AN INTERSYSTEM MODEL FOR CURRICULUM

THEORY AND PRACTICE

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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**CURRICULUM AS A SYSTEM**

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Curriculum Design for the Thirty School Experiment
Taba's Model
Macdonald's Model
An Intersystem Model for Curriculum

A first step
The second step

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CHAPTER I

STATEMENT OF THE PROBLEM

Background

An assessment of the current curriculum scene supports the generalization that operations under way in the name of "curriculum change" lack sound conceptual bases. Moreover, many efforts classified as "curriculum research" suffer the same serious shortcoming.

In the words of one expert, "There has been much emphasis on mammoth demonstrations of what the new programs and patterns look like."¹ The contemporary writing about curriculum change reveals, time and again, that most attempts for change have focused directly on one or more of the elements involved in curriculum, treating them as though they were curriculum change in its totality.²

¹A. Frazier, "Broadening the Base for Innovation," Theory into Practice, I, No. 4, 181.

Clearly, these conditions are manifestations of the fact that there are no well-organized, consistent conceptual frameworks in current curriculum efforts. The results, in part, are described by Goodlad:

Schooling is a rather wasteful business. The ends to be achieved are vaguely stated and dimly understood. The selection of means is haphazard, trial-and-error business. The process is akin to shooting at flies with a shotgun without knowing whether we are supposed to kill flies, snakes, or sparrows. Worse, because this is what we do so often, too many people have come to assume flies to be the target and a shotgun to be the most effective means to their ends.\(^3\)

**Needed Conceptual Research in Curriculum**

In view of the current scene, there is no question but that education generally and curriculum, in particular, remains an uncharted field of scientific inquiry. More than a generation ago, Dewey asserted that education will not mature unless it is looked upon as an applied science. He argued that the main characteristic of science is the existence of systematic methods of inquiry which bear on a wide range of facts, and in turn enable

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\(^3\)John I. Goodlad, "The Organizing Center in Curriculum Theory and Practice," *Theory into Practice*, I, No. 4, 220.
us to understand them better and to control them more intelligently.

Emphasizing this point, he said:

No genuine science is formed by isolated conclusions, no matter how scientifically correct the technique by which these isolated results are reached, and no matter how exact they are. Science does not emerge until these various findings are linked up together to form a relatively coherent system—that is, until they reciprocally confirm and illuminate one another, or until each gives the others added meaning. 4

Dewey made it clear that a science of education cannot be constructed by borrowing the techniques of experiment and measurement from other physical and social sciences and applying them directly to education. 5 He concluded that the final reality of educational science is not found in books, nor in experimentation, nor in the classroom activities, but in the minds of those engaged in directing educational activities. 6

At the first conference on curriculum theory, held at the University of Chicago in 1947, the need for creative scholarship in the field of curriculum was emphasized. Such an emphasis calls for research that deals with the synthesis of all the fields of knowledge related to curriculum. In short, adequate conceptual frameworks are seen as the first step in developing


5Ibid., pp. 26-27. 6Ibid., p. 32.
curriculum theory. The editors of the report published on this conference assert that this kind of research deserves as much recognition and status in the professional field of education as the so-called "pure research." 7

**Nature of the Study**

This study is planned to meet the need for a conceptual framework for curriculum theory and practice. Specifically, it aims to develop an intersystem model for curriculum theory and practice. The character of the study, its methodology, its ultimate utility are typical of conceptual research endeavors. An explication of what is involved in these efforts follows.

Cowley distinguishes between two types of research in education, "factual" and "conceptual," in the following manner:

> By factual research I mean adding new facts to the store of knowledge, facts which enlarge upon present knowledge or which open up new, unmined veins .... conceptual investigation differs from such studies in that it either organizes facts already on hand or critically appraises existing concepts. 8

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Conceptual research in education is theory oriented. It relates the diversity of existing facts in a productive way. In education, as an applied science, facts alone are not enough. An adopted or sought-to-be adopted philosophy of life, of civilization, and of education is a necessary prerequisite for collecting, interpreting, and utilizing facts. Facts always should be collected and analyzed in terms of contexts. This was the central theme to which John Dewey devoted his *The Sources of a Science of Education* in 1929. Unfortunately, this call has been ignored or misinterpreted by many in the field of education. On this point, Brauner reflects, "Conceptual research is the missing link between a logical speculative tradition prematurely abandoned and a body of immediately useful facts without theoretical portent."\(^9\)

Griffiths, who perhaps more than any other individual has influenced the development of theory in the field of educational administration, visualized a paradigm which is useful in understanding the nature of the investigation to be made in this study. He asserts that theory development begins with certain presumptions in the mind of the investigator which then lead him to make observations. Descriptions grow out of these observations, and

he must then attempt to explain the observation. Griffiths maintains that three levels of theorizing are involved in this process: sensitizing concepts, integrating concepts, and theory. His paradigm\textsuperscript{10} shows the relationships among the three:

\begin{center}
\begin{tikzpicture}
  \node (presumptions) {Presumptions};
  \node (observation) [below of=presumptions] {Observation Resulting in Descriptions};
  \node (sensitizing) [below of=observation] {Sensitizing Concepts};
  \node (integrating) [below of=sensitizing] {Integrating Concepts};
  \node (theory) [right of=integrating] {Theory:
  A set of assumptions from which are derived laws};
  \draw [arrow] (presumptions) -- (observation);
  \draw [arrow] (observation) -- (sensitizing);
  \draw [arrow] (sensitizing) -- (integrating);
  \draw [arrow] (integrating) -- (theory);
\end{tikzpicture}
\end{center}

Having illustrated three possible levels of theory development and having shown the interrelationships among them,

Griffiths is then emphatic in his statement of how the process proceeds:

One should not get the idea that theory-making proceeds in a regular manner through the steps in Figure 1 (the paradigm). Generally everyone starts with a presumption. Some skip the descriptive phase. . . . Some start with sensitizing concepts and jump to theory, while others stay at the level of sensitizing concepts. Some start with presumptions, move to observations, skip to theory, then work back to sensitizing and integrating concepts. ¹¹

This study will utilize all three levels of theorizing suggested by Griffiths. It will, in a sense, serve as a case study of a theory maker "at work" in a domain called curriculum within the larger field of education.

The assumption is made that if adequate ways of viewing the phenomena known as curriculum are to become available to practitioners and theorists, there must be many, many such studies from which to draw.

One might well ask: Who is qualified to limit the field of curriculum inquiring? The answer taken by this investigator parallels the response made by Marvin Harris in describing his field of cultural anthropology:

The only criterion of a successful delimitation of a field of inquiry is whether or not a sufficiently large group of practicing scientists regard the field as worthy

¹¹Griffiths, p. 105.
of their interest. It is useless to argue whether a particular construal of the cultural field of inquiry encompasses all the professional activities of all practicing cultural anthropologists. Since the delimitations of the field must take place through the medium of unoperationalized common-sense terms, all that is necessary is that the field be roughly approximate to the sector of the universe which is currently under study by a substantial percentage of cultural anthropologists. Genuine intellectual issues cannot exist with respect to what should or should not be included. 12

This, then, is seen as conceptual research in the field of curriculum. The main functions to be performed are:

1. To guide empirical research in curriculum by providing an historical framework of ideas, concepts, and patterns of organization.

2. To analyze selected major concepts and value generalizations, and to taxonomize them in a way that will provide a logically consistent and useful synthesis.

3. To explain the pattern of relationships among the chief elements of the taxonomy developed in 2, above.

4. To suggest a new synthesis that may serve as a conceptual tool in curriculum theory and practice.

The need for an investigation to perform these functions in the field of curriculum has been widely expressed. Herrick has voiced the need in this way:

We who study curriculum and its related problems of instructional methodology do not have a precise definition of curriculum. Neither do we agree on the nature of the observations to be made or the range of phenomena which are to be incorporated into curriculum planning or theorizing. 13

Caswell asserts that the major task of curriculum workers is to draw from the fields of knowledge related to curriculum a consistent body of basic principles, to interpret them carefully as they apply to education and to extend their application on curriculum so that a clear guide to practice is provided. 14

Goodlad expresses this need by saying, "Nowhere in education is there greater need for a conceptual system to guide decision-making than the field of curriculum." 15


In Taba's view, what is lacking in the curriculum enterprise is a coherent and consistent conceptual framework. Beauchamp asserts that a productive system or systems of curriculum is a prerequisite to applying a modern scientific point of view on curriculum. McKim examined curriculum research in a historical perspective and concluded that "almost every outline of needed research in the field of curriculum improvement examined... indicated the importance of over-all curriculum design." In Tyler's view, the effective educational research must be guided by conceptualizations which provide means of viewing the complexity of educational phenomena in an orderly, meaningful way.

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17 George A. Beauchamp, "Developing a Scientific Theory in Curriculum," paper read at the ASCD Annual Convention in St. Louis, Missouri (March 1963), p. 6. (Mimeographed.)


Purpose of the Study

The purpose of this research is to develop an intersystem model for curriculum. This model will serve in building curriculum theory and conducting educational research on curriculum and in curriculum-making and change.

The problem to be pursued in fulfilling this purpose is best delineated by the following questions:

1. What is the nature of curriculum phenomena?
2. What are the major components of these phenomena?
3. What are the patterns of relationships that connect these components?
4. What is the role, or roles, played by each component within the total phenomena?
5. What kinds of decisions are appropriate to each component in the domain of curriculum?
6. What should be the relationships between the curriculum in its totality and parts and the environmental forces that surround it?
7. What are the factors that create conflict or inconsistency among the curriculum components?
8. What is the nature of so-called educational objectives? And what are their sources? On what base can they be taxonomized to render them operational?

9. What constitutes "balance" in the planning and manipulation of curriculum phenomena?

10. What are the sources of educational experiences? How can they be selected and utilized to achieve balance?

11. What are the operating processes in instruction? How can they be selected and utilized to achieve balance?

**Definition of Terms**

This study will develop an intersystem model for curriculum theory and practice. Some of the definitions of key terms used in this study follow:

"Curriculum" signifies a universe of interdependent goal-oriented activities engaged in by a group of professionals, schoolmen, and students at different levels of decision-making. These operations are intended to produce behavior change in organizable and re-organizable ways in socio-instructional settings sponsored by a specialized institution (school) responsible for both cultural
transmission and cultural renewal of a given society. Curriculum as defined here is conceived as a system.

"System" is defined for the purpose of this study as follows:

"System is any real or assumed structure of phenomena in which parts, units, or elements are conceived and treated as identifiable and closely interdependent of, and interactive to, each other for securing equilibrium." 21

"Curriculum system 1 is an identifiable assemblage of a universe of activities (as defined above) in which parts are conceived and treated as closely interdependent of, and interactive to, each other for maintaining equilibrium." 22

"Intersystem 1 is a term used to signify that a system (as defined above) contains two or more connected subsystems with a conceivable autonomy of each subsystem." 23

20 This is the investigator's definition. It is a synthesis which is operational. Reference will be made to this definition throughout this study.


22 Ibid. 23 Ibid.
"Models" are of different types and serve different purposes. A model may be physical, pictorial, semantical, mathematical, or perceptual. The purpose for which a model is constructed may be demonstrative, analytical, developmental, or interpretive. For the purpose of this study a model is defined as follows: "A model is a constructed simplification of parts, features, elements or components of a system (as defined above) that maintains the main features of what is modeled for and the assumed relationships among these features."²⁴

One should bear in mind, when he is defining "theory of curriculum," the relative degree of maturity of education as an applied science. Recognizing this state of the field, the following definition of curriculum theory will be used in this study: Curriculum theory is a set of related statements in which (a) the variables involved in curriculum (as defined above) are delineated and (b) the patterns of relationship among these variables are explicated.

Assumptions Underlying the Study

The main assumption is that curriculum can be conceived as a system, in that it includes a complex of elements. It is a particular system which can be recognized as distinct from other systems surrounding it such as social system, economic system, value system, political system, educational system, and educational administrative system, and the like. These systems have impact on the curriculum system as environmental forces. At the same time, the curriculum system is not a self-contained system. Rather, it is made up of main components which can be conceived and treated as subsystems within the whole system. For example, educational objectives, selection of educational experiences, organization of these experiences, and classroom instruction are viable constructs as subsystems of the curriculum system.

For the purpose of this study it is assumed that curriculum system is related to and exchanges energy and information with the environmental systems impinging on it. Technically, it, therefore, has "inputs" coming to it from outside. At the same time, the curriculum intersystem exchanges energy and information with its subsystems. In other words, the function of any subsystem is determined only by its balance or imbalance with other subsystems.
This main assumption can be stated more specifically in terms of applying the general properties and concepts of "system" to curriculum as follows.25

Comprehensibility of curriculum phenomena

Curriculum phenomena, as defined earlier, are complex but comprehensible. In using the concepts and properties of an intersystem model, it is assumed that one can impose order on and/or discover order in the curriculum phenomena by identifying its main features and the kind of relationships among them.

Relevance of inputs - outputs and feedback

An intersystem of curriculum has "inputs." The term "input" refers to some energy and information that is to be fed to the system. "Inputs" provide the raw material upon which the

system operates. Inputs of curriculum system may be of several kinds. (1) They may come from outside the system and be termed external or exogenous inputs. The sources of exogenous inputs of curriculum are knowledge and/or cultural heritage, social needs and emphasis, knowledge about human growth and human behavior, and professional knowledge in education. (2) Inputs may be generated within the system itself and can be termed internal or autogenous. The sources of this kind of inputs are outputs of one or more of curriculum subsystems. An example of this kind of inputs is the new insight given to nature of disciplines in terms of their structure. It is obvious that Bruner's emphasis on the importance of structure has given a new "input" to curriculum. Another example is the effort made in self-instruction and programmed learning. (3) A third type of inputs is "feedback inputs." The end-attained goals of the whole system are the actual-attained behaviors of the students as represented in new concepts, new ways of handling problems, performance skills, new or deeper interests and attitudes, and the like. These are the "outputs" of curriculum. The use of information gained through evaluating the system for making it more productive is called "feedback." The feedback procedure is intended to make the system self-regulating and self-adapting.
Role of tension, conflict, and steady state

An intersystem model of curriculum is made up of different components or subsystems. The assumption made here is that although they are connected and interdependent, they are different in nature. In other words, they are not perfectly integrated. Because of outside pressure, disturbance may occur and lead to change in one subsystem. This change causes tension and conflict within the system. Firing the first Russian Sputnik on October 4, 1957, for example, is considered an outside pressure made on the curriculum system. With this pressure, a great new emphasis was placed on science, mathematics, and foreign language. As one consequence, "structure" has come to be considered first and most important in curriculum. It can be documented that there has been an overemphasis on the cognitive domain of the learner at the expense of his affective development. In such a case, conflict between the professed educational objectives of general education and the educational experience actually being fostered in the classroom comes to the forefront. Another example of this conflict is found in instruction as a subsystem as intellectual modes are emphasized at the expense of social processes. A system is assumed to have a tendency to achieve balance among
the various components or subsystems operating within it. The term balance has been incorporated rather widely in curriculum literature. It is the title, for example, of the 1961 Yearbook of ASCD. Balance in educational objectives, balance in educational experiences, and balance among different intellectual modes were the central theme of this yearbook. Many position papers on the matter of balance have been prepared by individuals and organizations concerned with curriculum. Especially has this been the case since 1957.

Steady state is a term used to refer to the balanced relationships of parts of the system. It is preferred to the term equilibrium. The former means to maintain ratio of change among parts of the system while the latter signifies a fixed level of balance. Illustration of the concept of "steady state" in curriculum is in order here. The overarching purpose in education has shifted from universal literacy to helping individuals to make wise choices in a changing social context. This new general objective entails developing critical thinking abilities and tools necessary to make such wise choices. At the same time, educators have failed to develop kinds of material and instructional procedures which serve the new general purpose of education. Ammons' investigation concluded that the two major factors that govern teachers'
classroom practice are not objectives but textbooks and habits. She asserts that "while we are verbally committed to a new purpose, in practice we are providing education which was designed initially in 1850 to meet the purpose sought then."

In such cases, there is conflict between two or more components of curriculum. A "steady state" in curriculum requires a change in the material taught, the ways in which instruction is conducted at the same ratio of change which occurs in the area of purpose.

**Nature of boundary**

In order to identify what is inside the curriculum system, one must determine its boundary line. In other words, there is a need to delimit the main features included in curriculum phenomena. Ideally, the boundary line of curriculum should not be determined arbitrarily. The critical issue is what to include in and what to exclude from curriculum phenomena and on what basis this is to be done. Discussion of this problem will be the content of subsequent chapters.

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26 Margaret Ammons, "Purpose and Program," Educational Leadership, XXII, No. 1 (October 1964), 16.
Systems as open and closed

A system can be described as either open or closed. A closed system is one whose channels with its environmental forces and/or its internal forces are shut off. A curriculum system can be said to be a closed system when it does not respond to the accumulated professional knowledge. When one speaks of the "rate of diffusion" of new educational ideas, he refers to the extent to which a curriculum system is open. The well-documented lag of educational practice behind theory is a clear indication that most curriculum systems are closed.

A curriculum system can be described as closed when it lacks a comprehensive program of evaluation for its "outputs." If curriculum is to be an open system, continuous feedback must operate between the system and its sources of inputs, including feedback inputs.

Hypotheses to Be Examined in the Study

The basic problems to be treated in this study have been formulated in question form earlier in this chapter. Yet another way of visualizing these problems lies in the hypotheses which underlie the investigation. These are stated as follows:

1. If curriculum is to be conceived as a system, then its main features can be identified and represented in a model.
2. If curriculum is to be treated as an intersystem model, then the patterns of relationship among its subsystems can be shown.

3. If curriculum is conceived as intersystem, the role or the roles played by each subsystem can be explained in its relative autonomy, and in its mutual reaction to other subsystems.

4. If curriculum is to be handled as a system, the sources of imbalance within the system due to internal and external change can be accounted for.

Summary

This chapter has presented the background of the problem to be studied, has identified the need for conceptual research in curriculum, and has formulated the purpose of this particular study. In addition, it has defined some of the major terms to be used and has delineated the basic assumptions underlying the work to be pursued and reported in subsequent chapters.

Finally, it has identified the major hypotheses that are central to the undertaking.

Chapter II will undertake an assessment of curriculum theory and practice to serve as a backdrop for the further pursuit of the investigation.
Chapter III will report on educational objectives and examine the framework in which they are conceived and stated.

Based on the examination to be made in Chapter III, the investigator will try to develop a new perspective for educational objectives in Chapter IV.

In Chapter V, the current curriculum patterns will be investigated for the purpose of explaining how the structure of curriculum is viewed.

Chapter VI will be devoted to treatment of curriculum as an intersystem. In that chapter the methodological processes for deciding what are the subsystems of which curriculum is composed will be presented. Then, each subsystem will be delineated in its own relative autonomy as well as in its relation to other subsystems.

In Chapter VII, a summary of the study, its conclusions, and implications for various phases of curriculum theory and practice will be explicated.
CHAPTER II

ASSESSMENT OF CURRICULUM THEORY
AND PRACTICE

Introduction

Education is an integral part of life in the society in which it functions. It differs from one society to another and within the same society from time to time according to what patterns of living are preferred and emphasized, both explicitly and implicitly, as opposed to other significant life alternatives. Modern individual and social life is characterized by increasing complexity. And so is education.

Contemporary education is a rough and uncharted terrain. Those who are traveling over this terrain, both theorists and practitioners, are obligated to stop occasionally and look back over the ground they have covered. Such an examination enables them to note the features that stand out as landmarks. Moreover, it is a matter of professional survival to review the path educators have followed and to note the main features that have characterized the routes taken in their educational journey.
Inasmuch as this study is concerned with curriculum, an examination of this terrain as it has developed in the past forty years is essential to an assessment of the contemporary state of the field.

Revolt against Herbartianism

Public schools in the United States, after 1915, were receiving a great majority of youngsters regardless of their background, preparation, and ability. With this diversity of student population, some educational slogans came into existence such as "something for everyone," "worry less about the content to be given to all, and more about the expression to be attained from each."\(^1\) Such slogans represented an intensive revolution against Herbartianism in its main concerns of instruction which were seen as follows: (1) the primary importance in education is abstract thoughts to be arranged on the basis of eternal and general thought, (2) the necessity of obedience to authority in both content learning and moral learning, and (3) order is of great importance in all aspects of teaching.

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The Herbartian influence was well described in Dewey's words:

Subdivide each topic into studies; each study into lessons; each lesson into specific facts and formulae. Let the child proceed step by step to master each of these separate parts, and last he will have covered the entire ground. The road which looks so long when viewed in its entirety is easily traveled, considered as a series of particular steps. Thus emphasis is put upon the logical subdivisions and consecutions of the subject-matter. 2

As a revolt against Herbartianism, two educational movements arose. These were child study, as a general movement in education, and experimentalism, as a philosophy of education. The former, deriving concepts from genetics and experimental psychology, placed emphasis on the child as an active and expressive organism who suffers and fails to grow under unnecessary restraints and imposed order. His freedom of self-expression, self-regulation, and creativity were advocated in instruction. On the other hand, the experimentalists incorporated a new vocabulary in the educational literature: "active" became "interactive," "intersubjective" replaced "objective," "productivity" turned into "cooperation," and "creativity" changed into "consensus." 3

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3Brauner, pp. 250-52.
Curriculum trends that dominated the educational climate, as a result of child study movement and experimentalism have been reported by Zirbes in 1935. Based on analysis of some educational magazines (*Childhood Education*, *Progressive Education*, and *Educational Methods*) for the years 1931-34, some professional books in their treatment of curriculum and curriculum yearbooks, Zirbes reports that curriculum change was from something to something else. In other words, the nature of change in curriculum was described in a from-to relationship.

Some selected illustrations in the format arranged by Zirbes follow:

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass education</td>
<td>Education of the individual</td>
</tr>
<tr>
<td>Systematic planned curriculum</td>
<td>Activities centering around dominant interest</td>
</tr>
<tr>
<td>Curriculum based on subject matter</td>
<td>Child interest; experience leading to new purposes, meaning, insight, skills, and integration</td>
</tr>
<tr>
<td>Training in skills, habits, and facts</td>
<td>Learning by doing</td>
</tr>
<tr>
<td>Single learning</td>
<td>Multiple learning</td>
</tr>
<tr>
<td>Formalized recitation</td>
<td>Socialized recitation</td>
</tr>
</tbody>
</table>

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Viewing curriculum movement in terms of a "from-to" orientation indicates that educators in the thirties fell into the error of "either-or" thinking. It was held that it is necessary to be against one item of any pair represented above in order to be for the other. No intermediate possibilities were seen. Reflecting on this way of thinking about curriculum, Miel says:

"It is like movement down a long road, whereby the arrangements or practices once considered adequate are left behind forever. All that is abandoned becomes traditional. The new which is in sight is the progressive or modern or right way."

By and large, the educational thought in the first half of this century centered in protest of the so-called "traditional education." It stressed technical and practical "know-how" at the expense of systematic and organized knowledge. It favored activities involving concrete things to purely verbal activities. It stood for

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increased freedoms of the child and against external restrictions. Subject-matters were devalued in the interest of experience.  

**The Post World War II Setting**

Since World War II, the world has passed the age of automation and approached the atomic and space age. The most purely instrumental function of education has become increasingly apparent throughout the world and especially in the Soviet Union and in the United States of America. In Stalin's words, "Education is a weapon, the effect of which depends... on who controls this weapon, and at whom, it is intended, it should strike." 

The same function of education has been influential in America. Although stated in a different context from that of Stalin, the following statement is a case in point:

Today we must give high priority to those aspects of science and technology which will increase our military strength... We should ensure that every young person with desire and capacity to become a scientist has access to the best science education our leading scholars can devise. 

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In short, it is urged "that those who have the capacity for the rigorous academic disciplines required for all professions start their course of study early, are offered opportunities to develop their talents, and are urged to continue to do so."\(^9\)

It seems fair to say that there is an urgent and accelerated change in the educational scene in America. The extent and the nature of this change have been well demonstrated recently in Miles' *Innovation in Education*.\(^10\)

To depict the current climate in education, there follows a sample of contemporary discourse. Bruner's hypothesis, "Any subject can be taught effectively in some intellectually honest form to any child at any stage of development,"\(^11\) accompanied with his great emphasis on the importance of "structure" generated a number of "new" curricula in physics, chemistry, biology, mathematics, anthropology, economics, history, geography, English, and foreign language.\(^12\) The "new" programs are not confined to selected

\(^9\)Ibid.


\(^{12}\)Miles, pp. 3-7.
individual classrooms. It has been estimated that "new math" programs have reached three-fourths of all American high schools. And it was expected that in the autumn of 1964, two-thirds of the nation's high school physics students would be studying the "new physics." 13

gotkin and goldstein report that 11 per cent (209 out of 1,886) of the school systems sampled in a study sponsored by center for programed instruction in 1963 were using some form of programed instruction. 14

According to hayes, approximately 17 per cent of the public schools in 1962 were equipped with language laboratories. 15 The implementation of the so-called "team teaching" as reported by a sample of principals has increased from 5 per cent in elementary and secondary schools in 1955-56 to 15 per cent in elementary schools and 12 per cent in secondary schools in 1960-61.


Furthermore, it is expected to reach 30 per cent in elementary schools and 31 per cent in secondary schools in 1965-66.  ^

There is an unprecedented widespread adoption of the so-called "nongraded school" in elementary and secondary schools. It has been reported that, in a sample of wealthy suburban schools, "nongraded" classrooms have become almost conventional practice. ^

Factors Related to Current Change

Some explanation of the factors related to the current change is basic to a background understanding for the present study. Identified here are some such factors which have their basis in valid documentation.

1. The most apparent reason behind the current change is the "struggle for national survival." The educational change in the state of New York is a case in point. It has been reported that the rate of instructional innovation within 15 months after firing the Soviet Sputnik I, on October 4, 1957, more than doubled.  


Change swept the nonacademic as well as the academic subjects. On the national level, this reason seems very obvious from what has been cited earlier in such positions statements as Goals for Americans.

2. The second factor in the current educational change is the tremendous growth of knowledge. The accumulation of knowledge, if plotted on a time line beginning with the birth of Christ, is roughly estimated as the first doubling occurred in 1750, the second doubling was in 1900, the third in 1950, and the fourth in 1960. The knowledge explosion has impressed upon scholars as well as upon educators an inescapable obligation. Nowadays, the old and important question raised by Spencer, "What is worth knowing," is more pressing and challenging than ever before. It has been felt strongly that the most fundamental aim of education is to help students learn the fruits of discipline and the wisdom of scholarship, not as bits and pieces or as a set of conclusions, but

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19 See pp. 29-30 in the present study.

as the beams, or girders, in an expanding and developing structure of inquiry.\textsuperscript{21}

3. The affluent American society with rapidly increasing technology requires a more intellectually sophisticated citizen. School is looked upon as the social institution whose primary function is to produce this kind of individual. Of relevance to the increasing technological capacity, and its impact on educational change, is the remarkable development in both mass media and educational technology in the handling and retrieval of vast funds of information.

4. One of the most powerful forces behind educational change is the increasing enrollment in educational institutions. Formal education in America now includes 29 million children in public elementary schools and 6 million in private elementary schools. Public secondary schools include 11 million in addition to one million enrolled in private secondary schools. College students number 4.5 million. With the inclusion of the non-formal educational establishments of adult education, industry education, commerce education, and military education, Miles

estimates that one-third of all Americans put their daily work time in on education. 22

5. Changes in the personnel of student population is an important factor influencing educational change. The economic and social forces operating in American society represent the greatest challenge facing American education. The impact of urbanization on all aspects of education is strongly felt by all those who are concerned with education: state governments, federal government, professional educators, and laymen. It has been reported that almost one of every six elementary and secondary school children attends a public school in one of the sixteen largest American cities where the depressed urban areas are located. The web of social problems in city slums is massive: crime, poverty, illiteracy, disease, unemployment, and broken family. 23 A host of educational programs, educational arrangements, and devices are in operation for the so-called "disadvantaged" or depressed children. They are intended to meet both the intellectual and social deficits of these children.

22 Miles, pp. 8-9.

Criticism of Curriculum

The advocates of curriculum change differ markedly in both their orientation and interest. One group claims that patterns of curriculum which dominated the scene in the late 1930's, 1940's, and 1950's overlooked systematic knowledge in general, and science and mathematics in particular. They call for return to the "fundamentals," meaning the subject-matters that prepare for college education. They see that schools are undertaking a large number of activities that are not essential to education at all. In Bestor's judgment:

The real purpose of education is to teach youngsters how to use their minds effectively. You have reading, writing and arithmetic as the first steps in this process. Then, in high school you get science, history, English and foreign language. 24

This group offers no new insight into the curriculum.

Another group asserts that subjects are taught not as ways of thinking about and explaining the world, but rather as rationalizations of technological devices and social problems. They see that "the first and most obvious problem in curriculum is how to construct curricula that can be taught by ordinary teachers to ordinary students and that at the same time reflect clearly the

basic and underlying principles of various fields of inquiry." They concern themselves little about educational objectives and competing requirements imposed on school time. However, they challenge the concept of readiness which was widely accepted before the Second World War. Furthermore, they challenge the notion of motivation by asserting that human beings are born with the desire to know, to explore, to master their environment, and to achieve. They speak of "competence motivation." They favor the "hypothetical mode of teaching" to the expository mode of teaching. In contrast to the thinking represented by individuals such as Bestor, this group offers new insight into curriculum.

A third group participating in the curriculum discourse protests the views expressed by the first two. They see that more important than both a "return to fundamentals" and "structure" is the educational philosophy that gives curriculum life and soul. This group sees that new curricula lack abiding values in times of change. They assert that the new curricula are imbalanced

25 Bruner, p. 18.
26 Gross, p. 40.
by emphasizing the cognitive domain at the expense of affective domain of the learner, namely, needs, interests, and attitudes. They argue that concluding that five- or six-year-olds can learn certain fundamental concepts in a discipline or disciplines does not necessitate that they should. They say that it is illogical to deduce answers to "should" questions directly from answers to "can" questions. 29

Speculating on today's educational change, Woodring says:

Today's reformers are, on the whole, less philosophical than their progressive forebears, less concerned with long-range goals, and less prone to use psychological evidence about the nature of learning.... Their primary interest is in course content and school organization. 30

One might accurately call this group a neo-humanist influence in curriculum thinking.

The Either-Or Fallacy in Curriculum Development

In view of the foregoing discussion, one is justified to conclude that we have not entirely outgrown either-or thinking in curriculum. Curriculum development, both in theory and practice, is caught up in immobilizing and unnecessary versus


conceptualizations. A survey of recent literature in curriculum allows one to develop yet another list with the shortcomings of the previous bi-polar orientation. An example follows:

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>Inquiry</td>
</tr>
<tr>
<td>Expository teaching mode</td>
<td>Hypothetical teaching mode</td>
</tr>
<tr>
<td>Teaching as telling</td>
<td>Teaching as guidance</td>
</tr>
<tr>
<td>Self-contained classroom</td>
<td>Self-contained school and team teaching</td>
</tr>
<tr>
<td>Growth of the whole child as</td>
<td>Rational powers as the central purpose of education</td>
</tr>
<tr>
<td>as central purpose of education</td>
<td></td>
</tr>
<tr>
<td>Face-to-face interaction</td>
<td>Different types of self-instruction and programmed learning</td>
</tr>
<tr>
<td>Curriculum based on</td>
<td>Discipline-oriented curriculum</td>
</tr>
<tr>
<td>&quot;core&quot; learning, experience curriculum, and the life adjustment</td>
<td></td>
</tr>
<tr>
<td>Graded school</td>
<td>Nongraded school</td>
</tr>
<tr>
<td>Generality of learning</td>
<td>Specificity of learning</td>
</tr>
<tr>
<td>Local curriculum</td>
<td>Nationwide curriculum</td>
</tr>
<tr>
<td>Interest of learner as organizing center of curriculum</td>
<td>Logical structure of discipline as organizing center</td>
</tr>
<tr>
<td>Common learning for all</td>
<td>Special program for gifted and culturally deprived children and dual progress plan</td>
</tr>
</tbody>
</table>
From | To
---|---
Heterogeneous grouping | Homogeneous grouping based on "achievement"
Teacher as general practitioner | Teacher as clinical specialist (member of team)
Intrinsic motivation | Extrinsic motivation
Learning "how" | Learning "what"

By and large, the pattern of curriculum development now is like the swing of a pendulum going back and forth in the same groove. Therefore, both protagonism and antagonism often characterizes curriculum discourse. The unnecessary, and even unwarranted, contrast between different patterns of thinking of and handling curriculum problems creates a state of confusion. This confusion frustrates and often immobilizes the best efforts of both theorists and practitioners.

**Sources of Confusion**

Appropriate here is an identification of the main sources of the existing confusion in the field of curriculum. Six such sources are delineated as a basis for proceeding with a more adequate conceptual model in this study.
Theory versus practice

One of the chief sources of confusion is a widespread fallacious dichotomy between theory and practice in education. There is an unfortunate tendency among some who are concerned with curriculum to concentrate on immediate, and perhaps, more practical problems rather than to concern themselves with the theoretical bases of practice. Dewey addressed himself to this difficulty by saying:

Theory is in the end, as has been well said, the most practical of all things, because the widening of the range of attention beyond nearly purpose and desire eventually results in the creation of wider and further reaching purposes and enables us to use a much wider and deeper range of conditions and means than were expressed in the observation of primitive practical purposes.⁵¹

Theory and practice are not separate, but they represent differences in the point at which interest and attention are momentarily directed. Without a sound theoretical basis, practice can be successful only by chance or trial-and-error approach. Theory is intended to account for or predict events with a kind of accuracy better than chance and haphazard fashion of act. On the other hand, sound theory must reach and enrich practice, otherwise it is sterile and fails in its central function. Speaking of the mutual

influence between theory and function practice in curricula, Caswell writes:

What is needed is the constant, rigorous testing of theory in practice, the collection of evidence from practice upon which to modify theory, the revision of theory, and the continual retesting in practice. 32

Education and behavioral science

A second source of confusion in curriculum development is a failure to conceive education, in general, and curriculum, in particular, as definitive fields of scholarship. Instead, we have depended, and still depend, heavily on behavioral sciences such as philosophy, psychology, sociology, politics, and so on, to answer the main questions posed for both educational research and practice. Dewey's call for a science of education has been misunderstood and/or misinterpreted. It has been taken to mean direct application of the so-called scientific findings of sociology and psychology, statistics, to mention only a few, to education. Nothing repudiates this notion better than Dewey's original vision:

To suppose that scientific findings decide the value of educational undertakings is to reverse the real case. Actual activities in educating test the worth of scientific results. They may be scientific in some other fields, but not in education until they serve educational purpose,

and whether they really serve or not can be found only in practice. 33

No curriculum worker can deny the contribution of behavioral sciences to education. This contribution is well acknowledged and must be sought for constantly. What must be emphasized is the fact that educational phenomena should be considered in their own particular entities. The educational phenomena are neither identical with the psychological phenomena nor with sociological phenomena. They are distinct and should be investigated in their special context. As a matter of fact, the questions asked in education are different in nature from those asked in behavioral science. In education, for example, one asks what are the proper aims? What kind of experience is most appropriate for achieving these aims, and the like? But behavioral science deals with behavioral phenomena as a natural process. In behavioral science, the question is, "What is?" In education, the question often is, "What should be?" Therefore, it is illogical to deduce the answers for "what ought" from the answers to "what is" in a direct way.

The assumption that there is a direct relation between teaching and learning has been held by many educators. Kilpatrick,

33Dewey, p. 33.
for example, says, "The teacher has not taught unless the child learns."\(^{34}\) The same idea has been voiced by Dewey as he wrote, "Teaching may be compared to selling commodities. No one can sell unless someone buys."\(^{35}\) Taking a lead from the writings of these two distinguished authorities, it was held then theories of learning could serve as a guide in the instructional enterprise.

The instructional phenomena have been taken as identical with, or at least in direct relation to, learning phenomenon and, in turn, theories of the latter are sufficiently applicable to the former.

The fallacy of this notion has been pointed out by Ryle in his differentiation between teaching episodes and learning episodes. He refers to teaching as a "task" word and to learning as an "achievement" word. Each of them represents a different phenomenon from what the other does and, therefore, they should not be confused with each other.\(^{36}\) The significance of this distinction has been referred to by Bruner in the following manner:

I find that the dependence upon learning theory among educators is as touching as it is shocking. The fact of the matter is that the learning theory is not a theory of instruction; it is a theory that describes what takes place


while learning is going on and after learning has taken place.

There is no clear-cut way in which one can derive wisdom, or indeed implication, from learning theory that will guide him in the constructing of curriculum. 37

Bruner goes on to differentiate between learning theory as descriptive and theory of instruction as prescriptive. 38 Thus, we should not imply that mere translation of learning theory, personality theory, or group dynamic theory, into educational technology provides a sound basis for curriculum. This investigator believes that educational setting is unique in both structure and function. It can be reduced neither to "what is" nor to "what ought to be" type of question. The transcendence of this dichotomy must be found in a new synthesis of both.

Singleness of orientation

A third source of confusion is the singleness of curriculum orientation. One often finds that curriculum is perceived in terms of a particular principle or set of principles representing a narrow orientation. Partiality of orientation in curriculum theorizing, planning, and practicing is evident from the persistent


38 Ibid., pp. 524-29.
conflict between the exponents of child-centered curriculum and subject and discipline-centered curriculum. The singleness of orientation is evident from the phrases with which the educational atmosphere is filled such as "teach the child, not the subject," "learning by doing," "learning by discovery," "persisting life situations," "structure," and so on. Macdonald summarizes the situation this way, "We have too long been side-tracked on value positions. Curriculum in some instances has been less a field of study or knowledge than what is more correctly called a position." \(^39\)

It is time for curriculum specialists to stand impartially between the existing fervor of claims and anti-claims. In short, a single orientation will not suffice for adequate theory building and practice.

**Faulty application of principles**

The fourth source of confusion in curriculum is the faulty application of principles appropriate to general education to professional and vocational education and vice versa. Broudy and his associates devote renewed effort to this issue. They argue

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that the most obvious shortcoming of current curricula of general education is found in the great diversity and fragmentation of a curriculum which purports to meet the need for general education for all American youth. The significance of their argument is that diversity in curricula is appropriate to professional and vocational education because of some economic necessities, labor divisions, and professional requirements, but it is improper to apply this principle to a general education program which is designated for all.

Another illustration of the faulty application of a principle appropriate to one type of education to another type is the principle of "maintaining standards." In both vocational and professional education, there are levels of performance which have been achieved over the years of development. These levels of performance determine the content of curriculum and the standards which must be achieved by students. According to predetermined standards, many students will be eliminated from pursuing education in such and such a vocation. A faulty application of the principle of "standards" derived originally from, and appropriate to, vocational education is often made in general

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education. To assume that there are rigid, predetermined and fixed standards in general education means to eliminate for many students the opportunity of general education. Furthermore, such misapplication violates the principle of equal opportunity which is the governing principle of general education.  

Curriculum phenomena

The fifth source of confusion is the apparent disagreement on what curriculum phenomena are. Curriculum is conceived in different ways by different individuals. A sample of various "authoritative" definitions of curriculum serves well to illustrate this point:

1. "Curriculum is the total effort of the school to bring about desired outcomes in school and in out-of-school situations."  

2. "Curriculum is a sequence of potential experiences set up in the school for the purpose of disciplining children and youth in group ways of thinking and acting."

3. "The 'curriculum'--an ugly, awkward, academic word, but fastened upon us by technical custom--is really the entire program of the school's work. It is the essential means of education. It is everything that the students and

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41Caswell, pp. 113-15.


their teacher do. Thus, it is twofold in nature, being made up of activities, the things done, and of the materials with which they are done."44

4. "Everything in the curriculum consists of concepts and their values, performance abilities, habits and symbols to be acquired by the students."45

5. "Curriculum is the learner's engagement with various aspects of the environment which have been planned under the direction of the school."46

6. "The school's curriculum is the total of those situations which are purposely used to produce favored learning responses."47

7. "The school curriculum, [is] the whole body of experiences which condition and make up the total activities of the child for which the school assume responsibility, has been one of the latest of the great social agencies to be markedly affected (in its total aspects) by (1) changing conditions in social, economic, and political life and (2) a changing philosophy and psychology of education."48


8. "The curriculum—is defined as the body of experience to be communicated. It is what the pupil learns and experiences."  

9. "Curriculum is all those experiences of the child which the school in any way utilizes or attempts to influence." 

10. "Curriculum begins with the broad forces of our society and ends with a plan or a commitment to action on the part of the teacher, all this prior to the actual classroom instruction. It includes both a body of appropriate curriculum content and a curriculum process by which it moves from environmental forces to teacher commitment."

11. "Curriculum means a sound calculation and coordination of the ends and the means of education."

This sample of curriculum definitions clearly indicates considerable disagreement on the nature of the curriculum inquiry domain. Some of these definitions equate curriculum with the whole business of education (Nos. 1 and 11). These definitions suffer from their very breadth which makes them nonfunctional. They fail to point to the particulars of curriculum phenomena as distinctive from other educational operations such as administration.

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51 Macdonald, p. 5.

52 Willard B. Spaulding, quoted in Lee and Lee, p. 148.
and guidance. Other definitions confuse or reduce curriculum to learning (Nos. 4, 5, 6, 8, and 9). Still other definitions (Nos. 2 and 10) seem to exclude from curriculum phenomena everything except the statement of objectives and content outlines. They focus on the mechanics of curriculum making. They relegate anything that has to do with teaching and learning to out-of-curriculum domain. In terms of these definitions the output of curriculum may be "teachers' guide, course of study, or daily lesson plan."53

Rugg's definition (No. 3) implies that curriculum has two polars: content and process of handling this content. Such a definition is not of great help. It is an incomplete description. It describes curriculum in its status quo. It does not relate the "things done" to either why or how of curriculum. Therefore, it hardly can be seen as a functional definition.

Stratemeyer's definition compared with others has one merit. It points to the dynamic nature of curriculum through the necessity of its being adapted to the environmental forces: social, economic, and political, and adjusted to some internal forces such as "changing philosophy and psychology of education."

Now it is obvious that these definitions range from the breadth of all the experiences students have in school and out of

53Macdonald, p. 12.
school to the specificity of the content to be learned, teachers’
guide, or course of study. This tendency in dealing with curricu-
lum appears in a very recent doctoral dissertation in which the
author defines curriculum in this manner:

The precise meaning of curriculum will be based on
the content reference. If as an inclusive term it will have
the meaning of curriculum system. If as an exclusive
term curriculum will mean a course of study, a syllable
constituting an instructional program. In this latter sense
the term is restricted to variables directly related to the
subjects, or course of study.  

The real difficulty with this curriculum definition is that it
deviates from the essential requirements of a precise definition.
To define curriculum in terms of two different context references
is to make the definition helpless. With such a definition one
cannot identify the defined phenomena.

Classification must be inclusive and exhaustive and ade-
quate to the purpose for which it is designed.  
The fruitfulness
of a precise curriculum definition enables us to communicate our
concern to another in an economic and productive way. This

54 Thomas L. Faix, "Toward a Science of Curriculum;
Structural-Functional Analysis as a Conceptual System for Theory
and Research" (unpublished Ph. D. dissertation, University of

55 W. Ward Fearnside and W. B. Holter, Fallacy, The
Counterfeit of Argument (Englewood Cliffs, N. J.: Prentice-Hall,
cannot be achieved by defining curriculum in terms of different context references as Faix has done.

**Methodology**

A final major source of confusion in curriculum stems from the fact that we have not yet an adequate methodology of curriculum. In any enterprise as complex as curriculum development, established and tested methodologies are crucial. Methodology serves to indicate what decision-making is appropriate to what point in curriculum theory and practice. Furthermore, it clarifies the criteria on which these decisions should be made. Lack of such methodology is the main factor contributing to the sterility of curriculum. It is not surprising to read in the last issue of *Review of Educational Research* on curriculum planning and development.

Much curriculum research has been unrelated or unrelatable to theoretical frameworks. The resulting dilemma has been both a lack of coherent direction in curriculum research and a failure to provide adequate frame for assessing progress in the field or for correlating research efforts.  

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Summary

This chapter has sketched something of the historical background against which the contemporary curriculum scene must be studied, noting the main characteristics of the revolt against Herbartianism and the post World War II setting. Five of the basic factors currently related to curriculum change were delineated and certain criticisms of curriculum were discussed. In this context, the major fallacies encountered in curriculum theory and practice were identified and explicated.

In the next chapter, the investigator will present the framework in which educational objectives are conceived and stated in the current literature.
CHAPTER III

EDUCATIONAL OBJECTIVES

Educational objectives constitute a critical point in both curriculum theory and practice. It is essential to the framework for curriculum to be developed in this study to examine the "state of the field" in regard to educational objectives.

The terms used to designate this component are "educational goals," "educational aims," "educational purposes," and "educational objectives." Some writers prefer to use "educational goals or aims" to denote the general or the ultimate aims of education, and "educational objectives or purposes" for the specific purposes for which a subject matter or a unit of activity is taught. This differentiation is made arbitrarily and only for convenience. Since the specific objectives stem originally from the general aims of education, one can use these terms interchangeably.

The crucial importance of educational objectives is well acknowledged in literature. They are considered the most significant factor with which curriculum makers must deal. They have been seen by Bobbitt as the guiding principles which lead
curriculum making with "all certainty that is possible in the right directions." In Tyler's words, they are "the criteria by which material are selected, content is outlined, instructional procedures are developed, and tests and examinations are prepared." Saylor and Alexander suggest that the most important process in curriculum planning is the formulation of the aims of education for which the school exists. Taba asserts that curriculum development is a complete undertaking and that decisions must be made about the aims which schools are to pursue and about more specific objectives of instruction.

An Assessment of Recent Statements of Objectives

Among the most noteworthy in the widespread literature on educational objectives are some statements made by official and semi-official committees and commissions in the United States.


The work of such agencies has been expanded and detailed by competent individuals in the field of curriculum.

The first such agency to be influential was the Committee of Ten. The main concern of this committee was the organization of curriculum in various subject matters in secondary schools: English, history, etc. The prime principle of all education in this committee's view was "training." Therefore, in each of the nine conferences organized by this committee, consideration was given to objectives of instruction for a particular area. In this committee's work, subject matters were taken as given in a departmentalized and fragmented manner. Literacy was the aim to be achieved through various subject matters.

The so-called Seven Cardinal Principles were the outcome of the Commission on Reorganization of Secondary Education. Unlike the previous committee, this commission understood its responsibility as defining objectives for the secondary school as a totality and for various subject matters. The purpose of education in this commission's point of view has been derived from the purpose of democracy as follows, "The purpose of democracy is so to organize society that each member may develop his

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personality primarily through activities designed for the well-being of his fellow members of society as a whole."

The Commission went on to say, "Consequently, education in a democracy, both within and without the school, should develop in each individual knowledge, interests, ideas, habits and powers whereby he will find his place and use that place to shape both himself and society toward even nobler ends." The seven principles proposed by the commission as the basic objectives of secondary education were: health, command of fundamental processes, worthy home membership, vocation, citizenship, worthy use of leisure, and ethical character. This commission maintained that the educational program should be integrated.

After 1918 the seven principles were quoted widely as a basic statement of the purpose of secondary education. The remarkable shift made by this commission was its deviation from a concern with subject matter as an end per se, to its utilization as a means for achieving ends in the individual and social life. However, it should be noted here that this commission's


7Ibid., pp. 10-11.
contribution was only in specifying various areas of life to which education must be linked. These areas are hardly to be understood as ultimate objectives or goals of education. They are only various domains of life in which education takes place.

A combination of the positions taken by the aforementioned committee and commission, but not identical with either of them, is found in Bobbitt's viewpoint. He asserted that "education has no purpose than to prepare men and women for activities of every kind which make up or which help to make up, well-rounded adult life."\(^8\) Bobbitt stated very clearly that the prime responsibility of education is "to prepare for the fifty years of adulthood, not for the twenty years of childhood and youth."\(^9\)

Consequently, he developed his well-known plan of activity analysis in which he classified human experience into ten major fields:

1. Language activities; social intercommunication.
2. Health activities.
3. Citizenship activities.
4. General social activities—meeting and mingling with others.
5. Spare-time activities, amusements, recreation.
6. Keeping one's self mentally fit—analogous to the health activities of keeping one's self physically fit.
7. Religious activities.

\(^8\)Bobbitt, p. 6.

\(^9\)Ibid., p. 8.
8. Parental activities, the upbringing of children, the maintenance of a proper home life.
9. Unspecialized or non-vocational practical activities.
10. The labors of one's calling.¹⁰

In such a work, educational objectives were looked upon as normative standards developed by adults and willed for students. Childhood and youth are to be sacrificed for adulthood. Moreover, in Bobbitt's view, what "ought to be" is advocated as given without any concern with "what is." Childhood and youth was thought of as separate from adulthood, with the continuing growth of personality ignored.

The most widely quoted statement on educational objectives is that work developed by the Educational Policies Commission. In its 1938, The Purpose of Education in American Democracy,¹¹ this commission identified four major groups of objectives: self-realization, human relationships, economic efficiency, and civic responsibility.

The commission speaks of these areas as "vantage points from which to study the purposes of education."¹² It admitted

¹⁰Ibid., pp. 8-9.
¹²Ibid., p. 47.
that the school is only one of the many educational forces working on these various areas of human life, but the weight of education in some areas rests on the school more exclusively than in others. Therefore, each of these broad fields was analyzed into detailed objectives as follows.  

1. **Self-realization** includes the inquiring mind, speech, reading, writing, number, sight and hearing, health knowledge, health habits, public health, vocation, intellectual interests, and esthetic interests.

2. **Human relationship** was taken to be composed of respect for humanity, friendship, cooperation, courtesy, appreciation of the home, conservation of the home, homemaking, and democracy in the home.

3. **Economic efficiency** was seen as consisting of work, occupational information, occupational choice, occupational adjustment, occupational appreciation, personal economics, consumer judgment, efficiency in buying, and consumer protection.

4. **Civic responsibility** includes social justice, social activities, social understanding, critical judgment, tolerance, conservation, social appreciation of science, world citizenship,

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law observance, economic literacy, political citizenship, and devotion to democracy.

The generality of these objectives led the commission to issue two documents later. The first was in 1948 in which the above set of general objectives were formulated in a list of particular objectives for elementary education. In this statement each broad objective was specified in terms of three dimensions: knowledge, skill, and practice. The second statement (1952) was devoted to objectives for the secondary school. In this statement the commission maintained the Seven Cardinal Principles but restated them in detailed and more usable form under what the commission called the imperative educational needs for youth.

The last statement by this commission was in 1961. The central purpose of education was stated as follows:

The rational powers of the human mind have always been basic in establishing and preserving freedom. . . . They are central to individual dignity, human purpose and national survival. . . .


To help every person develop those powers is therefore a profoundly important objective and one which increases in importance with the passage of time. By pursuing this objective, the school can enhance spiritual and aesthetic values and the other cardinal purposes which it has traditionally served and must continue to serve.  

The aforementioned statements of educational objectives permit one to make the following inferences:

1. Educational objectives were seen in 1894 as obtaining the knowledge inherent in various subject matters and mastering the abilities required thereof. It was assumed, at that time, that transformation of school learnings into life situations would occur automatically. No need was felt for linking the school work to individual and societal needs. Education was equated with training in various subject matters.

2. The Seven Cardinal Principles constituted a notable advance toward seeing the primary function of education as embodied in human experiences manifested in everyday life. The main source from which the Seven Cardinal Principles were derived was "democracy" as understood and practiced in the United States of America. As formulated, the Seven Cardinal

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Principles gave no attention either to the learner or to psychology of learning.

3. The educational objectives as formulated by the Educational Policies Commission in 1938, 1948, and 1952 can be looked upon as an extension and sharpening of the Seven Cardinal Principles. More specific purposes were made, minor purposes were added, and the relevance of these objectives to subject matter were explicated. It must be noted here that Kearney's¹⁷ and French's¹⁸ work in regard to stating educational goals in behavioral terms constitute a progressive step toward precision and exactness in formulating educational objectives for the purpose of testing and evaluation.

Until 1957, educational literature on curriculum reveals that there was a great concern with stating objectives in terms of specified "elements" of knowledge, understanding, skills, abilities, and attitudes to be performed by students in an observable or inferred way. There was awareness on the part of many writers that educational objectives are varied and each objective is multidimensional. There was a great concern with various


aspects of human life. However, a comprehensive philosophy of man in which philosophy and psychology were incorporated was lacking. The behavioristic view of man dominated the scene. The main sources from which educational objectives are to be drawn were not spelled out, with few exceptions.

4. The statement issued by the Educational Policies Commission in 1961 made a remarkable shift in educational objectives. Intellectual powers were conceived as the central purpose of American education. In this statement, human personality has been reduced into its intellectual aspect. The emotional and moral aspects are looked upon as byproducts of the intellectual aspect. Needless to say, this view is reflected in the great effort given now to the so-called "new" curricula, especially in science and mathematics.

The pre-Sputnik era in American education gave attention to the wholeness of the human being, but it reduced the human being to observable and almost overt behavior. The post-Sputnik thinking in American education goes further and reduces the human being to intellect-being.
Curriculum Theorizing in the Objectives Domain

A conference held in 1947 at the University of Chicago was the first sign of the need for an improved theory of curriculum. In the monograph issued on the proceedings of this conference, Herrick expressed the need for curriculum theory to perform the following tasks:

1. To identify the critical issues or parts in curriculum development, and the generalizations which underlie them;
2. To point up the relationships which exist between these critical points; and
3. To suggest approaches that need to be made to resolve these critical issues. ¹⁹

Goodlad asserts that there is a greater need for a "conceptual system" to guide decision making in curriculum. In his words, "A conceptual system is both more than a theory and less than a theory. It is more than a theory in that it identifies the need for, and the relevance of, theory. It is less than a theory in that it only suggests the relevance of specific data." ²⁰


questions developed by Goodlad, with which a conceptual system for curriculum must deal are:21

1. What sources are pertinent for determining educational objectives?

2. What is the relative significance of these sources?

3. How should the desirability of specific objectives be determined?

Answers to these questions have been attempted by many authorities. An analysis of the literature in this connection reveals that there is a fair agreement among those charged with curriculum development as to the sources of educational objectives. A statement made by Tyler represents the mainstream in this regard.22 As to sources of educational objectives Tyler's statement is widely quoted, adopted, or adapted by many authors in the field. The line of his thinking is the same line taken by Taba,23

21Ibid., p. 396.


Macdonald, \textsuperscript{24} and Fox. \textsuperscript{25} The pervasiveness of Tyler's statement permits one to consider it as a representative sample of the "state of mind" in which educators deal with the sources of educational objectives.

Tyler states that there are five sources from which educational objectives must be derived. There follows here a brief discussion of these five.

Studies of the learners themselves

In considering this source, Tyler sees education as a process of changing the behavior patterns of people, and educational objectives as representing the kinds of change in behavior that an educational institution seeks to bring about in its students. Consequently, the needs of the learner must be a source from which educational objectives are to be derived. He differentiates between two meanings of the term "needs." In the first sense of the term, "need" represents a gap between some conception of a desirable norm as seen by adults and the actual status of the learner. The other sense of the term "need" is psychological in

\textsuperscript{24}James B. Macdonald, "Curriculum Theory: Problems and a Prospectus," paper read at the Professors of Curriculum Meeting, Miami Beach, Florida, April 3, 1964. (Mimeographed.)

which the term represents tension within the individual which must be brought into equilibrium in order to maintain normal healthy conditions. He cites various ways in which learners' needs can be studied and from which educational objectives can be drawn. In regard to the conflict between "normative" needs and "psychological" needs, Tyler does not offer any solution.

Studies of contemporary life outside the school

In this connection Tyler presents two arguments commonly raised as to the analysis of contemporary life. First 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 life" in order to avoid waste of time and concentrate on what is important. The second argument centers around the idea that education primarily trains mind and its various faculties, and as life develops the student would be able to use his trained mind to meet the conditions that he encounters. In addition to these two main arguments, Tyler presents three types of criticism commonly directed to using analysis of contemporary life as a source of educational objectives. First is

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26 Tyler, pp. 4-11.

27 Ibid., p. 12.
that identification of contemporary life activities does not lead to their desirability. The second is that life is changing continually and, in turn, focusing on temporary life may make students unable to solve the problems they will face as adults because the problems will have changed. The third is that some of the common adult activities are not in themselves of either interest or concern to children.

The only solution to these dilemmas offered by Tyler is that objectives derived from studies of contemporary life must be checked against other sources of educational objectives and in terms of an acceptable educational philosophy. It must be remembered here that the first source mentioned above in itself, as presented by Tyler, is not capable of making this check. If this does not provide an adequate basis, one might well ask, "What more is required?" Can the remaining sources he identifies supply the missing criteria?

Suggestions about objectives from subject specialists

Tyler suggests that subject specialists should be asked the following question, "What can your subject contribute to education of young people who are not going to be specialists in your field;

28 Ibid., pp. 11-13.
what can your subject contribute to the layman, the garden variety of citizens?"29 Tyler seems at pain with teaching subject matters in elementary and secondary schools as preparation for advanced work to be carried out in the educational stages that follow.30

However, his treatment of the recommendations which may be obtained from subject specialists or from reports made by them does not suggest any criterion upon which curriculum-builders may select from the vast recommendations and demands made by specialists in various disciplines now competing with each other for school's time and effort.

The use of philosophy in selecting objectives

Considering that the aforementioned sources provide more than any school can incorporate in its program, and that some of the objectives derived from these sources are inconsistent with others, Tyler asserts that it is necessary to screen the heterogeneous collection of objectives in order to eliminate the unimportant and the contradictory ones. He offers the use of philosophy as the first screen. To illustrate this operation, he says:

Quite commonly, educational philosophies in a democratic society are likely to emphasize strongly democratic values. For example, one such statement of philosophy

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29 Ibid., p. 17. 30 Ibid.
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.31

Tyler sees that through applying these values some educational objectives will be suggested and others that are inconsistent, or contradictory, with these values are to be excluded. However, he has specified other important issues with which the school must deal in its philosophy. These are (1) material value and success on the one hand and spiritual values on the other, (2) should educated man adjust to his society or should he attempt to improve it? (3) should there be a different education for different classes of society? (4) should public schools aim at general education or at vocational education?32

It seems obvious that Tyler feels that the philosophy of democracy, as he stated it, is not sufficient in guiding the school in selecting the educational objectives; therefore, he specified other additional issues with which the school must deal. It is justifiable to infer that the four democratic values cited by Tyler

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31Ibid., p. 22. 32Ibid., pp. 23-24.
as a philosophy fall short of being comprehensive philosophy that penetrates the context in which education takes place. Raising these issues implies that philosophy of democracy is incapable of solving the dichotomies that are made between material values and spiritual values, individual and society, and between general education and vocational education.

Problems of this kind are central in any school philosophy, and they should be solved in terms of an overarching philosophy of life, of man in society. To these problems Tyler does not provide any solution. At this point, it is fair to conclude that the educational philosophy that Tyler intends to use as a screen is, in itself, in need of a screen.

The use of a psychology of learning in selecting objectives

Tyler maintains that knowledge of the psychology of learning is a second screen through which the suggested objectives of learning should be passed. In his view, it is needed for three purposes: (1) to determine the feasibility and attainability of objectives, (2) to be used in grade placement for objectives, and (3) to judge the conditions requisite for the learning of certain types of objectives.

\[33\text{Ibid., pp. 24-26.}\]
Tyler's confidence in psychology of learning is not supported by what many psychologists see to be the limitations of present-day psychology of learning as a guide to educators. Here is a fair sample of their testimonies. Hilgard states that "there are no laws of learning that can be taught with confidence." The same assertion is made by Bugelski, "There is as yet no completely worked-out system of learning theory that can be readily applied." Writing on the lack of relevance of psychology to education, Coladarci says that "the basic difficulty lies in psychology itself, that the field is not yet sufficiently mature to provide reliable data and insight for the educators." Speaking of psychology in its application to social sciences, Frank asserts that "Its [psychology's] different and often conflicting schools can be cited to support a variety of different economic, political, and social policies." Education is no exception. Cronbach reminds


educators that "Psychology, too, is a growing and shifting field, offering you its present insights into man's nature but not a set of immutable principles."38

After an intensive examination of the influence of learning theories on education in the first half of this century, McDonald concludes, "Certainly, psychologists do not create theories to be acceptable to nonpsychologists. On the other hand, there seems no good reason for educational theory to be committed to any single psychological theory short of a comprehensive science of man."39

In view of these quotations from authorities in the field of psychology of learning, one is less than fully equipped to use the second screen suggested by Tyler to pass educational objectives through in order to find the most desirable, feasible, and attainable objectives. At this point, one is impelled to conclude that Tyler's design as far as educational objectives are concerned is of little help.

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Reducing an Objective to a Behavioristic Term

Many writers believe that one of the criteria against which educational objectives are judged is the capability of objectives to be reduced to behavioristic terms. Smith, Stanley, and Shores state that, "In fact the meaning of an objective is not clear until its meaning in terms of actual behavior is known," and "Objectives that can not be put in terms of human behavior are invalid." Tyler adds a new dimension to this criterion in the following way, "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 behavior is to operate."

His two-dimensional chart in which objectives classified by description of behavior on one dimension and of content on the other is well-known. Some adherents of stating objectives in behavioral terms see an objective as a description of a pattern of performance. They, therefore, insist that statement of educational

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41Ibid., p. 122.

42Tyler, p. 30.

43Ibid., p. 49.
objectives must denote measurable and observable attributes, otherwise it is impossible to determine whether or not the program is meeting the objectives. According to this view acceptable standards of performance should be specified by specialists, and students' performance should be evaluated against these standards.44 Criteria for evaluation in this view are time and numbers of product.45

Comments on this view are in order. To insist that educational objectives should be stated in observable and quantitatively measurable attributes is to assume that all aspects of human behavior are observable and that we have reliable techniques for evaluating them. Indeed, this is an assumption with which many disagree. Measuring student performance in terms of predescribed standards is to depersonalize learning. In fact, one of the main characteristics of learning is that it is personal. In Frazier's words, "Everyone strives as he can to learn what he feels he needs to know."46 To limit the value of learning to what the student performs is to limit learning to a product or a

44 Robert F. Magner, Preparing Objectives for Programed Learning (San Francisco: Fearon Publishers, 1962), pp. 3 and 44.
45 Ibid., p. 49.
very simple and one-sided process. This concept of learning implies that learning is the acquisition of information about external things in terms of standardized products. Increasingly, however, learning is viewed as a highly complex process, an experiencing, which is multidimensional and timeless. It should not be evaluated in terms of a product or a right answer alone. In Taba's words, "Right answers may even be less important than adequate processes of arriving at them."47

To formulate educational objectives in terms of behavioral terms is to confine learning to covering material and acquisition of a skill in a limited time, and to ignore both learning by discovery and intuitive thinking, which are characterized by a very personal style. Furthermore, to evaluate a student's performance in terms of time and quantity is to tell how fast and how much he performs, and this does not tell anything about his capability for insight, his ability to relate what he learns to what he already knows, his ability to create, his patience to stay with an unfamiliar situation long enough to make sense out of it.

Now, let us turn to Tyler's two-dimensional model of stating objectives. This model has the advantage of greater clarity and specificity in which the complex behaviors are analyzed

47Taba, p. 154.
into their particulars. This advantage has been manipulated fully in Bloom's Taxonomy, which will be analyzed later. However, Tyler's model creates some difficulty. The underlying assumption of the two-dimensional chart is that educational objectives should be classified in terms of both behavior and content. It is felt by both Bloom and Taba that this is not an easy task. The difficulty in handling this task stems from the fact that behavior and content are different in nature. This fact led Bloom to state clearly that his taxonomy is concerned only with classifying the intended behavior, not with subject matter or content. Taba asserts that we cannot have educational objectives described and classified in both ways. In her words:

If the types of behavior are used for a basis, the kind of content to which behavior is addressed is bound to be less clearly represented and less systematically sampled. If the content of behavior is used for a basis, the types of behavior involved tend to be obscured, as do the areas of life to which these behaviors are related.

Here again, the educators are caught in another dichotomy between the behavior and its content. Although Taba feels this difficulty, she followed Tyler's model. She speaks of a double


49 ibid., pp. 11-12.

50 Taba, p. 211.
pattern of scope in which a statement of objectives should describe both the kind of behavior and the context to which this behavior applies. She offers this example, "The ability to interpret accurately data on taxation or the ability to differentiate between facts and opinions." She goes on to say, "If the behavior denotes knowing or remembering, the statement of objective should also indicate what is to be known or remembered. If the statement specifies an attitude, then it should also state what the attitude is about."51

At this point, one can conclude that both Taba and Tyler maintain the dichotomy between behavior and its content, and both have tried to bridge the gap between the two concepts in much the same way.

**Taxonomy of Educational Objectives**

Bloom and his associates52 take another line of thinking about educational objectives which differs from that of both Tyler and Taba. *Taxonomy of Educational Objectives* is a remarkable document, widely quoted and adopted. The main purpose of it is to help curriculum builders "to specify objectives

51 Ibid., p. 200.

so that it becomes easier to plan learning experiences and prepare evaluation devices. What has been classified in this taxonomy is the intentional behavior of students—the ways in which students are to behave: act, think, or feel, not subject matter or content.

Educational objectives are taxonomized into three broad domains: the cognitive, affective, and psychomotor. The cognitive domain includes objectives which deal with the recall or recognition of knowledge and the development of intellectual abilities and skills. The affective domain includes objectives that describe changes in interest, attitude, and values, and the development of appreciative and adequate judgment. The psychomotor domain is the manipulative or motor-skill area with which the taxonomy did not yet deal. The objectives related to the cognitive domain were dealt with in Handbook I of this taxonomy. The affective domain is described in Handbook II of this taxonomy.

The assumption underlying this taxonomy is that "educational objectives stated in behavioral form have their counterpart in the behavior of the individuals. Such behavior can be observed and

\[53\] \textit{Ibid.}, p. 2. \quad \textit{54}\textit{Ibid.}

described, and these descriptive statements can be classified."\(^{56}\)

Considering that taxonomization might lead to fragmentation and atomization of educational objectives, this taxonomy was set up at a level of generality with which fragmentation would not be great.\(^{57}\)

The authors state that their taxonomy is a classification system developed in accordance with "educational-logical-psychological" principles. The first importance was given to the distinctions made by teachers and educators between categories of behavior as they plan curricula or choose learning situations. Considering the possibility of conflict between the distinctions made by teachers and those made by psychologists in studying human behavior, the distinction made by the latter group was ruled out by the authors and the distinction made by teachers was sustained on the ground that one of the major values of this taxonomy is to improve communication among educators.\(^{58}\)

It is worth noting that educational objectives have been defined by the authors as "the intended behaviors that represent the social goals imposed upon youngsters by their society or culture."\(^{59}\) In this connection the authors emphasize that this

\(^{56}\)Bloom, p. 5.

\(^{57}\)Ibid., pp. 5-6. \(^{58}\)Ibid., pp. 6-7. \(^{59}\)Ibid., p. 13.
taxonomy "does not include many of the behaviors which psychologists are interested in classifying and studying."\(^{60}\)

The validity of this taxonomy merits examination from different viewpoints:

**The main assumption**

The main assumption underlying this taxonomy is that educational objectives stated in behavioral terms are the counterparts of behavior. This investigator finds this assumption difficult to support. Educational objectives as defined by the authors of this taxonomy are normative standards imposed on the learners by their society or culture. Human behavior by its very complex and variable nature cannot be standardized in a way in which we can claim that this or that statement counters this or that behavior. Educational objectives are always formulated in an abstract way and in linguistic assertions. They represent our talk, or description, of the behavior at different levels of abstraction. The behavior, itself, is what the individual experienced or is experiencing. Our tool of describing this behavior is language. Language, unfortunately, is inadequate to describe reality in its totality and fullness of being. This point will be pursued further in this study.

\(^{60}\)Ibid.
The psychological basis of Bloom's Taxonomy

As to the psychological base of this taxonomy, the authors themselves, as has been mentioned earlier, testified that they are not concerned with classifying educational objectives in which psychologists are interested and are studying. This tendency has led them, for example, to consider the cognitive only from the point of view of the operations employed in cognition (recall, analysis, evaluation, synthesis). They assume that the main factor in cognition is the process. Guilford's work on the structure of intellect repudiates this assumption. He has shown that there are three dimensions of intellect: (1) operations (cognition, memory, divergent thinking, convergent thinking, evaluation), (2) product (units, classes, relations, systems, transformation, implications), and (3) content (figural, symbolic, semantic, behavioral).

The implication of Guilford's work for educational objectives is that if education has the general objective of developing students' intellects, then each intellectual factor is capable of providing a particular objective at which educators aim. This kind of

psychological classification of intellect is not shown in Bloom's Taxonomy although it is very important. Furthermore, classification of the cognitive domain by type of learning as presented in this taxonomy [(1) knowledge requiring recall, understanding, (2) comprehension, (3) apprehension, (4) analysis, (5) synthesis, and (6) evaluation and judgment] means that this taxonomy is concerned only with already-known and presented problems. This implies that there is little or no room in the educational objectives for discovery and intuitive thinking.

This taxonomy has been modeled according to the logically distinct steps of thinking asserted by Dewey since 1910 in the first edition of his How We Think. To clarify a common misinterpretation, it must be mentioned here that Dewey emphasized that the sequence of the five steps is not fixed. In his words, "The five phases, terminals, or functions of thought do not follow one another in a set order."62 It also must be mentioned that Dewey found it difficult to honor the value of non-logic or "playfulness" in thinking. He asserted, "It is necessary that the play attitude should gradually pass into a work attitude."63

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At any rate, one should not think of cognition in terms of Deweyian problem-solving behavior. Harlow, in his analysis of problem solving, suggested that the formal steps attributed to Dewey can be considered only as a statement of a "scientific method not a description of how people think." Rugg, in his research into the sources and the conditions that stimulate creativity, has indicated that since the first edition of Dewey's *How We Think*, educators were set on the track of problem solving and have neglected the prior phase, namely, the discovery of the problem. To limit the cognitive domain to problem solving as it had been done in Bloom's *Taxonomy* is to narrow the scope of problems to the known and given problems. Libby identifies the following eight different types of problems:

1. The problem is given (is known) and there is a standard method for solving it, known to the problem-solver (student, experimental subject) and to others (teacher, experimenter) and guaranteeing a solution in a finite number of steps.

2. The problem is given (is known) but no standard method for solving it is known to the problem-solver, although known to the others.

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3. The problem is given (is known) but no standard method for solving it is known to the problem-solver or to the others.

4. The problem itself exists but remains to be identified or discovered (become known) by the problem-solver, although known to the others.

5. The problem itself exists but remains to be identified or discovered (become known) by the problem-solver and by the others.

6. The problem itself exists but remains to be identified or discovered (as in 4 and 5) and there is a standard for solving it, once the problem is discovered, known to the problem-solver and to the others (as in 1).

7. The problem itself exists but remains to be identified or discovered, and no standard method for solving it is known to the problem-solver, although known to the others (as in 2).

8. The problem itself exists but remains to be identified or discovered, and no standard method for solving it is known to the problem-solver or to the others (as in 3). 66

The significance of this view of the wide range of problems for educational objectives is that one should give balanced room for what is known and what is unknown in problem situations, to the presented problems and the problems to be discovered and to become known.

Bloom's Taxonomy deals only with type one and partially with type two in Libby's list of types of problems. To consider

the known and unknown problems requires us in formulating objectives, in preparing instructional material, and in instruction in all fields to give equal attention to thinking, reasoning, imagining, reflecting, judging, conceiving, and problem solving. This is exactly what has been ignored in Bloom's Taxonomy. It is of great importance in all aspects of curriculum development and implementation to give a place for proverbial types of cognition: metaphorical, concrete experience, intuitive, and esthetic.

**The logical basis of Bloom's Taxonomy**

The second importance in this taxonomy, as the authors stated, was given to the logical principles. This needs to be analyzed if it is to fulfill the requirements of an adequate conceptual tool in curriculum building efforts.

The general function of a taxonomy is to separate classes involved in a complex situation according to their similarities to and differences from each other, and then to put each group of elements, parts, and classes under a distinct category, with subcategories derived in the same manner. There are logical rules that govern classification. Here are some such rules and their application to Bloom's Taxonomy.
1. The classification must be exhaustive in that it takes into account what is involved in the whole situation without leaving a remainder.\(^67\) This rule has been violated in this taxonomy. In the cognitive domain different types of cognition have been left out such as intuitive cognition, metaphorical cognition, and esthetic cognition.

2. The classification must be inclusive in that it must prevent putting something under two coordinate headings.\(^68\) This rule also has been violated in this taxonomy. Certain elements in the taxonomy were put under the cognitive category and the same elements were put again under the affective category. The testimony of the authors themselves to this fact is in order here, "We have not succeeded in finding a method of classification which would permit complete and sharp distinction among behaviors."\(^69\)

This fact has been stated again in the second handbook of this taxonomy in the following:

"The fact that we attempt to analyze the affective area separately from the cognitive is not intended to suggest that there


\(^68\)Ibid., pp. 36, 38, and 39.

\(^69\)Bloom, p. 15.
is a fundamental separation. There is none.\textsuperscript{70} They have quoted many authors stating that behavior is a cognitive-emotional-motivational matrix in which no true separation is possible. Thus, one errs when he thinks that cognition has little or no connection with affection. No matter how one analyzes behavior, its wholeness and dynamism as cognitive-motivational-affective are always present. What this taxonomy presents is a dividing operation, neither logical nor psychological taxonomization.

**The Either-Or Fallacy in Educational Objectives**

The foregoing discussion indicates that the present frame of reference from which educators approach curriculum development and, more specifically, the formulation of objectives can be characterized as a bi-polar orientation. Many types of dichotomy present themselves at various points in curriculum discourses. They are different in formulation, but their original nature is the same. By the way of summarizing, here is a sample of either-or thinking: nature vs. human nature, normative needs vs. psychological needs, cognitive vs. affective, external forces vs. internal forces of the human being, scientific thinking vs. imaginative thinking, liberal education vs. vocational education,

\textsuperscript{70}Krathwohl, Bloom, and Masia, p. 45.
convergent thinking vs. divergent thinking, expository teaching vs.
hypothetical teaching, childhood and youth vs. adulthood, "knowing
that" vs. knowing how, "irrationality of man vs. his rationality,
national interest vs. world interest, spiritual values vs. material
values, behavioristic psychology vs. depth psychology, and facts
vs. values. This list could be extended in many directions with
additional examples from professional writing.

This type of unwarranted versus thinking presents itself
nowadays in most of the sciences of man: sociology, psychology,
anthropology, economics, politics, and, of course, education is
no exception. Members of the academic community handle human
affairs with compartmentalized and conflicting states of mind.
The channels of communication among them often are shut off
because of the high degree of specialization which exists in each
field. Each group claims that it holds the whole truth and calls
upon other groups to follow it. This situation, indeed, results in
a remarkable but undirected change in this or in that aspect of
man's life.

Sources of Confusion Related to Educational Objectives

The crisis in which education finds itself, generally, and as
one formulated educational objectives, in particular, stems from
three distinct, but interrelated, sources. These sources
are: (1) narrow conception of human civilization, (2) reductionism of human nature, and (3) lack of understanding the nature and the function of the educational objectives.

**Narrow conception of civilization**

Many people in charge of the educational enterprise tend to think of civilization in a localized term. Frequently, western civilization is thought of as separate from eastern civilization and vice versa. Some go further in this tendency and speak of American civilization within the western civilization. Although he devotes a chapter in his book to "World Community," Counts titled one of his books *Education and American Civilization*.

Localization of man's civilization is a reflection of only the first half of Kipling's quatrain:

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Oh, East is east and West is west
And never the two shall meet.
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Nowadays, one should read and reflect on the second half of this quatrain:

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Till earth and sky stand presently
At God's great judgment seat.
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Certainly man in the second half of the current century has brought all earth, if not sky, to some sort of judgment. Today's world is shrinking and becoming smaller and smaller. The advanced technology which man has achieved and, especially, nuclear weapons
and the modern ways of communication created a very fearful situa-
tion in which the inhabitants of any part of the world dare not ignore
what is going on in other parts of the world. This situation is
awakening man to his real nature as man, as a representative of
human beings everywhere. To be civilized implies a feeling that
transcends local limitations, something that belongs to humanity
as a whole.

The recent comparative studies in various fields of man's
sciences should convince us to make a radical shift in our con-
ception of man's nature and man's civilization. The heart of the
findings in these studies points out that none of the existing idea-
systems by which men have explained the universe to themselves
can be claimed as exclusively true at the expense of all others.

Reviewing these studies in detail is beyond the scope of
this inquiry. However, even arbitrarily chosen, a sample of
conclusions from these studies seems imperative.

Sociological and anthropological
studies

For a long time, sociologists and anthropologists conducted
their research in terms of cultural relativism. There was no
scientific way for handling cultures in general terms. Each cul-
ture seemed to be quite different from any other culture. Every
culture was conceived as idiosyncratic. Culture was thought of as the determinant of human behavior and the term cultural determinism was coined. The relativistic hypothesis raises the question of the extent to which there exists a human nature which has a shape of its own regardless of culture, a shape that exists prior to cultural configuration. Many authors addressed themselves to this challenging question. Here is a random sample of their conclusions.

Asch has criticized the relativistic hypothesis in its application to the development of ethical values on the ground that it assumes that a human being is a "dynamically empty organism, lacking directed forces toward nature and society." In his view, the relativistic hypothesis failed in describing the concrete cognitive and emotional operations that one encounters in his social setting.71

While emphasizing the powerful role of culture in patterning human behavior, Mead assumes that there is some sort of underlying organization, common to all men, with which culture may interact but may not eliminate. According to her, this assumption

helps us to understand "those widespread similarities in cultural behavior which occur in different parts of the world at different levels of cultural development." 72

Writing on the variants and constants in the human record, Kluckhohn says:

The constants presumably reflect our common humanity; they arise out of the biological nature of the species and the necessities imposed by aspects of human conditions (generalities of the physical environment, helplessness of infant, family life and the like). 73

He states some postulates that are entering all anthropological fields as follows:

1. The logic (i.e. the fundamental processes of reasoning) of all people is the same, but the premises and basic categories are somewhat different. Different premises likewise lead to different epistemologies.

2. Human nature is in some sense the same throughout space and time. This does not signify, as common sense tends to assume, that similar stimuli will regularly produce similar responses. 74

The well-known anthropologist, Benedict, stressed cultural relativism in her Pattern of Culture. Reporting on her


74 Ibid., p. 274.
latest work, Maslow asserts that she was very irritated by those who identified her book with this doctrine. From his own studies and the latest work done by Benedict, Maslow concludes that different types of behavior such as aggression and altruism are found in both the so-called underdeveloped cultures and the most advanced cultures in different ways. He asserts that cultural behaviors may differ if they are looked upon as overt behaviors, but the functions of behaviors are the same in different types of cultures. 75

Comparative studies on race and psychology

At one time various individuals, even scientists, attempted to admit that some races and peoples are inferior to others. Klineberg, in a pamphlet sponsored by UNESCO, 76 has dealt with this claim from the psychological viewpoint. The heart of his work was to compare the results of various psychological tests given to children from different origin and races living in


different cultural settings. The highlights of his conclusions may be summarized in what follows:

1. On the relation between physique and mentality, he concludes that none of the anatomical or structural differences which have been used in racial classification have any meaning as clues to mentality. There is no such difference in the general intelligence which can be attributed to race as such.\(^77\)

2. As to the upper limits of mental ability there is no support from research to the view that some races produce more outstanding individuals in their mental abilities than others.\(^78\)

3. There is no scientific basis to support the notion that individuals of certain race or ethnic origin surpass individuals from other races in the rate of their mental growth.\(^79\)

4. For specialized and specific mental abilities there is no difference which can be claimed as caused by race.\(^80\)

5. As to the aspects of human beings which might be called non-intellectual traits such as differences in personality and temperaments, we might find differences, but they are inconsistent and appear to be related definitely to factors in the social environment rather than to biological differences among races.\(^81\)

\(^{77}\)Ibid., p. 27. \(^{78}\)Ibid., p. 28. \(^{79}\)Ibid., pp. 31-32.

\(^{80}\)Ibid., pp. 32-33. \(^{81}\)Ibid., pp. 33-34.
6. As far as abnormal behavior (crimes, suicide, etc.) and mental diseases are concerned, no racial factor has been discovered to be responsible for abnormality.  

It should be mentioned here that these findings are not offered in order to deny the psychological differences among people from different races and different ethnic groups. The contention is that psychological differences among people from different races and cultures are not more than differences that exist among people from the same culture and same race.

**Psychology of perception and conception**

Many adherents of cultural relativism think of culture as the determiner of the individual perception, conceptualization, values, and motives. In this respect, they emphasize the role of the particulars in culture and minimize what is universal among the human species. After a long discussion and intensive examination of the pros and cons of this point of view as represented in research, Fearing comes up with this conclusion:

Although more data and further systematic studies are needed, the evidence seems to be conclusive that there is a type of cognition in which the individual is in immediate contact with the external world, that in its simplest form it is probably the same for all men.

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82Ibid., pp. 36-37.
irrespective of culture, and the symbolic process including language, are not necessary for it to occur, although when linguistic patterns are available they may be utilized to express it, probably in the form of metaphors.83

The foregoing studies were offered to support the idea that in education we need to break through the boundaries of culture and educate for common humanity and one world civilization. The psycho-philosophical orientations of this new education will be dealt with in a later section of this inquiry. At this point and in the light of the conclusions made by a considerable number of scholars in different fields of man's sciences, it is justifiable to conclude that the smallest unit we can educate is man as representative of all men everywhere. This is the only approach through which we can transcend all dichotomies with which we are struggling. It has been demonstrated that curriculum workers, especially in the formulation of objectives, have been struggling.

Reductionism of human personality

Educational literature is filled with different aspects of reducing human personality into one or more of its essentials at the expense of others. A remarkable reduction has been made as has been shown earlier by the Educational Policies Commission

in 1961. In its statement the Commission emphasizes that the
development of "intellectual powers" is the central purpose of the
school. The affective aspects are looked upon as byproducts of
intellectual powers. This position has been taken for several
reasons. Among them, its being a counter act to the trend that
dominated the educational scene in America in the 1940's and
1950's in the name of progressive education in which "child
interest" was mistaken by many people to mean present, felt
happiness.

The current trend as presented by the Educational Policies
Commission reduces personality to its cognitive aspects, while
the trend of the 1940's and 1950's reduced it to its affective and
emotional aspects. The implications of this reductivity have
presented themselves in several ways. Human personality is
reduced by some people to encompass only the ability for critical
and scientific thinking, and by others to imaginative and creative
powers. In all kinds of reductionism, some of the characteristics
of human personality are seen as opposed to other characteristics,
conscious vs. unconscious, rational vs. irrational, spiritual
values vs. material values, and the like.

With any type of reduction, personality is fragmentized, its
fullness and wholeness are lost, and its continuity and dynamism
are ignored. Needed in education is a conceptual framework that is applicable to the varied attributes of man's life and man's civilization with diverse cultures. This conceptual framework must be capable of reconciling persistence of change with progression, unity with variety, the internal forces with the external forces, conscious with unconscious, rational with both non-rational and irrational, cognitive with affective, etc. The capability of making this reconciliation must be shown at all levels of human organizations: individual, group, society, and common humanity, using the same rationale.

Lack of understanding the nature of objectives

Educational objectives are looked upon as a yardstick against which learning "outputs" should be judged. Great efforts have been made and are being made to formulate educational objectives precisely in order to eliminate as much as possible personal bias and subjective opinion in their interpretation. Bobbitt, Tyler, Bloom, Taba, and others have tried to develop a kind of methodology for determining and formulating the educational objectives as has been shown earlier in this chapter. The efficacy of Tyler's and
others' methodology has been tested recently by Ammons' research. 

The problem of the Ammons' investigation was to test the assumption that use of a method recommended by authorities to develop objectives results in better objectives than use of another method. The null hypothesis tested was that there is no significant relation between the quality of the methods used to develop educational objectives and the quality of objectives resulting from use of the methods. In other words, she tested the assumption that quality of objectives is dependent upon the method used to determine them. Her research was administered in 77 school systems. It is worth mentioning that her research is empirical, not experimental, in nature. Among the findings of this research are the following: 

1. The process used to develop objectives is not related to teachers' use of the objectives.

2. School systems which participated in this study do not follow a process recommended by authorities to develop their educational objectives.

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85 Ibid., p. 4. 86 Ibid., pp. 171, 176, 178, and 185.
3. Some systems do not have objectives to guide their program.

4. Teachers in this study appear to base their instructional program on what they customarily have done and/or textbooks rather than on the system's statement of objectives.

5. Teachers may regard objectives and their development as an unavoidable nuisance desired by administrators and, therefore, may not take objectives themselves seriously.

6. The amount of education received by teachers does not affect their attitude toward objectives.

7. There is no guarantee that specific activities provided in response to the statement of an objective would be related to what is actually intended by the stated educational aim.

Speaking of the implications of her research to educational objectives, Ammons states:

For the community and/or the administration to rely upon teachers' individual interpretations of vague objective without some knowledge of instructional program which will result is for them to act irrationally, or at best on blind faith. 87

What Ammons is calling for is a translation of educational objective statements into instructional programs. This is what

87 Ibid., p. 177.
Tyler and others have called for. Paradoxically, this is what Ammons' research has shown to be of little value.

The missing, basic, and important question was neither asked by Ammons in her research nor raised in the implications she mentioned. The crucial question which must be asked first in any educational discourse or educational research related to educational objectives is, "What is the nature of what we call educational objectives or goals?"

Educational goals, as any organizational goals, are a desired state of affairs described in a linguistic manner at different levels of abstraction. Outputs of the educational program are usually related in some sense to, but not identical with, the educational objectives. The efficiency of educational objectives can not and should not be judged by their linguistic precision. Precision of objectives statement does not make much difference in the output. What makes the major difference in a unit of output is the richness of resources used to produce this unit.

The resources that produce educational outputs are several. Essential among them is the producer himself, namely, the learner: his experiential background, capacities, ambitions, self-concept, and others' concept. No matter how precisely educational objectives are stated, the accuracy of the output stems
from a quite different realm, that is, of reality, from the learner; what he has experienced, and what he is experiencing.

Educational objectives belong to the realms of language and abstraction, but the real outputs of education belong to reality, to concrete experiences undergone or potential experiences to be engaged in by the learner. Educational objectives are mere assertions made by adults in somewhat abstract terms. For instance, some of the objectives frequently accepted are "intelligent choice," "democratic person," and "good citizenship." Stating objectives in such a way represents concepts of theoretical knowledge that constitute merely an upper stratum of logic based on lower strata. To illustrate the nature of what we call educational objectives, we offer a diagram of an abstraction ladder which we follow, unaware, in our thinking about educational objectives (Figure 1).

This diagram illustrates that in every step up in the abstraction ladder we are only concerned with what we perceive as major similarities and leave out some of the main characteristics that take place in the real being of Johnny.

The trouble we face in so doing is expressed by Larrabee this way, "We are likely to fall into the delusion that what we have omitted has ceased to count or even exist. Constant reminders
6. Democratic

The word "democratic" is externally the highest level of abstraction with which all the unique characteristics of Johnny are omitted.

5. American citizen

We are here concerned only with the place of birth. Most of the characteristics of Johnny are omitted.

4. First grader

First grader is a "construct" which we make out of the similarity of age among \( J_1, 2, 3 \).

3. Child

The word "child" stands for some characteristics of Johnny when he is compared with Johnny\(_1\), Johnny\(_2\), and Johnny\(_3\). "Child" is a construct and nothing more. In making this construct we are concerned only with the similar characteristics of \( J_1, 2, 3 \). Many of the unique characteristics of Johnny are left out.

2. Johnny

Johnny is not the word "Johnny"; the word is the name given to the large and very complex system which we know of in the first step. His special characteristics are left out.

Human being

Human being known to scientists consists of various systems, atoms, and electrons. His characteristics (presented by infinite signs) are ever changing.

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Fig. 1. Abstraction Ladder

Read from the bottom up.

are needed in order to keep alive our sense of individual differences among hundreds of . . . students." 88

The significant function of abstraction is that it prepares a logical form in which we can speak of Johnny. The concrete experiences in Johnny's being are transformed into general statements. The here-and-now-being of Johnny is not the photo we take of him or the statements we make about him. Johnny is an alive system with a great wealth of given properties and experiences of which we have little direct and acquired knowledge. Our talk about his "is-ness" or "ought-ness" is made through our inadequate observation and abstracted in an inadequate symbolism; language or any other way of formulation in which our perception and/or conceptions of him are expressed.

What does all this mean to educational objectives and evaluation?

1. Granted that in abstraction-making we posit the properties of the subject or subjects in question as we perceive and/or conceive them and then give them a "name" or a "label," should refrain us from claiming that our "denoting" is the real property of the subject in question.

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2. Since we have no way other than speaking in a linguistic manner, we should always bear in mind that language is inadequate for describing the total reality. Maslow remarks that--

What we call "knowledge" (which is usually highly abstract, verbal and sharply defined) often serves to blind us to those portions of reality not covered by abstraction. That is, it makes us more able to see some things, but less able to see other things. Abstract knowledge has its dangers as well as its uses.89

3. In formulating educational objectives, in making diagnosis of children's needs, and in evaluating their abilities and achievement in whatever symbolic form it may be, we should realize that our abstraction always falls short of complete description. We should realize that we are speaking from outside the real world of the subject-being. If this is so in all our educational tasks, then, we should allocate a considerable room for self-goal, self-diagnosis, self-evaluation, and self-logic. In Moustakas' words, "Every individual is logical in the context of his own personal experience. His point of view may seem illogical to others when he is not understood."90


Educational Objectives: The Master or the Servant?

This strong question is meant to differentiate between two modes of thinking about educational objectives; namely, goal model and system model.

In a goal model, objectives are thought of as the master and the organization (school, teachers, and students) as their servant. Educational objectives are set up, formulated in a behavioristic manner and then comes, at last, the evaluator or the examiner to measure the efficiency of the individuals (a school system, school, teacher, or student). The potential pitfalls of this approach are:

1. We set up predetermined standards (goals) and assume that they must be achieved, otherwise the agent or agents are to be criticized. Analogically speaking, we prepare the food (true, this is one of our responsibilities) and assume that it is, with some variations, fitting to everybody, everywhere, and at all times. Such assumption leads us to monopolize schools, teachers, and students to serve the goals by all means and at all expenses. Consequently, this may be done at the expense of the psychological health, morale, and creativeness of the people involved. The widespread phenomena of cheating, committing suicide among students, and teacher turnover is a case in point. In such a way
we personify the goals and dehumanize the people. There is a considerable likelihood of distortion of one kind or another.

2. In the goal model, it is assumed that we have reliable and trustworthy knowledge of all variables involved in the instructional situation, and we can see at the initial point of curriculum development the location of these variables and their minimum and maximum power. Moreover, the focus in the goal model is made upon the individual components of the situation (knowledge, teacher, and students) in an abstract way. The power that comes from the transaction among these components is neglected.

In contrast with the goal model, the system model always assumes that there are invisible and unexplicable factors in the instructional situation. There are unknown forces operating in the system, and there is no definite location of the power of the sources contributing to the effectiveness of the system. In this approach the food is prepared, but the fittings are left to the individual. In some cases they will suggest other kinds of food and/or other ways of preparation in which they may participate. The psychological health of each participant is taken into account. Moreover, the relatedness of the quality of the transaction is considered and allowed to contribute to the vitality and the aliveness of the system. In comparison, the goal model may be
characterized as closed and potentially destructive, although it may be measured by outsiders (examiners, teachers, and evaluators) as efficient. In contrast, the system model is open and flexible.

Summary

This chapter was devoted to the framework through which the educational objectives have been conceived, formulated, and taxonomized. The stated educational objectives made by some educational agencies in the United States in the last sixty-five years have been examined. Curriculum theorizing related to educational objectives has been sampled by Tyler's model and Bloom's taxonomy. The shortcomings of the former have been explained and some pitfalls in the latter have been pointed out. The investigator has identified three sources of confusion related to educational objectives—namely, narrow conception of civilization, reductionism of human personality, and lack of understanding of the nature of objectives. The first source was explicated in terms of the findings of research in various aspects of human life. The second source was sketched. The investigator, then, has explained the real nature of objectives accompanied by some implications for their stating and evaluation. Finally, he has delineated and differentiated between two models of thinking about educational objectives—namely, goal model and system model.
In the next chapter the investigator shall present a new perspective or conceptual framework for educational objectives in terms of "system model."
CHAPTER IV

A NEW PERSPECTIVE FOR EDUCATIONAL OBJECTIVES

Attention was given in the preceding chapter to the framework in which educational objectives commonly fall. The investigator demonstrated that stated objectives, by their very nature, do not and cannot determine either the student's or the teacher's behavior. They may guide the educational endeavor, but they are not its determinant. This does not mean that educators should cease thinking about educational objectives. Instead, it means that a new perspective for educational objectives is needed and a different way of formulating them is required. A delineation of what is involved in developing such a perspective and in making more adequate formulations is the major task of this chapter.

Concept of Man: An Inescapable Question

Man--the empty container

Educational objectives cannot be formulated without either an explicit or an implicit conception of man. In this regard,
many assert that educational objectives represent the desired behaviors imposed on children and youth by their culture or society. In this view, man is conceived as an "empty container" to be filled up by the society, or the culture, in which he lives.

Advocates of this conception are found in the past as well as among contemporary scholars. Herbert Spencer, for example, wrote:

The great man must be classed with all other phenomena in the society that gave him birth, as a product of its antecedents... The great man may be the approximate initiator of changes... But if there is to be anything like a real explanation of these changes, it must be sought in the aggregate of conditions out of which both he and they have arisen.¹

The same viewpoint is expressed currently in various fields. Among such contemporary exponents is Skinner, who advocates the following in dealing with human behavior.

The practice of looking inside the organism for an explanation of behavior has tended to obscure the variables that are immediately available for a scientific analysis. These variables lie outside the organism, in its immediate environment and its environmental history.²

The essence of Skinner's position in studying human behavior is that what is needed to be known is the relation between cause


and effect in human behavior. Then, this relationship must be expressed quantitatively in the same manner followed in natural sciences. He believes that this is the only way to get a comprehensive picture of man as a behaving system. In his words, "This must be done within the bounds of a natural science. We cannot assume that behavior has any peculiar properties which require unique methods or special kind of knowledge."\(^3\)

The nullification of the individual reaches its peak in Skinner's opinion as he asserts:

As scientific explanation becomes more and more comprehensive, the contribution which may be claimed by the individual himself appears to approach zero. Man's vaunted creative powers, his achievement in art, science and morals, his capacity to choose and our right to hold him responsible for the consequences of his choice—none of these is conspicuous in the new scientific self-portrait.\(^4\)

In line with this point of view, one finds terms such as "psychological determinism," "cultural determinism," and S-R theory of learning as described by E. L. Thorndike, Clark L. Hull, Edwin R. Guthrie, and John B. Watson with some minor variations among them.\(^3\)

\(^3\)Ibid., p. 35.

\(^4\)Quoted in Huxley, p. 97.
Implications of conceiving man only as a product of his culture and as "responder" to cultural or societal stimuli are many. They can be traced in many of the social sciences: psychology, anthropology, politics, economics, management, and education.

This view of man stems from the dualistic doctrine which has led to many dichotomies: mind vs. body, matter vs. idea, natural sciences vs. arts and humanities, facts vs. values, objectivity vs. subjectivity, and the like. Analysis of this conception of man is of crucial importance to education. Especially is it critical in the matter of developing educational objectives.

The key assumptions underlying the behavioristic view can be stated as follows. People living together in groups come to control one another through what can be called "social ethics." Techniques through which control is made are reinforcement (admiration, approval, affection, etc.) and punishment (criticism, blame, censorship, and the like). The purpose of studying human behavior is to predict and control the behavior of individuals. Behavior is "the movement of an organism or of its parts in a frame of reference provided by the organism itself or by external objects of fields of force."\(^{5}\)

Given these assumptions, the only way to study human behavior is to follow the same methods of study used in natural sciences. "An organism can be reinforced by—can be made to 'choose'—almost any given state of affairs." And consequently, man is no exception. Human behavior has no peculiar properties which require a unique method or special kind of study. The culture most likely to survive is the one in which methods of science are applied effectively to the problem of human behavior. The variables involved in human behavior are likened to the variables of any other science. The behavior of an individual represents the dependent variable in any human situation and the independent variable consists of external conditions of which the behavior is a function.

In other words, human behavior operates according to the environmental conditions that generate consequences. The laws of psychology are as definite as those of any other science. "It is decidedly not true," says Skinner, "that a horse may be led to water but cannot be made to drink." Through applying the

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8Ibid., p. 32.
law of severe deprivation, it could be made absolutely sure that drinking would occur. Accordingly, a desired human behavior can be caused in a human being.

Behavior is always caused and determined by external cultural forces. The main concern in studying human behavior is to know the causes of behavior. By discovering these causes and analyzing them, "we can predict behavior; to the extent that we can manipulate them, we can control behavior."\(^9\)

Consequently, in formulating the educational objectives there is no place for any statement that has to do with such words as individual "incentive, " "goal," or "purpose." "In education," Skinner says, "we design and re-design our curricula in a desperate attempt to provide a liberal education while steadfastly refusing to employ available engineering techniques which would efficiently build the interests and instill the knowledge which are the goals of education."\(^10\)

The main function of education is to produce certain desired behaviors in children and youth. The major questions to be asked in curriculum designing are: (1) What behavior is to be established? (2) What reinforcers are available? (3) What responses

\(^9\)Ibid., p. 23.

\(^{10}\)Skinner, Cumulative Record, p. 228.
are available? (4) How can reinforcements be most efficiently scheduled?¹¹

An alternative to Skinner's view

To assume that man's behavior is always controlled by groups, culture, environment, or society is to ignore, or, at least, to minimize, the uniqueness of each person in his biochemical, intellectual, and emotional make-up and to deny completely the responsibility of man for his choice.

There is much evidence to suggest alternatives to Skinner's view. This evidence is found in biology, neurology, individual psychology, differential psychology, personalistic psychology, counseling, psychotherapy, studies on creativity, humanistic psychology, and psycholinguistics. Tracing such evidence in all these fields is beyond the scope of this investigation. A case will be made on authoritative positions selected from several of these fields.

From the biological point of view

Huxley, a world-famous biologist, asserts that variability among men is greater than variability in other species. In his words, "It would be fair to say that, in respect to mind and

¹¹Ibid., pp. 152-53.
outlook, individual human beings are separated by differences as profound as those which distinguish the major groups of the animal kingdom. "12

Reflecting on the behavioristic movement in studying human behavior and the necessity of combining the observable behavior with subjective experience, Huxley writes:

We shall get nowhere without intensive study of physiology and material structure and observable behavior; but unless we combine this with introspection, interpretation, and deduction from subjective experience, we shall not get very far, as the fate of behaviorist movement shows.13

From the personalistic psychology point of view

Authorities in personalistic psychology repudiate Skinner's view. They testify to the fact that each individual has, in addition to traits common to human species and traits common to his cultural peers, some idiosyncratic behavioral characteristics which distinguish him from all other persons.

Allport defines personality as the dynamic organization within the individual of those psychophysical systems that


determine his unique characteristic behavior and thought. The terms "dynamic organization," "psychophysical," and "unique" are very indicative of the fact that personality is something in and for itself regardless of society or culture.

Among the requirements for an adequate theory of personality assigned by Allport are (1) to regard the human personality as integumented, that is, as centered in the organism, (2) to consider the organism as replete, not empty, and (3) to allow adequately for, but not rely exclusively upon, the phenomenon of self-consciousness.

Murphy's voluminous work on personality and human potentialities reveals that personality cannot be reduced to either its cultural elements or to its biological components. Human behavior is the product of interaction between two sets of factors: those in the individual himself and those of his environment. The keystone of his position is illustrated in this statement:

Let us begin with the fact, already noted, that nothing is inherited, nothing acquired; everything is the realization through the environment of a specific personality permitted by the genes; or if you prefer, the realization by the genes of a potentiality permitted by the environment. Let us go on from this to the

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self-evident, yet shocking fact that in my experience nothing springs from me and nothing springs from my environment, but everything from the interaction, the "life space" in which I, as a person

Two of the alleged advantages claimed by Skinner for his point of view are (1) control of human behavior and (2) prediction of the futural human behavior. On these two points, Murphy says, "We cannot set limits upon human potentials or tell what can or cannot come into existence." 

He feels that the predispositions within the cosmic structure, in which the individual exists, are unpredictable. In his words, "The potential self-fulfillments lie scattered there beyond the horizon; and man with all the wisdom he can marshall, must strive to define them—and then to choose among them." 

From the psychotherapeutic point of view

Rogers' work stands in bold contrast to Skinner's view. The focus of his work is primarily upon the uniqueness of a single human being. Highly involved in Rogers' work are the terms self-structure, self-actualization, self-maintenance, self-enhancement, experiencing, phenomenological field, and congruence.


16Ibid., p. 301. 17Ibid.
Rogers' client-centered personality theory is, perhaps, best understood through his now famous "twenty-two propositions," ten of which are selected here to illustrate the "humanistic flavor" of his scientific thinking:

1. Every individual exists in a continually changing world of experience of which he is the center...
2. The organism reacts as an organized whole to this phenomenal field.
3. The organism has one basic tendency and striving—to actualize, maintain, and enhance the experiencing organism...
4. The best vantage point for understanding behavior is from the internal frame of reference of the individual himself...
5. As a result of interaction with the environment and particularly as a result of evaluational interaction with others, the structure of self is formed—an organized, fluid, but consistent conceptual pattern of perceptions of characteristics and relationships of the "I" or the "me", together with values attached to these concepts...
6. As experiences occur in the life of the individual, they are either (a) symbolized, perceived, and organized into some relationship to the self, (b) ignored because there is not perceived relationship to the self structure, (c) denied symbolization or given a distorted symbolization because the experience is inconsistent with the structure of the self...
7. Psychological adjustment exists when the concept of the self is such that all the sensory and visceral experiences of the organism are, or may be, assimilated on a symbolic level into a consistent relationship with the concept of self...
8. When the individual perceives and accepts into one consistent and integrated system all his sensory and visceral experiences, then he is necessarily more understanding of others and is more accepting of others as separate individuals.
9. As the individual perceives and accepts into his self-structure more of his organic experiences, he finds that he is replacing his present value system--based so largely upon introjections which have been distantly symbolized--with a continuing organismic valuing process.\textsuperscript{18}

10. The individual...comes to experience positive regard or loss of positive regard independently of transactions with any social other. He becomes in a sense his own significant social other.\textsuperscript{19}

From the psycholinguistic point of view

Skinner believes that the most important goal in education is verbal behavior. He equates man's thinking to man's behaving. To him, "Shakespeare's thought was his behavior with respect to his extremely complex environment."\textsuperscript{20} Although Skinner admits that thinking behavior is verbal or nonverbal, overt or covert, he feels that nothing can be gained from studying covert and nonverbal behavior.

Skinner's position in this regard bears careful scrutiny even from the point of view of mere speech. Lashley's experiments

\begin{itemize}
\end{itemize}
give support to the assumption that there are two types of speech: internal and overt. The internal speech according to Lashley "may be carried out wholly by processes within the nervous system, with some unessential discharge upon the final common path for vocal movements."\textsuperscript{21}

Polanyi distinguishes between tacit and explicit knowledge and focal and subsidiary awareness. He asserts that "things of which we are focally aware can be explicitly identified; but no knowledge can be made wholly explicit."\textsuperscript{22} The reason for this state of affairs is that language is not capable of describing reality completely. The preceding chapter treats this problem.\textsuperscript{23}

Skinner fails to recognize the difference between the verbal words and phrases a person utters and the meaning of these words and phrases to him as well as to others with whom this person communicates. In other words, he fails to distinguish between the "meaning" and its symbol. Meanings and understandings are based on one's dwelling in the particulars of that which he


\textsuperscript{23}See p. 104 in this study.
comprehends. Verbalization of what a person observes, feels, tastes is quite a different matter from what he is experiencing. The former belongs to the domain of talking and the latter belongs to being. The latter is the prerequisite of the former and they are not identical at all. The latter is more fundamental than the former. In Polanyi's words, "We can know more than we can tell and we can tell nothing without relying on our awareness of things we may not be able to tell."24

By focusing only on the verbal behavior, Skinner is concerned only with consciousness, not unconsciousness, with what is rational from the outsider's view, not with one's viewpoint which may be unrational, or irrational. He is concerned only with the immediate daytime image of man in his rigorous awareness, not with his past, daydreamings, imaginations, and aspirations.

From the socio-philosophic point of view

The idea of control of human behavior, as presented in Skinner's viewpoint, merits further examination.

It is both logical and legitimate to ask the following questions: What are the goals for which human behavior is to be

24Polanyi, p. x.
controlled? Who will be the controller? And, under what conditions is control to take place?

In answering these questions, Skinner suggests that one possible goal is "let man be happy, informed, skillful, well-behaved and productive"; control of behavior is desirable because it would perhaps bring "a far better world for everyone." The controllers of behavior in Skinner's view are the planners (parents, teachers, community leaders, and government officers).

On the government as a planner, Skinner states:

The question of government in the broadest possible sense is not how freedom is to be preserved but what kinds of control are to be used and to what ends. Control must be analyzed and considered in its proper portions. No one, I am sure, wishes to develop new master-slave relationships or bend the will of the people to despotic rulers in new ways.

According to Skinner, the condition under which control is to be maintained is experimentation in "cultural design."

Self-contradiction in this view is clear. While Skinner states that we cannot assume a way other than natural science in


27Ibid., p. 1060. 28Ibid., p. 1061.
studying human behavior, he also states some goals which he asserts are good for human beings, "a far better world for everyone." In so doing, Skinner does what he denies. He has made a prior decision and prior choice of values which cannot be categorized under the scientific procedures in the sense he advocates as a generalized method.

This criticism of Skinner's dilemma should not be interpreted to mean that values cannot be included as a subject of science. Quite the contrary, they could and should be included in all scientific procedures. These procedures are already evolving in counseling, psychotherapy, and group dynamics, for example. The relevance of values to science in the realm of human inquiry will be treated later in this chapter. Here, the important point to be made is that facts are "realized values." For instance, there was a time when social security, public health, and child care were considered values. Then, they became facts in many parts of the world. Racial equality is a human value. Many efforts are currently being made to "factualize" it.

Some shortcomings of a point of view similar to Skinner's have been identified, in a general way, in the preceding chapter. Additional difficulties loom large when one takes this position in his efforts to cope with educational objectives.
Viewing values in the Skinnerean sense of "social ethics" limits the prime function of education to a transformation of culture as it is. In so doing, education becomes a means of standardizing people and adjusting them to their society, or culture, regardless of its quality. Uniformity is the central focus; diversity tends to be neglected. In other words, the individual taste, the individual style of thinking and doing, are given a low priority in the cultural market. One might well question what this view of uniformity does to individual growth.

Confining the educational objectives to those set by the planners leads inevitably to the absence of freedom of choice. The development of a sense of individual responsibility, an essential feature of a healthy individual and sane society, becomes difficult, indeed, in the face of this role to be taken by an elite group of designers.

Conceiving educational objectives only in terms of the so-called "cultural design" implies that those who do not fit the cultural standards are to be consciously, or unconsciously, alienated and rejected. A contemporary example of this phenomenon is found in the so-called "culturally deprived" children. Human beings are weighed for social status or parental social status. Individuals in such an equation are comparable to
goods and material things. The individual is no longer valued for what he is but for what he should be in the eyes of the cultural planners, whoever they may be. In so doing, group acceptance, shared tastes, common ideas are substituted for the authority of individual moral and esthetic standards and judgment.

Any analysis of contemporary education reveals a heavy stress on group instruction in contrast to individualized instruction. It is true that attempts have been made recently toward individualized instruction, but they are the exception, not the rule, despite the fact that professional writing has long called for the individualization of instruction. In line with curriculum development and implementation in terms of a cultural design, the student is treated only as a part of a group. His achievement is measured against an imaginary class average and local and/or national norms. His promotion to next grade or retention in the same grade is decided with a group's standard in mind.

Furthermore, educational objectives conceived in terms of a cultural design in which human behavior is to be expressed and measured quantitatively in laws comparable to laws in natural sciences places a premium on education as a product. In this view, education tends to be equated with fabrication and mass production.
If learning is considered a personal, limitless, and multidimensional act, education, then, should concern itself with all dimensions of this act: the person, the process, and the product. Attention only to the product minimizes the many significant factors involved in the process of producing. Designing educational objectives in terms of cultural standards leads education to care finally only for quantity, not quality; to cover ground already known, not to discover and explore new ground. These limitations arrest the development of imagination and creativity and lock individuals in "societal shells." Such is the condition of the culturally encapsulated man.

**A Differing Perspective of Education**

Many problems stemming from the behavioristic point of view, some discussed in the preceding section of this chapter, derive originally from the narrow concept of man's existence in nature. Behaviorism is characterized by many aspects of the dualistic doctrine which puts man opposite to nature, matter opposite to mind, science opposite to arts and humanities, facts opposite to values, objectivity opposite to subjectivity, and the like.

This investigator hypothesizes that these dichotomies constitute pseudo problems. Unfortunately, dichotomies
frequently suggest ready made solutions to complex problems in many fields. The field of curriculum theory is no exception. A sound conceptual framework for curriculum development must confront dichotomies which hinder the task of both theorists and practitioners. Unless these dichotomies are transcended, curriculum theorists as well as practitioners will continue to fall into the same traps.

The perspective offered in this study aims to perform two tasks:

1. To identify the nature of education as seen from the unique vantage point of the perspective.

2. To transcend the characteristic dichotomies encountered in curriculum development theory and practice.

The verb "educate" is derived from the Latin word "educatus," which is the past participle of "educare," which means to bring up. The contemporary usage of the word education according to Webster's dictionary confines the meaning of the word to (1) the process of training and developing the knowledge, skill, mind, character, etc., especially by formal schooling; teaching; training; (2) knowledge ability thus developed; (3) formal schooling; and (4) systematic study of the problems,
method, and theories of teaching and learning. It is noted that the root meaning of the word "upbringing" has been overshadowed. The word has come to denote the professional task as training, teaching, and imparting knowledge. The totality of upbringing is rarely noted in the present use of the word.

It is also worth mentioning that "education" does not convey the large conception denoted by its compatible Greek word "paideia." The Greek word means a lifelong transformation of the human personality. Unlike education, "paideia" is not confined to the conscious learning process or to inducing the young into the social heritage of their culture. It is rather the task of life-forming. On this point Mumford writes:

"Paideia is] treating every occasion of life as a means of self-fabrication, and as a part of a larger process of converting facts into values, processes into purpose, hopes and plans into consummations and realizations. Paideia is not a learning: it is a making and shaping; and man himself is the work of art that paideia seeks to form."

In languages, other than English, one finds that large conception of paideia is maintained. In Russian, there are two words with distinctive meanings: (1) разведение (translated into English, "upbringing"), which signifies the

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29 Webster's New World Dictionary.

human development in all its aspects: intellectual, imagination, interest, and physique; (2) педагогика, which refers to the profession of education.

In Arabic, the word "tarbbiah" conveys the same meaning denoted by "paideia." The same word in Arabic is used for upbringing of flowers. The Arabic noun "tarbbiah" is derived from the verb "raba," meaning both the English words growth and increase.

This brief comparison of the origin of terms clearly shows that education originally is not confined to imparting knowledge or training in knowledge. It is not limited to the process of consuming the available knowledge on the part of the student through his formal schooling. It must be considered a lifelong process in which students produce new knowledge as well as consume the available knowledge. It must be looked upon as growth and increase in all aspects of human life.

Education is a means of helping children and youth become what they can and should become. The primary aim of education is the fulfillment of man as man. "The primary task of the

31 Русско-английский школьно-педагогический словарь, Ярослав: 1959
32 Arabic is the investigator's native language.
educators," says Mooney, "is the comprehension of man and the development of pathways to this fulfillment." Curriculum building is one of the most important courses of action to be taken toward this fulfillment. Curriculum design is the description of this course. However, this conception of education and of curriculum is faced with difficulties arising from many dichotomies held by many, including educators.

Science-Arts and Humanities Transcendence

One of the most popular dichotomies is the one frequently made between sciences on one hand and arts and humanities on the other. For example, Bertrand Russell asserts that the field of values is closed to science. Hutchins believes that science is more suited to the determination of means than of ends. This separation grows out of an underlying assumption characteristic of the behavioristic outlook. This is true regardless of the particular philosophical school the proponent may choose to identify as his home base.

33 Ross L. Mooney, "The Position from Which the Humanist Conceptualizes the Building of Curricula" (Mooney's Seminar, Education 800V, Winter 1965, The Ohio State University, Columbus, Ohio). (Mimeographed.)

A legitimate question to be asked is: What is science? Maccia traces the meanings given to the word "science" in western culture. His brief survey reveals that the word science is derived from the Latin word "scientia"—knowledge which was understood to mean the human awareness of making generalizations and the ability to state propositions about things or ideas. With the rise of the universities in Europe the word "scientia" came to mean knowledge acquired through study in departments of colleges and universities.

During the Renaissance, the word science was used to designate the skills of the artist craftsman. By the seventeenth century, the word was used to refer to the occupations in which manual skills requiring vigorous training were employed. During this period, "sense" or "empirical" knowledge that requires observation and experimentation was regarded the necessary condition for science. Greatly aided by Francis Bacon's writings, science came to be known as knowledge established through inductive reasoning from observation of particulars.

In the eighteenth and nineteenth centuries, with the rapid development of natural sciences, a shift in the meaning of science

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came to refer to subjects taught in physical and biological courses. During this period, social sciences came to be known as social studies.

In the current century, the growth of the natural sciences has led to equating scientific knowledge with truth. Such a notion was denied by Dewey. He asserted that scientific method, or problem solving, is applicable to all aspects of human inquiry, including values for social action.

Such a brief historical development of the ways in which the word science is conceived shows that it is used for various referents:

1. A psychological experience, "awareness" of the human being as he handles things or ideas.

2. A process or skill for acquiring knowledge (inductive reasoning).

3. A product of formalized knowledge arranged in courses of study.

4. A specific domain in which man can work to acquire specific knowledge about himself and some natural phenomena (biological and natural sciences) at the exclusion of other domains in life (social, psychological, cultural, and the like).
As one looks at these ways in that order, it can be noted that each way encroaches upon that, or those, preceding it. Furthermore, the first two uses of the word can be characterized as intrinsic inasmuch as they focus on awareness and skills. The last two are extrinsic in their emphasis on what is to be known and the area of knowledge. Each of the four concepts, if it is to be taken alone, mitigates against the others. None can be claimed so inclusive as to signify who is a scientist? What is he doing? How and why? To conceive science only in one of the four ways is to separate the known from the knower and to maintain the gulf between the intrinsic and extrinsic phenomena. Consequently, such a conception furthers the confusion now widespread.

A comprehensive, basic, and systematic concept of science must be formulated to overcome many of the difficulties facing educators. Confining science to natural and biological sciences is based on the assumption that scientific method is limited to what is observable, repeatable, and quantitatively measurable. In line with this assumption one finds many proceed in their discussions and actions on the ground of such slogans as "scientific detachment," "value neutrality of science," and "objective conclusions." These slogans are posited as contradictory to other slogans assumed to be playing other roles (arts and humanities)
such as "personal decision," "value judgment," "subjective conclusions," "appreciation," "imagination," and the like.

These slogans and anti-slogans are so represented in western culture that it seems a culture divided, or in Snow's wording\(^\text{36}\) two cultures, one scientific and the other academic, literary, traditional, or nonscientific.

Snow gives a very serious consideration to the causes and effects of this bi-cultural phenomenon as shown in the West generally, and, particularly, in England and the United States. He depicts the distance between the two cultures as presented in the United States in this way:

> In the United States, perhaps, there is a wider nodding acquaintance with industry, but . . . no American novelist of any class has ever been able to assume that his audience had it.

> Yet the personal relations in a productive organization are of greatest subtlety and interest. [But] they are very deceptive. . . . No one . . . knows yet what these personal relations ought to be.

> . . . pure scientists have themselves been devastatingly ignorant of productive industry, and many still are. It is permissible to lump pure and applied scientists into the same scientific culture, but the gaps are wide.

> . . . pure scientists still, though less than twenty years ago, have statistically a higher proportion in politics left of centre than any other profession; not so engineers, who are conservative almost to a man.

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... they are absorbed in making things, and the present social order is good enough for them. Pure scientists have, by and large, been dim-witted about engineers and applied science. They couldn't get interested. They would not recognize that many of the problems were as intellectually exacting as pure problems, and that many of the solutions were as satisfying and beautiful.37

Speaking of education, in England and in the United States, as it is manifested in the two cultures, Snow concludes that it has gone wrong. He believes that closing the gap between the two cultures is a necessity. In his judgment this cannot be done without bringing the two cultures together in and through education.38

In the above quotation Snow describes the state of affairs existing and operating within the western culture. However, an analysis of this state of affairs is in order here.

This state of affairs stems from several misconceptions of what is "fact," what is a concept and law, what is value, and the like.

A faulty understanding is frequently made about what facts are by confusing them with data, and with concepts or constructs. An illustration derived from Polanyi39 serves to point up this situation.

37Ibid., pp. 32-33. 38Ibid., pp. 35 and 53.

Newtonian mechanics provide an exact formula that enables the scientists to compute the configuration of a single planet circling around the sun. The operation through which a scientist arrives at this configuration goes through the following steps:

1. Through his observation from the earth, a scientist knows this planet's longitudes (l₀) and elevation (e₀) at a time (t₀). ⁴₀

2. By putting the results of this observation into the formula, the scientist can compute any pair of longitudes (L) and elevation (e) for any other time (t).

The second step would seem quite impersonal. It could be done by comptor so that it looks as if it predicts certain facts of experience from other interior facts of experience in a quite impersonal way.

What are the facts in this example? Are the numbers giving longitudes, elevations, and time facts? They are not, Polanyi asserts. The facts in this example are readings on the instruments of a particular observatory. From these readings the scientist derives data, to be presented in numbers on which the computation is made.

⁴₀Ibid.
Commenting on this example, Polanyi remarks:

The derivation of data and checking of data that bridges the gap between our instrument readings [facts] and the magnitudes figuring in our formulae can never be fully automatic. For any correlation between a measured number introduced into an exact theory and the corresponding instrument reading, rests on an estimate of observational errors which cannot be definitively prescribed by rule.41

Polanyi, then, asserts that observational errors are due to individual variations. "Even the most strictly mechanized procedure," he says, "leaves something to personal skill in the exercise of which an individual bias may enter."42

This example has three implications to the point in discussion (what facts are): (1) numbers, symbols, formulae, I.Q., average, mean, median, and the whole jargon of the different symbolic presentations we make are not facts. The facts are always of and in experiencing. (2) Facts are always subject to individual variations resulting from individual conception, perception, and all the aspects of human variability. (3) It must be assumed that traces of a hidden personal style in conceiving, perceiving, and behaving may systematically affect readings (the facts, in our example).

41Ibid. 42Ibid.
Facts, then, are what a person has experienced or what he is experiencing in his transaction with objects, events, and subjects, including himself. Facts cannot be understood apart from the factualizer, the person.

Many think of "fact" as an "objective entity" independent of the factualizing person. They believe that various aspects of man's sensation such as hardness, size, and color of a table, for example, exist in the object in its own right and would continue to be so if no human were to observe them.

In this connection, Ames, on the ground of many of his experiments on perception asserts:

that certain aspects of what is in our consciousness when we look at an object are entirely subjective and are not in the object such as liking and disliking it. We also know that the particular "thereness" of the object to us is not exclusively in the object itself, but only exists because of our relative position to it, and therefore our point of view, ourselves, i.e. the object would have no specific thereness if we were not there.

In our perceptual experiences such characteristics as size, weight, hardness in our sensation all depend on our own size. If I am a small child, I sense the table as big. If I am a grown man, I sense the table as small. That is, I am the standard against which the size of the table is related.\(^\text{43}\)

Ames is emphasizing the idea that in visual perception, which is limited to human being relationship with inanimate external events, what a human being senses in perception is not inherent in the object he is looking at, but is the significance of what he is looking at to him as a human being. In other words, human standards are the determinant factors in the visual perception.

It is of crucial importance here to differentiate between visual perception and social perception. In the latter, which includes a human being relationship with another human being, a new dimension is added to the field of perceiving, namely, the other person. In such a case, perception is not only determined by the intellectual purposes of the perceiver but also by his "value-sense purposes" of another person or persons involved in the field. 44

Both visual and social perception are made in terms of "first person point of view." What each person perceives is affected by his awareness of what is significant to him in the field to be perceived. That is to say, individuals perceive both selectively and purposefully. In this regard Ames concludes, "Perceptions are not the result of a causal chain of events

44Ibid., pp. 21-22.
originating in the environment, but are his [an observer's] own contribution to the perceptual situation, and may or may not correspond to what he is looking at, as it is perceived by and known to others, or to what he may later discover."

Fortunately, the fields of perception are changeable. Seldom, do they repeat themselves exactly. Change, or evolution, seems to be the rule of nature and of life. This is also true of the purposes of human beings. They are in constant evolution. An achieved purpose becomes a means to another further purpose. And so life goes.

Summarizing, from the foregoing discussion, one can conclude that facts are not apart from experiencing. Experiencing always involves both the one who experiences and what is experienced. Neither can occur without the other. To repeat, facts are always in and of experience. The word "act" constitutes the largest portion of the word "fact." Man, acting purposefully, makes facts as he acts.

Confusion in education and, in turn, in curriculum development also results from the tendency to view concepts as "objective," with entity independent of man. A human being is the only creature capable of conceptualizing. Man's capacities

\[45\text{Ibid.}, \ p. \ 136.\]
to sense, to symbolize, to conceptualize, to reason, to remember, to reflect, to imagine, to prognosticate distinguish his way of life from other natural organisms. Concepts are formed through the accumulation of experiences with natural, social, and cultural phenomena. They grow out of perceptual and conceptual experiences. When a person looks at things, he thinks of them, recalls his past experience with them or with what seems to him similar to them, compares his past experience with his present experience. He, then, classifies them into categories or classes according to their properties, similarities in terms of their functions and values to him. Out of this conceptualization, concepts are produced.

Concepts may be specific or general. The former, taken together, constitute the latter. For example, rain, snow, fog, clouds, and heat are specific concepts. All together form a general concept, weather.

Conceptualization, therefore, involves continuous transaction with the fields in which a person has lived or is living. It is always a give-and-take process in which a person is trying to clear up for himself an idea or a concept of something about which he is concerned or for which he cares. And, by the
necessities of his life, a human being is always concerned. He does so consciously and unconsciously.

In conceptualization, a person uses (1) himself, his present awareness, perception, and his abilities of recalling, comparing, and judging; (2) the conditions of the things or the field in which he is involved and with which he transacts. These two sets of tools transact simultaneously in the person who conceives. These tools are not apart from the person who conceives. They are in him, used by him and for him. They are different aspects but of one act: "conceptualizing." Each of the two sets of tools subsidizes the other within the person for the purpose of extending one's self to the field and bringing the field into the self.

It is always an in-and-out process. The idea of continuous transaction has been substantiated by many scholars whose orientation is interdisciplinary.

Dewey and Bentley put it this way:

Since man as an organism has evolved among other organisms in an evolution called "natural," we are willing under hypothesis to treat all of his behavings, including his most advanced knowings, as activities not of himself alone, nor even primarily his, but a process of the full situation as one which is before us within knowings, as well as being the situation in
which the knowings themselves arise. [This is] what we call transaction. 46

In this connection, Mooney's writings in the last decade are both illuminating and convincing. They find support in an increasing body of empirical research and speculative theorizing about the nature of man and the process of becoming. In his conceptual model for essential conditions for man's existence, Mooney unifies the intrinsic conditions of man with the extrinsic conditions of environment, biological with psychological and sociological. He argues that social and life sciences cannot go anywhere unless answers to the following questions are found: what is the logic in "bio-logic," what is the logic in "psycho-logic," and "socio-logic"? He states that these questions and the like cannot be answered unless we are able to think our way through many problems in social and biological science in a way which enables us to get hold of a germinal order pertaining to the forming of life structures in which nature is put together according to order. 47


In Mooney's words, "[Man is] an energy system, open to all other systems, [he is] constantly spending energy, which, as it leaves [him] calls for [his] constant seeking of renewal by fresh inclusions, taken from the universe into [him]."\(^{48}\)

The significance of this position is that an alive person is not merely an observer, receiver, or a straw in the midst of life's winds. But, an alive and normal person is an active participant in forming his perceptions, conceptions, thoughts, and in a word, his life. He is so by the necessities of both the nature of his being and the nature of the physical, social, and cultural phenomena within which he is intimately included. What man knows is a world created within his experience and not apart from it. With man's indispensable involvement in life, there is no escape from one's self-observing, comparing, generalizing, thinking, imagining, approximating, and believing.

Intrinsic-extrinsic transcendence is the main theme of Polanyi's recent book, *Personal Knowledge*, in which he shatters the ideal of "scientific detachment" and explains its destructive influence in biology, psychology, sociology, and education. The

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alternative offered by Polanyi is implied in the title of his *Personal Knowledge*. He regards knowing as an active comprehension of the "things known," an action that requires skills. According to him, the skillful doing and knowing are performed by subordinating a set of particulars: things, procedures, knowledge—as clues or tools, to the shaping of a skillful practical and/or theoretical achievement. In his words, "Clues and tools are things used as such and not observed in themselves. They are made to function as extensions of our bodily equipment and this involves a certain change of our own being." 49

Through his book, Polanyi shows that in every act of doing and/or knowing a passionate contribution of the doer and knower enters into what is being done or known. As he states it:

The arts of doing and knowing, the evaluation and the understanding of meanings are thus seen to be only different aspects of the act of extending our person into the subsidiary awareness of particulars which compose a whole. The inherent structure of this fundamental act of personal knowing makes us both necessarily participate in its shaping and acknowledge its results with universal intent. 50

The tools (physical or intellectual) which one uses and one's integrative structure always have a constant and mutual

49Polanyi, p. xiii.

50Ibid., p. 65.
influence relationship. Each supplements the other, and neither can supplant the other. In other words, there is no experience in complete objectivity, nor in complete subjectivity in the traditional sense of both words. Experiencing consists of what is experienced (perceived, conceived, known, or done) and who is experiencing. This does not mean that nothing exists independent of man's existence or until man knows it. It, rather, means that the world is not a world for man until man experiences it.

In experience, the inner structure and the conditions of the experiencing person are fused with the outer conditions called environment. For an outside observer, the outer conditions may seem apart from the experiencing person, but this is not the case for the experiencing person. An example cited by Polanyi is illustrative of this point.

Our subsidiary awareness of tools and probes can be regarded now as the act of making them form a part of our own body. The way we use a hammer or a blind man uses his stick, shows in fact that in both cases we shift outwards the points at which we make contact with the things that we observe as objects outside ourselves. While we rely on a tool or a probe, these are not handled as external objects. We may test the tool for its effectiveness or the probe for its suitability, e.g. in discovering the hidden details of a cavity, but the tool and the probe can never lie in the field of these operations; they remain necessarily on our side of it, forming part of ourselves, the operating persons. We pour ourselves out into them
and assimilate them as parts of our own existence. We accept them existentially by dwelling in them. 51

The meanings a person assigns to things, symbols, knowledge, values, people, or events are the significances which this person builds up out of his past experience and his immediate encounter with life. These meanings are not inherent in knowledge, or events, or the stimuli to which the student is exposed.

To act on this realization, educators need to make a radical shift in the common conceptual framework in which science is viewed as the opposite of the arts and humanities. To assign critical thinking to science and imaginative and creative work to arts is clearly in violation of the major realization developed here. The specialized functions of science, on the one hand, and arts and humanities, on the other, are only matters of convenience. In Bronowski's words:

As a convenience, and only as a convenience, the scientific function is different from the artistic. In the same way the function of thought differs from, and complements, the function of feeling. But the human race is not divided into thinkers and feelers and would not long survive the division. 52

51 Ibid., p. 59.

The impact of human factors in science, the constant and mutual influence between a scientist, as a human being, and his endeavors and achievement as a scientist is recognized by modern scientists. Heisenberg testifies to this fact in this way:

Science no longer confronts nature as an objective observer, but sees itself as an actor in the inter-play between man and nature. The scientific method of analysing, explaining, and classifying has become conscious of its limitations, which arise out of the fact that by its intervention science alters and refashions the object of investigation. In other words, method and object can no longer be separated. The scientific world-view has ceased to be a scientific view in the true sense of the word. 53

It is justifiable to say that critical and imaginative thinking are essential to modern scientists as well as to modern artists. Science and art are human enterprises. Each is a part of human activity at large. The media with which and through which a scientist is trying to explore and search the world to himself differ from those of an artist, but the ultimate end is the same. Both the scientist and the artist employ their visualization and creative imagination as they deal with concepts and constructs appropriate to their respective fields.

Neither science nor art is composed of mere collections of observations and descriptions of what is observed. The

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function of science and art is to establish an order within the phenomenon with which a scientist or an artist is dealing. This order is always a human-discovery, a human-mode, and a human approximation. Bronowski explains it this way:

Science is not the blank record of facts, but the search for order within the facts. And the truth of science is not the truth to facts, which can never be more than approximate, but the truth of laws which we see within the facts. And this kind of truth is as difficult and as human as the sense of truth in painting which is not a photograph, or the feeling of emotional truth in a movement in music. When we speak of truth, we make a judgment between what matters and what does not, and we feel the unity of its different parts. We do this as much in science as in the arts or in daily life. We make a judgment when we prefer one theory to another even in science, since there is always an endless number of theories which can count for all the known facts. And the principles of this judgment have some deep appeal which is more than merely factual.54

The foregoing discussion of the nature of the scientific endeavor gives a clue to a reasonable fact-value transcendence. If facts are to be considered the tools that supplement one's intellectual abilities and awareness, which can be considered another type of tools used simultaneously, then facts are not opposite to values. Facts are dealt with in terms of one's interpretative framework, that is to say, in terms of a set of pre-suppositions. Both the new facts and the pre-suppositions

54 Bronowski, p. 129.
dwell together in one's own structure. It may be said that facts and values are parts of a whole, a gestalt, or a field in which a person with a certain framework is encountering a new field with some new components. A new experience in which a person engages offers clues which encourage this person to sustain or to disappoint his previous beliefs, concepts, and values. In so doing, this person commits himself to a new comprehension and a new vision of himself and of a part or parts of reality.

In so doing, this person submits to requirements acknowledged by him. It cannot be said of this person that he is merely subjective or merely objective. In Polanyi's words, "[Such a case] is not subjective; but insofar as it is an action guided by individual passions, it is not objective either. It transcends the disjunction between subjective and objective." 55

**Fact-value transcendence**

Relevant to the objective-subjective dichotomy is the facts-values dichotomy. Kohler dealt with this dichotomy twenty-seven years ago in his pioneering writing. He asserts that the paradox of this matter stems from an inadequate assumption that "facts are or happen indifferently." According to him, this is a

55Polanyi, p. 300.
glittering generalization about facts. He argues that in the very nature of some facts, there is, as a constitutional characteristic, a quality of acceptance or rejection of these facts in terms of something beyond the mere facts. This something is the interest of the individual involved in the phenomenal field. To quote him:

Some contents of the phenomenal field have a direction or directness, others not. A coin before me does not point toward something, an interest does. Because of this property we shall borrow a term from mathematics and physics and call interest a vector. . . . Interest as a vector is experienced as issuing from a definite part of the field. If it is "my" interest, it issues from the particular item in the field which I call "myself." 56

The transcendence of facts and values in terms of interest was made by Dewey in 1913 in his, Interest and Effort in Education, an important, but neglected, book. Dewey was concerned with the misunderstanding of interest by many educators at that time. He conceived of interest as given to the fact "that a course of action, an occupation, or pursuit absorbs the powers of an individual in a thoroughgoing way." 57


The significance of Dewey's point is that interest cannot be posited in vacuum. It is always a part of a situation in which a person is involved with objects and/or subjects and, therefore, it cannot be separated from these objects and subjects. In his words, "All interest is naturally in objects that carry an activity forward, or in objects that mark its fulfillment; hence the character of the interest depends on the nature of these objects." 58

Summary

In this chapter, the distinctive features of a new perspective for viewing educational objectives have been outlined. This has been accomplished largely by (1) identifying the dichotomies which characterize much of the thinking about education, and (2) proposing new syntheses to transcend these dichotomies. The bases for such new formulations have been drawn from personality theory, psychology, biology, and philosophy of science, among others.

In the chapter to follow, a similar new perspective for viewing curriculum structure will be formulated. A subsequent chapter will incorporate these perspectives into a theoretical framework designed to treat all of the other components of curriculum development.

58 Ibid., p. 88.
CHAPTER V

A NEW PERSPECTIVE FOR CURRICULUM STRUCTURE

Curriculum structure, curriculum design, conceptual framework, and conceptual system are terms which are used somewhat interchangeably to designate the need for viewing curriculum development as an organic process. There is a fair agreement among the authorities in the field upon the functions to be performed by a conceptual system. The main functions of such a system for curriculum are--

1. To account for all factors that are involved in curriculum.

2. To explicate the relationships among the major components of curriculum.

3. To point out what elements, if any, are common to all major curriculum questions and thus establish the theoretical links throughout the entire conceptual system.

4. To indicate the methods of inquiry pertinent to each major decision posed by the system such as educational objectives and their determinants; educational experiences; their sources,
criteria for their selection and principles according to which they are to be organized for effective learning; and the instructional procedures.

5. To establish an order for making curriculum decisions which indicates how one moves from one to another.

6. To indicate the role of teachers and students in both curriculum planning and curriculum implementation.¹

Goodlad speaks of a conceptual system for curriculum:

A conceptual system is both more than a theory and less than a theory. It is more than a theory in that it identifies the need for, and the relevance of, theory. It is less than a theory in that it only suggests the relevance of specific data. A conceptual system does not explain phenomena or the consequences of thought and action. For example, in dealing with the problem of determining educational objectives, a conceptual system in the field of curriculum must show the relevance of theories about the nature of man. Furthermore, the conceptual system should guide the use of any theory on man's nature to the task of determining educational objectives. But the conceptual system does not provide the logic whereby a specific objective is inferred from a given view of the nature of man.²


²Goodlad, p. 392.
The significance of Goodlad’s remarks is that a conceptual system for curriculum is only a design or a simplification of the complexity of curriculum. In other words, it does not define the elements of curriculum; but it merely presents and makes evident the need for such definition. However, as demonstrated in the foregoing chapters of this study, any conceptual system for curriculum must be based on (1) a conception of man: his nature, his ways of perceiving, knowing, learning, behaving, and becoming; (2) the nature of what is to be known, learned, and taught; and (3) the nature of the educational setting in which teaching and learning occur in space and time. These are the inescapable necessities for establishing a conceptual system for curriculum. Otherwise, there is no way of judging any curricular conceptual system. Without these basic conceptions, curriculum design is only a collection of unrelated individualized bits of bric-a-brac. This is, perhaps, an accurate description of the present situation in both curriculum theory and practice.

Curriculum Patterns

Curriculum patterns refer to the various types of curriculum structures. Structure is used in a variety of ways. Three differing referrents can be identified in curriculum development. Each is outlined in the following sections of this chapter.
Organized knowledge

Structure of knowledge is used as a referrent of curriculum structure. This is true to "subject-centered approach" as well as to "discipline-centered approach." In this pattern each subject is conceived as self-contained. It is the organization of curriculum, especially at the college and university level, as well as at the upper grades of secondary education. There is a strong tendency toward extending this pattern to elementary schools. Advocates of this approach see that each subject has (1) a body of substantive material which is identifiable and distinguishable from other bodies of content, (2) a specific domain of searching and recording events, (3) a specific history and development different from other organized fields of knowledge, (4) a distinctive intellectual discipline through which the particular substance of the subject has been discovered and developed through the history, and (5) consequently, it is argued, the best way for teaching it is to follow the subject structure which gives meaning to its particulars and constitutes the basis for their retention and transfer. This pattern lends itself very easily to the use of textbooks and the current way
of measuring students' achievement by objective and standardized tests.³

Fresh impetus has been given to this approach by the current widespread concern about the structure of each discipline. The new concern urges educators to place less emphasis on learning factual information and major generalizations inherent in the subject matter in their traditional forms. Instead, the emphasis must be made on the structure of relationships which generate a context of meaning and application in each discipline. By structure is meant the fundamental concepts and principles of a subject around which other elements are to be gathered and related meaningfully. Bruner has made the following four general arguments for structure:

1. If one grasps the fundamentals of a subject, the subject becomes more comprehensible in that many particulars are clarified and seen in context.⁴

2. If details are organized in a structured pattern, they are remembered rapidly.⁵


⁵Ibid., p. 24.
3. If the fundamental principles and ideas of a subject are understood, a model for understanding other things in the discipline has been established. In other words, transfer of this knowledge to other areas and points of application is assured.  

4. If the structure of a subject is focused on in-the-school curriculum, the gap between "advanced" knowledge and "elementary" knowledge is narrowed.  

Conceiving disciplines as the only domain from which curriculum content can be drawn has been voiced strongly by Phenix, whose thesis is that "all curriculum content should be drawn from the discipline; or, to put it another way, that only the knowledge contained in the disciplines is appropriate to the curriculum."  

Phenix sees that a discipline is just a community of concepts which cannot thrive in isolation, but it has unity within itself with coordination and dynamism.  

6Ibid., p. 25.  7Ibid., pp. 25-26.  


9Ibid.
A culmination of the Phenix point of view is presented in his recent book, *Realms of Meaning*, in which he taxonomizes meaning into six fundamental patterns: 

1. **Symbolics**, which comprises ordinary language, mathematics, and other types of nondiscursive forms.

2. **Empirics**, which includes the sciences of the physical world.

3. **Esthetics**, which contains arts: music, the visual arts, the arts of movement and literature.

4. **Synnoetics**, which embraces philosophy, literature, and religion in their existential aspects.

5. **Ethics**, which includes moral meanings rather than fact, perceptual form, or awareness of relation.

6. **Synoptics**, which refers to meanings that are comprehensively integratives such as those found in history, religion, and philosophy.

However, many scholars take issue with the point of view in which discipline is conceived as the only context of school curriculum. At this point, it is sufficient to indicate that curriculum structure here is referred to as subject matter, or structure.

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One cannot deny that the current endeavors related to updating curriculum are very fruitful. But, they are only concerned with one dimension of curriculum structure, neglecting two other important dimensions of curriculum. The first dimension is the individual, the learner. It is evident that each individual has his own machinery of structuring: perception, conception, convergent thinking, divergent thinking, valuing system, attitudes, interest, and the like. A comprehensive structure of curriculum cannot exclude the learners with their many intra and inter variabilities. To put it differently, what is needed in curriculum is not only the structure with which the student encounters but also the structuring process which is inherent in each individual. The second dimension is the educational setting, or the classroom environment in which teaching-learning takes place. What is the nature of this social structure? What are its most important variables? How do they influence the individual student's structuring and learning? These questions and the like are left unanswered by the advocates of discipline structure.

Life problems a referrent

It is a well-documented fact that American society is witnessing a rapid and increasing change. This change touches every aspect of the American way of life. This change manifests itself
in technology, politics, economics, demography, social-class relations, student population, mass media, family relations, value system, person-to-person relations, leisure, personal security, and in world affairs. This change has a great impact on education in general and on curriculum in particular.¹¹

Many came to view this change as the source of disintegration in knowledge as well as in social life. Because of this view, some students of curriculum development have been convinced that conventional organization of curriculum around subjects is inadequate for producing effective American citizens. They argue that effective living cuts across the traditional organization of human knowledge; for life situations are not circumscribed by subject matters or any logical organization external to the situation themselves. Stratemeyer, Forkner, and McKim put it this way. "The experiences of everyday living do not necessarily fall into such areas as English, social studies, arithmetic, art, music, and the like."

¹¹Details concerning the impact of this change on education can be found in Social Forces Influencing American Education, The Sixtieth Yearbook of NSSE, Pt. II (Chicago: The University of Chicago Press, 1961).

The "persisting life situations" have become centers around which educational experiences can be grouped to constitute school curriculum for "general education." In this approach to curriculum structure, organized bodies of knowledge are used as a source, among other sources, to contribute to understanding of life situations. Advocates of this pattern of curriculum structure speak of it in various terms such as "core curriculum," "persisting life problems," and "unit of work." However, the assumptions underlying this terminology are the same. Instead of focusing on the subject matter or a discipline of it, the focus is made on the unification of knowledge around problems of living whose understanding and solving can be brought about only by drawing upon various fields of knowledge simultaneously.

This approach has been criticized by the advocates of the disciplines as a source for structure. They see in it a call for anti-intellectualism and neglect to the cultivation of mind in a systematic way.

The life situations approach, like the discipline approach, deals with only one dimension of curriculum structure, namely, the educational experiences. But unlike the first, this approach emphasizes the consumption of knowledge in understanding and solving the natural, social, and cultural problems. However, it
ignores the hard fact that education must be looked upon as a way of producing and discovering new knowledge, not only as a way of consuming and utilizing the available knowledge.

In this approach, as in the first one, little attention is given to the individual, his way of perceiving, conceiving, thinking, creating, and evaluating. In a word, the processes in which an individual structures his own thinking, and his own experiences are not adequately considered.

An underlying assumption, common to both patterns of curriculum structure, is that behavior is the function of knowledge. It is assumed in both patterns that people behave according to the facts and concepts as they are seen and organized by an outsider whoever he may be—an educational philosopher, a specialist in a subject matter, a curriculum planner, or a teacher, or a combination of these. Evidence from perceptual psychology and related fields does not support this assumption.

Bruner asserts that in social perception people (a) select those things that are somehow essential to the enterprise in which they are engaged, and (b) "recode" into simpler forms
the diversity of what they encounter in their social and physical environment. 13

Kelly writes on the same point:

One of the most revealing facts about perception is that it is selective, . . . The additional element which appears to determine perceptive intake is purpose. There is ample evidence now to show that all living tissue is purposive, and, of course in man this purpose partly, but only partly, on the conscious level. 14

Combs sees that behavior is a personal matter and individuals do not behave according to the facts as seen by others, but rather, according to how things seem to them. 15

Polanyi's thesis in his Personal Knowledge is another evidence. He conceives knowledge as an intellectual commitment in which what is known is fused into personal, purposive, and active comprehension of the things known in terms of a perceptive framework. 16


Furthermore, both patterns of curriculum have a common shortcoming, namely, overlooking the classroom environment and its unique structure—if one may continue the use of that term in yet another context. In terms of the evidence accumulated from the studies on the dynamics of instructional groups, curriculum must be designed with an eye on the structure of the classroom. How do group-individual relationships facilitate or block accomplishment? What kind, or kinds, of interaction between teacher and students contribute to maximum learning and self-fulfillment? What are the most productive instructional procedures? Under what conditions must they be followed? And above all, for what purpose? What is the teacher's role and the student's role in the classroom?

In this regard, for example, if pupil participation is desired, then a new and somewhat different attitude toward curriculum content must be taken, i.e., that the structures supplied by experts, in whatever forms they may be, are to be looked upon as an adjunct and resources for classroom rather than a prescription. To put it differently, both the "subject or discipline-centered approach" and the "life situation or problem approach" separate curriculum

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structure and planning from the teaching act. Herrick reflected on such a design as follows:

Curriculum planning and teaching act must be seen as clearly related aspects of the same essential task. Curriculum structures which do not lead directly to more effective educational action are sterile as teaching actions which are not based on some kind of curricular theorizing.\(^\text{18}\)

Both subject-centered and problem-centered approaches to curriculum structure fall short of satisfying this criterion which Herrick posited. In both patterns, teaching, or rather, instruction is considered out of the domain of curriculum.

**Experience as a referrent of curriculum structure**

A third major pattern of curriculum development is one referred to by various names: "experience curriculum," "needs," "interest," or "emerging curriculum." Hopkins defined this approach as "a series of purposeful experience growing out of pupil interests and moving toward an ever more adequate understanding of, and intelligent participation in, the surrounding culture and group life."\(^\text{19}\)


A typical example of this approach is that which Alberty and Alberty call Type-Five Core Curriculum. In this type, there is a tendency to eliminate both structured subject and discipline and structured problems. Advocates of this kind of curriculum assert that curriculum must revolve about activities which are germane to children and youth and the world in which they live. Proponents argue that structured subject and/or discipline as well as structured problems determine the learnings in the classroom and leave no choice of learning activities either to the teachers or to the students. In such a case the dynamic and creative behaviors of both the teacher and the students are limited. Instead, it is suggested that curriculum must be left to the teacher and his students. Planning is to be made as it seems necessary and needed. This planning could be made cooperatively by the teacher and the children or by the staff of a given school. The advantages claimed for such a curriculum are--

1. It develops an appropriate social and emotional climate which encourages children to express their concerns freely and allows teachers to know their children, identify their personal needs.

2. It emancipates both the teacher and the children from the tyranny of predescribed norms and expectations.
3. It gives an ample chance for both the teacher and the learner to be his own planner, learner, and evaluator.

4. It cultivates in both the teachers and the learners the sense of personal and social responsibilities and makes both learning and teaching more interesting.

However, a great number of disadvantages and difficulties can be seen in this approach.

1. This kind of program requires highly qualified teachers and teaching staffs which are hardly available to the great majority of schools and school systems. Most of the teachers are not prepared for this type of curriculum.

2. It eliminates the possibility of having a number of common activities upon which most of the children can work interestingly.

3. It neglects entirely the intellectual heritage which has been developed by mankind through the ages and must continue developing. Schooling is the only social institution assigned everywhere to transmit, examine, and develop this intellectual heritage for the best interest of mankind.

4. The attention given in this pattern of curriculum to the individual is vague, undisciplined, and misleading. It is kind of calling for playing a game without identification of rules or even the areas in which rules lie.
5. Furthermore, this type of curriculum deprives both the teachers and students of the fruits and many advancements which are constantly made in almost all the areas of intellectual endeavors.

It is clear now that the three major patterns of curriculum development suffer from the lack of comprehensive orientation and theorizing about curriculum. Each one of the above-examined patterns is concerned only with one dimension of curriculum structure.

Summary

In this chapter, we have delineated the need for a new perspective for viewing curriculum structure in much the same way that such a need for a new perspective for viewing educational objectives was developed in Chapter IV.

It is our purpose to turn, in Chapter VI, to a conceptual system which will bring these new perspectives to bear on the major elements of curriculum development, including both objectives and curriculum structure.

Already, the major bases for such a system have been established in what this investigator has called a humanistic approach to curriculum development.
CHAPTER VI

CURRICULUM AS A SYSTEM

The foregoing treatment of the major patterns of curriculum indicates clearly that curriculum structure is used to refer to different matters. Each of the three patterns focuses on only one component of curriculum. None explains the interdependence, the patterns of relationship, and the possible mutual influences between the component under focus in one pattern and the components viewed as central in the other patterns. As a consequence, there is no comprehensive conceptual framework for research in curriculum.

Commenting on curriculum research reviewed for the period 1960-63, Klohr and Frymier acknowledge the fact that:

Throughout the literature are persistent pleas for more adequate conceptual systems and improved theory. In the study of curriculum change itself, some notable beginnings were made during the period under survey. The state of the field is such that no tightly drawn categories can be used to organize the research under purview.¹

Macdonald and Raths support this assessment of the state of the field when they underscore the fact that, "Much curriculum has been unrelated or unrelatable to theoretical frameworks."\(^2\)

Looking ahead in a climate of change, Klohr asserts that in 1965 curriculum leaders have available a great wealth of technical knowledge that constitutes potential power which never before has been available. One of the basic needs he identifies is the need to develop more adequate conceptual tools to carry out the unique functions assigned to curriculum leaders.\(^3\)

This study aims to explore the utility and feasibility of applying system theory as a theoretical framework for curriculum theory and practice, and to formulate a viable "construct" or "model" which could be applied in theorizing about curriculum as well as in curriculum development.

In the first chapter the investigator has defined the terms to be used in this study such as curriculum, system, intersystem, model, and theory. He also explicated the common properties and general concepts drawn from system theory. The functions

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to be performed by a conceptual system for curriculum have been pointed out in the preceding chapter. This chapter is devoted to formulating an intersystem model for curriculum. Before presenting this model, its components, and the rationale underlying it, it seems appropriate to examine briefly some of the recently developed curriculum models. An overview of four models will serve this purpose.

**Curriculum design of the General College**

At the University of Minnesota (1943) the staff on developing the program of the General College conceived curriculum as consisting of four elements: (1) outcomes sought for students, (2) philosophy of life and education as seen by those responsible for the program, (3) the needs and interest of the students, and (4) the needs of society.

A triangle was used to depict this model, as shown in Figure 2.

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4*Ivol Spafford et al., Building a Curriculum for General Education: A Description of the General College Program (Minneapolis, Minn.: University of Minnesota Press, 1943).*
Such a design is restricted to listing of different aspects to be considered in curriculum development. It leaves many questions unanswered. Some of these questions are the following:

1. Do the needs of students and society determine the purposes? Or do the purposes determine the needs to be met by the program?

2. Do the needs of students and society serve as means, or ends, or both? In what manner can curriculum workers come to decision making on such issues?
3. What are the sources from which purposes can be drawn?

4. Are purposes and outcomes synonymous? In what sense?

5. How can needs and interest of students be accounted for in this design? And at what point(s) of curriculum development can these needs be accounted for?

6. What are the criteria upon which selection of educational experiences can be made?

7. On what ground has teaching been excluded from this design?

In short, the General College model is limited to largely a taxonomical function.

Curriculum design of the Thirty School Experiment

A second design was developed by the consultants of the Thirty School Experiment. Elements of curriculum have been conceived of as a set of factors to be accounted for in curriculum design. These factors are presented in Figure 3.
Fig. 3. --Curriculum design of the Thirty School Experiment


The merits of this design over the first one are (a) it indicates that the factors depicted in it are interrelated; (b) it includes subject matter and methods of teaching while these were omitted from the first one; and (c) it points to the fact that objectives serve as a base for selecting subject matter, teaching procedures, and evaluation.

However, several defects present themselves in this design: (1) neither the needs and interest of students, as well as those of society, nor the philosophy of life and education was considered in this design; (2) like the first design, it lacks explanation of the
nature of the claimed interrelatedness among the components of
curriculum; (4) conceiving objectives as a base for evaluation
means that the intermediate factors (those related to the learners
and the instructional procedures that play many significant roles)
have nothing to do with evaluation. Perhaps many will object to
this notion; and (5) furthermore, this design does not point out any
criterion according to which subject matters can be selected.

By and large, this design represents what this writer called
earlier in this study "objective models" and has all disadvantages
attributed to this kind of model.\(^5\)

**Taba's model**

A third model is Taba's design which is an extension of
Herrick's scheme of 1950.\(^6\) She conceives curriculum as con­
sisting of four elements: (1) objectives to be achieved, (2)
selecting curriculum experience, (3) possible centers for
organizing curriculum, and (4) the scheme of scope and sequence.
Her model is presented in Figure 4.

\(^5\)See pp. 109-111 in this study.

\(^6\)V. E. Herrick and R. W. Tyler, *Toward Improved Cur­
riculum Theory*, Supplementary Educational Monograph No. 71
A MODEL FOR CURRICULUM DESIGN

Objectives to be Achieved

Determined by Analysis of:  
1. Culture and its needs  
2. The learner and learning processes, and principles  
3. Areas of human knowledge and their unique functions  
4. Democratic ideals

Classified by:  
1. Types of behavior  
2. Content areas  
3. Areas of needs Etc.

Levels of  
1. Over-all aims of education  
2. School-wide objectives  
3. Specific instructional objectives

Selecting Curriculum Experiences

Determined by what is known about:  
Nature of knowledge  
Development  
Learning  
Learner

Dimensions of:  
Content  
Learning experiences

Affected by:  
Resources of the school  
Role of other educative agencies

Possible Centers for Organizing Curriculum

Determined by requirements of:  
Continuity of learning  
Integration of learning

Centers of organization:  
Subjects  
Broad fields  
Areas of living  
Needs, experiences  
Activities of children  
Focusing ideas Etc.

Affected by and affecting:  
The school organization  
Methods of using staff  
Methods of accounting for learning

The Scheme of Scope and Sequence

Determined by:  
Requirements of scope of learning  
Requirements of continuity of learning

Dimensions of:  
Scope and sequence of content  
Scope and sequence of mental operations

Affected by:  
Centers of organizing curriculum

Fig. 4. --Taba's model

This model seems more comprehensive than the first two. Many new considerations are offered and explained in detail. Although Taba has devoted a considerable portion of her book to issues such as learning as experiencing and discovery, the effect of social setting on learning, etc., her model does not incorporate the various processes that take place in the classroom. Furthermore, while Taba has presented a very adequate point of view on evaluation, she omits it entirely from her model.

Macdonald's model

Using some general concepts and properties of "system approach," Macdonald defines curriculum as "those planning endeavors which take place prior to instruction." He distinguishes curriculum from teaching, learning, and instruction. Macdonald illustrates his point of view in Figure 5.

The merits of this model over all the above mentioned models are several. It indicates that curriculum has many major elements, each of them can be identified, comprehended

7Ibid., chap. xi. 8Ibid., chap. xix.

9James B. Maconald, "Curriculum Theory: Problems and a Prospectus," speech delivered at the Professors of Curriculum Meeting, Annual Convention of ASCD, April 3, 1964, p. 4. (Mimeographed.) The same model can be found in the author's paper presented at the Annual Meeting of AERA in Chicago, February 1965. (Mimeographed.)
Fig. 5. — Macdonald's model

Source: James B. Macdonald, "Curriculum Theory: Problems and a Prospectus," Speech delivered at the Professors of Curriculum Meeting, Miami Beach, Florida, April 3, 1964, p. 4. (Mimeographed.)
Notes for Figure 5:

I--Course of study or a textbook.

II--The unique quality or flavor of any given class.

III--The unique patterns of experiences of a given teacher as they affect teaching behavior.

IV--The unique experiences, values, and attitudes of a given learner.

V--Concomitant learnings.

VI--Teacher's modification of his behavior in response to the immediate feedback in instructional situation.

VII--In-service experience.

VIII--Supervision experience.

IX and X--Pupil-teacher planning.

Macdonald gives these examples for areas included in his model.
with somewhat relative autonomy. The uniqueness of both the
teacher and student has been accounted for in this model. An
important distinction was made between teaching and learning.

By and large, this model represents a serious attempt in utilizing
concepts drawn from system theory in curriculum. However,
this model suffers from the following difficulties.

1. It includes many and different elements which are far
remote from influencing student behaviors such as supervisory
behavior, administrative behavior, and in-service training. Each
of these elements are dealt with by some scholars as somewhat
independent systems. Griffiths' work\(^\text{10}\) on administration as a
system and the effort made by Harris\(^\text{11}\) are cases in point.

2. Macdonald confines the functions of the curriculum
system to what is prior to instruction such as course of study,
teachers' guide, daily lesson plans, and the like. He considers
instruction as a "separate social system."\(^\text{12}\) The key words in
this phrase are "separate" and "social." To assume that the

\(^{10}\) Daniel E. Griffiths (ed.), Behavioral Science and Educa-
tional Administration, NSSE Yearbook, Pt. II (Chicago: The

\(^{11}\) B. M. Harris, Supervisory Behavior in Education (Engle-

\(^{12}\) Macdonald, p. 12.
curriculum system is separate from instruction and vice versa is to assert that each one of them can operate without the other. In other words, we can have curriculum without instruction and instruction without curriculum. This may be possible. This separation characterized the subject-centered approach. It seems, also, to characterize what has more recently been described as the discipline-centered approach.

One must face the possible consequences of separating curriculum from instruction. Some of these consequences are already observable. With the great effort, energy, and money recently assigned to identify the structure of disciplines, especially sciences, mathematics, and foreign language, little, or no, effort is directed to (a) linking structure of these disciplines to structuring processes in which an individual shapes his experience, (b) structure of other important activities in human life rather than science and mathematics, that is to say, the structure of curriculum as a whole, and (c) to instructional setting.

Viewing curriculum as separate from instruction implies that what is planned prior to instruction is, in itself, and by itself, "fitted" to instruction. This assumption is far from being substantiated.
No better witness testifies against this assumption than Macdonald himself, as he writes, recently, about structure—which is always made prior to instruction. He describes structure as a myth among other myths held about instruction. In his words:

Structure is an after the fact description of the way knowledge can be organized by mature scholars. It is not the basis from which the knowledge itself was developed. Further, as a coherent way of organizing a field of knowledge, it does not necessarily follow that this is the way to organize knowledge in the instructional setting [italics mine].

Macdonald, then, presents a long quotation from Ortega Y. Gasset in which he conceives the student involvement as the vital road to possessing a truth or knowledge of any kind. Following an interesting discussion on whether structure is to be understood as it is of a discipline or of knowledge, Macdonald concludes, "As a metaphor it [structure] suggests interesting possibilities for instruction. As a prescription it has much less probability of validity for instruction than it has in the realm of philosophical discourse about the nature of knowledge."14

What Macdonald is really saying here is that the fruitfulness of what is done prior to instruction is to be measured by its fitness

13James B. Macdonald, "Myths about Instruction," Educational Leadership, XXII, No. 7 (May 1965), 575.

14Ibid., p. 609.
to the instructional situation. It is, therefore, a very justifiable conclusion to say: what is prior to instruction should be in harmony with the instructional situation. This cannot be achieved when curriculum is separated from instruction in the way presented by Macdonald's model. The connection between what is prior to instruction and instruction is the heart of this investigator's model to be presented subsequently.

The second key word in Macdonald's concept of instruction is that it is a "social system." The word "social" needs to be defined in terms of the context of instruction as a distinctive phenomenon which takes place in a certain setting, with certain tools, for certain purposes. The loose use of the word "social" causes serious confusion about the nature of instruction. Is it "social" in the same sense in which the word "social" is applied, for example, to management, civil organizations, and political organizations? Many would agree that the answer to this question is "no," for instruction involves certain characteristics differentiating the school and the instructional setting from other social situations.

Summarizing, one could conclude that the first three models discussed here are made in terms of a limited conception of the term "model." One is justified to assess them as
performing a "listing," or taxonomic function, without establishing a dynamic order of curriculum in its complexity. Although developed in terms of some general concepts of system theory, Macdonald's model separates instruction from curriculum and includes some elements which are conceived by other scholars as having distinct autonomy. Reviewing these models, in addition to what was demonstrated in the preceding chapter as to curriculum structure, indicates clearly that there is no agreement on the nature of the main components of curriculum. Moreover, there is insufficient clarity about the patterns of interrelationships that connect these components, when they are identified.

**An Intersystem Model for Curriculum**

Conceiving curriculum as an intersystem signifies that there are supra-systems influencing the curriculum system. Of these supra-systems are the social system, the economic system, the educational system in its wholeness, and the like. It also indicates the curriculum system has subsystems operating within it. These subsystems interdepend on, and integrate with, each other.
A first step

Realizing that curriculum system is impinged on by supra-systems necessitates that a conceptual system for curriculum should be built in terms of a "meta-system." A meta-system could be a frame of reference which is larger than the system itself. This frame of reference is a must in conceiving curriculum as an intersystem. In other words, the curriculum system needs to be based on a frame of reference which serves as an integrating force that coheres the components, or the subsystems of curriculum, in one system. Otherwise, to borrow Mooney's wording, the problems of curriculum remain larger than the mind of the investigator. This is what Goodlad means by asserting that a conceptual system for curriculum is more than a theory.¹⁵

This necessity is what Griffiths refers to as presumptions required for theorizing about educational administration in terms of system theory.¹⁶ Such presumption-making constitutes an essential part of any scientific inquiry, and curriculum is no


¹⁶Griffiths, pp. 104-105.
exception. This task is what Maccia terms as development of "cognitive claims" in theory building. 17

The frame of reference in terms of which curriculum system is treated in this study can be described as a humanistic-scientific frame. The main features of this frame have been explicated throughout the preceding chapters as this investigator treated concept of man, transcended various dichotomies such as science-art and humanities, objectivity-subjectivity, and fact-value. 18 However, it seems appropriate to make this frame more explicit here before proceeding with developing the intended intersystem model.

Some of the major dimensions of this frame of reference are sketched here as a series of statements. They cover a wide variety of classes involved in the educational enterprise as a part of the whole human enterprise. It represents this investigator's stand as a member of a human profession called education.

MAN is the most outstanding phenomenon in the universe. His superiority to other living organisms and natural phenomenon is evidenced by his civilization.


18See Chapter IV in this study.
MAN, from his early days, has been engaged in transforming nature and human nature, for the purpose of establishing a human way of life distinguished from that of merely organic existence.

MAN'S civilization has been brought about by his capacities: to symbolize, reason, reflect, imagine, adventure, forecast, create, idealize, and seek control of his action in dealing with himself, his fellowmen, and with the natural events or occurrences.

CONTROL is always a result of constant transaction between man and his natural, social, and cultural surroundings. Man's capacities distinguish the human way of living from that of other organisms, in that, man lives in a self-created, symbolic, and cultural world. The human world is based upon concepts, assumptions, meanings, and goal-values which man has created, and imposed on his life.

CULTURE is a concept, or a construct, that signifies a composition of what people believe, assume, perceive, and aspire to; and how they pattern their organic functions, impulses, intellect, and feelings as their way of coming to terms with themselves and with the universe at large.

CULTURE in all its aspects is human-made: knowledge, art, science, social institutions, moral and social values, all are human-created.

It is just fair and common sense to assert that man should control his culture, not be controlled by his culture. Social institutions should be a servant to man, not his master.

EDUCATION in a general sense is a process through which a child or a youth encounters his natural and social environment including himself.

SCHOOLING is a system deliberately designed to help children and youth to encounter themselves in a social and intellectual context, his society in a world context, and human society in its past, present, and future.

The PURPOSE of schooling is to make better individuals at the best of both their actualities and potentialities, better society at the best of its members, and a better world at the best of all societies within COMMON HUMANITY.
CURRICULUM is a complex course of actions directed to fulfilling the purposes of schooling. It is a construct which signifies a planned series of goal-oriented activities—engaged in by a group of professionals, schoolmen, and students—sponsored by the school as a social and intellectual institution, for the purpose of producing fully functioning persons in time and place.

Thus, curriculum cannot be confined either to learning or to teaching, or to course of study or to teacher’s guide. It is a planned series in which the student encounters various systems, such as knowledge, persistent life situations, and classroom environment. Without active involvement of both students and teacher, curriculum is null and void.

In his involvement the student, as well as the teacher, operates as a unitary and integrative system. His totality supersedes his part-functions. He cannot, and should not, be reduced to any one of his components. 19

There is no fundamental separation of cognitive, affective, and psychomotor domains of the human being. Human behavior is embedded in a cognitive-emotional-psychomotor matrix in which no real separation is possible. 20

CLASSIFICATION or taxonomization of man’s behavior into domains and classes, within each domain, is a helpful way in our continuous attempt to understand man. But this taxonomization is always arbitrary and made for the others’ convenience, not for one’s convenience. In other words, taxonomization is made in terms of the spectator’s point of view, not in the actor’s point of view. A spectator’s point of view is a quite different matter from an actor’s point of view.


To conceive both points of view as identical is to commit a category mistake. That is to say, the spectator's view represents the third person, while the student's view represents the first person, and the distance between the two is obvious.

KNOWLEDGE, or rather organized knowledge, is man's supreme mental possession.

The most distinguished act of man's thought consists of producing knowledge, whereby, he brings uncharted domains of nature and human-life under his control.\(^{21}\)

However, "nothing that is said, written or printed has meaning in itself; for only the person—who utters something, or listens to other's utterance, or who reads—who can mean something by it."\(^{22}\) In other words, knowledge, if it is divorced from the knower, is dead letters, sentences, formula, and diagrams. This is to say that people do not behave according to the facts as they are presented, seen, or organized by an outsider. What a person does, learns, and thinks is a product of what has gone and is going on in his unique and personal awareness of what he encounters.

This is an overdue lesson to be learned from perceptual psychology and related fields. This is what Gibran has, eloquently, spoken of children:

Your children are not your children.
They are the sons and daughters of Life's longing for itself.
They come through you but not from you,
And though they are with you, yet, they belong not to you,
You may give them your love but not your thoughts,
For they have their own thoughts.
You may house their bodies but not their souls


\(^{22}\)Ibid., p. 22.
For their souls dwell in the house of tomorrow, which you cannot visit, not even in your dreams. You may strive to be like them, but seek not to make them like you. For life goes not backward nor tarries with yesterday. 23

Man has his being always in a human context. He is always being in relationship with his fellows. The interpersonal relations among men constitute a potential power for man's growth or hindrance of his growth. Even in his "aloneness" man is in a humanistic context.

The foregoing frame of reference constitutes the stage on which the proposed intersystem will be based. There is no claim on this writer's part that these presumptions are inclusive. However, they seem to this investigator consistent with each other so that they can be utilized as a base upon which curriculum can be treated as an intersystem.

The second step

The second step in developing a conceptual system for curriculum is to determine what the components of this system are. This is a legitimate and inevitable question. It is relevant to bases on which a researcher can divide a complex phenomenon such as curriculum into small units which can be dealt with as subsystems.

In this regard, two points of view are revealed in literature:

1. The first point of view can be sampled by what Forrester asserts in this connection as he writes, "For the present time there seems to be no objective methods that are effective" in determining what shall be included in and excluded from the system.\(^{24}\) He seems to encourage the researcher to employ his professional opinion as to what are the characteristics of the system in question. According to him, "To propose modes of dynamic behavior of a system before a system model is constructed is to prejudge the answer."\(^{25}\)

The underlying assumption of this point of view is that a system cannot be regarded as a fact of nature, but it is a pattern which has no objective existence. It is a pattern because someone declares a connection of items to be meaningful or cohesive. Another relevant and complimentary assumption to the former is that human beings actually impose order on reality, not discover order in it.


\(^{25}\)Ibid.
If we are to use this point of view in establishing a conceptual system for curriculum, every researcher can go ahead and, arbitrarily, develop a model that seems to him appropriate. It appears that this is the case presented in all the models examined in the preceding section of this chapter. Teaching and evaluation, for example, were included as components of curriculum in some of those models, while they are excluded from others.

Applying this point of view to curriculum is of little, or no, help. It does not yield sound theorizing about curriculum. For, if each researcher is to use his arbitrary division of the system, which may be logically admissible, then sound theories of curriculum which are testable and from which generalizations may be drawn cannot be reached.

2. The second point of view concerning the components and characteristics of a system is asserted by Brodbeck and others. In Brodbeck's view a model cannot be devised for an area about which little is known unless there is another area about which a relatively well-developed theory is at hand. If this is the case, the second area through its laws and descriptive terms can be used as a model for the first area. Her frequently quoted example is the following:

... suppose it is wondered whether rumor spreads like diseases. That is, can the laws of epidemiology,
about which quite a bit is known, be a model for a theory of rumor transmission? Or, to say the same thing differently, do the laws about rumors have the same form as the laws about diseases? The descriptive concepts in the laws of epidemiology are first of all replaced by letter variables. This reveals the form of the laws. The concepts referring to diseases are put into one-to-one correspondence with those referring to rumors. The letter variables in the epidemiology laws are replaced by the descriptive terms referring to rumors. This results in a set of hypotheses about rumors, which may or may not be confirmed. If, optimistically, these laws are confirmed, then the two theories have the same form.26

In this point of view two necessary conditions must be secured for constructing a model. The first is, there must be a one-to-one relationship between the elements involved in Area X and Area Y. The second is, the relationships between the elements in Area X must represent the same patterns of relationship to one another in the same manner in which the elements of Area Y do.27 This is what Brodbeck calls "ismorphism," meaning the similarities between the two areas.

The definition of model advocated by Brodbeck is this, "Two theories whose laws have the same form are isomorphic


27Ibid., p. 374.
or structurally similar to each other. If the laws of one theory have the same form as the laws of another theory, then one may be said to be a model for the other. 28

Undoubtedly, Brodbeck's definition of model is somewhat rigorous and may be restrictive for research in curriculum. Griffiths expresses the same feeling as he applies this definition of model to administration. 29

However, this point of view seems to have a considerable impact on the students of curriculum. This impact is evident in a model proposed by Mackenzie in which he applies the factors identified by Laswell in the political process, to identify and explain the relationships among the factors involved in curriculum development. 30 The same attempt was made by Huebner. 31

This impact can also be observed in the graduate courses designed for curriculum theory. Herrick's students at the

28Ibid., p. 379.


University of Wisconsin developed some models for analyzing classroom episodes by borrowing psychological, analytical, and communicative models and applying them to the instructional situations.\(^\text{32}\)

Klohr's students at The Ohio State University searched for models from other disciplines such as psychology, sociology, and management to be applied to curriculum development.\(^\text{33}\)

The point of view reflected in this approach to "roaming the other disciplines" may be restrictive to research in curriculum. Some of the limitations seem to lie in the following:

1. If Brodbeck's point of view is to be taken as a general rule in developing models, this rule raises a question about the validity of many models. Essential in her view is the reliability of a model is to be judged on whether or not it has been based on a previous valid model. If this is the case, on what base can the validity of the first model be judged?

2. "Ismorphism" of which Brodbeck speaks cannot be complete at all. It may be in the form of laws operating in two


\(^{33}\)Reference is made to Education 863, Curriculum Theory, Professor Paul R. Klohr, The Ohio State University, Columbus, Ohio, Autumn Quarter, 1964.
areas. But it is impossible to be in the content. For each area has its distinct content which is not identical with any other area. Spread of rumors, for example, may be similar to spread of diseases only at the form-dimension which we conceptualize, but not in the content. In other words, in epidemiology one deals with microbes, but in rumors one deals with sociological and psychological aspects operating in human beings.

By the same token, curriculum phenomena are not identical to either psychological or sociological or to managemental phenomena. Curriculum phenomena cannot be reduced to one or more of these phenomena. Curriculum has a unique structure which must be conceived, searched for, analyzed in and for its own right. A borrowed model may be useful in exploring one aspect of those involved in curriculum, but it cannot, and should not, be looked upon as a comprehensive and adequate model for curriculum.

3. Brodbeck's view is accepted only if "model" is used synonymous to theory. And according to Brodbeck, herself, this is unnecessary use of "model."34

34Brodbeck, p. 381.
A third alternative

A third alternative is possible in regard to determining the components of a system. Before elaborating on this alternative, a word about the nature of curriculum system, as it is used in this study, is in order.

It should be clear at the outset the intersystem, in which this investigator speaks of curriculum, is a conceptual system or a theoretical system. The model to be developed for this system is a problem-oriented model. It should be distinguished from other product-oriented models which are developed for empirical systems such as those developed by the engineering scientists whose immediate interest is to control a phenomenon and to deal with the system empirically for the purpose of production. The model to be developed in this study is intended to conceptualize the major variables involved in a complex phenomenon called curriculum and, then, to translate them into conceptualized dimensions which can be utilized in formulating both an adequate curriculum theory and reliable curriculum development procedures.

The third alternative point of view in regard to determining the components of curriculum is based on the distinction made by
Elizabeth Maccia between two types of model: (1) model of and (2) model for. Maccia explains her point of view this way, "To be a 'model of' is to represent something, and to be a model 'for' is to be represented in something." She clarifies this notion by saying:

Consider a young woman who is hired by Power's as a model. The assumption is that the reason for her employment is her representation of the ideal in figure and manner. She is a model of the ideal. The ideal in this case might be a tendency toward the real, a statistical norm, although cursory observation on my part would indicate not. She, in turn, becomes a model for other young women.  

Maccia designates "a first-order" model for a model of, and "a second-order model" for a model for. The first is logically equivalent to a theory, and the second is a point of view, a conjecture, a model, for a theory.

The model to be developed here is a model for curriculum, not of curriculum, in which the term model is used in a second-order sense. In other words, it is a cognitive-claimed ideal for curriculum.


36Ibid., pp. 5-7.
To develop a model for, or a point of view for, curriculum system, one is required, first of all, to view the so-called curriculum phenomenon. He, then, is to present his point. The third alternative on which the main features or the subsystems of curriculum are determined in this study is more conservative than the first point of view expressed by Forrester and more liberal than Brodbeck's point of view. The point of departure in this alternative is to view carefully the phenomenon in question. This is an inescapable task for determining what are the components of the phenomenon under consideration.

The second task, guided by this view, is to conceptualize the structure of this phenomenon and the relationships which govern its dynamics. The second task is not an arbitrary operation. It should be in accord with the criteria set for comprehensive conceptualization. As to curriculum, two criteria developed by Herrick are essential for such sound conceptualization: (1) to be capable of accounting for all factors that are involved in curriculum, (2) capability of defining the coherency of these factors both to themselves and to their action point.

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37 See p. 197 in this study.

38 Herrick, pp. 17-18.
Curriculum components

This investigator searched the field to identify the major features which are considered—by competent individuals, as well as by the professional organizations—to be the elements of curriculum. Each of the following four elements is considered an important feature in curriculum discourse. They are identified here as elements I, II, III, and IV. Each of I, II, and III will be explicated to demonstrate what is involved in building a model with these elements. No effort is made in this study to deal explicitly with IV other than to show that it constitutes a vital component of the total.

I. Curriculum content

The importance of this element both in curriculum theory and practice is not new. There has, however, been a renewed emphasis in the wake of Bruner's stimulating book, The Process of Education. Many projects have been launched for updating curriculum content in terms of the structure of the various disciplines. Examples of these projects are: School Mathematics Study Group (SMSG), Physical Science Study Committee (PSSC), Chemical Education Material (CHEM), the program of teaching foreign language in the elementary school (FLES), and many others in various subjects.
In addition, one finds that content of curriculum is the theme on which authorities as Arthur W. Foshay, Arno A. Bellack, Philip H. Phenix, Joseph J. Schwab, to mention only a few, have written intensively in the last five years. It is also the theme of such publications as *What Shall the High School Teach?* The 1956 Yearbook of ASCD; *The Nature of Knowledge*, edited by William A. Jenkins, a collection of papers read at the University of Wisconsin (1961); *Deciding What to Teach*, a volume of the Instructional Program of the Public School sponsored by NEA.

II. The psychological processes involving curriculum

The crucial importance of this element in curriculum is evident from extensive and numerous studies reviewed in Chapter IV, in the most recent *Review of Educational Research* (June 1963) under a similar heading. Other publications centered on this element are illustrated in yearbooks of The National Society for the Study of Education, *Individualizing Instruction* (1962), *Child Psychology* (1963), and the following yearbooks issued by Association for Supervision and Curriculum Development: *Perceiving, Behaving, Becoming* (1962), *Individualizing Instruction* (1964), and many articles in *New Insights and Curriculum* (1963), and several pamphlets issued by the same organization such as *Learning More*
about Learning (1959) and Freeing Capacity to Learn (1960), both edited by A. Frazier.

III. Instructional procedures and classroom structure

In this area extensive research and writings have been undertaken. Examples of these are: David G. Ryans, Characteristics of Teacher (1960); Amidon and Flanders, The Role of the Teacher in the Classroom (1960); Marie Hughes and Associates, Operational Definitions (1962); B. O. Smith and Milton O. Meux, A Study of the Logic of Teaching (1960); D. G. Ryans, A Model of Instruction (1963); Handbook of Research on Teaching, edited by Gage (1963); The 59th Yearbook of NSSE, The Dynamics of Instructional Groups; and Theory and Research in Teaching, edited by Arno A. Bellack (1963).

IV. The outcomes of curriculum or the outputs of curriculum as manifested in student behavior

This is the element which Taxonomy of Educational Objectives, by Bloom and his associates (1956, 1964) is devoted. A part of this domain was explored by Guilford, "Three Faces of Intellect" (1959).

It may be added here that writing of many scholars, who can be called "humanistic psychologists," in that they advocated
the scientific-humanistic approach in the study of man, fall in this area. Examples of this group are C. A. Rogers, A. H. Maslow, E. C. Kelley, Arthur W. Combs, Ross L. Mooney, C. E. Moustakas, Hadley Cantril, and Walter B. Waetjen, to mention only a few.

In view of the basic importance of each of the foregoing elements, this investigator is justified in using them as main features, or the subsystems, of curriculum. Explication of the nature of each of these subsystems, in itself, and in its relation to the other subsystems and to wholeness of curriculum as an intersystem, is the task to be performed in the subsequent sections of this chapter.

Curriculum Content

The current debate on content of curriculum is not new. It goes back to the old question asked by Herbert Spencer in 1859, "What knowledge is of most worth?" One gathers from the literature on curriculum that there is a fair agreement on the importance of the organized knowledge to school curriculum. Disagreement seems to be on some questions such as these: What is the nature of knowledge? What is source(s) of knowledge to be incorporated in curriculum? What are the appropriate ways in which this knowledge is to be organized for instructional purposes?
Answers to such questions are often made with reference to the three patterns of curriculum development: subject-centered, discipline-centered, and problem-centered, with which the investigator already has dealt in the preceding chapter. The investigator, at this point, shall speak of all these patterns as dealing with curriculum content. In this section, curriculum content will be treated from the vantage point of its nature and organization.

The fallacy of logical organization vs. psychological organization

The traditional subject-centered approach to curriculum has been under fire since the turn of this century. Some of the criticisms of it were made by Dewey and his followers. Dewey, perhaps more than anyone else, has drawn attention to the gap between the child's experience and the logically organized knowledge, as formulated in the traditional subject matter. In his words, "The studies as classified are the product, in a word, of the science of the ages, not of the experience of the child." The point was made clear later in his writings as he asserted,

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"Subject matter of the learner is not . . . , it cannot be identical with the formulated, the crystallized and systematized subject matter of the adults; the material as found in books and in works of art, etc. "40

He also differentiated between the logical method in which the pupils learn a "science" and the psychological method in which they learn the proper modes of the scientific treatment. 41

At this point one gathers that Dewey was talking about three distinctive classes: (1) the logical structure of subject matters, (2) the psychological process of learning, and (3) modes of the scientific treatment.

This is, perhaps, a fair inference from the above mentioned quotations. But it is interesting and significant to notice the further extensions made of Dewey's position.

Kilpatrick, in 1925, wrote his Foundation of Methods in which he speaks of "psychologizing subject matter" by which he refers to "the work of the teacher in preparing the learning of his pupils." 42


41 Ibid., p. 220.

Bode devoted a whole chapter in his *Modern Educational Theories* to two kinds of organizing subject matter: the logical and the psychological. He conceived the logical organization as the one that "aims to arrange knowledge in such a way as to show the relation of premise to conclusion," which is always made in a pure objective and impersonal fashion. As contrasted with a logical organization, a psychological organization is a quite different matter, with its center of reference is the individual learner, and his actual process of learning. And so the story went for a long time.

The point of interest here is to point out that to speak of organizing knowledge logically and psychologically is, to commit an epistemological mistake, or in Ryle's terminology, "a category mistake."

Subject-matters or knowledge cannot be organized psychologically for a very simple reason, that is, knowledge has not a psyche. One, therefore, should not speak of it in adjectival manner as psychological unless it refers to the human being, who has a psyche. Knowledge in whatever form it may be, subject

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44Ibid.
matter or discipline, falls in the realm of already recorded symbols. In other words, knowledge is organized after the fact. It is a matter of public enterprise upon which a community of human beings, called differently, scholars or scientists, mathematicians, or whatever name, worked according to somewhat established rules. Knowledge is a product of collective human endeavors.

On the other hand, experience is a noun of experiencing and experiencing is a process which takes place during the fact. Experiencing is a private and personal style.

Furthermore, subject matters can be organized logically, causally, spatially, or chronologically, depending upon the nature of the way in which the main elements are related to each other. Each subject matter has its own distinctive logic. Psycho-logic is distinctive from the logics of organized knowledge. Psycho-logic is not identical with other sorts of logic. Reference has been made earlier to what Mooney calls upon the scholars to inquire into what is logic in bio-logic? What is logic in psycho-logic, and what is logic in socio-logic?

The knowledge which can be spoken of as psychological is distinctive from the already formulated and organized knowledge.
Polanyi designates "tacit" knowledge for the former and "explicit" knowledge for the latter as he writes:

What is usually described as knowledge, as set out in written words or maps, or mathematical formulae, is only one kind of knowledge, while unformulated knowledge, such as we have of something we are in the act of doing, is another form of knowledge. 45

The prerequisiteness of the latter type to the former type of knowledge is described by Polanyi this way:

If we call the first kind explicit, and the second, tacit knowledge, we may say that we always know tacitly that we are holding our explicit knowledge to be true. . . . Tacit knowledge appears to be a doing of our own, lacking the public, objective character of explicit knowledge. 46

The explicit knowledge may be linked to a graphic map, a ready-made map, which can be bought. The second, tacit knowledge, may be spoken of as a mental-emotional map. The point of interest here is that articulate knowledge is a tool box, an external instrument which has no meaning in itself and can be given different meanings by different people. It is only a person who can mean something by what he sees, says, reads, or listens to.


It should be clear that what is intended here is to make a distinction, not a separation, between the organization of knowledge and the organization of the psychological process.

In curriculum theorizing, curriculum development, and curriculum implementation, this distinction must be accounted for. The classical approach to curriculum planning is focused only on the organization and integration of content. Bloom, for example, speaks of the integrative threads, meaning the ideas, problems, methods, or any other device by which two or more separate learning experiences are woven or organized. He conceives these devices as the basis for organizing curriculum. Goodlad writes on the "organizing centers." Both Bloom and Goodlad are dealing only with integration and organization of curriculum content which is different, in both nature and order, from the integrative and organizing processes within the learner himself.

Although integration and organization of curriculum content is an important dimension of curriculum development, there is no

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guarantee that integration of content will in itself enable individuals to integrate their experience.

Quite to the contrary, a "premature organization of knowledge or the cultivation of undue respect for formalized knowledge may ... stifle the integrative urge" of a person. 49

The distinction between the nature and order of these two types of integration has been pointed out by Guilford in his work on structure of intellect. It is also accounted for by Taba as she writes about a double sequence in curriculum planning: (1) sequence of mental operations and (2) sequence of curriculum content. 50

In view of the foregoing discussion the investigator presents content of curriculum as a subsystem distinctive from; but inter-related to, and interdependent on, other subsystems within the curriculum.

**Disciplines as a Source of Curriculum Content**

In the last sixty years, or more, the educators as well as the specialists in various fields of knowledge expressed their

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dissatisfaction with the time-honored subject-centered approach to curriculum content. A new substitution was offered recently under the banner of discipline-centered approach. References are often made to this approach by "structure of the discipline," "style of thought," and "method of discipline." Such expressions are found in the literature without clear definition. Consequently, they carry multiple meanings and are understood differently. The dominant term is, perhaps, "structure of discipline," and, therefore, it merits examination before proceeding to speaking of curriculum content as a subsystem.

Phenix, a proponent of disciplines as the only source of curriculum content, asserts that, "All curriculum content should be drawn from the disciplines, or, to put it another way, that the only knowledge contained in the discipline is appropriate to the curriculum."\(^5^1\)

The implicit assumption underlying this assertion is made explicit by Phenix as he writes, "There are kinds of knowledge which are not found in a discipline. Such nondisciplined knowledge is unsuitable for teaching and learning. It is not instructive."\(^5^2\)


\(^{5^2}\)Ibid., p. 58.
A discipline is defined by Phenix as "knowledge organized for instruction." In such a definition there are two classes of phenomena: (1) organized knowledge and (2) instruction. These two classes are different in nature and must be distinguished from each other. Organized knowledge is a series of abstracts derived from the accumulated experience of the human race throughout the history of man's thought. Instruction is a series of acts and reacts engaged in by the teacher and his students. Success or failure of the instruction does not depend solely on knowledge and its organization. An instructional situation entails (a) an instructor (a person who teaches) and (b) a person who is intended to be influenced by instruction, (c) media of instruction. Success or failure of instruction is dependent on the fitness of each of these variables to the other two. In other words, knowledge per se, in whatever form it may be, cannot instruct.

As Macdonald, recently, argued that to say that a field of knowledge has its way of organization does not necessarily mean that this is the way to organize knowledge in the instructional setting.53

Etymologically speaking, the word "discipline" is not confined to organized knowledge. Discipline is derived from the Latin word "disciplinus" meaning a "disciple" (a pupil, a follower, or adherent of a teacher). It is interesting and, perhaps, significant to note the seven meanings cited for the word "discipline" in Webster's New International Dictionary:

1. A branch of knowledge; 2. training that develops self-control, or orderliness and efficiency; 3. the result of such training; 4. acceptance or submission to authority and control; 5. a system, or, rules and methods; 6. treatment that corrects or punishes; 7. as a verb "discipline" means to subject a person to discipline.

Reflecting on these meanings Maccia seems to confine the "discipline-centered approach" to two meanings: (1) rules of practical conduct and (2) organized branch of knowledge. The point of interest in Maccia's view is that she conceives instruction as a phenomenon larger than knowledge. Further significance in her view is that neither of the two meanings she selects is exclusive to the other.

This investigator proposes that there is no solid ground for confining curriculum content to the traditionally known disciplines.

54 For more details on Maccia's view see Elizabeth Maccia, "The Nature of a Discipline-Centered Curriculum Approach," Social Studies Center, Occasional Paper 64-166, Bureau of Educational Research and Service, The Ohio State University, Columbus, Ohio, 1964.
Human life contains many important aspects which do not lend themselves to any given discipline, or group of disciplines. Some of these aspects are health, hygiene, ethics, vocations, technology, worthy home membership, and communication.

Today's life affords tremendous possibilities of knowledge, rules, and understandings which cannot be claimed by a particular discipline. That is to say, now-formulated models of knowledge do not and cannot exhaust the fullness of reality and knowledge as a whole. Educationally speaking, it is the duty of the contemporary scholars to inquire into the nature of these still unformulated knowledges and to render them "functional" for instruction.

The concept of "structure" as set by Bruner, who is, largely, to be credited with introducing this concept into the educational discourse, is neither rigid nor static as many understand it. In his words:

"The organizing ideas of any body of knowledge are inventions [one might well insert--not something inherent in a body of knowledge] for rendering experience economical and connected. . . . Their power lies . . . in the fact that ideas provide instruments for experience." 55

The key words in Bruner's assertion are "inventions" and "instruments for experience."

55 Jerome S. Bruner, On Knowing (Cambridge, Mass.: Harvard University Press, 1962), p. 120.
Realizing that concepts or organizing ideas are inventions should prevent us from being blind or closed to new ideas or new concepts to be invented for the content of other aspects of life. The reliable concepts of the nineteenth-century science proved to be incredible to the modern science. By the same token, some reliable concepts of today may be proven incredible tomorrow. This is the very nature of concepts. A concept is not a word. It is an act of generalization embodied in a word. It is a set of operations which are referred to by a word. Operations in any field, physical, biological, psychological, social, or technological, are always in constant evolution. New concepts come out of evolutionary processes in nature and human nature. Thus, structure of any discipline is always subject to change.

This is what Schwab conceives of structure as he says:

... the logical forms, the conceptual structures [of] the disciplines are themselves corrected continuously by a reflexive examination of the very knowledge, decision, or art of work they produce; that is, they lay the ground of their own demise and replace themselves. 56

The second key in Bruner's assertion is the phrase "instruments for experience." Given the structure of a discipline is an instrument for experience, or rather, experiencing should

convince us that there is another and important dimension of curriculum—namely, the experiencing of the learner; the building up, or the structuring of his experience. This is the second dimension to be dealt with later. It suffices at this point to say the maturity of the learner, his background, or the context of his own personal experience, cognitive and noncognitive, are as important as the logical structure of disciplines. Vygatsky puts it this way, "The development of concepts or word meanings presupposes the development of many intellectual functions: deliberate attention, logical memory, abstraction, the ability to compare and to differentiate."^57

Vygatsky goes on to emphasize the crucial importance of the psychological processes, which take place in the learner, by adding that a teacher who tries direct teaching of concepts usually accomplishes nothing but complete verbalism, "stimulating a knowledge of the corresponding concepts but actually covering up a vacuum."^58

This means, in effect, that the structure of the disciplines, themselves, are not sufficient. The psychological processes are equally important. To suggest that "any subject can be taught effectively in some intellectually honest form to any child at any

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58Ibid.
stage of development is to assume that the intellectual functions of the learners are identical or, at least, have a great resemblance to the complicated models of thought as seen by scholars who are in charge of structuring the various disciplines of knowledge. This assumption has not yet been substantiated in empirical research.

**Subject-centered vs. discipline-centered**

Incompatibility between the subject-centered and discipline-centered approaches is claimed on the ground that the former approach restricts the content to covering isolated bits of information which contribute little to both systematic development of knowledge and development of the learner. Another advantage claimed for discipline-centered over subject-centered is that the latter emphasizes factual and descriptive content while the former focuses on the basic concepts and methods of inquiry.

On the other hand, the problem-centered approach is thought of as preferable to both on the ground that it relates education to forms of life which are worth living, education which falls within the scope of ordinary life-experience.

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This investigator takes the position that none of these claims and anti-claims is inherent in one approach or another. The differences among these approaches stem from other sources such as: (1) the domains of human living for which the school has responsibility, (2) the importance and significance of curriculum content in the process of education, and (3) the roles to be played by both the teachers and the students in implementing and assimilating the curriculum content.

An assumption common to the three approaches is that content of curriculum is the determinant of behaviors both of the teacher and of the student. That is to say, the teacher and students are looked upon as reactive human beings. This is an unwarranted assumption against which Maccia argues this way.

... any given content of teaching cannot be stamped into the learner. The student is involved in the determination of not only whether he will respond but also in the determination of the nature of his response. Any given content, therefore, whether it is organized along discipline line or not, is [only, one might well insert] a possible context for response selection.60

The significance of this point is that content is only a dimension of the large system we call curriculum. Decisions related to this dimension must be made in terms of the nature and the requirements of the other subsystems of curriculum.

Atomizing the curriculum

Contemporary efforts to redefine the structure of each discipline seem to ignore the structure of the instructional program as a whole. As far as "general education" is concerned, it is inevitable to ask, "What general structure of the curriculum can be developed so that the autonomy of disciplines does not result in an atomized curriculum?

Bellack expresses this basic need this way:

When one looks beyond the structure of the individual disciplines and asks about the structure of the curriculum, attention is focused on relationships among the various fields that comprise the program of studies. For just as relationships among ideas is at the heart of the concept of structure as applied to individual disciplines, so relationships among the disciplines is at the heart of the notion of structure as applied to the curriculum as a whole. 61

The danger of focusing on the structure of discrete disciplines stems from one stubborn fact: each of the specialized fields tends to provide children with a specific frame of reference and sets limiting conditions for the accomplishment of purposes intended by other fields. In other words, what is needed in "general education" is to avoid premature closure which is

typical of the individual disciplines. Put differently, curriculum, as a whole, should be structured in such a way in which the child does not cling to one specific frame of reference of a discipline and be closed to other frames. This need has been expressed, recently, by Sizer in what follows:

We need to look at the curriculum as a whole as well as subject by subject, and we must do both simultaneously... The curriculum development movement... in its attempts to improve the schools subject by subject has performed a useful service. The time has come now for such inquiry to go forward on broad front. 62

Several proposals have been made to conceive the inter-connections among the fields of knowledge included in the curriculum. Two such proposals were made recently. The first is the Phenix proposal referred to already in this study; 63 the second was made by Bellack.

Bellack 64 suggests three types of relationships among the teaching fields that comprise the curriculum:

1. Relationships among cognate or allied disciplines that deal with similar problems or phenomena. Examples of this type are the relationships among the social sciences whose

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63See p. 164 in this study.

64Bellack, pp. 29-32
common objective is study of man in his social and cultural behavior, and the relationships among natural science, whose common concern is to describe and explain physical and biological phenomena.

2. Relationships among the broad areas of knowledge—the sciences and mathematics on the one hand, and the humanities on the other hand.

3. Relationships of knowledge to human affairs. According to Bellack, a general education program should include—in addition to natural sciences, physical sciences, mathematics and humanities—a coordinating seminar in which the problems "in the round" are brought about with special effort to show the bearings of the fields of study on the nature of these problems and their solutions.

Bellack's proposal is based on the assumption that in spite of the variety of logical orders characteristic of knowledge in its various branches, there are some principal kinds of cognitive operations or modes of thinking that characterize man's intellectual activities.

Following Peterson, of Oxford University, Bellack asserts that knowledge included in the secondary schools program can be organized in terms of development in the main modes of intellectual activities: the logical (or the analytical), the empirical, the moral,
and the aesthetic. Some of the difficulties involved in Bellack's proposal are the following:

1. Modes of inquiry are the operations mature scholars say they follow in their intellectual activities. Do all individuals at all ages follow the same patterns in their mental activities? There is no definite answer to such a question. At least, the work of Jean Piaget suggests that there are some evolutionary stages in which development of thinking progresses from simpler to more complex levels: (1) the sensory-motor period (birth to two years), (2) pre-operational period (two to four years), (3) intuitive thought (four to seven years), (4) concrete operations (eight to eleven years), and (5) formal operations (eleven to fourteen years).  

The assumption underlying Piaget's work is that the thinking of children is essentially dissimilar to that of adults.

2. Another difficulty related to modes of inquiry, as a unifying concept for the discrete disciplines of knowledge, is that thinking in any mode is not a unitary operation. Guilford revealed that with any content of thinking, there are possible five

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operations: cognition, memory, divergent thinking, convergent thinking, and evaluation.  

In view of Guilford's work one can conclude that there is no sound basis for assigning some mental operations to a specific field of knowledge and other operations to other fields.

3. Implicit in both the Bellack and Phenix proposals is the assumption that the organization of knowledge as seen by scholars is identical with the organization of knowledge for instruction. The inadequacy of this assumption has been admitted, recently, by Phenix as he asserts, "It is not to be assumed that the architectonics of knowledge is necessarily the same as the architectonics of instruction." He elaborates on this point further this way, "Again, it should be noted that the organization of knowledge does not necessarily provide a complete basis for organization of curriculum. Other considerations—particularly developmental, cultural and social factors—are relevant."  


68Ibid., p. 46.
The Content of Curriculum as a Subsystem

The foregoing discussion reveals the following facts: (1) It is thought, erroneously, that knowledge, per se, in a certain type of organization is instructive. (2) Organization of knowledge and organization of the mental processes or modes of thought are confused with each other. (3) A basic need is expressed by many experts for giving attention to the structure of curriculum content in its wholeness as well as to structure of each part included in it.

This section is devoted to providing a viable construct through which the two misconceptions can be avoided and the basic need can be met. The essence of this construct is to conceive the content of curriculum as a subsystem distinguished from, but related to the psychological forces, a second subsystem, and to instructional environment, a third subsystem of curriculum as an intersystem.

Conceiving the content of curriculum as a subsystem means that although a wide variety of elements is included in the content of curriculum, these elements are integrated with, and enriching each other in a dynamic way. That is to say, the content of curriculum in its variety has a unity, its elements are interrelated to, and interdependent on, each other.
Such a conceptualization entails a unifying and integrative concept through which all elements included in the content of curriculum can be interwoven with each other in a meaningful manner. The investigator proposes the concept of evolution, or emergence, to perform this function. Many attempts have been made in the last hundred years to develop a unified concept of nature and man's nature. Since 1859, as Darwin opened the door, the concept of evolution has been utilized by many scholars in various fields as an integrating system concept. There have been serious efforts to understand the implications of evolution in the natural, biological, social, and psychological phenomena. The purpose of these attempts was to arrive at a somewhat comprehensible picture of the universe in which man lives, of his place and role in it, and of his significance and destiny within it. The concept of evolution is applied "to all aspects of reality, from atoms and stars to fish and flowers, from fish and flowers to human societies and values."\(^69\)

The perennial purpose of "general education" is to help the young of the human species, individually and collectively, to develop the necessary skills, abilities, and attitudes for making

better understanding of the evolutionary processes that take place in nature and in all aspects of the human life. This understanding is essential to man's progressive transformation as well as to nature transformation.

Sources of content

Given this as an acceptable conception of the ultimate aim of "general education" the investigator proposes, with gross simplification, the following fields as the main sources of the content of curriculum: (1) the physical field, (2) the biological field, (3) the hominological field, and (4) the praxiological field.

The word "field" is used here to designate that each one of these fields represents a relatively continuous medium within which elements interact with each other to produce new configurations.

The term "hominological" is coined and introduced in educational literature for the first time by Maccia. This term is intended to encompass knowledge on both individual and group human behavior. The term" hominological" is preferable to such terms as "social," "behavioral," and "psychological." As Maccia puts it:

"Social" has the difficulty of ruling out the "psychological" which emphasizes the individual. The terms "psychological" and "behavioral" also are deficient.
"Psychological" has the difficulty of ruling out the social, and the added difficulty of emphasizing mind as an entity over and above the body ("psychological" comes in part from the Greek "psychikos," meaning soul or spiritual component). "Behavioral" has the difficulty of bringing in concerns relating to animals' behavior which properly belong in biology. "Hominological" formed in part from Latin, "homin," indicates the family Hominidae, and so the true concern which is man.  

The term "praxiology" is used to encompass the field in which theory and practice are combined. This term is taken from Kotarbinski, a Polish scholar. By praxiology he means "the science of efficient action [or]... what is advisable to do under definite circumstances in order to attain the intended results in the most efficient way."  

Another label for this field might be the "technological field" with two types of technology: (a) the material and the scientific technology in which man employs operational procedures for controlling the characteristics of the material elements, for producing new operations in and out of these materials, and (b) the psychological or ideological technology, in which a person, a group of persons, a nation, or a group of nations utilize a combination of ideas to control the

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ongoing behaviors of a person, a group of persons, a nation, or a group of nations. Figure 6 presents these fields in an evolutionary fashion.

The four fields as pictured in Figure 6 represent four open circles surrounded by space. Depicting these fields in this way is intended to convey the following:

1. The four circles denote the concept of evolution. Consider the incoming arrows from the space to the center of the figure. They denote a sequential order from the physical field to the praxiological field. Each higher level in this scheme presents new features that, in a sense, surpass those of the lower field or fields preceding it.

The first level is the physical in which man deals with the total pattern of the physical phenomena and physical energy. Moving on, the biological field presents a higher level in which new evolutionary processes take place. Within any organism a combination of unity and a tendency toward differentiation is always at work. That is to say, at this level self-preservation is accompanied by self-variation for the end of survival and promotion.

At the hominological level, characteristics unique to the human species emerge. With the appearance of man, both
Fig. 6. — The main fields of knowledge and content of curriculum
complexity and variability increase with a stronger tendency toward integration; or in a word, toward variety-in-unity. At this level various characteristics, peculiar to man, biological, social, and psychological, manifest themselves. Each of these characteristics supplements and exchanges energy with each other.

In view of the frame of reference presented in the previous chapter, it is meaningless to argue that one, or more, of these characteristics is exclusive to the others, or one is fundamental and the others are secondary or derivative. In other words, a human being is not merely a biological phenomenon, not merely an individualized individual, not merely a social or psychological phenomenon. He, also, is not a mere additive sum of all of these parts of his composition. His functioning being is the outcome of harmonious, and still, partially, mysterious, functions of all these parts. His unique functioning makes him a distinctive and outstanding phenomenon. Put differently, man is capable of back-and-forth crossing of thresholds of his bioconscious, self-conscious, and social-conscious. As Huxley maintains, man is capable of integrating the self with the outer world of men and
nature, as he is capable of integrating the separate elements of the self with each other. 71

It is true that biological evolution is a necessity for man's existence. It is equally true that the particularity of man's position in nature is based on the predominance of his symbolic world that distinguishes his life from other organismic lives. Bertalanffy puts it this way, "Except for the immediate satisfaction of biological needs, man lives in a universe not of things, but of symbolic stand-ins for things." 72

At this level of evolution, human emotions, ideas, and values add new energy functioning in the human life individually and collectively.

At the higher level comes the praxiological field in which man has become aware of nature and his nature. Motivated by the necessities of his life, he has come to control nature by employing his knowledge of the preceding fields into practice in both the materialistic and psychological domains.


2. The outward-directed arrows and the openness of the circles denote that these fields, as domains of natural and human activities, and of knowledge, should not be looked upon as a "hierarchical organization." In other words, it should not be assumed the study of physics, for example, is a prerequisite for biological study or biological study as a prerequisite for hominological study. Having arrows directed toward the center and others outcoming from the center signifies that these fields represent an open system which is characterized by a constant in-and-out exchange of energy among its fields. Human behavior, an element of the hominological field, for example, may be better understood as both branches of the praxiological field are studied.

Each of these fields can be conceptualized as a system, with relative autonomy, within which a continuous flux of energy and entropy are resulting from the internal and external space-time energy operating in, and impending on, the system.

It should be noted, pari passu, that the same assertion is true to the wholeness of these fields. Organized in this way, these fields provide a "world view" in which parts are united in a whole. They imply that although knowledge is diversified, it has unity. Bearing the concept of evolution in mind, this organization implies that there is no isolated fixed or timeless
reliable knowledge. Implicit in this design also is the assumption that knowledge derived from any of these fields cannot be claimed exclusive or superior to knowledge derived from other fields. Educationally speaking, this is one of the assumptions underlying the repeated plea for achieving balance among all areas included in curriculum for general education.

**Classification of Knowledge**

Classification of knowledge into distinct categories is a controversial undertaking. Aristotle differentiated among three classes of knowledge: (1) the theoretical sciences (logic, metaphysic, and natural sciences), (2) the practical sciences (politics, human conduct, and ethics), and (3) the productive sciences (fine arts, applied arts, and engineering).73

August Comte, a positivist philosopher, organized knowledge in an hierarchical order consisting of mathematics as the base of this order, then, physics, chemistry, biology, and sociology, at the top of this order.74

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Recently, Broudy has classified knowledge into the following areas and functions: (1) the symbolic tools of learning, thinking, and communication (ordinary language, mathematics, and language arts), (2) systematization of basic areas of knowledge (physics, chemistry, astronomy, geology, biology, physiology, botany—psychology and sociology), (3) organization of the past (family, communities, types of state, technologies, art and value systems, (4) modes of analyzing and coping with the problems of the future (agriculture, medicine, engineering, political sciences, economics, administration, library science, journalism, and mass communication), (5) value system (philosophy and fine arts), and (6) personal problems.75

Phenix taxonomizes into six categories. Reference to this classification has been made earlier in this study.76 Broudy, Smith, and Burnett recently adopted the same classifications made by Broudy with minor modifications.77


76See p. 164 in this study.

The difficulty which one faces in all these classifications is the multi base of classification or, in other words, the use of different classes as a base for classification. The Aristotelian organization, for example, was based on three different classes simultaneously. Physical sciences were differentiated on the base of their substances or matter. Practical sciences, on the other hand, were distinguished on the base of purpose or principle of action intended by the doer, and finally, productive sciences were sorted on the principle of production. Matter, purpose, and product are classes different in nature. Epistemologically speaking, each one of these three classes belongs to a distinct class of phenomenon, and therefore, cannot be used together as a base for classification. The use of classes different in nature as a base for classification is similar to classifying oranges, for example, according to size, uses, and various products of orange. Similar to the Aristotelian classification is Broudy's, in which he classifies knowledge according to both matter and function.

Comte's classification is dogmatic. He enunciated that each science in the hierarchy shall well be developed before the one above it can be developed. That is to say, development of
physics depends on the development of mathematics; chemistry cannot be developed unless physics is first developed, and so on.

Phenix's classification is based on meaning as a unifying concept of knowledge. However, his classification is neither exhaustive nor inclusive and these two criteria are essential to any classification. For example, he classifies psychology once under the realm of meaning, which he calls "empirics," then under synnoetics; philosophy under synnoetics and synoptics; literature under esthetics and synnoetics; religion under synnoetics and synoptics.

These examples indicate two points of difficulty in Phenix classification: (a) it is far from being exhaustive and inclusive; and (b) it is very hard to assign or restrict one type of meaning to one or more of the realms of reality. That is to say, realms of reality are subject to all sorts of meanings.

This writer assumes that there is no sharp separation among the distinctive aspects of nature and human life. The

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fact of this matter is that there is always evolution, change, exchange, and mutual influence among the realms of nature and human life, and, in turn, there is no fixed or perfect systematization. Again, differentiation in most cases of natural and human phenomena is always accompanied by integration. Overlooking this fact made Nietzsche say, "I mistrust all systematizers and I avoid them. The will to a system is a lack of integrity." 80

Bearing this assumption in mind, the investigator proposes the following classifications of knowledge for the purpose of instruction. The criterion upon which this classification is made is the subject, neither the meaning nor the modes of thought. These areas are shown in Figure 7.

80 Friedrich Nietzsche, "Maxim and Arrows," Twilight of the Idols, No. 26 (January 1889).
<table>
<thead>
<tr>
<th>The Fields of Nature, Human Nature, and Human Activities</th>
<th>Area of Knowledge, Both Achieved and to Be Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>The physical field</td>
<td>Physics, chemistry, astronomy, geology, mineralogy, natural geography</td>
</tr>
<tr>
<td>The biological field</td>
<td>Biology, physiology, biochemistry, botany, zoology, and genetics</td>
</tr>
<tr>
<td>The hominological field</td>
<td>Tools of communication (language arts, mathematics, arts, literature), individual psychology, personalitic psychology, faiths, and ethics</td>
</tr>
<tr>
<td>I. Individual</td>
<td>Social psychology, group dynamics, sociology, anthropology, and philosophy</td>
</tr>
<tr>
<td>II. Collective</td>
<td>Social institutions (family, community, government, world institutions, politics, economics, laws), social philosophy, history, and theology.</td>
</tr>
<tr>
<td>The praxiological field</td>
<td>Agriculture, engineering, health and hygiene, pharmacology, technology, management, education, guidance, mass communication, advertisement, propaganda, ideologies</td>
</tr>
</tbody>
</table>

Fig. 7.—Areas of knowledge grouped in accord with the four main fields
Criteria for Selecting Content

The diversity of knowledge and its rapid explosion, the extension of the responsibilities assigned to formal education in an increasingly changing society, and the limited time of schooling, all make the question of priorities in selecting curriculum content a necessity.

Today, increasingly diverse content is brought to school curriculum in an additive fashion. If the unity of knowledge is to be preserved, the continuity and depth of learning to be maintained, then criteria for selection from the wide range of knowledges are imperative.

Bearing in mind the distinction, made by the investigator on several occasions in this study, between the content and the psychological forces which students employ in their encounter with the content, the following criteria are proposed for selection of content.

Learnability

Curriculum content is a prescribed plan for learning. The success and the failure of this prescription depend, to a large extent, on its fitness to the learner. Effective learning is not likely to occur unless both the actual and the potential abilities of the learners are accounted for at every point of the selection
and the organization of content. If learning is an internal process, then curriculum content should not be considered in, and for, its own right. Instead of the question, "Is the child ready to learn this or that content?" the question to be asked is, "What is the content for which the child is ready?"

It seems trite, but significant, to say content of curriculum should meet children where they are. Content of curriculum, in whatever form it may be, is only potentially meaningful.

As Ausubel put it, "Knowledge will only be learned meaningfully if the learning task can be related in nonarbitrary, substantive fashion to what the learner already knows, and if the learner adopts a corresponding learning set to do so." In this regard, educators need neither to overexpect nor under-estimate student abilities.

It is well to remember that current methods of assessing students' abilities do not give an adequate picture of either the actualities or the potentialities of students. Most of the existing tools of assessment are concerned with the amount of content covered by a student and/or the pace of his learning. By and large, the qualitative aspects of learning and achievement are neglected.

Experiencability

Curriculum content must provide opportunity to experience the behavior to which content is considered a medium. Most of Dewey's writings were centered on the idea of learning as an active process engaged in by the learner in a constant transaction between him and his environment including the content of curriculum. Unfortunately, Dewey's wisdom has been misconceived by many, as they take the term "experience" as synonymous with manipulative doing. He conceived of education as a development within, by, and for experience. Speaking of experience as one criterion of selecting subject matter, Dewey wrote, "Unless experience is so conceived that the result is a plan for deciding upon subject-matter, upon methods of instruction and discipline, and upon material equipment and social organization of the school, it is wholly in the air."  

Implementation of experiencability as a criterion for selection and organization of curriculum content entails that content to be selected is the one which gives ample opportunity for the students to experience a variety of cognitive and affective


83 Ibid.
functions: to analyze, induce, deduce, discover, appreciate, value, and apply ideas and principles.

This is an implicit assumption of which Bruner speaks as he relates the act of discovery to both structure of curriculum content and organization. He holds that any topic has internal prerequisites which are essential for learning it economically and productively. In his words:

The internal prerequisites may indeed be just precisely the easier modes of presentation that get one to a less rigorous, more imageful or inactive grasp of a subject before it gets converted either into ordinary or mathematical language. The way to get ahead in learning is to translate an idea into these non-rigorous forms that can be understood. Then one can, with their aid, become more precise and powerful. 84

The significance of Bruner's view to the selection of curriculum content is that at the primary stages of schooling, at least, premature symbolization and abstraction should be avoided.

Consistency with society and world relations

Today's world is rapidly changing, shrinking, and full of conflicts at each society level as well as at the world level. Curriculum should provide students with a perspective which is commensurate with the kind of world in which man lives.

If this criterion is to be applied effectively, curriculum content should not be merely responsive to the immediate demands of a society or a culture. Instead, it should be oriented to cultural renewal as well as to the realities in the world. Commenting on curriculum in America, Taba has this to say:

... our curriculum perpetuates a far greater degree of provisionalism and ethnocentricity than is either wise or healthy. Its anchorage is not only in the western culture, but even in a national one, and this anchorage unconsciously and inadvertently engenders incapacity to understand cultures, that of other people as well as of our own, because of lack of comparative material or a comparative approach. 85

It is fair and just to say that this phenomenon is not particular to the American curriculum. It appears to be a universal phenomenon in education with varied degrees among different parts of the world.

If this criterion is to be applied to curriculum, it should not be limited to the selection of new materials to be incorporated in curriculum. Instead, it is to be applied to the interpretation and treatment of these materials in a world perspective rather than in ethnocentric fashion.

Validity and fundamentality

The explosion of knowledge at a very rapid rate made the content of curriculum, especially in science and mathematics, obsolete. A great effort is directed now to updating the content of curriculum in several subject matters. Validity of curriculum content as a criterion for selection should be applied in order to avoid obsolescent facts, concepts, and generalizations.

Relevant to validity is the criterion of fundamentality. It is the criterion upon which the ongoing effort in structures of discipline is based. The fundamentals of a subject matter are the basic concepts, ideas, propositions, and generalizations from which a subject is generated and around which the whole structure of a subject can be built.

Bruner claims that organizing a subject around its fundamentals has the following four merits: (1) It makes the subject more comprehensible. (2) It is not easily to be forgotten. (3) It constitutes the main road to adequate transfer of training. (4) It narrows the gap between "advanced and elementary knowledge." 86 Bruner claims that these merits are true to all subjects, not only in physics and mathematics. Although this

claim is not substantiated in other subjects, rather than science and mathematics, identification of the basic ideas and generalization in each subject constitutes an advanced step in organizing knowledge for instruction.

**Balance**

The word "balance" is used differently. One can identify the following meanings for a balanced curriculum:

1. The one in which scope and sequence of materials are organized in such a way that leads to achievement of educational objectives. Here the term is used to indicate means-ends relationship.

2. A curriculum in which balance among the sciences, the social sciences, and humanities is achieved.

3. A curriculum in which the academic and applied sciences are balanced.

4. A curriculum in which a balance is achieved between class and extraclass activities.

5. A curriculum in which the individual demands are balanced with the society demands.

6. A balanced curriculum is the one in which decisions of all concerned groups and institutions are accounted for (parents,
teachers, administrators, board of education, state and national government, etc.

7. A curriculum which contributes to balance or integration of all dimensions of the individual's growth and competencies. 87

Confronted with these several meanings of the word "balance" one should ask what is the real referent of balance? Based on the frame of reference in which the investigator took a position in regard to human nature and the nature of knowledge, it is justifiable to conclude that the real referent of balance is man-in-society. Implied in this assertion is the assumption that curriculum content, in whatever combination it may be, by whatever group it may be made, is only a toolbox which is used, in the final analysis, by the individual student in the process of his becoming a fully functioning person.

In view of this assertion, applying the criterion of balance to curriculum content entails that curriculum should include a wide variety of materials through which learners can perform several functions: communicating, observing, analyzing.

87 For more details on each of these meanings see, for example, Balance in the Curriculum, The ASCD 1961 Yearbook; Washington, D.C.: ASCD, 1961); The Integration of Educational Experiences, The NSSE 1958 Yearbook, Pt. III (Chicago: NSSE, 1958); Deciding What to Teach, NES Project on the Instructional Program of the Public Schools (Washington, D.C.: NEA, 1963).
appreciating, experimenting, discovering, manipulating, and creating.

All these criteria seem to suggest that curriculum content cannot be considered for and in its own right. Each of the five criteria has many things to do with the learner himself. They lead directly to the second subsystem of curriculum; the psychological processes, cognitive and noncognitive, which take place in the learner. These processes are the concern of the following section.

The Psychological Processes

This dimension is designated, for purpose of this study, as a subsystem, to encompass all the psychological operations or processes—cognitive, affective, and manipulative—which take place in the individual as he encounters his environment, including curriculum content. Although the importance of this dimension, to the content of curriculum and the instructional procedures, is recognized, it has been given no, or scant, attention in curriculum literature.

For a long time this dimension was confined to the cognitive domain of the individual. Proceeding from this narrow perspective, psychologists as well as educators in the first half of the current century made it their business to devise intelligence
tests, aptitude tests, and achievement tests. It was thought that intelligence is something born and unchangeable. Emphasis was made on sorting the learners in regard to their I.Q. and scholastic achievement into the high, the average, and the underachiever or the gifted, the average, and "the less gifted." In so doing, the focus is always made on the product, not on the process. In the same line, individual differences among the learners are understood, by many, to be only intellectual and to be measured in terms of how much and how fast. That is to say, the amount of coverage and the pace are considered the differentiating factors in judging the student's achievement.

It might be significant here to notice that the two major sets of learning theories which were developed during the first half of the current century proved to be of a little help in depicting a comprehensive picture of the inner processes that operate within the person as a major factor in curriculum. The failure of learning theories stems from the lack of a comprehensive concept of man, his mind and his behavior, and from focusing on intellect and even on the lowest levels of learning.

Consequently, the complexity of human learning which occurs in, by, and for the wholeness of being is left unexplained. Reflecting on this failure Bruner writes, "The psychology of
learning tended to become involved with precise details of learning in highly simplified short-term situations and thereby lost contact with the long-term educational effect of learning."

The impact of learning theories

Although the investigator does propose to pursue the main theories of learning, it may be appropriate to point out briefly the impact of the two major camps of learning theories on curriculum strategies.

Putting aside "faculty psychology" or the "mental discipline psychology," which was proved to be fallacious, one can speak rightly, of two major families of theories of behavior and learning. The first family contains those theories which are referred to as associationist or behavioristic theories. The second family is called by Hilgard cognitive theories and encompasses theories of behavior which are referred to variously as organismic, Gestalt, and field theory.

The behavioristic theory

The first family of behavior and learning theories includes such diverse members of theorists as Thorndike, Guthrie,

Skinner, and Hull. It is assumed by those theorists that man is a collection of responses to specific stimuli. What is learned, according to the stimulus-response theorists, is "habits" or responses. In a novel problem confronting the learner, the stimulus-response psychologists say, he assembles from his past the habits which are appropriate to the new problem. He, then, deals with the new situation in a trial-and-error fashion. If a response does not lead to a solution, the learner resorts to other trial until the problem is solved. 90

In this view, the differences between one individual and another and between the performance of the same person in different periods of his growth are simply differences in the number of synaptic connections which become established. Accordingly, these differences are purely quantitative in nature.

Commenting on this view, Broudy, Smith, and Burnett write, "Educationally speaking, the individual responds to a stimulus, practices the response and receives reinforcement designed to strengthen the association of the response and the stimulus." 91
Curriculum strategies which parallel this view are fairly simple. What a curriculum worker needs to do is to identify the desirable response coupled with the stimuli that produces these responses. Then, through exercise and repetition accompanied with reinforcement and punishment, which can take the form of praise and blame, on the part of the teacher, the appropriate responses are fixed to the appropriate stimuli. This is the underlying assumption of the teaching machines and programmed learning. It is the same assumption adopted by Bobbitt more than forty years ago in his job-analysis method of curriculum construction.92

Inadequacy of the behavioristic theory to curriculum strategies may be pointed out from several angles. Human being, in this view, is reduced to a responding system; that is to say, man is reactive, not active. Man can be controlled from without by conditioning, punishment, and rewards. In other words, motives are always external, not internal. In this view, the human mind is reduced to a mechanistic system. The previous learnings of an individual influence his behavior in a new situation to the extent in which the prior learning is similar, in

content or procedure, to that which is now being acquired. The main concern of the behavioristic theory is the overt action and observable doing, not the covert or the processes. The fact of this matter is pointed out by Bugelski in this way:

It is not necessarily true that learning requires overt responses from the learner, at least at the beginning of learning. Learning can occur, to at least some degree, if not to a major degree, when one is merely sitting, looking.

A final criticism of the behavioristic theory is that the higher mental functions, learning feelings and attitudes, and intuitive acts have no, or a very small, place in this type of theory.

The cognitive family

The second family of theories of learning includes such theorists as Tolman, Koffka, Lewin, Kohler, and Wertheimer. The common features of the theories that belong to this family may be phrased in what follows. Man is an active organism, not only reactive. Human responses are not determined by specific stimuli, for man has the ability to cognize, differentiate, reorganize, and create goals. Human actions are marked by quality of intelligence and the capacity to perceive, understand,

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and discover relationships. Man is distinguished from other organisms by his being purposive and selective. What man learns is not habits but cognitive structure or a cognitive map in which he grasps the situation in which he is in the form of what-leads-to-what. It is implied by this set of theories that a learner acts as intelligently as he can so that he seems to "catch the point" or get "the feel of" or the "insight" of a confronting situation. Thus, the insightful solution is the typical solution of human learning, not the trial-and-error type. Fumbling and trial-and-error in learning are resorted to only when the situation is too difficult, either intrinsically or because of the manner in which it is presented to the learner. Thus, learning is a process of developing new insights or modifying old ones.

The curriculum organization that parallels this kind of theory is different from a curriculum organized in terms of the behavioristic theory. The objective of such a curriculum is not limited to knowledge of subject matter, but it includes also the


95 For details on this family of learning theory see, for example, Hilgard (1966), chap. vii; Morris L. Bigge, *Learning Theories for Teachers* (New York: Harper and Row, Publisher, 1964), chap. iv.
development of cognitive processes. In this view, teaching procedure is as important as the organization of content. In Taba's words, "The content of learning and the process of learning constitute one single whole; they are distinguishable but cannot be separated from each other." 96

This brief presentation of the two main families of behavior and learning theories is intended to indicate the narrow domain on which theories of learning are focused. Undoubtedly, the Gestalt theory and the field theory are more applicable to human learning than the behavioristic theory. The crucial question to be asked is the following: Is it a safe position for both curriculum theorists and practitioners to depend solely on theories of learning in their inquiry into the psychological processes which must be taken into account by both theorists and practitioners in curriculum? This investigator has answered this question negatively and supported his conclusion by what several authorities in theories of learning have asserted in this regard. 97

96 Taba, p. 84.
97 See p. 75 in this study.
Conceptualizing the psychological process as a subsystem is based on the assumption that a human being is an integrative system with the following main characteristics:

1. **Physical dimension.** --Man has physical dimensions. Various systems have been identified within him, and studied distinctively. There is a mutual influence among these systems. Each one supplements the functions of the other systems.

2. **Capability of data sensing** (openness to inputs). --Man is capable of gathering data from within himself (endogeneous or autogeneous input) and from without (exogeneous input). He sees, smells, hears, tastes, feels pressure pains, enjoyment, and happiness.

3. **Capability of data processing.** --In addition to his ability to sense data, man is capable of processing data. He stores, modifies, sorts, rearranges, and reconstructs. Past experiences of man lead him to program data selectively and purposively.

4. **Capability of learning.** --One of the most important and basic abilities that differentiates man from mechanical and natural systems is his capability of learning. That is to say, it is particular to man to extend his experiences. If one theory does not work for him, he is capable of changing both his
procedures and his goal. Man's learning is usually accelerated if there is feedback or knowledge of the results of his action. Man learns from both his failures and successes.

5. **Sensitivity to environment.** --Man's performance is affected by the environment, both physical and social, which is surrounding him.

On the physical dimension, for example, he is influenced by temperature, attitudes, gravity, noise, etc.

On the social side, man is sensitive to the attitudes of members of social groups to which he belongs and with which he lives. He usually engages in different dialogues through which he develops his self-concept and his concept of the others. His behavior is a function and a product of his perception and conception of himself and of the situations in which he participates.

6. **Coordinated action.** --Man behaves as an integrative unit. He perceives, conceives, feels, thinks, and manifests himself in a flow of all these operations simultaneously. His life is a continuum in which each period is affected by what preceded it and affecting what follows it.

Among the processes operating within man's system, three processes are considered of great importance to psychologists and educators. These processes are perceiving, conceptualizing,
and thinking. The nature of each one of these and its relevance to curriculum theory and practice will be explained in the section to follow.

**The Fundamental Processes**

Having admitted that theories of learning are not enough for providing the curriculum workers with a comprehensive picture of the elements involved in human behavior and learning, one needs to chart here, even roughly, the main processes which should be considered in curriculum theorizing and practicing. Following are the fundamental processes which influence the curriculum system in its psychological subsystem.

**Perceiving**

Many would agree that the purpose of education is behavior changing. Disagreement is apparent on how people behave and change their behavior. The investigator has already addressed himself to the two major approaches to human behavior and learning. Exponents of the "S-R" or stimulus-response approach believe that behavior is a result of specific stimuli exerted upon the human being from without. Consequently, the effective technique for changing behavior is to control the people by "fencing them in" for producing the behaviors willed for them by others
(rulers, social planners, parents, teachers, pressure groups, and the like).

The frame of reference on which this study is based is radically different from the above mentioned approach. Essential to this frame of reference and related to behavior and learning is the assumption that behavior is a function of the person's perception. In Combs' words, "Behavior is seen, not as a question of stimuli but rather as a product of the perceptions existing for the individual at the moment of his behaving."\(^98\)

**Perception defined**

English and English define perception in its common usage this way:

An event in the person or organism, primarily controlled by the excitation of sensory receptors, yet also influenced by other factors of a kind that can be shown to have originated in the life history of the organism. The event is primarily cognitive rather than affective or conative, though it usually (or always) manifests all these aspects. It is an organized complex, though its several components can sometimes be separately recognized. It is very difficult to distinguish the integrated whole which constitutes the perception.\(^99\)


Significant in this definition are (a) the recognition of the influence of life history on a person's perception, (b) that perception is an organized complex which manifests itself cognitively, affectively, and conatively in an integrated whole simultaneously. The complexity of perception is well explained by Ames in what he called "perceptual matrix," in which he conceptualized perception operationally in terms of space-time context. The uniqueness of an individual perception, according to Ames, is a product of his past, present, and future as he projects on what he perceives it in "here-now." He illustrated this complexity operationally in this figure.

![Ames Perceptual Matrix](image)

Fig. 6. -- Ames Perceptual Matrix

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On this figure S and S' on the vertical line stand for the
dimensional space of a perceptual situation in which an objective
ingthing is presented; S signifies what we refer to by the word "there"
and S' signifies what is referred to by the word "then." T and T'
on the horizontal dimension refer to the flow of periodic time, in
that T stands for the past and T' stands for the future of a person
who perceives. IP signifies the "here-now" of a person who is
perceiving, or in other words, is in this situation at the present
time.

Ames' point has several significances to how a person per­
ceives, and what influences his perception. Among these
significances are the following:

1. The significance of what one perceives of a thing or an
idea is affected by his past experiences and by his purpose from
it in the future.

2. What a person perceives in a situation is dependent on
the distance between what is being perceived and the perceiver in
his immediate unique present "now."

3. The perceptual field constitutes transactional phenomena
in which elements different in nature are involved and affect each
other. In Ames' words:

The boundaries of the matrix must include not only
the "time-space field" and the "field" in which
transactional phenomena take place, but more, and its boundaries and what happens in it are of an entirely different nature. Each person as a unique individual acting within his unique matrix, which "stands still," so to speak, while his sequential events, which are as aspect of his matrix and which he initiates, "flow through" it from the direction of their temporal future into that of their temporal past. 101

What does the perceptual view mean to curriculum theorists and practitioners? Following are some of its implications:

If behavior is a function of perception, and perception is of that sort of complex idiosyncrasy, educators should not be satisfied with only gathering and structuring information and facts to be presented to the learners. Instead, they should find out the ways and means for helping children discover the meanings (perceptions) of such facts and information.

The perceptual view gives a new meaning to both "knowing" and "learning." If knowing is to be effective, the shortest and surest way to it is the exploration and discovery of personal meaning. The perceptual view gives the learning process some new dimensions which must be taken into consideration by the curriculum developers as well as by teachers. According to this view, effective learning occurs when something happens inside the learner as he acquires new perceptions or relinquishes old ones.

101 ibid., p. 80.
It follows that the teacher's role is to help students in their perception building.

The educational situation, from the perceptual point of view, will be the one in which (a) the threat to the individual learner is minimized, (b) the uniqueness of each individual is respected and regarded worthwhile, (c) the individual learner is free to explore the available materials and resources in the light of both his actuality and potentiality, and (d) mistakes and failure will be expected and utilized equally with success as a source of learning.

The perceptual view raises a new type of problems and questions which have heavy bearings on conceptions such as volition or the will to achieve, beliefs, feelings, conviction, fears, like and dislike, self-concept, and the like.

Conceptualizing

Another essential process, interrelated with perceiving, but which might be distinguished from it, is conceptualizing. Russell suggested that perceptual learning merges into concept formation. The importance of conceptualizing or concept forming for the design of curriculum content and instructional procedures is acknowledged by psychologists as well as by educators.

Disagreement can be found in literature on what is a concept? How is it related to a "fact," a "principle," a generalization, or a definition? How is it related to methods of learning, such as repetition or discovery? 103

What is a concept?

A concept is defined sometimes as "a symbolic response to the members of one group or class of stimulus patterns." 104 Such a definition does not tell how a person comes about the formation of a concept. A similar definition may be this, "A concept consists of the abstracted characteristics common to a group of objects, events, and the like." In addition to its being merely descriptive, this definition, according to Broudy, Smith, and Burnett overlooks the role of concepts as modes in the development of cognitive networks. 105

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Bruner, Goodnow, and Austin offer the following operational definition of concept.

[A concept is] a network of significant inferences by which one goes beyond a set of observable criterial properties exhibited by an object or event to class identity of the object or event in question, and thence to additional inferences about other unobserved properties of the object or event. 106

The last definition, although qualified as operational or working, can be criticized as unduly restrictive. Explicit in this definition is the assumption that concepts are formulated only inductively. The fact of the matter is that inductive inference is only one way of formulating concepts. Brodbeck asserts that new concepts may be formulated by combining those concepts already at hand. 107 A combination of old concepts into new concepts is made neither inductively nor deductively, but abductively. 108

The difficulty of arriving at a very precise definition of the term "concept" is acknowledged by Brodbeck, among other scholars. She calls for an "open" definition on the ground that


meaning of a term is given not explicitly by definition, but by the set of laws in which the term occurs. ¹⁰⁹

It seems wiser not to concentrate first on defining what "concept" is. Instead, the phenomena in which the term occurs should be inquired into, for the purpose of discovering what elements are involved in it, what are their nature, what patterns of relationship exist among them. Then, the concept can be defined operationally.

Presumably, what is important for educators in general and for curriculum workers in particular is to know how pupils of different characteristics—age, sex, social environment, experiential history, and the like—conceptualize.

Piaget's work is remarkable but is not sufficient in this regard. Reference has been made already to the evolutionary stages suggested by Piaget in regard to the formation of reflective thought. ¹¹⁰

Piaget's work raises some serious questions which must be examined empirically. For example, his work seems to suggest a universal way in which no account has been made for cultural variation in the pacing of the developmental stages: sensimotor, concrete, and conceptual.

¹⁰⁹ Brodbeck, p. 63.

¹¹⁰ See p. 228 in this study.
Further question related to the way in which children and adults conceptualize is their experiential history. One would assume that the way in which a person conceptualizes depends on his psychological organization as well as on what was, and is, available to him in a certain environment through which he built his experiential history. In other words, the individual differences in conceptualization cannot be ruled out easily as Piaget's work seems to suggest.

It seems to this investigator that a model for inquiry to conceptualization is needed. The difficulty in carrying out a productive research in this connection stems from disagreement on some matters larger than conceptualization such as the concept of mind, the role played by language in conceptualization and the meaning of meaning. These are controversial issues with which philosophers, psychologists, and linguists are coping from different perspectives.

A model for inquiry in conceptualization

Granted that research on conceptualization is hindered by disagreement on the major issues cited above entails existence of some relative agreement on these matters before proceeding with providing a model for inquiry.
One can suggest the following assumptions as a departure point from which research on conceptualization might proceed.

Let us assume the following:

1. A human being is capable of creating meanings out of his experiencing with natural and cultural elements. Meaning of an object or event does not reside in the object or event; but in the significance of the object or event to the person.

2. Let us, further, assume that man cannot deal with the overload of objects involved, and the events that occur, in the universe, because of the limitations of his nature. Due to his limited capacities for noticing, registering, and remembering, man has become capable of reducing, selectively and purposively, the diversity of objects and events he encounters so that his limited span of attention and memory can be protected. This reduction is given the name of "perceptualizing and conceptualizing."

3. Finally, let us assume that the linguistic name which man gives to his percepts and concepts are only symbols which stand for what man means. In other words, there is a distinction between three classes of phenomena: the object or the event, the meaning or the significance of this object or event, and the word which is given to this object or event.
In view of these assumptions, one, aided by Ames' perceptual matrix, can propose a model for inquiry into conceptualization. This model can be called conceptual matrix and it is illustrated in Figure 9.

![Conceptual Matrix Diagram](image)

**Fig. 9.**--Conceptual matrix

In the above figure the vertical line with S S' signifies the space in which an individual conceptualizes. S refers to "there" and S' refers to "then."

On the horizontal line T T' signifies the time, T refers to the past of the individual and T' refers to the future for which the individual projects his purpose of conceptualizing an object or event.

The IC included in the box presented by three divided lines refers to the idea that a person conceptualizes in terms of his "here-now" state of being. Each one of the scattered symbols
around the box refers to an object or event of which a person conceptualizes. The symbol \( \bigtriangleup \) stands for a physical object, an inanimate object which, by its nature, does not interact with the person. A circle with small circles in it stands for a social object, a human being who is capable of acting and interacting with the conceptualizer. The symbol \( \Delta \) refers to a cultural object such as ideas, values, laws, beliefs, and the like.

It seems reasonable to inquire into conceptualization in terms of this model. It permits an open research in which various variables, presumably influencing conceptualization, will be accounted for.

Thinking

Among the psychological processes which have to do with the content of curriculum and the instructional methods is thinking. Again, this process can be distinguished from perceiving and conceptualizing, but not divorced from them. It may be seen as occupying a higher level in the psychological process. Figure 10 illustrates the sequential order of these three processes as well as the mutual influence of each one of them upon the others. Arrows coming in and out from bottom to top, and from top to bottom are intended to explain the organic interrelatedness among the three operations.
As the individual encounters his environment, including curriculum content, he engages in

Fig. 10. - Psychological processes

Perceiving

Conceptualizing

Thinking
Thinking and Problem Solving

Since 1910, as Dewey’s How We Think, first edition, appeared, psychologists as well as educators were set on the track of problem solving as if it were a universal model for man’s way of thinking, and applicable to all kinds of problems. He asserted that the “act of thought” consists of five steps succeeding each other in order, "(I) a felt difficulty; (II) its location and definition; (III) suggestion of possible solution; (IV) development by reasoning of the bearings of the suggestion; (V) further observation and experiment leading to acceptance or rejection; that is, the conclusion of belief or disbelief."¹¹¹

It is interesting and perhaps significant to note that Dewey has confined thinking to experimental inquiry and scientific mind as follows, "The native and unspoiled attitude of childhood, marked by ardent curiosity, fertile imagination and love of experiential inquiry, is near, very near, to the attitude of the scientific mind."¹¹²


¹¹²Ibid., p. iii.
In the revised edition of his book Dewey maintained, in essence, the same five steps. The influence of Dewey's point of view on curriculum content and on instructional methods was, and is, profound.

Some shortcomings in Dewey's view have been noted by several scholars. Guilford's work represents a real challenge to the line-processes of thinking. According to Guilford's model, the structure of intellect has a three-dimensional matrix. This matrix presents a cross-classification of intellectual abilities. Figure 11 presents Guilford's morphological and theoretical model for the complete "structure of intellect."

In this model, intellect is composed of (a) the various operations or abilities, (b) the contents or the materials with which these operations deal, and (c) the products or outcomes of these operations.

Four kinds of information or content are distinguished:

1. Figural information has been identified by Guilford as the psychological meat of those whose occupation calls upon them to deal with concrete problems (the mechanic, the athlete, and the aircraft pilot). In regard to concrete information, Guilford

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Fig. 11. -- Theoretical model for the complete "structure of intellect"

Source: J. P. Guilford, "Frames of Reference for Creative Behavior in the Arts," A paper presented to the conference on "Creative Behavior in the Arts," sponsored by the University of California at Los Angeles, Feb. 18-20, 1965, fig. 3. (Mimeographed.)
distinguishes between auditory information and visual information. 114

2. Symbolic information is the kind of information with which the mathematician, the modern logician, and the chemist deal.

3. Semantic information is the information connected with words and verbal communication. It is the kind of information with which lawyers, teachers, writers, and speakers deal. Among artists whose mode of expression is semantic are writers of fiction, non-fiction, poetry, and plays.

4. Behavioral information is the stuff of social perception. It is of relatively great importance to those who deal directly with people: statesmen, salesmen, policemen, teachers, social workers, and psychiatrists.

Five kinds of operation are differentiated in this model:

1. Cognition, which refers to awareness of objects, qualities, and ideas.

2. Memory is the ability to store information and retrieve it when needed.

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3. Divergent thinking is the type of cognitive functioning which is generally oriented toward novelty and creativity. In this type of operation the individual tends to revise the known, and projects new forms of connections. On this kind of thinking Guilford writes, "In divergent production a variety of solutions or ideas is possible, under the freedom offered by the problem and the relaxed judgment of the thinker." 115

4. Convergent production is the kind of thinking which occurs under restriction imposed by the problem or by the thinker's tendency toward finding only one right or conventionally accepted answer.

5. Evaluation abilities are the processes in which the thinker subjects the information as known or produced to meet certain standards or criteria.

Six kinds of production are distinguished in this model: units, classes, relations, systems, transformations, and implications.

Each cell in Guilford's model represents a unique kind of ability or intellectual skill. Recently Guilford asserted that out of 120 hypothesized skills, 70 have been demonstrated in his factor-analytic work. 116

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115 Ibid., p. 7. 116 Ibid.
Guilford's factor-analytic study of the "structure of intellect" has been proven to be valid for classroom situations.\footnote{117} It has been supported by several studies on creativity and related fields.\footnote{118}

Guilford's findings have many implications for both content of curriculum and instructional methods. Among these implications are the following:

1. A distinction should be made between curriculum content and the psychological operations. However, nature and patterns of relationships among these two subsystems of curriculum always should be sought.

2. Considering the fact that there exists a wide range of abilities and widely diverse curriculum content, educators always should ask themselves about the "fitness" between the two. This question should not be answered speculatively, but experimentally.

3. Realizing that creative abilities and divergent thinking depend to a large extent on the degree of freedom given by the structure of materials as well as of instructional situations, an


\footnote{118}See, for example, J. W. Getzels and P. W. Jackson, \textit{Creativity and Intelligence} (New York: John Wiley and Sons, Inc., 1962).
overdue structuring of both content and methods should be avoided.

4. In all phases of curriculum, educators should be guided by the hard fact that there is no single index either of intellect or of giftedness. Based on his own unpublished study as well as on Guilford’s, Bloom asserts, "It is likely that, if enough tests were used, almost all children would be found to be superior in at least some areas measured by the tests."\(^{119}\)

Summarizing, each of the three fundamental psychological processes: perceiving, conceptualizing, and thinking has been shown as having organic and dynamic relations with the first subsystem, content of curriculum. It is clear by now that a person does not perceive perception, nor does he conceptualize conception, nor does he think thinking. Instead, he perceives, conceives, and thinks of an object or an event. The person and what is perceived, conceptualized, or thought are distinguishable elements of a unified task. Each one of these elements is distinguishable, but not separable from the others. The three psychological processes have been shown as they constitute a variety-in-unity. Guilford’s

categorization of the psychological operations involved in thinking are adopted here with some adaptation. Perceiving and conceptualization are substituted for "cognition" in his model. Therefore, the psychological processes shall appear in this writer's model for curriculum as perceiving, conceptualizing memory, convergent thinking, divergent thinking, and evaluation.

The three main psychological processes to which we have referred are operating in each individual whether he is alone or involved with others. They are applicable to all people of all occupations, whenever and wherever. They are not manifested only by those who have formal education.

Since education is a unique social institution assigned for specific social and intellectual responsibilities for which schools invest special energies, media, and ways of behaving, it is expected that the aforementioned psychological processes take a certain manner in their operation as well as in their development. The situation in which these processes operate has come to be called "instructional environment," "classroom structure," "classroom climate," "instructional setting," "teaching act," and the like. Whatever name is given to it, instructional environment has a unique structure and specific function which may enhance or may handicap the growth of the psychological processes. For
this reason, it has been distinguished in this study as a subsystem related to the two preceding subsystems: the content and the psychological processes. Consideration of this subsystem, its nature and relevance to the other subsystems and to curriculum as a whole is the topic of the next section.

**Instructional Setting**

A marked progress has been made, during the last decade, toward understanding the complexity of the instructional setting. Reference has been made earlier to some of the recent studies related to this area of educational research. However, according to Hughes, "we are a long way from either adequate conceptualization or technology for measurement of the classroom situation." A review of recent efforts made in this area suggests that the basic methodological problems have not been solved. For instance, Smith's investigation of the logical structure of teaching separates the teaching act from learning and concentrates on the teacher's verbal behavior in order to find out how the teacher

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102 See p. 208 in this study.

handles his words as he talks to students. He defines teaching as "a system of actions directed to pupils." The distinction, not separation, between teaching and learning is an acceptable notion on the ground that "teaching" is a task word and "learning" is an achievement word. Educationally speaking, the heart of the problem lies in two questions: (1) the pattern of relationships between teaching and learning and (2) the nature of the teaching act. As to the first question, Smith's research does not tell anything. On the second question Smith admits that the teacher's act is not confined to linguistic behavior but it is also performative and expressive. But he ruled out the latter two and focused his research on the linguistic behavior.

Amidon and Flanders, in The Role of the Teacher in the Classroom, are concerned with the influence of the teacher's

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123 Ibid., p. 91.


125 Smith, p. 91.
verbal behavior on the student's freedom of action.\textsuperscript{126} Common to both Smith and Amidon and Flanders' works, as Klohr observes, are the assumptions that what the teacher says is an adequate sample of his total behavior and that this verbal behavior is consistent also with all aspects of his nonverbal behavior.\textsuperscript{127}

Getzels and Thelen assert that the classroom is a given "social system" which can be studied in terms of the functions of its major elements: institution, role, and expectation. According to them these elements, together, constitute (a) the "nomothetic" or normative dimension of activity in a social system, (b) idiographic dimension, consisting of individual, personality, and need-disposition, and (c) the transactional styles among (a) and (b).\textsuperscript{128}

"Utah Study of the Assessment of Teaching" is based on the assumption that the relationships among the teacher and the students can be studied best in terms of superior-subordinate.

\textsuperscript{126}E. J. Amidon and N. A. Flanders, \textit{The Role of the Teacher in the Classroom} (Minneapolis, Minn.: Paul Amidon and Associates, Inc., 1963).


The teacher possesses a high power competence derived from his age and society sanction. That is to say that the student in the teaching-learning situation is subordinate to the teacher.129

Another kind of research related to classroom climate is conducted under the banner of "teacher effectiveness" or "teacher competence." Examples of this kind of research are several. The most classical, perhaps, is Barr's in which he sets certain criteria upon which teacher competence is to be judged simultaneously: "(a) as a director of learning, (b) as a friend and counselor of pupils, (c) as a member of a group of professional persons, and (d) as a citizen participating in various community activities."130

The validity of this research may be tested in a very simple way: just replace "the lawyer or the physician" for the teacher and read the criteria. Do these criteria make any difference in these different cases? Certainly they do not. If this is so, it is justifiable to conclude that this research does not tell anything particular to the efficiency of the teacher.

129Hughes, pp. 28-29.

Another example of this research is Ryans' investigation.\textsuperscript{131} It has been conducted on a large scale in which he involved 6,000 teachers, in 1,700 schools and approximately 450 school systems.

Proceeding from few assumptions about the role of the teacher in the classroom and with marked methodological sophistication, Ryans presents three dimensions of teachers' behavior:\textsuperscript{132}

1. Warm, understanding, friendly vs. aloof, egocentric, restricted teacher classroom behavior.

2. Responsible, businesslike, systematic vs. evading, unplanned, slipshod teacher classroom behavior.

3. Stimulating, imaginative vs. dull, routine teacher classroom behavior.

To these three general patterns of teacher behavior, Ryans adds the following teacher characteristics:\textsuperscript{133}

1. Favorable vs. unfavorable opinions of pupils.

2. Favorable vs. unfavorable opinion of democratic classroom procedures.


\textsuperscript{133}ibid.
3. Favorable vs. unfavorable opinions of administrative and other school personnel.

4. "Traditional" or "directive" vs. "permissive" or "indirective" educational viewpoints.

5. Superior vs. poor verbal understanding.


7. Validity vs. invalidity of response.

The significant points in citing the foregoing examples of the ongoing two types of research, first on classroom structure, and second on teacher effectiveness, are--

1. Except for Getzels and Thelen's model for studying classroom structure, all the examples cited in both types of research are grounded on the assumption that the teacher is the primary actor in the classroom situation. He does most of the talking, directing, explaining, and even goal-setting for the students. It follows that identifying his behavior, traits, skills, and personal qualities is the most important matter for educational research to discover.

2. In Smith's as well as in Amidon and Flanders' research, the focusing is made only on the verbal interaction between the teacher and the student. Nonverbal behavior by the teacher and the students is completely ignored. As to Barr and Ryans'
research, the classroom situation and teacher-pupil interaction are omitted.

3. In both types of research, it is assumed, the interpersonal perception of teachers and students has nothing to do with the outcome of the teaching-learning operation.

The framework in which both types of research are conducted is narrow and, to say the least, reactionary. It seems unfortunate that the challenge to this framework is made also according to another naive framework. Some researchers take the interpersonal perceptions of teachers and students to mean interpersonal "knowledge" or "liking" or "disliking" as verbally expressed in a short-term period of research. An example of this research is Bush's, in which he found (1) no direct relationship between knowledge about pupils possessed by the teachers and satisfaction of interpersonal interaction between teacher and students, and (2) no significant correlation between the teacher's liking for the pupil and the pupil's liking for the teacher. 134

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However, there are many studies conducted in classroom situations on the basis of more sophisticated interpretation of interpersonal perception of teachers and students.\textsuperscript{135}

**Instructional Setting as a Subsystem**

The assumption upon which the present study is proceeding is that curriculum is an intersystem of which instructional setting is a subsystem. Implicit in this assumption are the following:

1. Instruction is neither synonymous to learning nor to teaching. Each of the latter two can be conceptualized as a relatively self-contained system while the former is the composition of both.

2. Viewing instruction as a subsystem signifies two points. First, it is composed of elements different in nature but interrelated to, and dependent on, each other. Illustrating, instruction includes persons whose behavior is affected by the structure of their uniqueness and idiosyncrasy and collectivity \textit{pari passu}. It also includes media and procedures of communicating adopted for achieving certain purposes. These distinct elements involved in the instructional situation makes it unique and distinguish it from other social systems and communicative systems. Second, it is related to the other two subsystems examined in the preceding

\textsuperscript{135}Representative sample of this type of research can be found in \textit{ibid.}, pp. 705-708.
sections of this chapter, namely, the psychological processes and the content. Both content and psychological processes provide inputs to instruction as a subsystem. The three subsystems constitute curriculum as an intersystem.

Realizing the methodological difficulties in handling research on the instructional environment, this investigator will approach the problem from the point of view of the various processes that take place in the instructional setting. These processes may be helpful in deciding what should be looked for in securing a relatively complete description of the instructional setting which can be analyzed, and then evaluated in terms of a frame of reference.

Five kinds of possible processes, relatively common to all instructional situations, are proposed here. They are differentiated for easy classification which may be useful in making observation, description, and analysis of what is going on in an instructional situation.

**Symbo-semantic process**

This process is designated to include both sending and receiving two kinds of information: (a) symbolic information arising from stimuli such as letters, numbers, and musical notations and (b) semantic information which is usually presented in printed or spoken words.
Consideration of this process enables the researcher to ask questions and collect data related to the following:

1. Does (or does not) the teacher bring his symbolic and semantic behavior to the point at which the child is able to handle things symbolically?

2. What criteria does the teacher apply for accepting and rejecting the child's usage of language? In other words, does he concern about standard English regardless of the subculture in which the child has been raised and lives. Or, does he start from the assumption that language is a product of the customs surrounding the child? If the latter is the case, then the teacher may take "appropriateness" as his criteria. That is to say, he is to accept as good language what is appropriate to the purpose of the speaker, or the writer, comfortable to the listener, or the reader, and true to the language as it is used at the present time.

3. A third point of concern may be how much talking takes place in the classroom by the teacher, on the one hand, and by the children, on the other hand.

**Strategical thought process**

This process is suggested in view of the assumption that different instructional procedures cause differences in the learning outcome. In this connection, Bruner distinguishes between two
modes of teaching: the expository mode and the hypothetical mode. In the former, the mode, pace, and style of teaching are primarily determined by the teacher; he is the expositor and the student is the listener. In the latter, the teacher and the student engage in a more cooperative decision-making about the mode, the pace, and the style of teaching. In Bruner's words, "The student is not a bench-bound listener, but is taking a part in the formulation and at times may play a principal role in it." Many writers relate insightful and creative thinking to the hypothetical mode of teaching. However, it should not be expected that teaching falls sharply in one or in the other of these general categories. But it may lean heavily toward either one of them, or it may be manifested in a balanced combination of both. In view of the process in question, research on the instructional setting is to consider the traditional and modern methods of teaching: the lecture method, the discussion method, the laboratory method, the project method, programmed instruction, and team teaching.


137Ibid.
The socio-psychological process

This process is segregated here on the assumption that non-verbal behavior is centrally involved in the teaching-learning situation. It is further assumed that self-concepts and interpersonal perceptions constitute a major factor in the teaching-learning outcome. In this connection, there are many areas to be looked for in the teacher's attitude and behavior toward the students, such as the degree of his warmth, understanding, friendliness, attention given to individual children, degree of frustration imposed on the children by the teacher, kind of reward and punishment, degree of freedom of expression given to the student, etc.

In regard to the individual student, it might be well to consider issues such as seeking recognition and approval, necessary and unnecessary help, positive and negative attention, kind of response to success and failure, and the like.

In regard to the individual's relation to the whole class, it might be useful to inquire into matters such as the degree of cooperation, aggressiveness, altruism, and the like.

The communicative process

This process is designated to convey a specific meaning. By communicative process is meant meeting the requirements that
make the message sent by the teacher more effective and more productive. The point of interest here is the messages which are sent and received in any instructional situation should not be made in the form "to whom it may concern." Instead, they must be carefully selected and packaged in order to be well received. Consideration of this process entails that educators should come to grips with the claims and anti-claims made for structuring the content of curriculum on the basis of descriptions, subject matter, and personal and social problems. Comparative research should be conducted on the professed merits for each of these various ways of packaging the content of curriculum in all areas of study.

The manipulative process

The area for which this process is proposed is the effective manipulation of educational tools and resources, both actual and potential. In regard to the teacher, this process is related to selection of printed material and other media of instruction, use of visual aids, resource people, and institutions. As to the student, this process is relevant to his ability to use books, dictionaries, maps, charts, globes, and library facilities.

The foregoing five processes are proposed on the assumption that they are common to all instructional situations regardless
of the level of classroom situation, schooling, kind of teacher and of student. They are proposed in view of the fact that they encompass a wide range of activities that take place in the classroom. In these processes, particulars of content and of the individual learner have been brought together with their bearings on the instructional situation.

At this point, the investigator presents his intersystem model for curriculum theory and practice. This is depicted diagrammatically. Figure 12 shows the components, or subsystems, and the patterns of relations that govern the dynamics of these subsystems.
Instructional Setting
- Symbo-semantic process
- Thought process
- Socio-psychological process
- Manipulative process
- Communicative process

Fig. 12. -- An intersystem model for curriculum
CHAPTER VII

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

The objectives of the study, as delineated in the first chapter, are (1) to assess the utility of the "system theory" for use in analyzing, investigating the dynamics of curriculum and (2) to develop a viable intersystem model for curriculum theory and practice.

Treatment of curriculum as an intersystem enables curriculum theorists and practitioners:

1. To account, pari passu, for a wide variety of variables involved in what is called curriculum.

2. To guide research by providing a conceptual framework, or a model, in terms of which researchers can decide upon questions such as (a) what sources of data are essential in curriculum research, (b) what pattern or patterns of relationships exist among these sources and, in turn, (c) to interpret data secured from diverse sources in a consistent manner.
3. To guide decision-making by pointing out what kinds of decisions should be made at what points of curriculum development, curriculum change, and curriculum theory building.

The tasks undertaken in the study have been presented in this dissertation in the following sequence:

In Chapter I the investigator states the background of the problem, nature of the study, its purpose and significance. He, then, defines the terms to be used, makes the assumptions upon which the study is based and the hypotheses to be examined in the study as perceptual research.

The second chapter is devoted to an assessment of curriculum theory and practice. This assessment involved tracing, in brief, the development of curriculum thinking since 1915 to the present time. Based on this assessment, the investigator concludes that educators have not entirely outgrown either-or thinking in curriculum. Then, six main areas have been identified as the major sources of the existing confusion in the field.

The theme of the third chapter is educational objectives. In that chapter an assessment of recent statements of objectives is made, and followed by examining curriculum theorizing in the objectives domain. Tyler's model of curriculum development (1950) and Bloom's taxonomy of educational objectives (1956) have
been selected as a sample of the kind of theorizing which is widely used. The two works are described, examined, and criticized. The investigator, then, presents his point of view for the nature of educational objectives.

In the fourth chapter a new perspective for educational objectives is presented. This perspective is founded on a human-scientific concept of man-in-society-and-in-nature. In view of a humanistic concept of man, an attempt is made to transcend some dichotomies.

In Chapter V, the current curriculum patterns are investigated and a new perspective for curriculum structure is offered.

The sixth chapter is devoted to treatment of curriculum as an intersystem. At the outset of that chapter, the following models for curriculum development are examined: (1) Curriculum design of the General College (1943), (2) Curriculum design of the Thirty School Experiment (1940), (3) Taba's model (1962), and finally, (4) Macdonald's model (1963). This examination is followed by treating curriculum as an intersystem. In so doing, the investigator presents the methodological processes for deciding what are the subsystems of which curriculum, as an intersystem, is composed. Then, three subsystems are identified. The first subsystem is the content of curriculum. After examining the current discourses, content is delineated as a subsystem in which different elements
involved in curriculum content are unified by adopting the concept of evolution or emergence, as an integrating system concept. Four major fields of knowledge are identified and related to each other. These fields are the physical, the biological, the hominological, and the praxiological. This task is followed by developing criteria for selection of curriculum content.

The second subsystem is the psychological processes that influence curriculum. Aided by Guilford's work, the investigator distinguishes six processes: (a) perceiving, (b) conceptualizing, (c) memory, (d) convergent thinking, (e) divergent thinking, and (f) evaluation.

The third subsystem is the instructional setting in which five processes have been differentiated as common to all instructional situations: (a) the symbo-semantic, (b) the strategical thought process, (c) the socio-psychological, (d) the manipulative, and (e) the communicative. Different areas in which these processes take place in the instructional situation are identified.

Attention is given in each subsystem to explicating its nature and the interrelations among its elements. The mutual impact of each of these subsystems on one another is identified. The sixth chapter concludes with the intersystem model, itself.
Conclusions

The study permits the investigator to conclude:

1. Applying the properties and common concepts of the "system theory" to curriculum research enables educational researchers to account for a wide variety of elements operating within the complex enterprise of curriculum. The "system theory" used as a scientific technique in the study has proved to be an effective conceptual tool for opening new avenues for thinking about the field and projecting possible curriculum research. The interdisciplinary nature of "system theory" assisted the investigator in his efforts to draw on the findings of research in fields related to curriculum.

2. The three subsystems of curriculum identified in the study—content, psychological processes, and the instructional setting—present a dynamic whole of which parts are interrelated to, and interdependent on, each other. These subsystems are distinguishable, but not separable, from each other. There is conceivable exchange of energy and entropy among these sub-subsystems.

3. The patterns of relationship among all elements involved in curriculum are identifiable. They have been identified in the present study and have enabled the writer to construct a theoretical
model useful in investigating, analyzing, and interpreting the dynamics of curriculum.

4. Figure 11, on page 299, offers a view of the structure of curriculum as an intersystem. This view is simplified by the model. The model is composed of a cross classification of the elements involved in the structure of curriculum. Each cell in the model represents, theoretically, a unique kind of curriculum phenomenon in which a unit of content is connected with processes: (a) the psychological processes of potential use by the learner, (b) the possible processes of handling this unit in an instructional situation. Hypothetically speaking, there are 180 general units of curriculum behavior. These hypothesized general units of behavior are the sum of conceptualizing that curriculum content is rooted and drawn from five major domains of knowledge on which six psychological processes can be employed by the individual learner, and five possible processes can be employed in an instructional situation.

5. The study reveals that curriculum is a multi-dimensional structure. It can be described, analyzed, and investigated as an intersystem upon which supra-systems impend and with which subsystems operate. That is to say, curriculum as an intersystem has external as well as internal inputs. The output of curriculum
as a system is the behavior acquired or modified on the part of each student.

6. The study shows that the three subsystems identified here are interdependent on, and reciprocal to, each other. Any attempt to separate any one of these subsystems from another may lead to the destruction of the system.

Implications

This study has several implications for curriculum theory building and curriculum development.

Implications for curriculum theory building

The study reveals that in a complex field such as curriculum, theory serves a useful purpose. There is no hope for ordering the curriculum domain unless serious efforts toward theory building are taken.

A theory of curriculum is not likely to evolve from empirical research in curriculum, alone. The first and inescapable type of research toward building a curriculum theory is conceptual in nature.

The theoretical model for curriculum developed in the study indicates, clearly, that there are three distinct classes of phenomena or dimensions which must be considered in curriculum
theory: (1) the logical dimension of both human knowledge and human practice, (2) the psychological dimension manifested in, and, by every individual as an integrative human being in his unique becoming a fully functioning person, and (3) socio-psychologic of the structure of what is called "instructional setting."

The present study implies that the nature of each one of the three dimensions must be investigated, the elements involved in it must be discovered, the patterns of relationship among these elements must be explained. At the same time and with the same zeal and honesty, the patterns of relationship among elements involved in each one of the three dimensions and elements involved in the other two should be sought.

In view of the theoretical model developed in the study, a curriculum theory should not be expected to be "scientific" in the traditional sense of the word "science." By the very nature of curriculum structure, a theory of curriculum can be best described as "humanistic-scientific theory."

Implications for educational objectives

It has become a conventional approach in handling curriculum problems to start with stating the educational objectives, aims, or purposes. The pitfalls of this approach have been pointed out in
this research. The alternative offered is the system model approach. From the point of view of the "system model" approach, the so-called educational objectives are seen only as linguistic assertions made by adults.

Educational objectives as conceptualized in the systems approach are not to be used as strait jackets for everyone to wear. Instead, they should be general enough and open enough to accommodate new energies generated within the system of curriculum and especially by the learners involved.

Another implication for educational objectives is that these objectives should not be looked upon as an outcome of the curriculum system.

The output of a curriculum is the end result of the whole system of curriculum. Put differently, the assumption is commonly made that objectives can be chosen in a principled manner and stated in behavioristic terms independently of the means through which those objectives may be realized. This assumption is erroneous because it neglects an elementary point that the outputs produced by the use of two distinct means are never precisely the same. It is, therefore, illogical to think that educational objectives can be properly adjudicated without consideration of the content of curriculum, the psychological processes within the
individuals, and the socio-psycho-logic process that occurs in the instructional setting.

In view of the intersystem model developed in this study, an educational objective must be made and evaluated in terms of the aforementioned three dimensions of curriculum.

**Implications for curriculum development and change**

In view of the conclusions reached in the study, changing the content of curriculum from one form to another, say, from the conventional subject matters to discipline is not a complete change of curriculum. This is so because the focus is directed only on one dimension. The other dimensions commonly receive little or no attention. Changing the content may be seen as causing change only in one part of the system. It is of crucial importance to both curriculum theorists and practitioners not to forget that, in addition to organized knowledge that represents the collective wisdom of the human race, there are psychological structures of knowledge as organized and internalized in the minds of individual students of varying degrees of maturity and sophistication.

In other words, structuring the discipline of a subject matter may be considered only as a vantage point from which we can start, but content is not a self-contained system. Unless this
change is related to the other elements—namely, the child and the classroom structure—it is only a change for its own sake, not for the interest and the richness of the whole system.

Another implication for curriculum change and development is that if curriculum is a system, then attention should be given to all its ingredients, not only to one or two. In other words, if the system is to sustain its "steady state," the point ratio of change among its ingredients must be kept in mind. Otherwise, discrepancy would arise and might destroy the whole system. Put differently, educators should worry about the structure of curriculum as a whole as well as about the structure of individual areas in curriculum.

Concluding, the study was designed to assess the utility of the "system theory" as a scientific technique for establishing a conceptual framework for curriculum theory and practice. It proves that conceiving curriculum as an intersystem enabled the writer to answer the main questions and explain the major functions assigned to a conceptual system for curriculum.

The model developed here is intended to help curriculum workers in theorizing about curriculum, as well as in developing and changing curriculum.
The study presents a case study in which a professional, at work, views, analyzes, and synthesizes or structures the diversity of curriculum phenomena in a construct or a theoretical model which can be used in both curriculum research and practice.
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