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Although literature on educational objectives dates back more than 50 years, the last 20 years have seen a renewal of interest in objectives. The taxonomy approach currently in use expresses objectives in terms that are evidenced by pupil behavior. This approach deals with objectives that relate to three separate domains of learning: Cognitive, affective, and psychomotor. Although the domains are analytically separate, in reality they work together. Curriculum guides indicate that the majority of schools fall between an all-inclusive approach and a highly specific approach to stating objectives. The literature also contains groupings of objectives as ultimate and immediate, or as general and specific. Several sources state that curriculum theory is limited by the functions educational objectives perform. Too many objectives attempt to prescribe and predetermine the behavior of the next generation. Teachers perform a more specific role, administrators a more general role, in relation to objectives. Belief in a particular learning theory does affect the process of stating objectives. (MLF)

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OBJECTIVES AND ASSESSMENT: THE TASK

by

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OBJECTIVES AND ASSESSMENT: THE TASK

Objectives, the stating and assessment of, have been a part of school work for many years. One has only to look in the libraries of our universities and in the curriculum guides of communities to become fully aware of the amount of energy and time spent in either the stating or the analysis of objectives. Extensive collections of lists of stated objectives date back to more than 50 years. However, the last twenty years has seen a renewal of interest in objectives. From all this attention and effort has come what is now popularly known as the taxonomy approach to educational objectives. The taxonomy approach has incorporated what we today know as the behavioral approach to assessing learning, Tyler being one of the first to describe learning in terms of behavior. Simply stated, it means to express objectives in terms that are evidenced by forms of pupil behavior. When the student exhibits the desired form of behavior it signifies that he has attained the stated objectives.

The original thrust given to objectives, as defined by Bloom and Krathwohl, was a three-dimensional approach. It was agreed that the taxonomy should be an educational-logical-psychological classification system. The terms express the emphasis on all three of these dimensions. Importance should first be given to educational considerations. The boundaries between categories should be closely related to the distinctions teachers make in planning curricula or choosing learning situations. It was considered possible that teachers make distinctions which psychologists would not employ in describing and classifying human behavior. It was decided that the taxonomy should be a logical classification in that every effort should be made to define terms as precisely as possible and to use them consistently. It was also agreed that the taxonomy should be consistent with relevant and accepted psychological principles and theories. It was further agreed that in developing the taxonomy that every effort should be made to avoid value judgments about objectives and behaviors.

A framework was thus established which was to utilize three separate and distinct domains: cognitive, affective, and psychomotor. The cognitive domain involved classifying objectives which emphasize the process of remembering or reproducing something which has presumably been learned. Cognitive objectives vary from simple recall of material learned to highly creative ways of collating and synthesizing new ideas and materials. Upon examination it was found that the largest proportion of educational objectives fell into the cognitive team.

The affective domain directs attention to those objectives which emphasize a feeling tone, an emotion, or a degree of acceptance or rejection. The objectives in this domain vary from simple attention to selected phenomena to complex but internally consistent qualities of character and conscience. Examination revealed that a large number of objectives in the literature expressed as interests, attitudes, appreciations, values, and emotional sets of biases were indicative of the affective domain.

The psychomotor domain, which has not been developed to the same extent as either the cognitive or affective, will deal with those objectives that emphasize some muscular or motor skill, some manipulation of material and objectives, or some act involving a neuromuscular co-ordination. Objectives of this type are generally found relating to handwriting, speech, physical education, trade, and technical courses.

It is worthy to note in passing that developers of the domains were driven on by explicit knowledge that teachers and curriculum workers who state objectives do make distinctions between problem solving and attitudes, between thinking and feeling. It is also worthwhile to note that after nearly 20 years or work on cognitive objectives meaningful and specific results have appeared. What has transpired is the attempt to identify and quantify the forms of behavior related to very specific objectives. General objectives have thus been refined to the point of being more explicit. Some have suggested that the statements of objectives should be so explicit that there is no room for misinterpretation. This, of course, is the action-reaction approach to education. For every action (objective) there is an observable reaction (behavior) on the part of the student. To these people the closer we get to stating objectives in the action-reaction fashion the closer we get to approaching education as a science.

Although the two domains (cognitive and affective) appear as two separate entities, there is no intention on the part of the developers and investigators to represent them as being separate. In reality the two domains work hand-in-hand. Broadly conceived, the cognitive domain deals with the process of receiving information, retaining information, and transferring information to other situations. The affective domain relates to the individual's personal identification with the objective. The current interest in the discovery approach is indicative of the affective-cognitive relationship. Mathematical proponents of the discovery approach utilize the affective effects of self-discovery as a means of simultaneously achieving the goals of mastery of the subject matter and developing interest in it. Inquiry training is based on a similar concept. The cognitive goals can be reached by getting high involvement of interest from the student. The students raising questions bring about personal commitment which in turn supports the learning of concepts from the personal identification with the problem at hand. Investigators have intimated that the cognitive domain places emphasis on "can the individual do or perform a particular task." On the other hand the affective domain places direction and interest on "does the pupil do it."

The fact that one domain emphasizes knowledge acquisition and transfer to other situations and another domain emphasizes personal involvement points out how important it is for school personnel to recognize the interaction between each domain. Close examination reveals that the lowest level of the cognitive domain, which is knowledge, can be achieved by a great variety of learning experiences. At this level all the pupil is required to do is gain a clear picture of the presented piece of information; we call this a fact. When you move into the more complex and higher categories of the cognitive domain analysis, synthesis, and evaluation you are requiring a much more complicated educational task. You cannot very well teach the ability to solve problems by just telling the student how to solve problems. How the individual receives, responds, and values certain processes becomes important to both the teacher and the pupil.

In all schools the task becomes one of identification of the objectives that are most crucial to the school setting. Because of this, different schools will place more emphasis on different objectives within the domains. One school may value knowledge, comprehension, and application as attainable and worthwhile goals. Another school may place more emphasis on application, analysis and synthesis. It suggests that priorities evidently are and must be established by each and every school system allowing for the individual idiosyncrasies of the specific school district.

Let us now take a look at what school are doing today. Examining curriculum guides we see two opposite approaches. At one end of the continium we find many schools employing a rather all-inclusive approach to stating objectives. They are usually stated in such terminology as: to teach critical thinking, to develop the ability to appreciate good music, and to educate the whole child. These are stated in such a way as to represent themselves as full of sound and fury, but unfortunately, are of little practical value in determining a curriculum which is to provide the most meaningful experiences to the pupil. The other end of this continium requires total specificity in stating of objectives. At this end the emphasis is on stating clearly what the objectives are in terms that leave little room for individual misinterpretation. Examples of this type are: "the second grade child should be able to count to 100 by 2's, 4's, and 5's"; the child in grade five should be able to calculate the perimeter of a square, triangle, and rectangle with no errors.

The majority of schools would fall somewhere in between the two above suggested approaches. It is also noted that schools are exhibiting the preference for stating objectives in terms of functions, concepts, understandings, and abilities. An objective stated as a concept is as follows: "To learn that the Mayflower on which the Pilgrims sailed was one of the most famous ships in all history." Another approach is to describe the major objective and then develop it by more specific statement of objectives. Illustrative of this approach is: General objective: "To help children develop an understanding of democracy and to develop democratic values and behavior." More specifically: Understanding: "Democracy is a way of life which relates to personal relationships, family life and relationships, group and civic life and relationships, and economic life and relationships. Democracy is also a form of government which provides for political rights and freedom."

Exemplary of the skills or ability type objectives are the following taken from the science area: "To determine appropriate means of study or investigation, select and test the most likely hypothesis, make valid and reliable comparisons, discuss orally, apply math to science, and convert measurements."

Schools have also expressed objectives in terms of attitudes. Using the science area the following represent this category; "pursue the unknown", "accept the unknown", "work from the unknown to the known", "perform relentless research", "question all conclusions", "accept success and failure".

While surveying the literature I ran across some rather interesting discussions about objectives that I would like to share with you. I feel you will find the information representative and instructive. Some writers favor dividing the objectives into groupings such as those which are ultimate and those which are immediate; those which are general and those which are specific. Ultimate objectives refer to important goals of education, but to ones which cannot, generally, be evaluated in the classroom. Examples of ultimate objectives might be: the development of good citizenship and the practice of intelligent voting. Dressel states that these are long range goals and consequently must be approached by short term immediate objectives. It is inferred that practice in short term objectives will have carry-over value to the ultimate objectives. It is the short term goal or objective that we can view in the classroom. General objectives are described as providing an over-all framework for a particular grade or subject. Specific objectives are usually related to individual courses or specific units.

Elliot Eisner[1] of Stanford University states that when teachers plan curriculum guides they first identify over-all educational aims, then specify school objectives, then identify educational objectives for specific subject matters. To Eisner th: efforts appear to be more like exercises to be gone through than serious efforts to build tools for curriculum planning.

Eisner goes on to point out that there are several limitations to theory in curriculum regarding the functinns educational objectives are to perform. First, educational objectives are typically derived from curriculum theory, which assumes that it is possible to predict with a fair degree of accuracy what the outcomes of instruction will be.

Outcomes of instruction are far more numerous and complex for educational objectives to encompass. Elementary school teachers are often sensitive to the changing interest of the children they teach, and frequently capitalize on these interests as they teach. The dynamic and complex process of teaching yields outcomes far too numerous to be specified in behavioral and content terms in advance.

Second, educational objectives fail to recognize the constraints various subject matters place upon objectives. In some subject areas, such as mathematics, languages, and the sciences, it is possible to specify with great precision the particular operation or behavior the student is to perform after instruction. In other subject areas, especially the arts, such specialization is frequently not possible, and when possible may not be desirable. In a class in math or spelling, uniformity in response is desirable insofar as it indicates that students are able to perform a particular operation adequately, that is, in accordance with accepted procedures. In the arts where creative or novel responses are desired, the particular behaviors to be developed cannot easily be identified. Here curriculum and instruction should yield behavior and products which are unpredictable.

Eisner's third point deals with the belief that objectives stated in behavioral and content terms can be used as criteria by which to measure the outcomes of curriculum and instruction. Educational objectives provide, it is argued, the standard against which achievement is to be measured. Both taxonomies are built upon this assumption. This assumption fails to distinguish adequately between the application of a standard and the making of a judgment. Not all outcomes of curriculum and instruction are amendable to measurement. The application of a standard required that some arbitrary and socially defined quantity be designated by which other qualities can be compared. A poem cannot be judged by applying standards already known to the particular product being judged. The evaluator must view the product with respect to the unique properties it displays.

The fourth point deals with the function of educational objectives in curriculum construction. The rational approach to curriculum development not only emphasizes the importance of specificity in the formulation of educational objectives but also implies that educational objectives be stated prior to the formulation of curriculum objectives.

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[1] Elliot W. Eisner, "Educational Objectives: Help or Hindrance?", School Review, 75 (Autumn, 1967), 250-260

MacDonald,[2] a psychologist, in amplifying the above remark states, "There is another view, however, which has both scholarly and experiental referents. This view would state that our objectives are only known to us in any complete sense after the completion of our act of instruction. No matter what we thought we were attempting to do, we can only know what we wanted to accomplish after the fact. Objectives by this rationale are heuristic devices which provide initiating consequences which become altered in the flow in instruction." The teacher asks a different question from, "What am I trying to accomplish?" The teacher asks, "What am I going to do?" and out of the doing comes the accomplishment.

Eisner concludes by saying that educational objectives need not precede the selection and organization of content. Curriculum theory needs to allow for a variety of processes to be employed in the construction of curriculum.

Robert Ebel,[3] formerly of this university and totally familiar with test construction reports some interesting remarks relative to the preceding discussion. Ebel states that contributions of formally stated objectives to effective teaching have been overrated by educational theorists.

Ebel goes on to state that specific objectives - objectives stated in specific detail, tend to become very numerous. If one tried to state all of them explicitly in advance, he could easily spend all his time writing objectives, and have none left for actually teaching.

Ebel claims that what we learn is not, as some books seem to claim, a general method of thinking, or understanding, of problem solving. We learn a host of particulars; "What this particular word means", "What causes that particular phenomenon", "How a particular difficulty can be overcome." Educational achievement is largely a matter of particulars.

When discussing behavioral objectives Ebel writes: "Some who advocate behaviorally defined objectives have no other purpose than to provide a meaningful answer to the question, 'How can one tell whether or not a student possesses command of this element of knowledge or of that skill?' This seems educationally useful and laudable."

But, Ebel also asks: "In a free and changing world in how much detail can the behavior of free men be prescribed and predetermined? Can members of this generation foresee accurately how members of the next ought to behave when they become adults? Should education be viewed more as a means of increasing the resources of the individual as he seeks to choose his own behaviors wisely? Should it not enlarge the repertory of alternative courses of action available to him? Should it not improve the accuracy of his perceptions of the probable consequences of choosing each? Should it not emphasize the cognitive input to decision making rather than the behavioral output? To those who believe that it should, behavioral objectives have lost some of their luster."

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[2]MacDonald, James B., "Myths About Instruction", Educational Leadership, Vol. 22, No. 7, May, 1965, 613-614

[3]Ebel, Robert L., "Some Comments by Robert L. Ebel," School Review, 75, (Autumn, 1967), 261-266

Ebel's final point concerns measurement of behavioral objectives. He states that the measurement of behavioral objectives has been rather difficult. Paper and pencil tests obviously don't elicit the real behavior specified by most behavioral objectives but only some presumed verbal corollary. It is difficult to find problem situations in which the difference between appropriate and inappropriate behavior is crystal clear. It is much easier to measure a student's skill in extracting square roots than to measure his skill in writing short stories. The target is much more unique and clearly defined in the first case. We could, if we chose, develop more precise criteria of excellence in any particular form of artistic production but only at the cost of limiting variety and discouraging creative invention. "Things, all things, can be measured if given proper scope."

Now let's analyze how the teacher and administrator relate to objectives. What are the problems that confront the teacher when she tries to implement stated objectives into the learning program? First, it becomes the responsibility of the teacher to transform the objective, regardless of its clarity or lack of clearness, into a workable teaching or learning unit. If the objective is specific and well written she has not problem of interpretation. If the objective is general she must interpret or translate what it means. The fact that the teacher had to interpret what was meant by the objective has lessened its usefulness in providing direction, if you believe in established goals. If you don't place much faith or validity in system established goals you may prefer to have the teacher make individual judgments as to course objectives.

The teacher when given the specific objective must make many professional decisions along the way. She must assess the objective in terms of the educational climate of her classroom or building. If the objective says to teach each child to count to 100 by tens she must provide some means for herself or some other people to assess the individual pupil's ability to accomplish this goal. She may do this with each individual child and assess on the spot or she may have the child speak into a tape recorder and have the assessment come later. Regardless of procedure it is the responsibility of the teacher to define operationally how the objective is to be met.

The teacher must also establish some criterion by which to measures accomplishment. The establishment of criterion measure implies that she has at her disposal systematized procedures which allow for individual variances.

If the teacher changes the task of the assignment to meet individual differences she is, in fact, changing the objective. (Example: If for instance the teacher knows that counting to 100 by tens is too simple for certain high ability students she may want to "challenge" them by stating that the task for the faster pupils is to count to 100 by fours or fives.) At this moment the teacher has now changed the original objective to fit the quality of student. It appears that the teacher is now faced with the task of knowing exactly <u>how</u> and <u>when</u> to vary objectives to meet the levels of ability in the classroom. This assumes that the teacher has some keen sense of the hierarchy of learning; that she knows what specifically follows from one learning objective to another. The teacher is continuously faced with the task of transferring objectives into meaningful chunks of learning. Or is it the other way around? The teacher is continuously faced with the task of making meaningful chunks of learning fit into the prescribed objectives. I would venture to say that if the question were put to teachers we would get some interesting results.

It also appears that the teacher's task is to take any understanding, skill, or value and translate it into some form of pupil behavior. The problem is that some forms of behavior are easily observable and others are not. Behaviors that are overt: (e. g., ability to perform an experiment, ability to run 100 yards, ability to blend color, ability to read orally) are quite easy to view and evaluate. Behavior that requires internal reaction may not be so observable. You don't know for sure if the child truly appreciates poetry. He may have no way of expressing his feeling or mood that is recognizable. Also, any good teacher can tell you that specificity in describing subject matter in a step by step sequence assumes, wrongly, that learning is sequential. This discovery approach to math and science has exhibited to us that there is nothing more logical than the illogical approaches that children employ in learning.

Turning to the administrator for a few moments let's look at his task relative to objectives. First of all administrators must view objectives in a much broader and more longitudinal perspective. These people have the responsibility opportunity for working with each child for a total period that equals the length of time the child spends in that particular school. For the typical elementary school principal he must view objectives for each child over a seven year period. This group of educators has the responsibility of establishing the priorities of objectives. They must develop some systematic approach to insure that the basic objectives are met. For example, let's look at the objective which is to develop critical thinking in pupils. The educator's first responsiblity is to develop a clear statement as to what critical thinking is. Let's say the arrived at definition of critical thinking is as follows: Critical thinking is the ability to reserve judgement about any phenomena until all the facts are in. It is now his responsibility to develop procedures to insure that the children in his school will become critical thinkers. Working with a team of educators the administrator arrives at the following description of what critical thinking is:

Critical Thinking:

1. Recognize and define the problem.
2. Base opinions on data.
3. Recognize when there is insufficient information to answer a question.
4. Recognize conflicting viewpoints.
5. Distinguish between fact and assumption or opinion.
6. Stay within limits of information in reaching conclusions.
7. Weigh the reliability of different statements.
8. Select material with respect to relevance.
9. Sense cause and effect relationships.
10. Draw a conclusion.
11. Justify a conclusion.

It would now appear that the problem of the administrator is to define rather clearly which of the above statements about critical thinking are to be covered in each grade. If he takes the viewpoint that critical thinking is a process he may decide that all grades must develop critical thinking to the degree that the pupils are capable and the time and materials are provided. Specifically, the administrator is responsible for the development, coordination, and evaluation of stated objectives.

It would appear that five areas of concern are of utmost importance to the administrative process: desirability, attainability, clarity, relevance and adequacy. Desirability refers to what we want to accomplish. This relates to the purposes of school. Do the objectives agree with the intended purposes of education as identified by parents, pupils, citizens, scholars, and educators. How crucial, permanent, frequent, and relevant is the objective: Is the objective attainable? Is the objective consistent with what we know about human growth and development, the learning process, and the existing circumstances in the community? Does the objective have clarity? Is it stated in such a way as to be clear to both the teachers and learners. Is it stated in such a way as to give guidance and direction to evaluative procedures? Relevance refers to the purposefulness of the activity or concept. Adequacy refers to the degree that the stated objectives fit together logically and adequately cover the intended field of study.

If it is true that the administrator must develop procedures to establish priorities among objectives it is also true that his responsibility to maximize the investment is established. He must insure that the citizens get the most out of their investment in education. If he agrees with the mutually derived objectives he must set about to define in operational terms how the total organization is to function. This includes fitting people, space, time, materials, method, and finance together in attaining goals of the institution. One of the basic problems facing administrators today is putting educational objectives in proper perspective. It has been written that we are somewhat torn in two different directions. When you talk with psychologists about the learning process and educational objectives they relate to you in terms of best learning, quickest learning, most retention and other types of what I term outcome vocabulary. When you discuss the same problem with educators you are immediately struck with a different set of conditions. Educators talk about objectives more in terms of social concepts. They talk about better citizenship, human dignity, and the accepting individual. It has also been written that educators have a tendency to express objectives in such a way as to suggest that there is a hierarchy. This hierarchy is expressed by arranging the curriculum so there is continuity from grade to grade. This is suggesting that educators sense a need to define the learning procedure in terms of the sequential phases (grades) through which the child is paced.

The administrator is likely to view his role as one which supports the process of instruction. He may not see himself as directly involved in bridging method and learning theory into the instructional process. He may be quite willing to allow the professional teacher to reign supreme when it comes to course objectives (within a subject body area). This does not imply that the administrator can relinquish his responsibility for insuring that the stated objectives are valid. He must initiate action which allows the organization to self-evaluate itself. He will no doubt want to set into operation some form of evaluation that is continuous, objective, reliable, planned, comprehensive, and rigorous. It may well be that the administrator's role is evaluation is one which means involving the right people at the right time--professional educators, pupils, parents, scholars, and citizens.

I would like to conclude with some personal thoughts relative to the total process of objectives and assessment. I see a number of important concerns that educators must raise and attempt to answer as we move forth in today's society. First, to what degree are we talking about group objectives and individual objectives. It seems to me that there is the tendency to express objectives in the form of a grade or group goal. If we treat them as a grade or group or grade goals we run the risk of neglecting the individual pupil. We must spell this out to a much better degree.

I think the effort we have devoted to objectives which look for student behaviors has had a good effect in that we are presently centering more attention on student behavior instead of so much attention given to teacher behavior. It would appear to me that this puts us back in proper perspective relative to how much time and effort we expend toward teacher behavior as opposed to pupil behavior. I think we have a much better balance between studying teaching behavior and analyzing pupil behavior. I guess you could call it the pupil's day in court.

Educators must be alert to the so-called "process of learning". We cannot assume that all children necessarily go through the same sequence in arriving at a similar point in learning. Too much emphasis on sequence in stating learning objectives could destroy the individual's private approach to solving problems.

We can't make the assumption that all learning will be steady progress. We must make complete allowances for spurts in learning just as we make allowances for spurts in physical growth. We must also realize that plateaus and dips will also be present in the individual's learning program.

As educators we must realize that the basic process of stating objectives and their assessment will become more difficult instead of easier. As our educational programs become more universal and individualized so must our evaluational process.

To what extent will the knowledge explosion affect our schools? Some feel that it is impossible to teach all the subject matter today so let's concentrate on the process of thinking. This means to provide the pupils with the tools to observe, compare, classify, criticize, hypothesize, collect data, imagine, create, conclude, decide and internalize.

In our approach to stating and evaluating objectives we must give increasing concern to its relationship with learning theory in general. I believe it would be appropriate to state that learning theorists believe that learning involves some change in behavior. They would also want to qualify the statement to read "some behavior that persists." This is very important to us as educators. We cannot assume, on the basis of a single performance that learning has taken place. We must be alert to the fact that exhibiting learned behavior is a relative concept. Persistence of measurable learning will be directly related to ability of the student, difficulty of material, relatedness of material to other known information, frequency of use, and many other conditions allied to those already mentioned.

I am somewhat puzzled by the apparent dichotomy suggested by the advocates of specific behavioral objectives and those who push for more emphasis on development of each child's creative talent. Those who suggest more specificity in stating objectives are doing so from what they consider a very rational and set procedure. Those who are writing about the creative pupil are taking somewhat the opposite point of view. Creativity is not acting in any preconceived set manner. The creative pupil is sometimes highly emotional, highly curious in strange ways, and highly disturbing to the existing organization. The dilemna posed here is that increasing emphasis on a routine and recognizable form of learning and its attendant behavior may be destroying the very essence of creative intelligent behavior.

The late Ernest Horn of this University, speaking before this group a few years ago, stated that specific knowledge, abilities, attitudes and the development of these

should be identified and clearly defined. He went on to state that exactly what is to be done, grade by grade, should be specified. My interpretation of this suggests that Dr. Horn was vitally interested in the strategy of the teaching process. He was well aware that to attempt to raise the level of thought (such as analyze, synthesize, and evaluate) too early in the child's educational program resulted in the pupil's inability to discuss at the higher levels. It also points out that discussion or teaching steered toward the inferential level without development of a body of information results in children returning to the information level; which in the cognitive domain is called the knowledge category. Where there is constant change of focus from one level to another (i. e., factual, conceptual, analytical, and so on) the child's thought process has a tendency to stabilize at a low level. He may not reach the level of critical thinking.

I would also like to raise the question relative to the place of today's student in developing objectives. Personnel most involved in stating objectives fall into various categories: e. g. curriculum workers, teachers, subject matter specialists, educational psychologists, test constructors. It appears to me that we need to give serious attention to involving students in the process. My experience in working with children suggests that our best results have been attained when the pupil shares in the process. Utilizing students in the process would certainly rid many objectives of their being platitudinous. It would also sensitize pupils to the very essence of any learning strategy, which is pupil internalization.

I think the analysis of objectives should, in the end, result in some over-all plan which helps all personnel involved in curricular planning to better arrange the educational programs for students. I think we should be able to identify subjects that best teach certain abilities to students. With the increasing knowledge required today we are, as never before, required to become efficient. We need to identify what the specific subjects contribute to the total educational process and strengthen these contributions. This does not argue for a compartmentalized approach to education, but one that is coordinated, flexible and receptive to change. Again, using the area of problem solving, we find the biggest problem related to the process in in terms of interpretation. From the student's point of view he may think he has solved the problem when he feels he has the right answer. This is the psychological dimension of the situation. The teacher's viewpoint represents another dimension. She is not so much concerned with whether the student feels he has solved the problem but she is much more concerned that he has obtained the correct response by following logical pattern. In teaching problem solving the teacher has little difficulty getting the pupils to solve problems. The real problem is to keep the children focused on what was the original problem. Students have a tendency to solve all kinds of problems regardless of the relationship to the original concern. It can be clearly perceived that a process of problem solving has both psychological and logical dimensions. We must investigate this relationship to stating objectives.

We must also be aware that our belief in learning theory will affect the process of stating and evaluating objectives. If one believes heavily in the stimulus-response pattern of learning he is likely to look upon learning as a series of sequential and related steps toward a goal. The stating and evaluation of objectives to the S-R educator becomes a process of identifying the appropriate learning material, providing the mediating conditions, and then assessing how well the student responded to the situation. The goal is continued reinforcement until the wanted behavior becomes a habit with the student. The Gestalt type educator would not buy this approach. He does not believe the same conditioning process. His view toward learning and objectives is likely to be

much more complicated. He sees problem-solving as the achievement of insight which results when the learner sees the relationships among the part of the problem situation. There is no prearranged hierarchy of responses.