BASIC PRINCIPLES OF CURRICULUM AND INSTRUCTION

Ralph W. Tyler

THE UNIVERSITY OF CHICAGO PRESS
Chicago and London
INTRODUCTION

This small book attempts to explain a rationale for viewing, analyzing and interpreting the curriculum and instructional program of an educational institution. It is not a textbook, for it does not provide comprehensive guidance and readings for a course. It is not a manual for curriculum construction since it does not describe and outline in detail the steps to be taken by a given school or college that seeks to build a curriculum. This book outlines one way of viewing an instructional program as a functioning instrument of education. The student is encouraged to examine other rationales and to develop his own conception of the elements and relationships involved in an effective curriculum.

The rationale developed here begins with identifying four fundamental questions which must be answered in developing any curriculum and plan of instruction. These are:

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained?

This book suggests methods for studying these questions. No attempt is made to answer these questions since the answers will vary to some extent from one level of educa-

1
tion to another and from one school to another. Instead of answering the questions, an explanation is given of procedures by which these questions can be answered. This constitutes a rationale by which to examine problems of curriculum and instruction.

WHAT EDUCATIONAL PURPOSES SHOULD THE SCHOOL SEEK TO ATTAIN?

Many educational programs do not have clearly defined purposes. In some cases one may ask a teacher of science, of English, of social studies, or of some other subject what objectives are being aimed at and get no satisfactory reply. The teacher may say in effect that he aims to develop a well-educated person and that he is teaching English or social studies or some other subject because it is essential to a well-rounded education. No doubt some excellent educational work is being done by artistic teachers who do not have a clear conception of goals but do have an intuitive sense of what is good teaching, what materials are significant, what topics are worth dealing with and how to present material and develop topics effectively with students. Nevertheless, if an educational program is to be planned and if efforts for continued improvement are to be made, it is very necessary to have some conception of the goals that are being aimed at. These educational objectives become the criteria by which materials are selected, content is outlined, instructional procedures are developed and tests and examinations are prepared. All aspects of the educational program are really means to accomplish basic educational purposes. Hence, if we are to study an educational program systematically and intelligently we must first be sure as to the educational objectives aimed at.

But how are objectives obtained? Since they are consciously willed goals, that is, ends that are desired by the school staff, are they not simply matters of personal preference of individuals or groups? Is there any place for a
systematic attack upon the problem of what objectives to seek?

It is certainly true that in the final analysis objectives are matters of choice, and they must therefore be the considered value judgments of those responsible for the school. A comprehensive philosophy of education is necessary to guide in making these judgments. And, in addition, certain kinds of information and knowledge provide a more intelligent basis for applying the philosophy in making decisions about objectives. If these facts are available to those making decisions, the probability is increased that judgments about objectives will be wise and that the school goals will have greater significance and greater validity. For this reason, a large part of the so-called scientific study of the curriculum during the past thirty years has concerned itself with investigations that might provide a more adequate basis for selecting objectives wisely. The technical literature of the curriculum field includes hundreds of studies that collected information useful to curriculum groups in selecting objectives.

Accepting the principle that investigations can be made which will provide information and knowledge useful in deciding about objectives, the question is then raised what sources can be used for getting information that will be helpful in this way. A good deal of controversy goes on between essentialists and progressives, between subject specialists and child psychologists, between this group and that school group over the question of the basic source from which objectives can be derived. The progressive emphasizes the importance of studying the child to find out what kinds of interests he has, what problems he encounters, what purposes he has in mind. The progressive sees this information as providing the basic source for selecting objectives. The essentialist, on the other hand, is impressed by the large body of knowledge collected over many thousands of years, the so-called cultural heritage, and emphasizes this as the primary source for deriving objectives. The essentialist views objectives as essentially the basic learnings selected from the vast cultural heritage of the past.

Many sociologists and others concerned with the pressing problems of contemporary society see in an analysis of contemporary society the basic information from which objectives can be derived. They view the school as the agency for helping young people to deal effectively with the critical problems of contemporary life. If they can determine what these contemporary problems are then the objectives of the school are to provide those knowledges, skills, attitudes, and the like that will help people to deal intelligently with these contemporary problems. On the other hand, the educational philosophers recognize that there are basic values in life, largely transmitted from one generation to another by means of education. They see the school as aiming essentially at the transmission of the basic values derived by comprehensive philosophic study and hence see in educational philosophy the basic source from which objectives can be derived.

The point of view taken in this course is that no single source of information is adequate to provide a basis for wise and comprehensive decisions about the objectives of the school. Each of these sources has certain values to commend it. Each source should be given some consideration in planning any comprehensive curriculum program. Hence, we shall turn to each of the sources in turn to consider briefly what kinds of information can be obtained from the source and how this information may suggest significant educational objectives.

Studies of the Learners Themselves as a Source of Educational Objectives

Education is a process of changing the behavior patterns
tensions are produced which result in disequilibrium unless these tensions are relieved. In this sense every organism is continually meeting its needs, that is, reacting in such a way as to relieve these forces that bring about imbalance.

In these terms one of the problems of education is to channel the means by which these needs are met so that the resulting behavior is socially acceptable, yet at the same time the needs are met and the organism is not under continuous, unreleased tensions. Prescott classifies these needs into three types: physical needs such as the need for food, for water, for activity, for sex and the like; social needs such as the need for affection, for belonging, for status or respect from this social group; and integrative needs, the need to relate one’s self to something larger and beyond one’s self, that is, the need for a philosophy of life. In this sense all children have the same needs and it is the responsibility of the school as with every other social institution to help children to get these needs met in a way which is not only satisfying but provides the kind of behavior patterns that are personally and socially significant. A study of such needs in a given group of children would involve identifying those needs that are not being properly satisfied and an investigation of the role the school can play in helping children to meet these needs. This may often suggest educational objectives in the sense of indicating certain knowledge, attitudes, skills, and the like, the development of which would help children to meet these needs more effectively. These studies may also suggest ways in which the school can help to give motivation and meaning to its activities by providing means for children to meet psychological needs that are not well satisfied outside the school.

It is well to keep these two meanings of the term “needs” distinct so that they will not be confused in our discussion. The first use of the term represents a gap between some conception of a desirable norm, that is, some standard of
philosophic value and the actual status. Need in this sense is the gap between what is and what should be. The other use of the term by some psychologists represents tensions in the organism which must be brought into equilibrium for a normal healthy condition of the organism to be maintained.

A large number of investigations has been carried on during the last ten or fifteen years to identify needs of students. Many of them use the term "need" in the first sense and have consisted essentially of studies aimed to find out the present status of students in terms of factors that are accepted as desirable norms. This information about the student is then compared with these norms and gaps identified in this way. Studies of needs in the psychological sense have also been conducted particularly by students of so-called "dynamic" psychology.

The argument for considering the needs of students as an important source for educational objectives runs somewhat as follows: The day-by-day environment of young people in the home and in the community generally provides a considerable part of the educational development of the student. It is unnecessary for the school to duplicate educational experiences already adequately provided outside the school. The school's efforts should be focused particularly upon serious gaps in the present development of students. Hence, studies that identify these gaps, these educational needs, are necessary studies to provide a basis for the selection of objectives which should be given primary emphasis in the school's program. Most of these studies will have two parts, first, finding the present status of the students, and second, comparing this status to acceptable norms in order to identify the gaps or needs.

If a school is to make a comprehensive investigation of the needs of its students, several difficulties are encountered. In the first place, the needs of students may fall in any aspect of life. It is difficult to study all aspects of life simultaneously or in a single investigation. Hence, it is generally desirable to analyze life into some major aspects and investigate each of these major aspects in turn. For example, in studying the needs of children in a junior high school in Smithville the staff might profitably break down the investigation into the following phases: (1) health, (2) immediate social relationships, including life in the family and with friends and acquaintances, (3) socio-civic relationships, including the civic life of the school and the community, (4) the consumer aspects of life, (5) occupational life, and (6) recreational. These are not the only categories which might be used or are necessarily the best, but they illustrate the division of all of the youngster's life into aspects each of which can be investigated more conveniently. For each of these aspects of life, the investigation might properly include studies of the child's practices, knowledge and ideas, attitudes, interests, and the like.

For example, in the case of health study, the investigation might go into such health practices as food habits, habits relating to rest and relaxation, habits of cleanliness, practices relating to safety and protection of the health of others, present health knowledge, and misconceptions students have about facts of health and hygiene, attitudes toward the importance of personal health and their responsibility for the protection of health of others, interests in learning more about the field of health. Investigations of this sort can give a great deal of information about the present status of children in the school so far as health is concerned. This information would then need to be compared with some set of desirable norms in order to identify serious gaps which in turn would suggest educational objectives.

In studying the needs of the learners, certain data will be found to be common to most children of that age level whether they live in one part of the country or another,
whether they are rural or city children, whether they are of one social class or another. On the other hand, there are other facts which would vary quite markedly from one school to another and from one group in the school to another group. For example, the health habits and knowledge, the skills in reading, writing and mathematics, the knowledge of socio-civic affairs, and attitudes toward social institutions will vary markedly among schools. Hence, a school that is making an investigation will find it possible to draw upon general scientific studies for certain information about children of the age level concerned, but it will be necessary to supplement this general information by studies of the particular students within the particular school concerned, and in making these investigations it will often be necessary to recognize the varied composition in the student body representing the typical school. It is possible then to identify some needs that are common to most American children, other needs that are common to almost all of the children in the given school, and still other needs that are common to certain groups within the school but not common to a majority of the children in the school.

To get a clear picture of the needs of learners, I would suggest that you consider the school with which you are most familiar and that you outline particular investigations that could be carried on in that school to give you the kind of information about the needs of students which would throw some light on objectives for that school.

Another type of study of the learner, which demands particular consideration, is the investigation of student interests. A good deal of publicity has been given to the purported theory of progressive education that the primary basis for educational objectives is the interest of the learners themselves. According to this idea, children’s interests must be identified so that they can serve as the focus of educational attention.

The Learners Themselves

Probably no thoughtful proponent of progressive education ever advocated teaching students only the things in which they were at that moment interested, but the argument for using studies of student interests as a basis for objectives runs somewhat as follows: Education is an active process. It involves the active efforts of the learner himself. In general, the learner learns only those things which he does. If the school situations deal with matters of interest to the learner he will actively participate in them and thus learn to deal effectively with these situations. Furthermore, it is argued that the increasing effectiveness with which he handles present situations guarantees his ability to meet new situations as they arise. Hence, it is essential to see that education provides opportunities for the student to enter actively into, and to deal wholeheartedly with, the things which interest him, and in which he is deeply involved, and to learn particularly how to carry on such activities effectively.

There are many educators who do not consider attention to the present interest of students as an adequate educational program because one of the functions of education is to broaden and deepen the student’s interest so that he will continue his education long after he has ended his formal school training. But even these educators recognize the value of beginning with present student interests as a point of departure. Hence, various groups conduct investigations of student interests to throw light upon the possible educational objectives of the school. Where these interests are desirable ones they provide the starting point for effective instruction. Where the interests are undesirable, narrow, limited or inadequate, they indicate gaps which need to be overcome if the student is to receive an effective education.

A great many studies have been made of children’s interests in various fields. Craig, for example, made a study
of the questions children asked about science and developed a curriculum in elementary school science, aimed primarily at providing the basis upon which children could answer questions in which they were interested. Studies have been made of children's interests in reading, and the curriculum in literature has sometimes been developed in terms of children's reading interests. Interests in games and sports have been used as a basis for setting up objectives in the physical education fields. In studying interests as well as in studying needs, the possible interests are so varied that it usually is necessary to plan a series of investigations into the various phases of student interests rather than to make a single study which attempts to cover all the aspects of life in which students may have interests of one sort or another. For example, an investigation may be made of children's interests in health, another of interests in family activities, and so on.

To get a clearer idea of the possible value to be obtained from studies of student interests, I would suggest that you outline a plan for the study of student interests that could be made in the school which you are most familiar. This might indicate to what degree you could draw upon previous studies of children's interests whose interests were likely to be very universal and what other areas of interests you would need to study locally, in your own community or in your own school, because the variations from one group of children to another in these areas would be great enough so that the results of other investigations would not be a dependable indication of the interests that exist in your school.

What methods can be used in studying the learner? Almost all of the methods of social investigation can be employed in studying the learner's needs and interests. In some cases observations by the teacher will establish a good many facts about students, particularly about their school activities, their social relations, their school habits and the like. A second source is the student interview which because it is time-consuming can be used generally on only a sample of students. The interview, however, develops an opportunity to get more informal data about how students feel about things, their attitudes, their interests, their philosophy of life and the like. Parent interviews are helpful in throwing further light upon certain health practices and social relations of students. The questionnaire is a useful device for getting information which the student has no hesitation in providing. Interest questionnaires have been very widely used as well as questionnaires about recreational activities, about problems of a personal and social sort, about reading habits, health habits, work experience and the like. In a great many cases, tests have been used, particularly tests of present status in skills, like reading, writing, mathematics, in knowledge, in attitudes, and in problem-solving abilities. Furthermore, in most communities there are records which help to throw further light upon some types of student needs and interests. These include such things as records of juvenile delinquency, mortality and morbidity records with reference to health conditions, various types of social data by community, or area, within the city and the like. Of course, the initial study should be an examination of the school records, especially if the school maintains cumulative records of the students.

The repertoire of study techniques is broad enough to provide opportunity for all teachers and staff members to participate at some points in a study of student needs and interests. Furthermore, in many cases, students themselves will be interested in participating in the investigation, making a house-to-house canvas, where needed, or collecting data of other sorts in connection with a comprehensive investigation.
Selection of Educational Purposes

Some schools, who have given lip service to the use of studies of the learner, have not been able to derive educational objectives from these investigations. There is no single formula for inferring educational objectives from data about students. In general, the procedure involves studying the data to see implications, comparing the data with norms or standards in the field and from that, obtaining suggestions about possible needs that a school program could meet. The importance of seeing the implications of the data in the light of acceptable norms cannot be over-emphasized because the same items of data permit several possible interpretations. For example, the discovery that 60 percent of the boys in the ninth grade of a certain high school read nothing outside of school other than the comic strips might suggest to some unimaginative teacher that the school needs to teach these boys how to read comic strips more rapidly or with greater satisfaction. On the other hand, to another teacher this would suggest the limitations of the reading interests of these boys and the need for setting up objectives gradually to broaden and deepen these reading interests. Correspondingly, the discovery that in a particular high school 90 percent of the graduates went to work immediately after graduation and did not go to college might suggest to some school that the primary objectives of this school should be to develop occupational skills so that these boys and girls could be immediately employable. On the other hand, to other teachers it would suggest the importance of doing everything possible to develop interests in social and civic matters and to get in a large segment of general education, because these young people would have so little opportunity for further formal education. You can see how the norms, that is, the philosophy of life and of education which guides the teacher, enter into the interpretation of data of this sort. Although the data have usefulness in indicating gaps and opportunities which can be given particular attention in setting up educational objectives, it is clear that the objectives are not automatically identified by collecting information about the students.

Another point of confusion in interpreting data about the learner is the failure to distinguish between the needs that are appropriately met by education and needs that are properly met through other social agencies. For example, the discovery that a considerable fraction of the student body suffers from malnutrition has both educational and non-educational implications. Insofar as the malnutrition is due to lack of knowledge of desirable diets, or lack of adequate health habits, or lack of desirable attitudes toward the importance of health the need is an educational one that can be met by developing an educational program which will bring about the necessary knowledge, habits, attitudes, and the like. On the other hand, malnutrition is often due to lack of adequate income for certain parts of the population and/or the unavailability of the food required for an effective diet. These latter cases are illustrations of social needs which cannot be met simply by educational objectives achieved in the school but require other forms of social action. In deriving objectives from studies of student needs the teacher must identify implications relevant to educational objectives and not confuse them with implications that do not relate to education, that is, he should identify desirable changes in the behavior patterns of students which would help to meet the needs indicated by the data.

To provide a thorough understanding of the possibilities of, and the difficulties involved in, drawing interpretations about educational objectives from data about student needs and interests, I would suggest that you jot down data about groups of students with whom you are familiar, formulating as comprehensive a set of data about their needs and interests as you can. Then attempt to write down the educa-
tional objectives which these data imply. Set down every suggested educational objective that comes to your mind and then see how you arrived at this objective, what other factors you took into account, how you were able to infer from these data the particular educational objectives that you did. This exercise should, I think, indicate to you both the values of concrete data about students as a basis for suggesting objectives and also the difficulties involved in interpreting such data.

Studies of Contemoporary Life Outside the School

The effort to derive objectives from studies of contemporary life largely grew out of the difficulty of accomplishing all that was laid upon the schools with the greatly increased body of knowledge which developed after the advent of science and the Industrial Revolution. Prior to this time, the body of material that was considered academically respectable was sufficiently small so that there was little problem in selecting the elements of most importance from the cultural heritage. With the tremendous increase in knowledge accelerating with each generation after the advent of science, the schools found it no longer possible to include in their program all that was accepted by scholars. Increasingly the question was raised as to the contemporary significance of particular items of knowledge or particular skills and abilities. Herbert Spencer in his essay on What Knowledge is of Most Worth attempted to deal with this problem in a way that has characterized many of the efforts over the past century. Although this represented the interpretation of informal observations rather than systematic studies, the technique used by Spencer in some respects is very similar to techniques used by investigators today.

When the first World War required the training of a large number of people in the skilled trades, training that

must take place in a relatively short period of time, the older and slower apprentice systems were no longer adequate. The idea of job analysis developed and was widely used to work out training programs in World War I which would speed up the training of people for the skilled trades and various types of technology. In essence, job analysis is simply a method of analyzing the activities carried on by a worker in a particular field in order that a training program can be focused upon those critical activities performed by this worker. In essence, most studies of contemporary life have a somewhat similar "logic."

Today there are two commonly used arguments for analyzing contemporary life in order to get suggestions for educational objectives. The first of these arguments is that because contemporary life is so complex and because life is continually changing, it is very necessary to focus educational efforts upon the critical aspects of this complex life and upon those aspects that are of importance today so that we do not waste the time of students in learning things that were important fifty years ago but no longer have significance at the same time that we are neglecting areas of life that are now important and for which the schools provide no preparation.

A second argument for the study of contemporary life grows out of the findings relating to transfer of training. As long as educators believed that it was possible for a student to train his mind and the various faculties of the mind in general and that he could use these faculties under whatever conditions might be appropriate, there was less need for analyzing contemporary life to suggest objectives. According to this view the important objectives were to develop the several faculties of the mind and as life developed the student would be able to use this trained mind to meet the conditions that he encountered. Studies of transfer of training, however, indicated that the student was
much more likely to apply his learning when he recognized the similarity between the situations encountered in life and the situations in which the learning took place. Furthermore, the student was more likely to perceive the similarity between the life situations and the learning situations when two conditions were met: (1) the life situations and the learning situations were obviously alike in many respects, and (2) the student was given practice in seeking illustrations in his life outside of school for the application of things learned in school. These findings are used to support the value of analyzing contemporary life to identify learning objectives for the school that can easily be related to the conditions and opportunities of contemporary life for use of these kinds of learning.

Using studies of contemporary life as a basis for deriving objectives has sometimes been criticized particularly when it is the sole basis for deriving objectives. One of the most frequent criticisms has been that the identification of contemporary activities does not in itself indicate their desirability. The finding, for example, that large numbers of people are engaged in certain activities does not per se indicate that these activities should be taught to students in the school. Some of these activities may be harmful and in place of being taught in the school some attention might need to be given to their elimination. The second type of criticism is the type made by essentialists who refer to studies of contemporary life as the cult of “presentism.” These critics point out that because life is continually changing, preparing students to solve the problems of today will make them unable to deal with the problems they will encounter as adults because the problems will have changed. A third kind of criticism is that made by some progressives who point out that some of the critical problems of contemporary life and some of the common activities engaged in by adults are not in themselves inter-

est to children nor of concern to children, and to assume that they should become educational objectives for children of a given age neglects the importance of considering the children’s interests and children’s needs as a basis for deriving objectives.

These criticisms in the main apply to the derivation of objectives solely from studies of contemporary life. When objectives derived from studies of contemporary life are checked against other sources and in terms of an acceptable educational philosophy, the first criticism is removed. When studies of contemporary life are used as a basis for indicating important areas that appear to have continuing importance, and when the studies of contemporary life suggest areas in which students can have opportunity to practice what they learn in school, and also when an effort is made to develop in students an intelligent understanding of the basic principles involved in these matters, the claim that such a procedure involves a worship of “presentism” is largely eliminated. Finally, if studies of contemporary life are used to indicate directions in which educational objectives may aim, while the choice of particular objectives for given children takes into account student interests and needs, these studies of contemporary life can be useful without violating relevant criteria of appropriateness for students of particular age levels. Hence, it is worthwhile to utilize data obtained from studies of contemporary life as one source for suggesting possible educational objectives.

In making studies of life outside the school as in studying the learner, it is necessary to divide life into various phases in order to have manageable areas for investigation. Unless life is analyzed into functional and significant phases it is too big to be attacked and any effort in study will result in many gaps. There are various ways in which contemporary life may be analyzed in order to obtain manageable categories for study. As with the investigation of the learner
one classification possible is (a) health, (b) family, (c) recreation, (d) vocation, (e) religion, (f) consumption, and (g) civic. A more detailed classification was used in the Virginia State Curriculum Study as indicated by the following headings:

(a) Protection and Conservation of Life.
(b) Natural Resources.
(c) Production of Goods and Services and Distribution of the Returns of Production.
(d) Consumption of Goods and Services.
(e) Communication and Transportation of Goods and People.
(f) Recreation.
(g) Expression of Esthetic Impulses.
(h) Expression of Religious Impulses.
(i) Education.
(j) Extension of Freedom.
(k) Integration of the Individual.
(l) Exploration.

No single classification of aspects of life is wholly satisfactory, but since the purpose is to break down a total concept of life into manageable aspects and to see that no important phase is omitted, it is possible to use any one of a number of classifications and accomplish this end. In each phrase of life the purpose is to get information about that aspect of contemporary life which is likely to have implication for educational objectives. A good many types of information have been obtained for this purpose, for example, some studies have been made of the activities engaged in by people in this aspect of life on the general assumption that objectives of education can be inferred from activities because education should help people to carry on their activities more effectively. In other cases, investigations have been made of the critical problems in a given area, in others, studies have been made of the defects of life in particular areas including the difficulties and serious maladjustments. Some studies have made investigation of the interests, hopes, and aspirations of people in particular phases of their lives on the ground that education should help people more adequately to satisfy their interests and to achieve their hopes and aspirations. Some investigations have obtained data about the information, concepts, misconceptions, superstitions, and ideas people have on the ground that education should help people to have relevant and accurate information in a given field. Others have obtained data about the habits and skills of people in particular areas, studying the habits to see what changes in them are necessary to develops better habits and using the list of skills obtained to suggest types of skills which a school might well develop in its students. Other investigations have been made of the values and ideals developed or cherished by adults under the assumption that an educational institution has as one of its duties helping to develop ideals and values in its students.

In addition to these studies of individual life some investigators have examined social groups to find out their practices, their problems, their concepts, ideas, and their dominant values, to suggest group objectives of education. For example, in developing curricula for Indian schools studies have been made of each of a number of major tribes to find out characteristics of the tribes which would suggest needs and opportunities for education of the children in these Indian tribes. In similar fashion, investigations have been made of rural communities in contrast to city communities to identify problems and values and other data that would suggest educational objectives appropriate for these rural groups.

Studies have also been made of the factors conditioning life in particular communities or areas such as the natural
resources in the community, population changes, migration, direction of social change. These have been made on the assumption that education should help a community utilize most effectively its resources, to provide adequate preparation for persons who are migrating as well as those who are remaining within the community, to meet imminent social changes and the like. In all of these cases the studies of contemporary life only give information about the present status of the individual, the group, or the conditions of life within the community or region. They do not directly give educational objectives. In order to suggest objectives, the data from these studies must be interpreted, that is, inferences have to be made from present status regarding gaps, emphases and needs.

Perhaps the potential value of studies of contemporary life can best be understood by collecting and analyzing samples of data for yourself. I would suggest that you collect sample information of several sorts. On the one hand it might be well to draw upon your memory, your experience in a given area of life such as in your civic life, to jot down the activities that you engage in as a citizen. Also list the problems that you have encountered as a citizen. Imagine this information as being illustrative of what might be obtained from a considerable sample of adults in your community. In the light of such information, can you suggest possible objectives which are implied by these data?

Consider another kind of data which would also be useful in this same area of civic life. Examine public opinion polls over the last two or three years to identify the areas in which citizens have little information and have ineffective attitudes as a basis for their attack upon important social problems of today. Again, suggest what objectives are implied by the data obtained in this fashion.

Another illustration might be the examination of health data within your community. Analyze the morbidity and the mortality statistics. Find out whether any public health surveys have been made in your area and any studies of nutritional status. With such data as you can obtain in this fashion, but taking at least six types of data, attempt to infer educational objectives and see what problems are involved in doing so.

The variety of ways by which information regarding activities, problems, and needs of contemporary life may be obtained is sometimes confusing. During the past twenty-five years hundreds of investigations have been made of contemporary life with a view to inferring educational objectives. These have involved observations of behavior, analyses of newspapers, of magazine articles, of the ideas of frontier thinkers about the important problems of the day, studies of community in sociological surveys as Lynds' volume on Middletown, or the Warner series on Yankee City, activity analyses of various kinds of individual activities as well as job analyses for a variety of vocations. Because the possible materials for analysis are so numerous and the possible methods of investigation are so varied, it becomes important to recognize again that analyses of contemporary life are possible at several levels. In the first place, some analyses of contemporary life are national in scope if not international, and do not need to be repeated by every school group working upon the curriculum. Data are already available to throw a good deal of light upon the possible objectives in the field of national and international affairs, data indicating critical social, political, and economic problems. There are also data in the general areas relating to music, the arts, and aesthetic life.

Some studies need to be made on a community-wide basis but do not need to be repeated for each school in the community. For example, some of the analyses of morbidity statistics and public health data can be done for the entire
city or country without having to be repeated for each sub-community. On the other hand, there are types of information which must be obtained for the area served by a particular school and additional information that is necessary for a group of people within the school, as when one analyzes the health needs of the various ethnic or social groups within the community or school. Many of the public and private agencies of the community collect and record data of value in suggesting objectives.

Again, to get some conception of the way in which studies of this sort can be made and used, I would suggest taking a community with which you are very familiar and outlining the kinds of studies that are already available that would throw light upon the nature of contemporary life, then outline the sort of studies that would need to be made for the school as a whole to provide additional helpful information, and finally outline the particular kinds of information which an individual teacher or grade group would need to collect about community life. If possible, suggest the way in which the information might be obtained, and particularly consider kinds of interpretations that can be made of it. You will find the same problem of interpretation for data of this sort as you found in connection with interpretation of data about the learner. Any set of data permits multiple interpretation, and in many cases, a variety of data must be assembled in order to see some of the implications for educational objectives. I hope it will be possible for you to examine enough data to draw some interpretations about educational objectives from the data, and thus to see more clearly what the problems are and how the data may be used for suggesting objectives.

A good many courses have been built upon analyses made of life outside the school. The well-known Rugg series of social-studies books was developed from an analysis made of contemporary critical social problems as indicated by the studies made of so-called frontier thinkers, that is, leaders in the social science field. A number of the language art series of texts in use in the schools were made by making an analysis of the errors people of today commonly make in language usage. Some well-known texts in arithmetic have been built around a collection of the arithmetic problems with which adults are encountered. One of the early studies of this sort was carried on by G. M. Wilson when he was at Connersville, Indiana. He had students in the school obtain from their parents for several days the problems they were having to solve that involved arithmetic. The collection and analysis of this set of problems suggested the arithmetic operations and the kinds of mathematical problems which are commonly encountered by adults, and became the basis of an arithmetic curriculum.

Increasingly, the community schools in the South are basing much of their curriculum material upon analyses of community needs, with special reference to better utilization of natural resources, and more adequate development of human resources as revealed by community surveys. Studies of contemporary life provide a prolific source of information for suggestions regarding objectives.

Suggestions About Objectives from Subject Specialists

This is the source of objectives most commonly used in typical schools and colleges. School and college textbooks are usually written by subject specialists and largely reflect their views. Courses of study prepared by school and college groups are usually worked out by subject specialists and represent their conception of objectives that the school should attempt to attain. The reports of the Committee of Ten that appeared at the turn of the century had a most profound effect upon American secondary education for at least twenty-five years. Its reports were prepared by subject
specialists and the objectives suggested by them were largely aimed at by thousands of secondary schools.

Many people have criticized the use of subject specialists on the grounds that the objectives they propose are too technical, too specialized, or in other ways are inappropriate for a large number of the school students. Probably the inadequacy of many previous lists of objectives suggested by subject specialists grows out of the fact that these specialists have not been asked the right questions. It seems quite clear that the Committee of Ten thought it was answering the question: What should be the elementary instruction for students who are later to carry on much more advanced work in the field? Hence, the report in History, for example, seems to present objectives for the beginning courses for persons who are training to be historians. Similarly the report in Mathematics outlines objectives for the beginning courses in the training of a mathematician. Apparently each committee viewed its job as outlining the elementary courses with the idea that these students taking these courses would go on for more and more advanced work, culminating in major specialization at the college or university level. This is obviously not the question that subject specialists should generally be asked regarding the secondary school curriculum. The question which they should be asked runs somewhat like this: What can your subject contribute to the education of young people who are not going to be specialists in your field; what can your subject contribute to the layman, the general variety of citizen? If subject specialists can present answers to this question, they can make an important contribution, because, presumably, they have a considerable knowledge of the specialized field and many of them have had opportunity both to see what this subject has done for them and for those with whom they work. They ought to be able to suggest possible contributions, knowing the field as well as they do, that it might make to others in terms of its discipline, its content, and the like.

Some of the more recent curriculum reports do indicate that subject specialists can make helpful suggestions in answers to this question. The various reports published by the Commission on the Secondary School Curriculum of the Progressive Education Association beginning with "Science in General Education," including "Mathematics in General Education," "Social Studies in General Education," and other titles have been very useful and have shown some light on the question, "What can this subject contribute to the education of young people who are not to specialize in it?" Other groups have recently prepared somewhat similar reports which also seem promising. Committee reports from the National Council of Mathematics Teachers, the National Council of English Teachers, the National Council of Social Studies Teachers, are cases in point. In general, they recognize much more clearly than did the committee preparing reports for the Committee of Ten that the subject is expected to make contributions to a range of students not considered in the earlier reports. In general, the more recent reports will be found useful as an additional source for suggestions about objectives.

Most of the reports of subject groups do not stop with objectives and many of them do not list objectives specifically. Most of them begin with some outline indicating their conception of the subject field itself and then move on to indicate ways in which it can be used for purposes of general education. Persons working on the curriculum will find it necessary to read the reports in some detail and at many places draw inferences from the statements regarding objectives implied. In general, too kinds of suggestions can be got from the reports as far as objectives are concerned. The first is a list of suggestions regarding the broad functions a particular subject can serve, the second is with
regard to particular contributions the subject can make to other large functions which are not primarily functions of the subject concerned.

Let me illustrate these two types of suggestions that can be got from these reports. Recent reports of English groups, for example, have suggested educational functions of English as a study of language. The first function is to develop effective communication including both the communication of meaning and the communication of form. The second type of contribution is to effective expression, including in expression the effort of the individual to make internal adjustments to various types of internal and external pressures. A third function of language is to aid in the clarification of thought as is provided, for example, by the use of basic English as a means of aiding students to see whether they understand ideas clearly enough to translate them into operational words. This last function of clarification of thought is well illustrated by the statements of George Herbert Palmer that when confused he used to write himself cleartheaded.

In the realm of literature these English committees see various kinds of contributions in terms of major functions literature can serve. Some emphasize its value in personal exploration. Literature in this sense can provide an opportunity for the individual to explore kinds of life and living far beyond his power immediately to participate in, and also give him a chance to explore vicariously kinds of situations which are too dangerous, too fraught with consequences for him to explore fully in reality. A number of committee reports speak of the general function of literature in providing greater extension to the experience of young people; not limited by geographic opportunities, nor limited in time nor limited social or of occupations of social groups with which they can participate. In this case literature becomes the means of widely extending the horizon of the reader through vicarious experience. Another function of literature is to develop reading interests and habits that are satisfying and significant to the reader. Some English committees stress as an important objective to develop increasing skill in interpreting literary material, not only skill in analyzing the logical development and exposition of ideas but also the whole range of things including human motives which are formulated in written language and can therefore be subject to study and critical interpretation. Finally, some English committees propose that literature serves the function of appreciation, including both an opportunity for significant emotional reactions to literary forms and also opportunities for critical appraisal both of form and content, and means whereby of developing standards of taste in literature.

These suggestions with regard to possible major functions of language and literature provide large headings under which to consider possible objectives which the school can aim at through language and literature. Such an analysis indicates the pervasive nature of the contribution that language and literature might possibly make to the development of children, adolescents, or adults. They suggest objectives that are more than knowledge, skills, and habits; they involve modes of thinking, or critical interpretation, emotional reactions, interest, and the like.

Another illustration of the suggestion of major functions a subject may serve can be obtained from recent reports of science committees. One such report suggests three major functions science can serve for the garden variety of citizen. The first of these is to contribute to the improvement of health, both the individual's health and public health. This includes the development of health practices, of health attitudes, and of health knowledge, including an understanding of the way in which disease is spread and the precautions that can be taken by the com-
munity to protect itself from disease and from other aspects of poor health. The second suggested function of science is the use and conservation of natural resources; that is, science can contribute to an understanding of the resources of matter and energy that are available, the ways in which matter and energy can be obtained and utilized so as not greatly to deplete the total reserves, an understanding of the efficiency of various forms of energy transformation, and an understanding of plant and animal resources and the ways in which they can be effectively utilized. The third function of science is to provide a satisfying world-picture, to get clearer understanding of the world as it is viewed by the scientist and man’s relation to it, and the place of the world in the larger universe. From these suggested functions of science, again it is possible to infer a good many important objectives in the science field, objectives relating to science, knowledge, attitudes, ability to solve problems, interests and the like.

Recent art reports illustrate another example of suggestions regarding major functions a subject might serve in general education. Some five functions have been proposed in these reports. The first, and in terms of Monroe’s writing the most important, is the function of art in extending the range of perception of the student. Through art one is able to see things more clearly, to see them through the eyes of the artist, and thus to get a type of perception he is not likely to obtain in any other way. Both art production and art criticism are likely to extend perception. A second function proposed for art is the clarification of ideas and feelings through providing another medium for communication in addition to verbal media. There are students who find it possible to express themselves and communicate more effectively through art forms than through writing or speaking. For them this is an important educational function of art. A third function is personal integration. This refers to the contribution art has sometimes made to the relieving of tensions through symbolic expression. The making of objects in the studio and shop and expression through dancing and through music have long been known to produce an opportunity for personal expression and personal release from tension that is important in providing for the better integration of some young people. A fourth function is the development of interests and values. It is maintained that aesthetic values are important both as interesting qualities for the student and also as expressing very significant life values in the same category with the highest ultimate values of life. On this basis the contribution art can make in providing satisfaction of these interests and in developing an understanding of and desire to obtain these art values is an important educational function of art. Finally, a fifth function of art is the development of technical competence, a means of acquiring skill in painting or drawing or music, or some other art form which can have meaning and significance to the art student. These art reports are another illustration of material from which a number of significant suggestions regarding educational objectives can be inferred from a statement of functions. A second type of suggestion that can be got from reports of subject specialists are the particular contributions that a subject can make to other large educational functions, that may not be thought of as unique functions of the subject itself. The Report of the Committee on Science in General Education is an excellent illustration of this type of suggestion. This report is organized in terms of suggested contributions science can make in each of the major areas of human relationships. In personal living, for example, suggestions are made as to ways in which science can help to contribute to personal health, to the need for self assurance, to a satisfying world picture, to a wide range of personal interests, and to aesthetic satisfaction. In the area of per-
sonal-social relations, suggestions are made as to ways in which science may help to meet student needs for increasingly mature relationships in home and family life and with adults outside the family, and for successful and increasingly mature relationships with age mates of both sexes. In the area of social-civic relations suggestions are made as to how science may help to meet needs for responsible participation in socially significant activities, and to acquire social recognition. In the area of economic relations suggestions are made as to how science may help to meet needs for emotional assurance of progress toward adult status, to meet the need for guidance in choosing an occupation, and for vocational preparation, to meet the need for the wise selection and use of goods and services, and to meet the needs for effective action in solving basic economic problems.

The volume Science in General Education then goes on to outline the ways in which science can be taught to encourage reflective thinking and to develop other characteristics of personality such as creative thinking, aesthetic appreciation, tolerance, social sensitivity, self-direction. Critics have questioned the depths of contributions that science might make on a number of these points, but it is clear that these suggestions are useful in indicating possible objectives that a school might wish to aim at, using science or other fields as a means for attaining these objectives. Other subject groups have, in similar fashion, made suggestions regarding specific contributions these subjects might make to areas that are not uniquely the responsibility of these subjects. It is then through the drawing of inferences from reports of this sort regarding both the major functions that specialists think the subject can make and also the more specific contributions that the subject might make to other major functions that one is able to infer objectives from the reports of subject specialists.

I would suggest in order to get some taste of the kind of thing that can be obtained from these reports that you read at least one subject report at the level in which you are interested and jot down your interpretation of the major functions the committee believes that this subject can serve and the more specific contributions it can make to other educational functions. Thus, formulate a list of the educational objectives you infer from these statements. This will give you some idea of the kinds of objectives that are likely to be suggested by the reports that are being made by various subject groups.

The Use of Philosophy in Selecting Objectives

The suggestions regarding objectives obtained from the three sources previously cited provide more than any school should attempt to incorporate in its educational program. Furthermore, some of these suggested objectives are inconsistent with others. A smaller number of consistent highly important objectives need to be selected. A small number rather than many should be aimed at since it requires time to attain educational objectives; that is, time is required to change the behavior patterns of human beings. An educational program is not effective if so much is attempted that little is accomplished. It is essential therefore to select the number of objectives that can actually be attained in significant degree in the time available, and that these be really important ones. Furthermore, this group of objectives should be highly consistent so that the student is not torn by contradictory patterns of human behavior.

To select a group of a few highly important, consistent objectives it is necessary to screen the heterogeneous collection of objectives thus far obtained so as to eliminate the unimportant and the contradictory ones. The educational and social philosophy to which the school is
committed can serve as the first screen. The original list of objectives can be culled by identifying those that stand high in terms of values stated or implied in the school's philosophy.

Let me illustrate the way in which an educational and social philosophy can actually operate as a screen for selecting and eliminating educational objectives. An adequate formulation of an educational and social philosophy will include the answers to several important questions. In essence the statement of philosophy attempts to define the nature of a good life and a good society. One section of an educational philosophy would outline the values that are deemed essential to a satisfying and effective life. Quite commonly, educational philosophies in a democratic society are likely to emphasize strongly democratic values. For example, one such statement of philosophy emphasizes four democratic values as important to effective and satisfying personal and social life. These four values are (1) the recognition of the importance of every individual human being as a human being regardless of his race, national, social, or economic status; (2) opportunity for wide participation in all phases of activities in the social groups in the society; (3) encouragement of variability rather than demanding a single type of personality; (4) faith in intelligence as a method of dealing with important problems rather than depending upon the authority of an autocratic or aristocratic group.

When a school accepts these values as basic the implication is that these are values to be aimed at in the educational program of the school. They suggest educational objectives in the sense that they suggest the kinds of behavior patterns; that is, the types of values and ideals, the habits and practices which will be aimed at in the school program. Objectives that are consistent with these values will be included and suggested objectives which are inconsistent with these values will not be included in the school's educational program.

The school's philosophy will undoubtedly by implication deal with two other types of values widely acclaimed in contemporary life outside the school; namely, material values and success. Many schools are likely to state in their philosophy that they do not accept the contemporary emphasis on materialism and that they do not believe in financial, personal or social success as usually defined as desirable educational values. Again, such a decision immediately has implications in the selection of educational objectives. Suggestions that are made implying that this or that skill or this or that habit or practice will contribute to material rewards or will make for this kind of success are likely to be eliminated, whereas objectives that lead toward spiritual values of the sort previously indicated will be given higher rank. In this way that section of the school's philosophy which formulates the values it holds high can be used directly as a means for selecting and eliminating educational objectives.

A statement of educational philosophy will also deal with the question, "Should the educated man adjust to society, should he accept the social order as it is, or should he attempt to improve the society in which he lives?" Another way of stating this question is in this form, "Should the school develop young people to fit into the present society as it is or does the school have a revolutionary mission to develop young people who will seek to improve the society?" Perhaps a modern school would include in its statement a position that has some of both of these implications; that is, it believes that the high ideals of a good society are not adequately realized in our present society and that through the education of young people it hopes to improve society at the same time that it helps young people to understand well enough and participate competently enough in
Selection of Educational Purposes

The present society to be able to get along in it and to work effectively in it while they are working to improve it. However these questions, if answered, the answer in turn affects the educational objectives that are selected. If the school believes that its primary function is to teach people to adjust to society it will strongly emphasize obedience to the present authorities, loyalty to the present forms and traditions, carrying on the present techniques of life; whereas if it emphasizes the revolutionary function of the school it will be more concerned with critical analysis, ability to meet new problems, independence and self-direction, freedom, and self-discipline. Again, it is clear that the nature of the philosophy of the school can affect the selection of educational objectives.

Another question with which the school’s philosophy will need to deal can be stated, “Should there be a different education for different classes of society?” If the answer is “yes,” then the practice of setting up different objectives for children of lower social classes who leave school early to go to work may be justified. On the other hand, if the answer to this question is “no,” then, if the school believes in a common democratic education for all, then in place of having differentiated objectives for different classes of youngsters in the school an effort is made to select common objectives that are personally and socially significant and the school tries to develop ways of attaining these common objectives with a wide variety of types of young people.

Closely allied to this question is another, “Should public school education be aimed primarily at the general education of the citizen, or should it be aimed at specific vocational preparation?” Again, the answer to this question clearly affects the kinds of objectives that are given greater emphasis and are selected for major attention in the school’s program.

One more illustration may be enough to indicate the kind of matters that are dealt with in a statement of the school’s educational philosophy and how this statement can then be used in selecting educational objectives. Many schools, particularly after the outbreak of the War, formulated their educational philosophies in terms that were called democratic. They derived their conception of the good life for the individual and for the society in terms of an ideal democratic society. This immediately raises the question, “Is democracy to be defined solely in political terms, or does democracy imply a way of life at home, in the school, and in economic matters, as well as a form of political life?” If the school’s philosophy conceives democracy as a way of life appropriate for all phases of living, it then becomes necessary to give major emphasis to objectives that aim at the development of democratic values, attitudes, knowledge, skills, and abilities not only for a political democracy but for democracy in all of the aspects of life.

For a statement of philosophy to serve most helpfully as a set of standards or a screen in selecting objectives it needs to be stated clearly and for the main points the implications for educational objectives may need to be spelled out. Such a clear and analytical statement can then be used by examining every proposed objective and noting whether the objective is in harmony with one or more main points in the philosophy, is in opposition or is unrelated to any of these points. Those in harmony with the philosophy will be identified as important objectives.

The Use of a Psychology of Learning in Selecting Objectives

There is a second screen through which the suggested objectives should be passed and that is the criteria for objectives implied by what is known about the psychology of learning. Educational objectives are educational ends, they are results to be achieved from learning. Unless these ends
are in conformity with conditions intrinsic in learning they are worthless as educational goals.

As the lowest extreme a knowledge of the psychology of learning enables us to distinguish changes in human beings that can be expected to result from a learning process from those that can not. For example, it is quite clear that young people may develop health habits and health knowledge through a learning process, on the other hand they cannot increase their height directly by a learning process. Young children can learn to channel their physical reactions in more socially desirable directions as a result of learning, but it is not possible through learning to inhibit physical reaction altogether. The old school of thought which attempted to teach children to be utterly quiet while they were in school is imposing an educational objective impossible of attainment.

At a higher level, a knowledge of the psychology of learning enables us to distinguish goals that are feasible from those that are likely to take a very long time or are almost impossible of attainment at the age level contemplated. For example, the personality structure of children is capable of a good deal of modification through educational experiences during the nursery and primary school period, but educational objectives which aim at profound changes in the personality structure of a sixteen-year-old are largely unattainable. At sixteen, so much of the development of the personality has already taken place that the re-education of the basic personality structure is a very difficult task and unlikely to be attained through a normal school program.

Another use of knowledge of the psychology of learning is in connection with grade placement for objectives which are educationally attainable. Psychology of learning gives us some idea of the length of time required to attain an objective and the age levels at which the effort is most efficiently employed. When considering educational objectives for a range of grades, or age levels from the point of view, the process is termed, "grade placement." However, relatively few studies in the psychology of learning definitively identify a single age level at which a given operation, can be most efficiently learned. Hence, decisions on grade placement of particular objectives are more commonly aided by psychological knowledge regarding the sequence of learning that is implied for particular objectives. For example, it has been shown that in order to get effective learning in reading it is necessary for the child to have had concrete experiences to which are connected meaning vocabularies. Hence, preliminary experiences to build functioning vocabularies should precede intensive work in reading. Correspondingly, until a level of reading competence has been attained which includes a fairly well mastered basic vocabulary it is useless to place much attention upon developing skills in careful and critical interpretation. Studies regarding the sequence of development are useful in deciding about the appropriateness of particular objectives as particular points in the sequence of the educational program.

Another type of judgment growing out of a study of psychology of learning has to do with the conditions requisite for the learning of certain types of objectives. One of the most useful is a group of studies that have been carried on regarding the forgetting of knowledge. In general, forgetting of knowledge learned is very rapid. One series of studies conducted at college level reported that 50 percent of the material known when the student finished a certain college course has been forgotten within one year and 80 percent had been forgotten in two years. These studies also suggest certain conditions that greatly reduce the forgetting of knowledge. One of these conditions is the opportunity to use this knowledge in daily life. This has only reduced the
targeting but it also increased the amount of knowledge the student acquired while taking the course. For example, in a study of a certain college science course it was shown that the knowledge that had direct application to the health and sanitary practices of the students was not so largely forgotten as was the knowledge that was not so readily applied—less than 15 percent compared to more than 50 percent in a year. This suggests that objectives concentrating on specific knowledge are more attainable and the results more permanent when there are opportunities for this knowledge to be used in the daily lives of the students.

Another illustration of the contribution of psychology of learning to conditions requisite for attaining given objectives can be given from studies of the time required to bring about certain types of changes in young people. It has been shown, for example, that to change the basic attitudes of children requires continuous emphasis extending over several years. In general, basic attitudes are not markedly shifted by one, two, three, or four months of instruction. In similar fashion data have been obtained regarding the time involved in bringing about other types of behavior changes, such as ways of thinking and studying, basic habits and practices, interests and the like. Obviously, psychological knowledge of this sort is useful in suggesting the length of time over which particular objectives will need to be emphasized.

One of the most important psychological findings for the curriculum maker is the discovery that most learning experiences produce multiple outcomes. For example, a younger who is working upon arithmetic problems may be acquiring certain knowledge about the materials that are dealt with in arithmetic problems. For example, a recent study indicated that many persons thought that 6 percent compounded semiannually was the interest commonly to be expected on investments because many of the problems

41 The Psychology of Learning

they had worked involved computations on the basis of 6 percent interest. Not only is the pupil gaining some knowledge of the materials about which the problems dealt but he is also developing certain favorable or unfavorable attitudes toward arithmetic. He is developing or failing to develop certain interests in this area. In practically every educational experience two or more kinds of educational outcomes may be expected. This is important to the curriculum maker because it suggests that greater efficiency of instruction is possible by capitalizing on the multiple results possible from each experience. The curriculum maker should examine possible educational objectives to see how far several can be selected that can be developed together in the same experiences.

Another finding about learning conditions which has importance in selecting objectives is the evidence that learnings which are consistent with each other, which are in that sense integrated and coherent, reinforce each other; whereas learnings which are compartmentalized or are inconsistent with each other require greater time and may actually interfere with each other in learning. This suggests what may also be suggested by one's philosophy of education, that the various objectives be examined to see whether they are mutually consistent and that they permit some degree of integration and coherent unification in the mind and action of the student so that the maximum psychological benefit of learning can thus be derived.

A psychology of learning not only includes specific and definite findings but is also involves a unified formulation of a theory of learning which helps to outline the nature of the learning process, how it takes place, under what conditions, what sort of mechanisms operate and the like. Since every teacher and curriculum maker must operate on some kind of a theory of learning it is useful to have this theory of learning formulated in concrete terms both to check it
for its tenability and also to see its implications for the curriculum. This theory of learning can have important implications for the nature of objectives. More than thirty years ago Professor Thorndike formulated a theory of learning which involved the idea that learning consisted of building up connections between specific stimuli and specific responses. Learning in these terms is a highly specific matter, similar to specific habit formation. Persons who hold such a theory as this must view objectives in highly specific terms. As a matter of fact, Professor Thorndike prepared two volumes on the psychology of mathematics—one on the psychology of algebra, the other on the psychology of arithmetic. In each of these volumes he formulated many hundreds of objectives. In arithmetic, for example, he stated more than 3,000 specific objectives for elementary school arithmetic on the ground that each different specific connection such as six plus three or three plus six had to be built up as a separate specific response to the specific stimuli. According to this theory then the kinds of objectives that need to be formulated are specific ones, very numerous and of the nature of specific habits.

On the other hand, Judd and Freeman at the University of Chicago at about the same time Thorndike was stating his theory, formulated a theory of learning called generalization which viewed learning as the development of generalized modes of attack upon problems, generalized modes of reaction to generalized types of situations. Judd and Freeman showed that many types of learning could be explained largely in terms of the learner's perceiving general principles that he might use or developing a general attitude towards the situation or method of attack which he could utilize in meeting new situations. If one holds to a generalized theory of learning, he then views objectives in more general terms, and he may talk about teaching youngsters to apply important scientific principles in ex-

The Form of Objectives

plaining concrete phenomena, which would be viewed as one of the major generalized objectives for the science course. It is thus clear that one's theory of learning has considerable importance in determining how specifically objectives are to be stated and what kinds of statements can be viewed as educational objectives.

We have conducted a number of studies at the University of Chicago in connection with the learning of college students and our data in general are much more in harmony with the theory of generalization than they are with any theory of specific stimulus-response learning. Hence, I tend to view objectives as general modes of reaction to be developed rather than highly specific habits to be acquired. However, each curriculum-worker will need to formulate a theory of learning in which he has some confidence and use it as a basis for checking his educational objectives to see that they are consistent with his theory of learning.

To use a psychology of learning in selecting objectives it is helpful to write down the important elements of a defensible psychology of learning, and then to indicate in connection with each main point what possible implications it might have for educational objectives. Such a statement can then be used as a screen for proposed objectives. Possible objectives when checked against this statement may be selected as appropriate or may be rejected from a psychological viewpoint, because it is probably unattainable, inappropriate to the age level, too general or too specific, or otherwise in conflict with the psychology of learning.

Stating Objectives in a Form to be Helpful in Selecting Learning Experiences and in Guiding Teaching

As a result of the preceding steps the curriculum-maker has selected a small list of important objectives that are
feasible of attainment. Because these objectives have been obtained from several sources they are likely to be stated in various ways. In organizing a single list of important objectives it is desirable to state these objectives in a form which makes them most helpful in selecting learning experiences and in guiding teaching.

Objectives are sometimes stated as things which the instructor is to do, as, for example, to present the theory of evolution, to demonstrate the nature of inductive proof, to present the Romantic poets, to introduce four-part harmony. These statements may indicate what the instructor plans to do, but they are not really statements of educational ends. Since the real purpose of education is not to have the instructor perform certain activities but to bring about significant changes in the student's patterns of behavior, it becomes important to recognize that any statement of the objectives of the school should be a statement of changes to take place in students. Given such a statement, it is then possible to state the kinds of activities which the instructor might carry on in an effort to attain the objectives—that is, in an effort to bring about the desired changes in the student. The difficulty of an objective stated in the form of activities to be carried on by the teacher lies in the fact that there is no way of judging whether these activities should really be carried on. They are not the ultimate purposes of the educational program and are not, therefore, really the objectives. Hence, although objectives are often stated in terms of activities to be carried on by the instructor, this formal statement operates as a kind of circular reasoning which does not provide a satisfactory guide to the further steps of selecting materials and devising teaching procedures for the curriculum.

A second form in which objectives are often stated is in listing topics, concepts, generalizations, or other elements of content that are to be dealt with in the course or course.

Thus, in an American history course, the objectives are sometimes stated by listing such headings as: the Colonial Period, the Establishment of the Constitution, the Westward Movement, the Civil War and Reconstruction, and Industrialization. Or, in a science class, the objectives are sometimes stated in the form of generalizations such as "Matter can be neither created nor destroyed," or "Green plants transform the energy of the sun into the chemical energy of glucose." Objectives stated in the form of topics or generalizations or other concept elements do indicate the areas of content to be dealt with by the students but they are not satisfactory objectives since they do not specify what the students are expected to do with these elements. In the case of generalizations, for example, is it expected that the student is to memorize these generalizations, or to be able to apply them to concrete illustrations in his daily life, or to view these generalizations as a kind of unified and coherent theory which helps to explain the nature of scientific explanation, or is there some other kind of use to which the student is expected to put these generalizations? In the case of a list of topics the desired changes in students are still more uncertain. Is the history course dealing with the Colonial Period what is the student expected to get from it? Are there certain facts about the period that he is to remember? Is he expected to identify trends in development that he can apply to other historic periods? Questions of this sort are not answered simply by stating objectives in terms of content headings or generalizations. The purpose of a statement of objectives is to indicate the kinds of changes in the student to be brought about so that the instructional activities can be planned and developed in a way likely to attain these objectives—that is, to bring about these changes in students. Hence, it is clear that a state-
ment of objectives in terms of content headings or generalizations is not a satisfactory basis for guiding the further development of the curriculum.

A third way in which objectives are sometimes stated is as the form of generalized patterns of behavior which fail to indicate more specifically the area of life or the content to which the behavior applies. For example, one may find objectives stated as "To Develop Critical Thinking," "To Develop Appreciation," "To Develop Social Attitudes," "To Develop Broad Interests." Objectives stated in this form do indicate that education is expected to bring about some changes in the students and they also indicate in general the kinds of changes with which the educational program is expected to deal. However, from what we know about transfer of training it is very unlikely that efforts to aim at objectives so highly generalized as this will be fruitful. It is necessary, in specifying definitely the content to which this behavior applies, or the area in life in which such behavior is to be used. It is not adequate to talk simply about developing critical thinking without reference to the content or the kinds of problems in which the thinking is to be done. It is not a clear enough formulation of an objective to state that the aim is to develop wide interests without specifying the areas in which the interests are to be aroused and stimulated. It is not satisfactory to indicate that the objective is to develop social attitudes without indicating more clearly what the objects of the attitudes are that are sought. Hence, the formulation of objectives in terms of behavior types alone is not likely to prove a satisfactory way of stating objectives if they are to be used as direct guides to the further development of curriculum and instruction.

The most useful form for stating objectives is to express them in terms which identify both the kind of behavior to be developed in the student and the content or area of life in which this behavior is to operate. If you consider a number of statements of objectives that seem to be clear and to provide guidance in the development of instructional programs, you will note that each of these statements really includes both the behavior and the content aspects of the objective.

Thus, the objective, "To Write Clear and Well-organized Reports of Social Studies Projects," includes both an indication of the kind of behavior—namely, writing clear and well-organized reports—and also indicates the areas of life with which the reports are to deal. Correspondingly, the objective, "Familiarity with Dependable Sources of Information on Questions Relating to Nutrition," includes both an indication of the sort of behavior, namely familiarity with dependable sources, and the content, namely, those sources that deal with problems of nutrition.

As a third illustration of the way in which a clear objective includes both the behavioral and the content aspects, consider the objective, "To Develop an Appreciation of the Modern Novel." To develop appreciation implies a kind of behavior, although for many instructors it is necessary that this type of behavior be defined somewhat more clearly than is frequently done and the mention of the modern novel indicates the content to which the appreciation is to be applied. It can safely be concluded that a statement of objectives clear enough to be used in guiding the selection of learning experiences and in planning instruction will indicate both the kind of behavior to be developed in the student and the area of content or of life in which the behavior is to be applied.

Since a clearly formulated objective has the two dimensions of the behavioral aspect and the content aspect, it is often useful to employ a graphic two-dimensional chart to express objectives concisely and clearly. An illustration of such a chart is presented herewith. This is an illustration
of the use of a two-dimensional chart in stating objectives for a high school course in biological science. It is not assumed that this course is an ideal course nor that these are ideal objectives. The purpose of the chart is to show how the chart can more compactly indicate the objectives that are being sought and how each objective is defined more clearly by the chart in terms both of the behavioral aspect and the content aspect.

Note that seven types of behavior are aimed at in this biological science course. The first type of behavior is to develop understanding of important facts and principles; the second type is to develop familiarity with dependable sources of information—that is, with places to which the student may go to get information likely to be dependable on questions of various sorts in the biological science field. The third type of behavior is to develop ability to interpret data—that is, to draw reasonable generalizations from the kinds of scientific data likely to arise in this field. The fourth type of behavior is to develop ability to apply principles that are taught in biological science to concrete biological problems that arise in his everyday life—hence, to be able to carry on problem-solving activities in this field. The fifth type of behavior is to develop the ability to study and report the results of study. The sixth is to develop broad and mature interests as they relate to biological science, and the seventh is to develop social rather than selfish attitudes in this area.

This statement of behavioral aspects should make clear that the biological science course aims at more than simply acquiring information. The specification of some seven kinds of behavior immediately suggests the need for learning experiences that will provide increased familiarity with sources of information, that will provide skill in interpreting data, skill in applying principles, practice in methods of study and reporting results of study, that will stimulate and challenge interests, that will develop attitudes favorable to the social uses of science and the like. Just a formulation of these behavioral headings does provide some leads as to the kind of curriculum planning that will be necessary.

However, the listing of the behavioral aspects is not a sufficient formulation of the objectives to be most useful. Hence, the chart also includes a statement of the content aspects of the objectives. It will be noted that the course is viewed as developing these various sorts of behavior in relation to the nutrition of human organisms, digestion, circulation, respiration, and reproduction. It is also noted that the course deals with the use of plant and animal resources so as to touch upon energy relationships, environmental factors conditioning plant and animal growth, heredity and genetics, and land utilization. Finally it is noted that the behavioral objectives relate to evolution and development. The formulation of the content aspects of the objectives have served still further to clarify the job to be done by the biological science course.

Finally, the chart indicates the relationship of these two aspects of the educational objectives. The intersections of the behavioral columns and the content rows are marked with X's when it is implied that the behavioral aspect applies to this particular area of content. Thus, for example, it may be noted that the student is expected to develop an understanding of important facts and principles in connection with every one of the content aspects. On the other hand, he is expected to develop familiarity with dependable sources of information only in connection with nutrition, reproduction, environmental factors conditioning plant and animal growth, heredity and genetics, land utilization, and evolution and development. The curriculum-maker planning this biological science course either has some little opportunity for emphasizing dependable sources of information in connection with other areas of content or decided...
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Functions of Human Organisms</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1. Nutrition</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Digestion</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Circulation</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4. Respiration</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>5. Reproduction</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6. Use of Plant and Animal Resources</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>1. Energy relationships</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Environmental factors conditioning plant and animal growth</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Heredity and genetics</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4. Food utilization</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C. Evolution and Development</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

31. The Form of Objectives

were primarily in relation to the content areas defined as

Correspondingly, ability to interpret and present the results of study is a type of behavior which is to be developed primarily in relation to the content areas defined as...
fact that the second column states familiarity with dependable sources of information provides a second specification. It is not enough that the student shall understand important facts and principles and remember them. He must also learn where to go to get dependable information as he needs it. This implies experience in consulting various sources of information, some practice in analyzing these sources to see where they are adequate and where they are unsatisfactory, the development of certain criteria by which to judge the dependability of a particular source of information. In brief, the development of the kind of objective implied by the second column requires somewhat different learning experiences than those implied by the first column.

Similarly, the objectives implied by the third column set up certain specifications regarding the learning experiences to be provided. If a student is to develop ability to interpret data he must have some opportunity to come in contact with data that are new to him and some practice in trying to interpret the data. Furthermore, he must develop certain principles of interpretation so as to avoid overgeneralization and other common errors. The kind of learning experiences involved in interpreting new data differs somewhat from those kinds implied by the first two columns since it involves presenting new data to students providing opportunities for interpretation, providing some chance to see where interpretations fail short, and developing certain criteria for interpretation. The fourth column, ability to apply principles, sets a further specification for the needed learning experiences. If the student is to learn to apply principles to concrete problems arising in his own experience, he must learn to deal with problems that are new in the sense that many of them have not been taken up in the course; for he must not simply memorize ready-made solutions. The learning experiences should bring out the ways in which the facts and principles can properly be ap-

plied and some of the difficulties involved in making applications. The solutions to the problems developed as a result of application should also be tested to see how adequately the applications have been made. The column thus provides added specifications for the kind of learning experiences that would need to be provided in this biological science course.

The fifth column, ability to study and report the results of study, suggests other specifications since it indicates that the student is expected to develop some skill in study on his own part and some skill in preparing oral or written reports on this study. This again demands that the instruction be of such nature that the student will have a chance to carry on significant study activities in the identified areas of biological science and that the course shall give him an opportunity to present reports of his study, presumably, both written and oral reports. This again sets specifications for the nature of the learning experiences to be set up and the methods of instruction to be used.

The sixth column, broad and mature interests, implies still further specifications for the learning experiences of the curriculum. It implies that it is not enough for the students to understand, to analyze, to interpret, to apply, but it is also hoped that they will find satisfactions in the things they are dealing with in this course so that interests will be developed, broader interests than they had when they came into the course and more mature interests. To provide experiences likely to increase interests usually involves finding out something about students' present interests so as to build upon them, and examining possible learning experiences in terms of how satisfying and interesting they are likely to be to the students so that further interests may be built up. Again it seems clear that the specification of this type of behavioral objective has its direct implications in the planning of the learning experiences.
Finally, the last column, social attitudes, also has direct implications in planning the curriculum. The proposal that students shall develop attitudes of a social rather than a selfish sort in connection with these aspects of biological science implies that the students consider to some extent the social effects of various types of biological knowledge and development. It also implies that some effort will be made to help students see the connection between certain practices in biological science and their social implications, and the connection between certain proposed social actions and their consequences so that the students will not view science in a completely neutral fashion but will see it as a possible contributor to social welfare. It may also imply that the student is to develop the desire to aid those biological developments that do contribute to social welfare rather than viewing biological developments merely as contributions to personal satisfaction and personal benefit. These illustrations may suggest the way in which the behavioral aspects of the objectives provide a clearer specification of the kind of curriculum materials, learning experiences, and instructional procedures to be used.

Turning to the content aspects of the objectives, we can also see how they serve to specify more clearly the steps to be taken for the further development of the curriculum. The rows of the chart indicate the content headings to which the behavioral aspects apply; but they also indicate in connection with the behavioral aspects, the specifics to be developed under each heading. Thus, under nutrition, important facts and principles are to be identified, dependable sources of information are to be worked with, new nutrition data are to be presented to students for interpretation, problems involving the application of the important facts and principles are to be provided, interesting materials in nutrition are to be found, and the social implications of nutrition work are to be sought out. In a similar fashion, each column indicates the kind of content analysis required. Hence, by putting these two aspects of objectives together, we get a clear enough specification to indicate on the one hand the kinds of behavior changes that are aimed at, and on the other hand to specify the particular materials, the particular ideas, the particular kinds of situations to be used in connection with each of these behavioral objectives. This provides a much more adequate specification of the educational objectives for a particular course or for a whole school that is normally available in the formulations to be found in courses of study and other curriculum reports.

Sometimes in the discussion of the use of a two-dimensional chart the question is raised as to whether the particular items entered in the chart are appropriate objectives. It should be recalled that this device is not primarily a device for determining whether an objective is an appropriate objective or not. The preceding steps should have identified objectives and screened them so that the objectives which are recorded on the chart are objectives that have already been through the screening process. In this sense the function of the chart is merely to provide a form to state objectives so that their meaning is clearer and the way in which they can be used in setting up learning experiences is more obvious than would be the case if they were stated in other forms. However, it is true that in any process of development there is value in shutting back and forth from one step to a preceding and subsequent step in the process. Hence, it is sometimes true that by formulating the objectives in terms of such a chart as this, suggestions are obtained regarding additional objectives that were not previously identified. Thus the very existence of gaps in the chart where there are no X's suggests the possibility that an objective might be identified which would fill in the gap and put an X there. This will raise, in effect, the question,
"Is this gap an objective that ought to have been included?" For example, in the case of the illustrative chart the first gap is found under familiarity with dependable sources of information relating to digestion. It suggests the possibility of the objective "Familiarity with Dependable Sources of Information about Digestion." However, in this case the study of contemporary life had shown little need for keeping up with new information about digestion. The most critical problems in adult life and the most common problems of the students in using sources involve information about nutrition and reproduction rather than digestion, respiration, or circulation. It was because of these data that the instructor did not include the objective "Familiarity with Dependable Sources of Information about Digestion, Circulation, and Respiration." On the other hand, in developing the chart the instructor had found the suggestion of an objective relating to social attitudes in regard to energy relationships but did not find suggestions about social attitudes toward evolution and development. However, as he considered this possible objective carefully and checked it against his philosophy of education and what he knew about educational psychology, he decided that this was a desirable objective in terms of his philosophy and psychology and thus entered that in the chart even though it had not been identified earlier in the process of developing the objectives. The significance of this fact is that although the use of such a chart is primarily to develop a form in which objectives can be stated more helpfully, the chart may also serve to suggest some possible gaps in objectives that can be examined and screened by the same criteria as are used for the original set of objectives.

Another question which sometimes arises has to do with the degree of generality or specificity to be desired in these formulations. Both of the behavioral aspect of the objectives and of the content aspect. So far as the behavioral aspect of the objectives is concerned, the problem of generality and specificity is one of obtaining the level of generality desired and that is in harmony with what we know about the psychology of learning. Other things being equal more general objectives are desirable rather than less general objectives. However, to identify appropriate learning experiences it is helpful to differentiate rather clearly types of behavior which are quite different in their characteristics. Hence, one can sharply differentiate such a behavioral classification as the acquisition of facts which may be viewed primarily as memorization and the ability to apply principles to new problems which involves primarily the interpretation and use of facts and principles. On the other hand, some headings fall in between; for example, understanding important facts and principles implies memorization, one knows what they are and can state them, but it also implies more than sheer memorization; it implies some ability to indicate the meaning, some ability to suggest illustrations of these facts and principles, and, in a limited sense, some ability to apply them to other situations. It is clear that the formulation of categories of behavioral objectives is partly a matter of judgment, although some fairly clear differentiations can be made. It is also clear that an attempt to make a large number of differentiations fails both because many differentiations in behavior are hard to make and also because the development of a large number of categories of behavior results in the instructor being unable to keep in mind the different kinds of behavioral objectives to be sought so that eventually they do not operate as guiding objectives. On these grounds, therefore, a list of seven to fifteen categories of behavioral objectives is likely to be found more satisfactory than a much larger number or a smaller number. In the work of the Eight-Year Study where we had to categorize behavior in order to determine what was to be appraised, we utilized some ten
categories. These were: the acquisition of information, the development of work habits and study skills, the development of effective ways of thinking, the development of social attitudes, the development of interests, the development of appreciations, the development of sensitivities, the development of personal social adjustment, the maintenance of physical health, the development of a philosophy of life. These are not ideal categories, but they represent a number sufficiently large to permit differentiation of the widely different categories and sufficiently small to be easily remembered and to serve as a guide in the work of instruction.

The content categories also involve the problem of generality of specificity. In general, it is desired to have a sufficient number of content categories to differentiate the important from the less important content. Thus, in the biological science illustration if only the three major content categories were used, namely functions of human organisms, use of plant and animal resources, and evolution and development, there would still be the possibility that a good many categories of dead wood might be included under those headings. For example, under the functions of human organisms it is possible to include such content headings as mechanical action, rest and recreation, skin and protection, categories that under other circumstances might have importance but in terms of the identified objectives of this course were deemed relatively unimportant and were not included. The same is true under the other headings. One function, therefore, of the subheadings is to indicate areas of content that are important and appropriate and others that are not. A second purpose is to put together areas that are reasonably homogeneous for sampling content specific rather than to use areas which are heterogeneous and include quite different kinds of content. The number of content headings most likely to be satisfactory

will vary somewhat with circumstances but in general a number between ten and thirty is more likely to be usable than a smaller or larger number.

A word of caution is necessary in using this chart to formulate objectives in a two-dimensional form. Each of the terms used in the behavioral headings and in the content headings should have meaning so that they do not represent vague generalities which have no concrete significance to the curriculum-maker and thus cannot guide him in the next steps of curriculum development. In the case of objectives that are inferred from studies of the learner, and from studies of life outside the school, it is likely that the suggestions obtained in this way would have fairly concrete meaning because they were inductively formulated and were thus used to represent a variety of definite, specific materials which give meaning to the behavioral and content headings. However, the objectives suggested by subject specialists and the occasional one obtained by the kind of analysis and thinking involved in making this chart have not necessarily been given concrete meaning through specific illustrations. In such cases the curriculum-maker will need to consider possible meanings of the suggestions, examining them in various contexts until he has satisfactorily defined them and can use them in the next steps of the curriculum development process.

As an example of terms likely to be used without having adequate meaning one might suggest such stated objectives as "critical thinking," "social attitudes," "appreciations," "sensitivities," "personal-social adjustment." These headings are frequently used to indicate types of behavior changes to be sought. They have been given concrete meaning by some persons but they are sometimes used by those who have not associated any concrete meaning with them. One can define an objective with sufficient clarity if he can describe or illustrate the kind of behavior the student is...
expected to acquire so that one could recognize such behavior if he saw it. For example, take the term “critical thinking.” This in general probably implies some kind of mental operation involving the relating of facts and ideas in contrast to mere apprehension or memorization of them. In a particular case, however, it is necessary to define “critical thinking” further than this, to specify the behavior somewhat more precisely. The secondary school teachers working in the Eight-Year Study defined “critical thinking” as they were using the term to include three sorts of mental behavior. The first involved inductive thinking: that is, the interpretation of data, the drawing of generalizations from a collection of specific facts or items of data. The second involved deductive thinking: the ability to begin with certain general principles already taught and to apply them to concrete cases which, although new to the students, are appropriate illustrations of the operation of the principles. The third aspect of thinking identified by these teachers was the logical aspect by which they meant the ability of the student to make material purporting to be a logical argument and analyze this argument so as to identify the critical definitions, the basic assumptions, the chains of syllogisms involved in it and detect any logical fallacies or any inadequacies in the logical development of it. By defining critical thinking in this way the teachers gave meaning to a term which previously had been vague to them, and thus provided a base for understanding what curriculum implications there might be whenever such a term was set up as the behavioral aspect of an educational objective.

In similar fashion the term “appreciation of literature” was defined by a group of English teachers to represent their meaning of the term as they used it in connection with educational objectives. They distinguished appreciation of literature from simply being interested in it or from skill in interpreting it. In effect, they identified appreciation with the kind of reaction a student made to literature which he was reading. They identified such kinds of reaction as the desire to read more of it, the effort to learn more about the material, the author of it, and the conditions under which it was written, the effort to express oneself creatively as stimulated by the reading material, identification with one or more characters in the literary selection, an attempt to apply the ideas developed in the literary selection to the student’s own experiences, the development of critical standards by which he attempted to decide how good the material was or how poor it was, in what respects it was good, in what respects it was poor. Others may not wish to accept this particular definition of appreciation but it should be clear that this was what these teachers meant by appreciation and that the definition of a behavioral objective in this way gives it concrete meaning so that it can serve as a useful educational objective. No doubt you will want to define some of the terms you use if you find in examining them that their meaning is not clear or does not have enough concreteness to serve to guide in the further development of the curriculum.

It is not usually difficult to define the content headings of a set of objectives. The tendency to use vague and abstract terms for the content headings is less frequent than for the behavioral headings. In some cases it may be necessary to indicate sub-headings of contents so as to define the particular headings by specification. Thus in the illustrative chart it might be wise to define evolution and development a little more clearly by indicating some of the subtopies or in some other way defining how much is to be included and what aspects of evolution and development are implied by such a heading as this. In other cases it may be useful to define the content heading by listing the particular problems, the particular generalizations, the particular situations in which the behavior is expected to operate so that
there will be no misunderstanding and no inclusion of dead
wood by failure to specify narrowly enough or concretely
enough such a content heading included.

Perhaps these illustrations have been sufficient to indi-
cate the problems involved in formulating objectives in a
way that they can serve as useful guides in the further de-
velopment of the curriculum. It should be clear that a
satisfactory formulation of objectives which indicates both
the behavioral aspects and the content aspects provides
clear specifications to indicate just what the educational
job is. By defining these desired educational results as
clearly as possible the curriculum-maker has the most
useful set of criteria for selecting content, for suggesting
learning activities, for deciding on the kind of teaching
procedures to follow, in fact to carry on all the further steps
of curriculum planning. We are devoting much time to the
setting up and formulation of objectives because they are
the most critical criteria for guiding all the other activities
of the curriculum-maker.