: Rand McNally, 1966.

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An objective for compliance might be stated in these terms:

1. The student will memorize 25 stanzas of the assigned poem and will repeat them with no more than three errors on the final oral examination.

(COMPLIANCE)

In terms of affect, the use of **expressions** such as "will memorize" and "will repeat" suggest that if the **student** attempts to do these, he will so do under the instructions (orders) of the instructor. Many cognitive objectives lack any reference at all to the affect which might be produced or encouraged. Consequently it may be useful to think of writing two sets of objectives for our curriculum--one each for the cognitive and affective behaviors we are attempting to shape.

When the student exhibits a willingness to act out of interest or self-motivation, then he has moved to a somewhat higher level of affect or feeling than mere compliance. Here are several objectives related to testing for willingness.

2 (A) The student will request additional time beyond normally scheduled classes to do research or to receive instruction which is related to his project.

(WILLINGNESS TO RESPOND)

2 (B) The student will volunteer to work on the suggested project (assignment) for which no additional academic credit is to be given.

(WILLINGNESS TO RESPOND)

2 (C) The student will suggest topics on which he would be willing to work (or about which he would be willing to give a short lecture) during his free time.

(WILLINGNESS TO RESPOND)

Beyond a willingness to respond,there is the affect associated with actually doing something. Several methods of measuring satisfaction of responding are available. The fact that many of them are taken from the literature on attitude testing is not accidental.

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Satisfaction is more closely related to attitudes than simple reception or awareness. These are simple processes by comparison with the more complex emotional basis of satisfaction and other attitudes.

In humanities education, a great deal of effort is likely to be spent in the design and execution of new types of learning experiences (projects). It may be very valuable to specify affective objectives for these. For example, consider the following objectives and four possible tests for it:

The student will indicate his satisfaction with his efforts by completing the following item(s).

3 (A) Looking at my work on this project, I feel:
(Check the appropriate item)

( ) Very satisfied
( ) Somewhat satisfied
( ) Neither satisfied nor dissatisfied
( ) Somewhat dissatisfied
( ) Very dissatisfied

(5-point scale for SATISFACTION)

3 (B) The best words to describe how I feel about my work (overall performance) on this project are:

_____

_____

_____

(Open-ended response for SATISFACTION)

3 (C) Of all the projects I have worked on, I would rate my contribution to this one (Place an "X" on the line below to indicate how you feel.):

Totally	Neutral	Totally
Unsatisfactory		Satisfactory

(Linear scaling of SATISFACTION)

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3 (D) My feelings about my effort on this
project can best be summarized by
the following series of ratings. (For
each scale below, place an "X" in the
space that represents how you feel
about your work. For example, if the
first scale is:
```
       1    2    3    4    5    6    7
strong ( )  ( )  ( )  ( )  ( )  ( )  ( ) weak
```

and you felt your effort was quite weak,
then you would put an "X" in the space as shown:
```
       1    2    3    4    5    6    7
strong ( )  ( )  ( )  ( )  ( )  (X)  ( )
```

The positions are defined as follows:
1. Extremely (Strong)
2. Quite (Strong)
3. Slightly (Strong)
4. Neither (Strong) or (Weak)
5. Slightly (Weak)
6. Quite (Weak)
7. Extremely (Weak).

Now rate: "My effort" on each of the
following scales:
```
           1    2    3    4    5    6    7
Valuable  ( )  ( )  ( )  ( )  ( )  ( )  ( ) Worthless
Good      ( )  ( )  ( )  ( )  ( )  ( )  ( )
Strong    ( )  ( )  ( )  ( )  ( )  ( )  ( )
Active    ( )  ( )  ( )  ( )  ( )  ( )  ( )
Satis-
  fying   ( )  ( )  ( )  ( )  ( )  ( )  ( )
              and so forth
```

(Semantic differential* scaling
of SATISFACTION)

In this last technique, the profile of attitudes
or feelings can be inferred from the placement of
the "X's." In addition, the use of the adjectives
"Satisfying...Unsatisfying" is an opportunity to
obtain a direct 7-point scaling of how satisfied
the student felt with his efforts.

*See Bloom, (1971) pp. 242-243 op.cit.; and Osgood, C. et. al.,
The Measurement of Meaning, Urbana, III: University of
Illinois Press, 1967.

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Note that these four techniques are not all-inclusive. There are many other measures of satisfaction as well as of other attitudes. For most purposes, however, standardized tests of attitudes are probably less efficient than scales which you derive for yourself. The reasons for this statement are, first, in drawing up your test in conjunction with your objective, you are able to specify clearly just what behavior you will use as an index of your student's satisfaction (or any other attitude for that matter), and second, you are able to custom-build your test to reflect local jargon or the speech level of your students as well as local events or situations.

For those who may want an excellent collection of tests covering many curriculum areas and designed to measure many attitudes, one available text is that by Shaw and Wright (1967).*

(iii)   <u>Valuing</u>

In Bloom's (1971) study of objectives, the category of valuing is divided into three levels: acceptance of value, preference for a value, and commitment . These three levels may be illustrated in the following brief statements of objectives. Following this, we will look at the process of valuing and how this can be studied.

     (a) The student will write a paper (or give
         a talk) commenting on the reasons he
         would or would not:
         - report that a fellow classmate had
           cheated
         - identify the person responsible for
           starting a rumor
         - help a neighborhood friend hide
           stolen property.
                       (ACCEPTANCE OF A VALUE)

The paper or talk would provide data for inferring the basic underlying value which would direct the student's behavior in these three hypothetical situations.

*Shaw, M. E. and Wright, J. M., <u>Scales for the Measurement of Attitudes</u>, New York: McGraw-Hill, 1967.

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(b) After each member of the class has
presented a position on the issues
raised in (a) above, the student
will select an individual with whom
further study on the topic can be
done.   (PREFERENCE FOR A VALUE)

The prediction here would be that individuals would,
in general, align themselves with those expressing
similar values. If they attempted to convert one of
their colleagues, this would be evidence not only that
they held the value, but also that they had a commit-
ment to it (see (c) below).

(c) After reviewing the decisions made by
the class council (or city council or
State Legislature), the student will
write a letter to the responsible of-
ficials indicating his agreement or
disagreement with the decision (or will
invite a representative to debate the
question; or will seek to organize
opposition or protest groups).

(COMMITMENT)

The Valuing Process

The valuing process is a sequence of operations. It is the
opposite to acting on faith or to compliance. In valuing, indivi-
duals engage in both cognitive and affective behaviors as illustrated
in these six steps:

1. Recognition by an individual of the need to choose
   a direction for action (or of a possible choice) in
   a particular choice-making situation;

2. Identification of alternative actions which are
   available to an individual in a situation which
   requires choice-making;

3. Analysis through inquiry of each alternative in the
   light of its possible consequences upon one's self
   and one's fellows;

4. Choosing the alternative which appears to offer the
   wisest and most beneficial set of consequences;

5. Putting the chosen alternative into practice;

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6. Reevaluating the action and its consequences each time in the light of new experience.

It is through the valuing process that we move from commitment to a value position to the next highest level of the affective process, Organization (see section (iv) below). In the valuing process, the student tests the usefulness of a particular value in helping him to make choices which lead to satisfactory outcomes. For examples, students may be confronted with concerns* such as:

- always obeying rules
- asking for advice
- helping others
- associating with minorities
- use of drugs and alcohol
- satisfying sexual drives
- planning for the future
- choosing careers
- welfare programs
- civil disobedience
- religion and conduct
- personal responsibility

The sequence of topics from top to bottom of the above list reflects the type of concerns which arise as students grow older. At the very young ages (5 to 9), rules and relationships appear to be of prime importance--at the level indicated in the few items listed above. At older age levels (mid and late teens), questions arise related to more general societal issues, one's personal role in society and dilemmas surrounding self-worth, "ultimates" and personal responsibility.

Valuing then, is the essence of a humanized education. If our students can learn to engage effectively in valuing then they can become independent problem solvers who make rational decisions, accept the consequences of their acts and learn from their successes and failures.

The purpose of this guidebook is to show how objectives might be framed for learning experiences designed to engage students in the valuing process.

In order to do so, we might start by taking a single topic and then working through the entire valuing process. but there are so many possible directions a discussion might take, that this could

*Quotations are meant to be illustrative only. Many forms will occur to indicate awareness that options need to be considered.

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be not only artificial but also misleading. Instead, a generalized
model for dealing with the process is described here, and ways of,
applying it are considered.

Objective 1: The student will indicate dissatisfaction
with a rule, a stated position, or a
description of some personal or social
condition.

Criteria: The student will express dissatisfaction
by any of the following direct statements,
("I disagree"):* questions, ("Do you
always have to do it that way?"); physical
means** (puzzled looks, scratching head;
agitated movement); or possibly by
indicating willingness to receive informa-
tion on a question.

(RECOGNIZE NEED FOR CHOICE)

Examples: Assume a class of children, ages 6 and 7.
The following statement might be made by
the teacher, "I think every rule ought to
be followed," followed by a pause. If
there are no responses which meet the above
criteria, some direct questioning might be
undertaken, "Are there any rules that are
hard to follow?" or "Which rule do you
(name of student) find hardest to follow?"
and so forth.

Or Assume a class of ages 15-17. The opening
statement might be, "It seems to me that
all drugs are going to have to be restricted
to those over 21 years of age." There are
two "hooks" in this statement. One is the
word "all," the other is the expression
"those over 21..." Students have the
opportunity to question your intent on
either issue.

*Quotations are meant to be illustrative only. Many forms will
occur to indicate awareness that options need to be considered.

**There is nothing novel in this. All teachers become aware of
the particular non-verbal ways their students have of indicating
interest, confusion, or a need for clarification.

The intention of this first objective is to find a way to open discussion around questions where the range of choices may not have been fully explored by the student. In fact, by stating the objective so that we attempt to create dissatisfaction, we are putting pressure on the student to look at the reasons for the positions which she/he holds.

Objective 2: Each student will suggest orally or in writing several alternative means of reaching a goal or of maintaining a desirable state.

Criteria: The number of alternatives should be specified by the teacher or determined through open discussion with the students. In order to qualify   an alternative, the student must argue that the same personal, institutional or societal needs could be met by assuming some variation of the current solution or by creating a new one.

(IDENTIFICATION OF ALTERNATIVES)

Examples: In a discussion about the need to follow every rule, some alternatives which this age level would create and which would be acceptable might be:

"Follow the rules which you are sure were meant for you."

"Follow the rules which people you trust make up."

"Don't follow rules that sound silly."

Note, these are alternatives and each is acceptable as a statement of an alternative. The consequences of acting on these (and of evaluating them) have not yet been examined. The important thing is that the child be encouraged to generate many possible alternatives. Encourage the production of alternatives without judging them. Encourage the child to produce alternatives without having him unduly consider or censor them.

In the discussion about drugs, some alternatives might be:

"Prescription drugs available regardless of age; hard drugs available through government clinics; soft drugs available on the market."

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"Lower the age to 17 and I agree with you."

"Agreed, except for soft drugs which should be restricted like alcohol but no more severely."

All of these are acceptable as alternatives. If they are produced in open discussion,with each student being required to produce at least one new alternative, the experience can be very creative. In addition, if the requirement to evaluate is suspended,small teams of students can create intense feelings of cooperation as they "brainstorm" the question. This is divergent thinking applied to the original position.

Obejctive 3: Each student (or student-team) will prepare an evaluation of some of the alternatives. The evaluation will deal with at least one of his/her (their) alternatives plus at least one other alternative.

Criteria: The evaluation shall consider both internal and external criteria where appropriate and shall include statements which give evidence that the following have been considered:

a. Description of initial position
b. Reason why initial position might continue if not challenged (examined)
c. Reason for examining a.
d. The suggested alternative to a.
e. The likely effect(s) of adopting and acting on d.
(CONSEQUENCES OF VARIOUS ALTERNATIVES)

Discussion: In order to make this stage of the valuing process most meaningful, it is important that all students examine possible consequences both from their own perspective and then from the perspective of the larger class. Again, there is an opportunity for both individual and small group creativity. The intent of this stage of the process is not simply to find the consequence of a given alternative, but to examine several possible consequences for each alternative. This is divergent thinking applied to each alternative.

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Objective 4: The student (or student-team) will indicate his/her choice(s) of the alternative which she/he prefers (either in writing or orally; or through actual behavior if this is possible).

If there are several possible alternatives, each with a number of consequences, then choice may be indicated by a specially constructed test form. Each student should follow the same format as follows:

(1) The original position was:_____

_____

(2) I considered the following alternatives:

A._____
B._____
C._____

(3) The consequences for A are:

(i)_____
(ii)_____
(iii)_____

The consequences for B are:

(i)_____
(ii)_____
(iii)_____
and so forth

(4) My choice is alternative_____. based on the following considerations:

_____

_____

_____

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Criteria: 1.   In the latter portion of the response
form (see above), the student should indicate
clearly the basis of his/her comparisons and
the reason(s) for his/her final decision.
This involves a statement of the various
consequences within each alternative.

2.   For advanced grades, it may be helpful to
prepare a matrix* such as the following.
Note that the same kinds of consequences
must be created for each alternative.

(CHOOSING FROM ALTERNATIVES)

(For each consequence, the relative
benefits should be indicated by ranking
across the alternatives. The total for
each alternative indicates total benefit
for it.)

		Alternative			Note:
		A	B	C	
Consequence	(i)**	(2)	(3)	(1)	Rank of 3
Consequence	(ii)	(1)	(2)	(3)	indicates
Consequence	(iii)	(1)	(3)	(2)	greatest
Total		4	8	6	benefit.

**e.g.,   (i) Benefit to social organization
(ii) Benefit to self
(iii) Benefit to close friends

Discussion: In the example given, Alternative B with a
total ranking of 8 would likely be chosen as this indicates
the greatest overall benefit.   In more complex situations,
both costs and benefits may be entered on the same matrix
or on two separate matrices and the final decision made by
considering a benefit/cost ratio.   This is a very rigid
method of decision making or or arriving at a free choice,
and it is meant as an analogy to what we frequently do--
almost unconsciously--in a complex valuing process.

*See Robinson, F. G., et. al., Inquiry Training: Fusing Theory
into Practice. Profiles in Practical Education, No. 4. The
Ontario Institute for Studies in Education, Toronto, 1972, p. 24.

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Objective 5A: Having arrived at the point where the
choice of an alternative is possible,
the student will demonstrate that his
choice is consistent with other
previous choices or that his choice
follows logically from other state-
ments or demonstrations of his values
or attitudes.

(ACT UPON CHOICE)

Criteria: Internalization refers to the inclusion
of a particular value in a larger
heirarchy. The teacher's judgment
will frequently be required to deter-
mine whether a particular choice has
been based upon an overall scheme
or structure of values. The state-
ments provided by the student (see
the responses form above, question (4),
"My choice is...based on the following
considerations.") may suggest these
larger value considerations which
direct his/her choices and behavior.
In general, it will be necessary to
observe several choices in valuing
situations in order to infer the
underlying value structure.

Objective 5B: The student will demonstrate that he
has internalized a value by defending
his choices against external examina-
tion.

(ACT UPON CHOICE)

Criteria: Blind uncritical defense of a position or
choice taken at the end of a valuing pro-
cess would be evidence that the under-
lying value has been deeply incorporated
or internalized,but such a defense would
not consider new data nor engage in further
valuing. The student who successfully
copes with challenges or who incorporates
new data without giving up his original
position can probably be said to have
internalized the value in question.

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Objective 5C: The student will demonstrate that he
has internalized the valuing process
by being able to describe its six
steps orally or in writing; or by
following the process when new situa-
tions are presented to him, or by
calling others' attention to ways
in which the process or parts of the
process could be used to examine new
problems.

(ACT UPON CHOICE)

Comment: You may wish to teach the valuing
process as a procedure independent
of particular content. This could
be true during the first exercises
or new learning experiences. In
these cases, it would seem quite
legitimate to test for actual recall
of the six steps as outlined in this
guidebook with criteria such as:
Will recall from memory all six
steps of the valuing process and
will reproduce these in writing (or
orally) in the correct sequence.

Objective 6: The student will demonstrate that
after making a choice from among
several alternatives, she/he is able
to use data resulting from his choice.

(RE-EVALUATION)

Criteria: The choice may be indicated on a
response form, or through a verbal
commitment or other form of physical
response. As a result of the choice,
the student may receive new informa-
tion which bears directly on his/her
action. This information could be
provided verbally by fellow students
or by the teacher, or it would be the
direct consequence of the student's
action. To say that the student "is
able to use data" means he/she will
recognize that the results of a choice
can be related back to at least one of
the originally predicted consequences
(or perhaps recognize that an unforeseen
consequence has resulted).

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The student "demonstrates" his/her
ability to use data by indicating
recognition, or by suggesting that
he/she wishes to make another choice,
or by preparing another matrix such
as the one illustrated above for
Objective 4.

(iv) Organization

In the description of the valuing process, we came into
contact with much of the material to be discussed under
the heading Organization and also under the next heading,
Characterization (World View). As students develop each
of their values and also increase the total number of
values which they use in making choices, the need arises
to organize these into a coherent system. The system
has a hierarchy--some values dominate others--and a set
of relationships among the values which make it up.
Writing objectives for organization involves the con-
sideration of two questions: first, conceptualization
of a value, and second, the actual organization of a
value system.

1 (A) The student will make a judgment about the
appropriate response for the country to
make if one of its allies is attacked.
Criteria: The judgment may be written
or oral. It should indicate a rationale
for the proposed action. For example,
"Our country has made a treaty to
respond...and we must honor such treaties
if we are to be respected", and so forth...
The teacher's judgment, perhaps aug-
mented by further discussion with the
student, will frequently be the final
criteria of whether values underlie the
response or whether it is simply recalled
from other sources.

(CONCEPTUALIZATION OF A VALUE)

1 (B) After viewing the paintings, the student
will make a judgment about the quality of
the work. Criteria: the judgment may be
written or oral and should indicate the
basis on which the student decides whether

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the paintings are "good" or "bad,"
"strong" or "weak," "artistic" or
"non-artistic," "creative" or
"decorative," and so forth. In
short, the use of value terms or
adjectives implying worth should
be defended.

(CONCEPTUALIZATION OF A VALUE)

This type of objective can be set for any age group
and for any curricula content in the humanities. The
critical factor in making the objective useful is the
specification of the criteria. The student's
ability to indicate preference for one thing over
another, or one action over another, is a sufficient
index that there may be an underlying value. The
simple task of asking a student to rank order objects
in terms of preference produces data which can be
used as the basis for a discussion. If the student
cannot articulate the value (reason), the teacher may
have to imply it. As long as some record of the
student's ranking or of his discussion is kept, it
will be possible to review this at a later date
to see how the value system is developing. (Such
records also become useful for evaluating the success
of instruction in the valuing process in general or
of specific learning experiences.)

2 (A) The student will prepare a commentary
       on the following statement, "Gothic
       cathedrals are music set in stone."
       Criteria: the commentary will contain
       at least two value-based statements and
       will show that there is a recognized
       relationship between them. The re-
       lationship may be indicated by the use
       of terms like "similarly" or "in
       contrast" or "it follows from."

(ORGANIZATION OF A VALUE SYSTEM)

2 (B) After listening to any example of 12-
       tone music, the student will respond
       to the following question, "Do you
       agree that the word 'beautiful' can
       be applied to this piece of music?
       Why?" Criteria: the student must
       support his answer. His answer should
       indicate that at least two values are

being considered in deciding whether
the term "beautiful" is appropriate.
At least one of the values should
apply to the music, another should
provide a definition of the term
"beautiful" or indicate in what ways
it is appropriate to use this word.

<div align="right">(ORGANIZATION OF A VALUE SYSTEM)</div>

As a teaching technique, you may wish to provide your
criteria for assessing the answers to questions such
as those illustrated here. Knowledge of the criteria
can help the student to articulate alternative value
positions and to consider possible relations among
these. Exercises such as these can probably help to
create organizations of values where none may have
existed before.

(v) Characterization (total philosophy or world view)

Here are several objectives to consider:

1 (A) The student will exhibit consistency in
his/her choices. Criteria: the student
will choose the three statements from
the following list which are marked with
asterisks.*

Which of the following statements would
you be most likely to use in ordinary
conversation?

      1. "Everyone knows that capitalism
is failing."
(*) 2. "I think there are some failings
in capitalism."
      3. "They say that capitalism is
failing."
(*) 4. "The evidence is that capitalism
is failing."
(*) 5. "My experience is that sometimes
capitalism fails."

<div align="right">(GENERALIZED SET)</div>

*Asterisk would not appear in question. Those items marked with
asterisks indicate use of data or personal experience as op-
posed to authority or a generalized appeal to "common knowledge."

<div align="center">

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</div>

1 (B) After reading at least one work by
each of the following authors, the
student will write a paper identifying
any common themes which are of interest
to him: Charles Dickens, John
Steinbeck, Karl Marx, John Dos Passos.
Criteria: the student's paper will
indicate that he has identified at
least one common value consideration
in each of the four authors.

(GENERALIZED SET)

1 (C) While listening to the record selections
from any one of the following speakers
the student will make note of techniques
used to create a sense of immediacy with
the audience. (Winston Churchill,
Franklin D. Roosevelt, John F. Kennedy)

(GENERALIZED SET)

In all three of these sample objectives, the student is
being tested for his generalized set. This is another
term for his selective perception, or his basic orienta-
tion. This type of set is a combination of attitude and
perception which allows the student to attend selectively
to the world around him.* As Bloom puts it,

"A generalized set is a basic orientation
which enables the individual to reduce
and order the complex world around him
and to act consistently and effectively
in it." (1971, p. 276).

We test for generalized set everytime we ask our students
to, "Comment generally on the things you observed and
appreciated in the recent visit to the museum (gallery,
concert, bank, post office, brewery, and so forth).

2 (A) The student will exhibit independent
security.** Criteria: the student will
accept the consequences of his/her

*You may recall the story of the playright who took his aged
mother to his first production. On its completion he asked,
"Well, how did you like it?" and was devastated when she
replied, "Well, the costumes were nice."

**As defined by Blatz, W., Institute of Child Study, Toronto See
also, Blatz, W., Understanding the Young Child, Toronto: Clark
Irwin, 1944.

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actions. She/he will acknowledge that
her/his behavior is the result of her/
his choice to act in a certain way and
that, whatever the consequences, these
are her/his to accept and to deal with.
She/he may seek help to deal with con-
sequences or to weigh alternatives, but
in the end, she/he will own both her/his
actions and the results of these actions.

(CHARACTERIZATION)
(LIFE STYLE; WORLD VIEW)

2 (B) The student will engage in the valuing
process to whatever extent appears reason-
able and effective. Criteria: the
student will examine statements and
situations as they are presented to
him/her. He/she will make a judgment
or evaluation of the statement or
situation in order to determine if there
are alternatives which might be considered.
He/she will carry on with the valuing
process until he/she has either accepted
the original position or reached an al-
ternative which appears better to him/her.
He/she will take whatever action appears
appropriate at that time--including,
perhaps, consultation with others--and
then take responsibility for the outcome
of his/her decision.

(CHARACTERIZATION)
(LIFE STYLE; WORLD VIEW)

2 (C) The student will behave humanely.
Criteria: (the student will engage in
the valuing process as defined above.)
In determining consequences of alterna-
tives, the student will consider possible
and probable effects of his/her behavior
on him/herself, his/her peers, his/her
family or other social groups or systems
which would appear to be affected by his/
her decisions. She/he will indicate aware-
ness of being ultimately responsible for
his/her actions and will weigh this res-
ponsibility against his/her other
commitments and responsibilities (social
contracts).

(CHARACTERIZATION)
(LIFE STYLE; WORLD VIEW)

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Recall that, as stated here, these are teacher's objectives. If your intent is to help your students to achieve these or similar objectives, then discussion of the criteria with the students seems essential to the learning experience. They may accept the objective, but reject the criteria. If so, you are launched into a valuing process-- one which may change the criteria and perhaps the original objective as it was stated. Neither the objective nor the criteria are fixed; both are valuable starting points.

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APPENDICES

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Appendix A

Objectives for the Guidebook

"Developing Instructional Objectives: a teacher's guidebook"

General

1. Immediately after completing each of the following sections of this guidebook, IV, VI, VII and IX, the user will answer the appropriate self-evaluation questions for that section (see Appendix B: Part 1), will check his/her answers against those given in Part 2 of Appendix B, and will prepare either a corrected answer or will construct a written statement explaining his/her disagreement with the suggested answer. Criterion: user's judgment of degree to which he/she has met his/her objective.

2. The user will provide written statements or other feedback to the author via the evaluation scheme for this guidebook. Criterion: every user of this guidebook will provide data to assist in its evaluation and subsequent revision(s) as required.

3. Using aids if required, the user will correctly recognize a listing of the three domains (sets) of objectives which Bloom and Simpson have analysed. Criterion: correct selection as defined in Appendix B, Part 2 (IV.1).

Section IV

4. After completing Section IV of the guidebook, the user will be able, without aids, to write a brief description of each of the four essential "variables" which must be included in an instructional objective. Criterion: all four judged correct by the user when compared with the answer given in Appendix B, Part 2 (IV.2).

5. Using, if required, the material given in the answer to IV.2, the user will correctly discern the best statements of a behavioral objective from within each of six pairs of objectives. In addition, the user should specify in writing which variable is missing or poorly stated in the less satisfactory objective (or is better stated in the chosen objective). Criterion: five correct selections; correct identification as determined by comparing user's written response with notes given in Appendix B, Part 2, (IV.3).

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Section VI

6. (The guidebook may be used in preparing the response for this objective.) After completing Section VI of the guidebook, the user will be able to match correctly at least six of eight brief statements of Knowledge objectives to their appropriate classification, each of three statements of Comprehension objectives to its correct classification and at least three of a set of five objectives (containing one Application objective and four Analysis objectives) to their appropriate classifications. Criterion: as stated above. Answers given in Appendix B, Part 2 (VI.1).

Section VII

7. (The guidebook may be used for any of the questions related to Section VII.) The user will correctly name the type of thinking described by Knowledge, Comprehension, Application and Analysis, and will correctly name the type of thinking described by Synthesis and Evaluation. Criterion: both correct as determined by comparing response with answer to Appendix B, Part 2 (VII.1).

8. Considering the two types of thinking described in Section VII above, the user will indicate for each whether it is possible (or not) for a teacher to state criteria for "correct" or "best" answers as part of the statement of his or her objective. Criterion: comparison with answer in Appendix B, Part 2 (VII.2 and VII.3).

9. The user will construct a written statement which explains the different ways in which criteria relate to the two types of objectives discussed in Section VII above. Criterion: comparison of answer to model supplied in Appendix B, Part 2 (VII.4).

10. The user will indicate agreement or disagreement with new proposition that rankings which indicate a student's personal preference for teachers, programs or classes can be used as indicators of the effectiveness of these parts of the instructional program. Criterion: answer in Appendix B, Part 2 (VII.4).

11. The user will construct two or three written statements to support his or her response to exercise #10. Criterion: comparison of answer to model supplied in Appendix B, Part 2 (VII.6).

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12. Without the aid of the guidebook, the user will recall the six steps of the Valuing Process and will write these down in the same sequence in which they are presented in Section IX. Criterion: all six correctly described and in the correct order as given in Appendix B, Part 2 (IX.1).

13. Without the aid of the guidebook, the user will correctly match each of the five steps in the design of a learning experience (provided in the question) with the appropriate step(s) in the Valuing Process. Criterion: a suggested set of matches is given in Appendix B, Part 2 (IX.2). A note included in the question will acknowledge the impossibility of a perfect match between the two sets of steps (5 in one; 6 in the other).

14. The guidebook may be used for this objective. The user will construct at least five behavioral objectives, and at least three of these will be affective objectives to replace the following, "The student will learn to appreciate music." Criterion: the answer in Appendix B, Part 2 (IX.3) will call attention to the need to include all four variables in each new objective and will suggest several affective and cognitive behaviors which are appropriate for the content of this objective. User's judgment will be required to evaluate the degree to which he has met this objective.

15. Using the guidebook or any other aids available the user will match three of ten procedures and terms to each of ten behaviors. In creating these matches, the user will also indicate the most appropriate match from among the three created for each behavior. Criterion: as indicated in Appendix B, Part 2 (IX.4), eight of ten first choices should correspond to the answers given. In the case of second and third matches, at least five of ten in each would be considered acceptable.

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Self-evaluation Questions: Section IV

IV.1   Writers such as Bloom and Simpson have produced works which
        deal with various domains of objectives. Which of the fol-
        lowing sets best describes these domains?

        Set 1: Thinking, feeling, doing
        Set 2: Performance, affective, evaluative
        Set 3: Affective, Problem-solving, cognitive
        Set 4: Cognitive, Performance, Affective

IV.2   Behavioral objectives have four essential parts ("variables").
        Write a description of each of these without referring to
        the guidebook.

IV.3   In each of the following pairs of objectives, one is a more
        adequate statement of the objective than the other. Without
        using the guidebook:

        a. Identify the better statement in each pair;
        b. Specify in writing which variable is missing
           or poorly stated in the less satisfactory
           objective.

        1A Students will improve their spelling efficiency
            by 15% after completing the course.
        1B After completing the course the final grade in
            spelling will increase by 10% for all students.

        2A Seventy-five percent of the class will increase
            their music appreciation by the end of the course.
        2B At the end of the course, seventy-five percent of
            the class will be able to describe in writing the
            structure of a fugue with no more than four errors.

        3A After completing a finger painting, each child will
            provide a title for his picture and will explain
            how the title is related to at least one of the
            elements of the paintings.
        3B At least 75% of the children will complete their
            finger painting within the alloted time, will
            assign a title and will explain it.

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4A The aim of the course is to increase students'
    recognition of three recent trends in the de-
    velopment of film as an art form.
4B The aim of the course, "Recent Trends in Film,"
    is to increase awareness of film as a developing
    art form.

5A Every student in the school will learn the fire
    drill and will execute it without error.
5B Every student in the school will learn the fire
    drill and will execute it without error during
    the surprise practice session.

6A Eighty percent of the class will score at least
    75% on the final test of long division skills.
6B Eighty percent of the class in arithmetic will
    pass the final test in long division.

Self-evaluation Questions: Section VI

        The material in Section VI of the guidebook may be consulted
to help answer the following:

IV.1 There are four types of objectives associated with convergent
      thinking. These are:
          (i) Knowledge
         (ii) Comprehension
        (iii) Application
         (iv) Analysis

      In Column A below, there are several excerpts from different
      types of objectives. Match each of these to the appropriate
      sub-classification under Column B by writing the objective
      number in the parenthesis next to the classification:

Column A Objective	Column B Classification
1. Separate regular from irregular verbs	( ) Knowledge: Terminology
2. Recall tolerance limits	( ) Knowledge: Facts
3. Give name for motor parts	( ) Knowledge: Conventions
4. Outline plan of book	( ) Knowledge: Trends, Sequence
5. Put steps in proper order	( ) Knowledge: Classifications
6. Prepare directions for experiment	( ) Knowledge: Criteria
7. Give name for FDR; JFK; LBJ	( ) Knowledge: Theory, Structure
8. Find common music style	( ) Knowledge: Methodology

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Column A Objective	Column B Classification
1. Use history to predict	( ) Comprehension: Translation
2. Give English equivalent	( ) Comprehension: Interpretation
3. Write essay which explains	( ) Comprehension: Extrapolation

1. State underlying reasons	( ) Application
2. Provide explanation	( ) Analysis: Classify using criteria
3. Find the pattern	( ) Analysis: Recognize assumptions
4. Match formula to problem	( ) Analysis: Understand relations
5. Pick out "loaded" words	( ) Analysis: Recognize organization

Self-evaluation Questions: Section VII

VII.1 Fill in the blanks - (use guidebook if required).

1. Knowledge, Comprehension, Application and Analysis
   are examples of_____thinking.

2. Synthesis and Evaluation are examples of_____
   thinking.

VII.2 In the first type of thinking identified in VII.1 above,
       is it possible to state criteria for correct or best
       answers as part of the teacher's objective?

Answer Yes (   )
    or No (   ).

VII.3 In the other type (Synthesis and Evaluation), is it possible
       to state criteria for correct or best answers as part of
       the teacher's objective?

Answer   Yes (   )
     or No (   ).

VII.4 State in your own words (preferably in writing) the dif-
       ference in the way criteria relate to the two types of
       objectives described in VII.1.

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VII.5 When a student rank orders classes, teachers, programs in terms of his personal preference for them he is providing data on their effectiveness.

> True ( )
> or False ( ).

VII.6 Support your answer for VII.5 with two or three written statements.

Self-Evaluation Questions: Section IX

IX.1 The Valuing Process has been described at length in Section IX. Without consulting the guidebook, list, in order, the six steps of the Valuing Process.

> 1._____
> 2._____
> 3._____
> 4._____
> 5._____
> 6._____

Check your response to IX.1 with the answer sheet before proceeding with IX.2.

IX.2 Transfer your list of steps in the Valuing Process to Column B below and now match each of these steps with the appropriate step in the design of a learning experience as described in Section III of the guidebook.

Column A Steps in the design of a learning experience			Column B Steps in the Valuing Process
1. Specification of objectives	( )	( )	1._____
2. Pre-assess student behavior	( )	( )	2._____
3. Select learning activities	( )	( )	3._____
4. Evaluate outcomes	( )	( )	4._____
5. Revise 1 or 3 (above as required	( )	( )	5._____
		( )	6._____

6 4

There are only 5 steps in the design of a learning experience compared to 6 steps in the Valuing Process. This means that the match is not going to be perfect. Furthermore, some steps in one process may encompass more than one in another. Consequently, there are two parentheses opposite each step in Column B. A suggested answer has been provided for comparison purposes.

IX.3 Write at least five behavioral objectives to replace the following:

"The student will learn to appreciate music."

Try to state at least three of these in affective terms and consider the degree to which each of your objectives includes the required variables.

IX.4 For each of the terms listed in Column A, identify the most appropriate testing procedure(s) or terms from the list in Column B. Use of the guidebook or other resources is encouraged. Write the appropriate letter(s) in the parentheses.

Column A Behavior	1	2	3	Column B Procedures and Terms
1. Preference	( )	( )	( )	A Semantic differential
2. Satisfaction	( )	( )	( )	B Multiple choice test
3. Discrimination	( )	( )	( )	C True-False test
4. Knowledge	( )	( )	( )	D Valuing Process
5. Interest	( )	( )	( )	E Pre-assessment
6. Application	( )	( )	( )	F Extrapolation
7. Recognition	( )	( )	( )	G Effectiveness
8. Valuing	( )	( )	( )	H Analogies
9. Evaluation	( )	( )	( )	I Check-list
10. Designing	( )	( )	( )	J Rank ordering

You should try to put the most appropriate or most obvious match in Column 1.

6 5

Answers to Self-evaluation Questions: Section IV

IV.1   1. Subject variable ("Who..?")
        2. Action verb ("...will do what?")
        3. Observation scheme ("...how will it be observed..?")
        4. Criterion ("...and how well should it be done?")

IV.2   Set 4 is technically superior to Set 1. Both mean ap-
        proximately the same things. Sets 2 and 3 are deliberately
        inaccurate.

IV.3   1B is preferable. It specifies the subject variable ("all
        students").

        2B is preferable. It specifies an observation scheme
        ("describe in writing the structure of a fugue") and a
        criterion ("no more than four errors").

        3A is preferable. It has all four variables clearly
        specified. 3B, on the other hand has an ambiguous phrase
        ("will explain it") which does not specify what is to be
        explained nor does it require that the title be clearly
        related to elements in the painting.

        4A is preferable. The word "recognition" permits a specific
        form of test to be developed whereas "to increase awareness"
        is a general statement of a criterion with no specification
        of how performance might be measured. Neither A nor B is
        a particularly good example of a behavioral objective. (Note
        that the subject variable in each is poorly stated.)

        5B is preferable. The observation scheme ("during the
        surprise session") specifies the conditions under which
        the student's performance will be observed. Taken literally,
        5A would require a fire in order to test student's learning.

        6A is preferable. It states a specific performance criterion
        ("75%") rather than the more general ("pass") criterion of
        6B.

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VI.1   (7) Knowledge: Terminology
       (3)   Facts
       (8)   Conventions
       (5)   Trends, Sequences
       (1)   Classifications
       (2)   Criteria
       (4)   Theory
       (6)   Methodology

       (2) Comprehension: Translation
       (3)   Interpretation
       (1)   Extrapolation

       (4) Application
       (5) Analysis: Classify using criteria
       (1)   Recognize assumptions
       (2)   Understand relations
       (3)   Recognize organization

Answers to Self-evaluation Questions: Section VII

VII.1   1.   Convergent
        2.   Divergent

VII.2   Yes

VII.3   No

VII.4   Suggested answer: By its very nature, divergent thinking is
        unique. Each student can satisfy the stated criteria of an
        objective in a different way. In contrast, there is likely
        to be a smaller number of correct answers for questions
        which test for specific convergent thinking as stated in
        a behavioral objective.

VII.5   False

VII.6   The point of view expressed in the guidebook is that without
        knowledge of the student's objectives or intentions, a ranking
        such as this would provide data on effects (i.e., pleasingness),
        not effectiveness.

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·IX.1   1. Recognition by an individual of the need to choose a
direction for action (or of a possible choice) in a
particular choice-making situation. ..

2. Identification of alternative actions which are avail-
able to an individual in a situation which requires
choice-making.

3. Analysis through inquiry of each alternative in the
light of its possible consequences upon one's self
and one's fellows

4. Choosing the alternative which appears to offer the
wisest and most beneficial set of consequences.

5. Putting the chosen alternative into practice.

6. Reevaluating the action and its consequence each time
in the light of new experience.

IX.2

Column A Design of a learning experience		Column B Valuing Process
1. Objectives	(1) (2)	Recognizing...choice
2. Pre-assessment	(2) ( )	Identification...alternatives
3. Selection and instruction	(2) (3)	Analysis...consequences
4. Evaluation	(3) ( )	Choice among alternatives
5. Revision	(3) (4)	Act upon
	(4) (5)	Re-evaluation

IX.3   For each objective, check to see whether you have included
each of the four essential variables. See IV.1 above for
a review of these.

Some of the affective behaviors which you might have in-
cluded are:

      Willingness to receive
      Willingness to respond
      Satisfaction
      Generalized set

Some of the cognitive behaviors which might have been used
are:

      Knowledge of Facts or Terminology
      Knowledge of Conventions or Structure
      Interpretation
      Analysis: Understanding relations

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IX.4   Some suggested matches for this question are:

	1	2	3
1.	A	B	J
2.	B	A	J
3.	B	C	I
4.	B	C	F
5.	A	J	E
6.	B	C	G
7.	H	B	F
8.	D	E	F
9.	G	D	J
10.	E	D	G

It is difficult for the author to state what all of the associations are among these terms. The letter given in answer Column "1" is felt to be the most important association in that it suggests a very appropriate measuring device for each Behavior listed in Column A.

The matches (associations) given in answer to Column "2" are a little more remote. In some cases they represent alternative methods of measurement; in other cases they represent conceptual links between terms from various portions of the guideline.

The third answer column represents other acceptable measuring techniques and conceptual links as described above.

A criterion for this type of question is fairly arbitrary. In tnis case, the author would hope for at least 8 of 10 agreements in Column "1" and at least 5 of 10 in each of the other two Columns ("2" and "3").

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The Psychomotor Domain

The psychomotor domain has been divided into five major levels:

  (i)   Perception
 (ii)   Set
(iii)   Guided response
 (iv)   Mechanism
  (v)   Complex overt response.

(i) Perception

Before any act -- whether simple or complex -- the learner must become aware of signals, stimuli, messages, and so forth. He/she receives these via his/her many senses and interprets these in the light of both his/her past experience and the demands of the present. This level of activity has been referred to as Perception.

(ii) Set

The student does not respond to every input or message that arrives via his/her senses. Instead, he/she responds to a restricted range that reflect his/her mental, physical and emotional needs. In responding to these needs, the student develops a Set or "preparatory adjustment." He/she tends to act or to experience things in his/her own characteristic way.

(iii) Guided response

In learning any complex skill, the student must not only receive and process a great deal of information but must also learn a great number of small acts which can be linked together into a larger pattern. For example, the athelete learning to pole vault must put into proper sequence a long chain of skills--starting from gripping the pole, to the runway approach, then to planting the pole at the proper angle and so on through the process. While such a complex skill can be learned through imitation, most of the individual steps are usually taught, as is the transition from one part of the jump to the next. In skills such as these, where an instructor or tutor can guide the learner, we say that the level of Guided response has been reached.

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(iv) Mechanism

Mechanism is the term used to describe the condition where the student has internalized a skill so that it is available when and as he/she requires it. An external coach or guide is not required. The learner has made the correct performance habitual. He/she has a certain minimal confidence in his/her ability.

(v) Complex overt response

At this level, several smaller movement patterns become chained together in a manner that permits smooth action with a minimum level of error and with relatively little waste time. The differences between the beginning and expert swimmer are indicative of the differences among the last three levels. The professional golfer or highly skilled gymnast are other examples of highly skilled performers operating smoothly and efficiently.

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