THE CHANGING AMERICAN SCHOOL

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THE CHANGING AMERICAN SCHOOL

The Sixty-fifth Yearbook of the National Society for the Study of Education

PART II

By

THE YEARBOOK COMMITTEE
and
ASSOCIATED CONTRIBUTORS

Edited by

JOHN I. GOODLAD

Editor for the Society

HERMAN G. RICHEY

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Editor's Preface

During 1962 and 1963, the Board of Directors reviewed a considerable number of proposals and suggestions for yearbooks which appeared to have one characteristic in common. All focused upon recent changes in American education or, in some way, dealt with societal forces or emerging ideas which presumably were related to those changes. Among the topics discussed were (*a*) aspects of the curriculum which were under review, (*b*) conceptions of teaching arising from changes in the nature of the school population, (*c*) an acceptable meaning of educating the individual and the changes in and effect upon the schools and school practices that would arise from this more comprehensive meaning, (*d*) patterns of school organization and their relation to teaching and learning, (*e*) new facilities, (*f*) changing approaches to learning, (*g*) the changing role of the teacher, and (*h*) the forces that have brought recent changes in education.

In September, 1963, the Board asked Mr. John I. Goodlad, who had participated in the discussion of the suggestions before it, to draw up a tentative plan for a yearbook that would describe and analyze selected educational changes that had found strong support and which, preferably, had become reasonably well established in elementary and secondary schools during the preceding decade and that would attempt to relate such changes to the clearly identifiable societal forces of that period.

Mr. Goodlad's rather unique proposal was not basically changed by the committee (Mr. Goodlad, chairman; Mr. J. Steele Gow; and Mr. Merle L. Borrowman) appointed by the Board to develop further the plan of the yearbook, to write chapters of it, and to nominate contributing authors.

The Committee recognized that the authors, chosen from among the leading scholars in their fields, must have complete freedom to

express themselves on their subjects as they saw fit. It also recognized that if the yearbook was to be more than a timely collection of excellent essays, some guidelines need to be agreed upon. These are clearly laid down in the volume. Therefore, for a fuller understanding of the nature and purpose of the yearbook, the reader is advised to turn, before beginning the body of the text, not only to "Introduction: Plan of the Yearbook" but also to the three sets of "instructions" to the authors, one of which precedes each section of the yearbook.

American education is changing so rapidly and on so many fronts that analyses of change from the perspective of today are based upon data that will be incomplete next year. The reader will find the book's value enhanced if he, too, attempts what the author of the final chapter has done so well—if he pulls together the strands that appear in the chapters of the book and interweaves them with *other* influences "which seem essential to understanding the impetuses for educational change, the conditions which determine the kinds and amount of change, and the bases for hope that education may become more responsive to the needs of our society and the individuals who compose it."

The Committee and the contributing authors have produced a timely, thought-provoking volume that will stand as a bench mark in the history of educational change in America.

HERMAN G. RICHEY
Editor for the Society

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Introduction: Plan of the Yearbook

JOHN I. GOODLAD

A mood of change prevails in America's schools. Such moods have prevailed before. But World War II and events leading up to and immediately following it retarded normal processes of change. The schools of the 1940's and early 1950's remained very much as they had been during earlier decades. But they are now changing rapidly, almost explosively, in every respect.

By the beginning of World War II, the teaching of foreign languages had virtually disappeared from most schools. Military testing programs revealed widespread academic deficiencies among high-school graduates, particularly in mathematics and the sciences. Soon, the varied voices of criticism were in full cry: Schools are neglecting the fundamentals; life-adjustment education has been too long in the saddle; Johnny can't read; schools repress creativity and individuality.

The launching of the first Russian satellite in 1957 gave us our *bête noir*, and the schools became our sacrificial lamb. The schools could not remain—or at least, could not appear to remain—as they had been. Change, almost for the sake of change, became the order of the day. Change and the spirit of change have swept along in a disorderly way, proposal following proposal on a broken front. Little time and energy have been expended on appraisal, and adequate evaluative criteria appear not to be available. As a nation, we have not defined what we want of our schools and, therefore, have grave difficulty in seeking to determine the worth of any specific proposal or action.

Interestingly, proposals which are offered as a solution often are welcomed for quite different reasons. Some see current reorganization of the academic disciplines in the precollegiate curriculum as a return to the fundamentals; others see it as a rejection of what

once was considered fundamental. Some see this movement as a reaction to child-centered curricula; others see it as a reaction to a clutter of ill-arranged and out-dated bits and pieces of subject matter, claiming that we have never had a truly child-centered curriculum. Some see the nongraded school as a device for differentiating rates of student progress through a common curriculum; others see it as a device for differentiating curricula according to individual pupil needs. Some see programed instruction as a means of providing for individual differences; others see it as a means of reducing the significance of individual differences in ability among students setting forth together on a learning sequence.

A purpose of this yearbook is to describe and analyze illustrative proposals for change which have found support during this past decade and which are now reasonably well established in pre-collegiate schooling. What do they seek to accomplish? What is fact and what is fad or fancy? More important, what are the forces —social, political, economic—and the ideas—psychological, biological, philosophical—that lie behind these changes?

Section I analyzes selected aspects of schooling which are undergoing change. Since the attempt is to be illustrative and analytical, not comprehensive, only a sample of changes is examined: the curriculum (chap. ii); guidance and its relation to the pupil (chap. iii); instructional resources (chap. iv); school organization, with nongrading and team teaching selected as examples of change (chap. v); and school buildings (chap. vi). Chapter i, somewhat different in character, places the changing role of the teacher in historical perspective. Authors of these chapters have been chosen both because of their identification with the subject and because of their relatively objective, research-oriented approach to it.

A second purpose of this yearbook is to set forth some of the major forces and central ideas to which the schools might well have responded during this past decade. Again, the attempt is to be illustrative and analytical, not comprehensive, both in the selection of chapter topics and in the authors' selection of forces and ideas. The school cannot be responsive to all of the many social, political, and economic forces that impinge upon it. Nor should it react to all the voices in the market place of ideas. But the school, by its very existence, is caught up in problems of urbanization, mobility,

segregation and desegregation, and local, state, and federal control of education. Similarly, it is difficult to see how the schools can remain untouched by central trends of thought regarding the nature of man and the good life.

Section II, then, examines social, political, and economic forces (chap. vii); concepts from the behavioral sciences (chap. viii); recent advances in theory and research on instruction (chap. ix); and significant philosophical inquiry (chap. x). The purpose of this section is to identify whatever appears to be most pertinent to the conduct of schools since World War II. The authors were not restricted to the recent period, however, and were free to go back beyond it, if necessary, for the identification of significant trends. Nor were they required to indicate how the schools might have responded, but they were asked to use examples that would have little doubt about the relevance of a force or concept for schooling.

Is there an identifiable relationship between school changes of the past decade and some of the societal forces and ideas that were emerging during this period? Have the latter been molding the former? Or have the schools gone their way largely unaffected by the larger intellectual discourse and the sweep of events about them? These and others are the questions to which the writer of the final chapter was asked to respond, using the substance of the preceding ten chapters as his data. These are the questions the reader may wish to ponder as he peruses the yearbook.

Much of our educational discourse is and has been conducted in slogans and, as a consequence, the most complex problems often are made to appear deceptively easy. The panaceas so glibly proferred deceive the layman, on one hand, and often seduce the schoolman searching for viable solutions to his problems, on the other. Education never has been a simple business; it is more difficult today than it has ever been. Consequently, the task of the writers in seeking to analyze changes in the schools or in the forces and ideas significant for schooling was a formidable one.

This yearbook differs from many in its approach and organization. At first glance, it might appear more logical to reverse the order of Sections I and II so that forces and ideas to which the schools might have responded could be used as bases for the analysis of change. But this would defeat the purposes of the yearbook at

the outset. Changes have occurred; this we know. However, they may not be sound responses to the significant forces of our society or the compelling ideas of our time. And so, Sections I and II are treated as separate entities, with no dependence on each other.

The book is not intended, then, to be a unified whole. And yet, taken as a whole, it provides the basis for speculations set forth in the concluding chapter. The specific charges to the authors appear as introductions to each of the three sections. Their responses constitute the several chapters.

ILLUSTRATIVE CHANGES IN THE SCHOOLS

Instructions to the Writers

JOHN I. GOODLAD

You have been asked to describe and analyze a visible aspect of schooling that has emerged or undergone significant re-examination since World War II. The descriptions of developments which have occurred must be brief and yet sufficient to assure the reader's understanding of them. More important are the analyses of forces and ideas which appear to have motivated rethinking and change.

What forces and ideas have been at work? Have there been real changes in school practices or only talk of them? Do new practices reflect educational theory, or have they become divorced from ideas which supposedly motivated them initially? In brief, to what extent are the developments you describe a reflection of those central forces and ideas that have been emerging in American society during the past two decades?

While writers are free to develop their ideas as they see fit, all chapters in this section should include the following: (a) a succinct description of the practices being analyzed; (b) an appraisal of their extent and significance; (c) an analysis of differing theoretical positions, if any, and the effects of these differences on school practices; and (d) an appraisal of those ideas or societal conditions that appear to underlie or to influence the practices under discussion. You will no doubt find it necessary to back away from the subject of your analysis, to remove yourself from many of the specifics, in searching for central concepts and adequate perspective.

The Changing Role of the Teacher

GORDON C. LEE

Introduction

The purpose of this first chapter is to consider the ways in which the role of the American teacher and common perceptions of that role have changed in recent years or seem to be presently changing from their earlier character. In order to accomplish this task, it is proposed that we focus upon teaching and teachers in the period since the outbreak of World War II, attempting to compare conceptions of 1940 (or the late 1930's) with those of the mid-1960's. An attempt is made, therefore, to present "photographs" of the American teacher at the beginning and at the close of the period to identify the important respects in which the later picture differs from the earlier one. The effort is meant to be purely descriptive; analysis or assessment of the changes or trends reported is not regarded as within the province of this chapter. Preceding the presentation of the two pictures is a very brief sketch of the history of the teacher in America, which will suggest, among other things, that the changes taking place within recent times only continue a long-term process. The chapter concludes with a glance at some of the developments in teacher education which appear to be corollary to the changes noted in the conception of teaching and teachers.

More than is usually the case, however, it seems advisable to enter a body of caveats as this discussion is approached. In the first place, as any historian would insist, all time periods are arbitrary and artificial, and no important social changes or trends can be shown conclusively to have had their inception at some particular point in time or even within a time span such as that dealt with in this paper. Nevertheless, the Second World War clearly marked, as have few events in human history, the creation of a new situation and the setting in motion of new forces. As this essay will indicate,

the teacher in the mid-1960's is significantly different from his 1940 predecessor, though the roots of such change can hardly be said to lie entirely within the quarter century under discussion.

In the second place, great hazards are inherent in a discussion which generalizes about all persons in a particular category—which deals, as in this instance with *the* American teacher. This examination takes little or no account of economic, social, and other differences between men and women teachers, between teachers of music and teachers of mathematics, between teachers in rural and those in urban settings, between teachers of age 30 and those of age 55, and so on—and the differences may be sizable. It does seem reasonable, however, to suggest certain gross patterns and tendencies which, to a greater or lesser degree, appear to characterize the profession as a whole.

This discussion concentrates almost entirely upon conceptions of the role or function of the teacher, rather than upon the particulars of the way in which he performs that function. Obviously, and some slight allusion is made to the fact, teaching method has not been immune to change in the period under consideration, but our focus is largely upon the more basic elements of the role and function of the teacher.

The Teacher in America: Prologue

In order to manage the task before us as meaningfully as possible, it is vital that we sense something of the character of "the teacher" in America prior to the quarter-century upon which this chapter focuses. We shall endeavor to suggest briefly what the teacher had been and how he had been perceived in preceding periods and to indicate how he and his image had attained their 1940 forms.

TEACHING A FAITH

In its beginnings, American precollegiate education can be said to have been governed by a fundamental commitment to religious instruction, to schooling in the basic tenets and rituals of one or another Christian sect. In the South as well as the North, early colonial America conceived of education as based upon religion, indeed, as almost identical with it. Church and school generally were seen as one, and it is hardly surprising to find that very fre-

quently minister and teacher were one as well. In such circumstances, the teacher's central function was that of indoctrination in the denominational creed, and it would be impossible to speak of teaching apart from the advancement of some dogma. Indicative of the relatedness of religion and education, to qualify for a post in a school in Charleston, South Carolina, in 1712, it was stipulated "that the person to be master of the said school shall be of the religion of the Church of England, and conform to the same, and shall be capable to teach the learned languages, that is to say, Latin and Greek tongues, and to catechise and instruct the youth in the principles of the Christian religion, as professed in the Church of England." [1] In all sections of America, in town schools as well as in private schools, the religious purpose predominated.

TEACHING FOR BASIC LITERACY

Even before the first settlements, however, Protestant Christianity had come to recognize the inescapable dependence of the Reformation churches upon a degree of general literacy hitherto unknown to Western civilization. The first American schools developed in a context of widespread acceptance of the revolutionary notion that everyone should be able to read. Although the original basis for such a position was narrowly sectarian, it broadened immeasurably the potential scope of the teacher's concerns; it also prompted the establishment of schools and the employment of teachers less closely tied to the church. Thus was introduced the secularization of teaching which steadily grew to become a central characteristic of American public education.

TEACHING FOR PUBLIC RESPONSIBILITY

Colonial America was basically British as well as Protestant, which meant among other things a heritage of developing democratization of community life and organization. From their inception, therefore, most schools above the most rudimentary levels, whether in Virginia or Massachusetts, whether Puritan or Anglican, were dedicated to the preparation of young men for responsible participa-

1. Edgar W. Knight and Clifton L. Hall, *Readings in American Educational History*, p. 29. New York: Appleton, Century & Crofts, 1951.

tion in community affairs. To be sure, this concern was also, to varying degrees, regarded as inseparable from the discharge of responsibilities to the church. Nevertheless, the founding of Yale in 1701 as a school "wherein youth may be instructed in the arts & sciences, who through the blessing of Almighty God may be fitted for publick employment, both in church & civil state," [2] indicated unmistakably a demand for teaching devoted to the requirements of public affairs as well as to religion.

TEACHING FOR OCCUPATIONS

The demands upon education, and hence the expected role of the teacher, were of course also conditioned by certain particular necessities of life in the New World. Relatively early in colonial history, schools and teachers began to respond to the requirements of the new economy: of such pursuits as agriculture, navigation, shipbuilding, and surveying. Steadily, inexorably, the character of schools and teachers changed as the effort to attend to such practical matters gained support, and a new dimension was added to the basic definition of the work of a teacher.

TEACHING A MORALITY

Within a few decades after the adoption of the Constitution, the pattern of church establishment (of an official state church) had disappeared from the land. Over the same period, the basic elements of a *public* school system began to emerge and necessarily, as they did so, the relatedness of school to church was weakened. Teachers perforce ceased to be the agents of a particular sectarian creed, but they were at least as energetically engaged in moral tutelage as before. The almost complete subscription, whether official or nominal, to some version of Protestant Christianity meant that a generalized, synthetic Old-and-New Testament moral code was presumed to govern and to characterize the work of every teacher. Moreover, it was generally assumed that the teacher would himself represent the morality, the virtues, to which the community subscribed. Since

2. Richard Hofstadter and C. DeWitt Hardy, *The Development and Scope of Higher Education in the United States,* p. 4. New York: Columbia University Press, 1952.

learning was conceived largely to be by imitation, the teacher was to provide that moral-behavioral model with which children could identify; logically enough, the community insisted upon some regulation of the teacher's life in order that he be that good example.

TEACHING A LOYALTY

Almost inseparable from the American teacher's commitment to moral instruction was his presumed obligation toward the cultivation of national loyalty. To a degree probably never before equalled elsewhere, the new American nation confronted the challenge implicit in the motto, "E pluribus unum"—and the nation assumed that it was in the schools especially that the business of amalgamation would be accomplished. Inculcating patriotism and love of country soon became a chief component of the teacher's work, and it was expected that all of his instruction would be suffused with a concern for the development of loyalty to the ideals of the young country.

TEACHING FOR PHYSICAL HEALTH

From the turn of the present century, and for a variety of reasons, the United States grew increasingly committed to the proposition that more systematic attention to the physical well-being of American youth was required. As in the past, the country immediately looked to its schools as means for attaining desired ends, saying, in effect, that inasmuch as all children were now in the schools' charge for a good portion of their waking hours, the school was the most likely agency for adequate, effective physical and health education. The teacher, thus, was called upon to provide both instruction and exercise. "To discharge the duties of life and to benefit from leisure, one must have good health. The health of the individual is essential also to the vitality of the race and to the defense of the Nation. Health education is, therefore, fundamental." [3]

TEACHING FOR SOCIAL FACILITY

Schools and teachers dedicated to the development of morality, loyalty, and civic responsibility could hardly avoid a pervasive concern for social behavior. Increasingly, and perhaps more point-

3. *Cardinal Principles of Secondary Education* (as excerpted in Knight and Hall, *op. cit.*, p. 589), Bureau of Education, Department of Interior, Bulletin No. 35, 1918. Washington: Government Printing Office, 1918.

edly as the impact of systematic psychology began to be felt in education, the American teacher was expected to shape his work in the context of an over-all school effort to promote fruitful interpersonal relations, effective social organization, and acceptable social attitudes. When, for example, Dewey proclaimed: "I believe that the school is primarily a social institution. Education being a social process, the school is simply that form of community life in which all those agencies are concentrated that will be most effective in bringing the child to share in the inherited resources of the race, and to use his own powers for social ends",[4] he was, in essence, calling upon each teacher to assume substantial responsibility for the development of the social habits and ideals most appropriate to a free people.

TEACHING FOR GENERAL KNOWLEDGE

It is impossible to suggest precisely when a concern for *general* education began to permeate the American school. It might be argued that the sum of the foregoing commitments amounts to a definition of general education—but something more is at stake here. At some point, the American teacher found himself called upon to provide instruction beyond that required by any particular set of injunctions—political, social, or economic—and to expose his charges to knowledge for knowledge's sake alone. Simply to know came to be prized and, whether through literature or music or biology or French, the teacher was seen as the pre-eminent instrument for such accomplishment.

TEACHING FOR PERSONAL DEVELOPMENT

In one sense, the teacher in all periods has been regarded as obligated to try to enhance *individual* growth. Attention to any or all of the foregoing teaching commitments, of course, comes to a head in dealing with the individual boy or girl. But in more recent times, American education has been characterized by a more explicit concern for the ways in which schools affect the psychological

4. John Dewey, "My Pedagogic Creed," in *The School Journal,* LIV, No. 3 (January 16, 1897). (As reproduced in *Dewey on Education: Selections,* p. 11. Edited by Martin S. Dworkin. New York: Teachers College, Columbia University, 1959.)

and emotional aspects of a human personality. As a result, the teacher has come to be regarded as deeply and integrally involved in the establishment of conditions which will conduce to genuine personal satisfaction and fulfilment, which will assist in preparing young people to meet and master the circumstances that will confront them as adults. To be sure, this is basic to everything that has been mentioned, but a more general, less limited focus is intended. An excerpt from the report of the Educational Polices Commission in 1938 suggests the tenor of this component of his role:

Finally, the schools must, in the preparation of the individual, search for the types of experiences that will make probable the realization of happiness. Somehow, the learner must come to know what constitutes real happiness, must learn where it is most likely to be found, must desire to acquire it for himself and others, and must master the way of claiming it. . . . It is the function of the schools to help every person to find and use the key that will unlock the riches that are the common possession of all.[5]

Unquestionably, schools and teachers have come to be looked to for the discharge of a wide variety of functions presumably directed at more efficient living. These expected functions now include both instruction and services, both the stating of precept and the provision of example, both the encouragement of individuality and the cultivation of order.

The preceding summary represents an attempt to suggest the major conceptions of the role of the teacher which have been successively introduced during the 350 years of American history. The chronology is imperfect; indeed, precision is impossible. But, with the single exception of the original charge on the teacher to promote a religious faith (and on this matter, in the mid-1960's, debate waxes intense; it is at this writing seriously proposed by some that the Constitution should be amended to insure a place for religion in public education), the listing can be regarded as cumulative; in *approximately* the order presented, these responsibilities were assigned to and assumed by the school and the teacher. It is in the light of this inheritance, this collection of functions, that any effort to examine the modern teacher must be conducted.

5. Educational Policies Commission, *The Purposes of Education in American Democracy* (1938), as reproduced in *Policies for Education in American Democracy*, p. 13. Washington: Educational Policies Commission, 1946.

The American Teacher before World War II

VITAL STATISTICS

The "typical" teacher in the years immediately before World War II was a fairly young, single woman with between three and four years of post-high-school education, earning an annual salary of approximately $1,440.00 after eight to ten years of teaching experience. More specifically, the situation was as follows:

There were in 1940 some 640,000 elementary-school teachers and 330,400 secondary-school teachers, of whom 79 per cent were women, mostly unmarried. Of every twenty elementary-school teachers (almost all women), only three or four were married; of every twenty women teachers in senior high schools, only one or two were married. Only one elementary- and four high-school teachers in twenty were married *men*.

The median age of elementary-school teachers in the early 1930's was twenty-seven years; of high-school teachers, twenty-nine years. It was reliably calculated that, by 1939 or 1940, these figures, at least for urban teachers, had risen by about four years.

For all teachers in cities with a population of 2,500 or over, the median number of years of college education was 4.2, and approximately 16 per cent had completed 5 years or more of college-level study. In rural areas, nearly two-thirds of the teachers had completed less than four years of college work. About one-third of the elementary-school teachers held a bachelor's degree or equivalent diploma; nine out of ten high-school teachers were college graduates. Fewer than one in eight were teaching in a non-public school.[6]

THE PREVAILING CONCEPTION OF THE TEACHER

Probably the focal characteristic of the prewar teacher was his commitment to a conception of education as in essence the guidance or shaping of social and attitudinal development. Inherent in the central educational movements of the first half of the twentieth century was the conviction that psychological considerations constitute the crucial determinants of any learning situation, that the emotional components of formal schooling are probably far more

6. The foregoing data are taken largely from *The Status of the Teaching Profession*, pp. 55-59. Research Bulletin of the National Education Association, Vol. XVII, No. 2. Washington: National Education Association, March, 1940.

important than any of the particulars of subject matter, and that stability of personality is the ultimate measure of the effectiveness of education.

Dominating the approach to teaching was the "whole-child" concept, the view that the total human organism is involved in any genuine learning and that, therefore, the entire boy or girl properly, indeed necessarily, comes under the school's purview. Supported by the organismic position in psychology, schools and teachers saw their responsibilities as extensive and all-inclusive, inasmuch as *any-thing* might have an effect upon Johnny's learning history and, moreover, since Johnny's experience with history could conceivably affect everything else in his life.

Within the context of this holistic outlook, the teacher's role grew increasingly pluralistic, and the range of his presumed responsibilities became ever more extensive and inclusive. To be sure, he was looked upon, by the community and by his pupils, as primarily a source of information and as one who checked for mastery. But he and they were committed to a much broader view of the educational process; the teacher, therefore, was heavily engaged in the direction of social activities, the sponsorship of recreational programs, the provision of counseling services, and the supervision of the extracurriculum, which included such "activities" as the newspaper, the chess club, and student government.

Inescapably, at least understandably, this climate encouraged a blurring of distinctions between the strictly academic phases of the school program and those with more obvious psychological overtones or implications. Indeed, the tendency to assess every aspect of the life of the school in terms of its impact upon the general development of personality made it difficult, if not impossible, to advance any curricular hierarchy, to support, for example, the contention that English or chemistry was more (or less) valuable than typing or home economics or basketball. On the contrary, the teacher was assumed to be operating within the bounds of a commitment to teaching itself as holistic and integrated, so that "citizenship" in the English class held a status almost as high as that accorded the performance in English, and sometimes higher.

Paradoxical as it may appear, the American teacher circa 1940 was compellingly dedicated to a focus upon personal development

and a response to individual interests. Despite the pervasive at-
tachment to the cultivation of social cohesion and facility, most
teachers saw themselves as responsible first for the advancement of
individual skill or knowledge, for the enhancement of particular
talents or interests. The widespread encouragement of "sharing"
and of creative expression in the primary grades, the fairly complete
acceptance of the elective principle in school and college, the focus
upon the interests of the learner, and the stress upon occupational
guidance—all of these evidenced strong support for an essentially
individualistic conception of learning and teaching. But this was an
individualism understood only as linked ultimately to social needs,
as relevant only to some larger community framework. It is not
surprising that much of the discussion of teaching then and sub-
sequently has been characterized by a certain ambivalence, if not
tension, between the "child-centered" and the "society-centered"
elements in this complex.

On the basis of 1930 figures, fewer than half of the children
entering the first grade could be expected to graduate from high
school; while only 13 per cent of persons 18-24 years of age were
in school or college. The teacher in this period, therefore, inevitably
regarded the elementary–secondary school sequence as, in effect,
terminal education for the large majority of his students. Of course,
there was general agreement that certain basic studies were appro-
priate for the common schools regardless of the extent of further
education; indeed, the prevailing contention was that if public
school education was terminal, all the more reason for a program
consisting largely of the classical, liberal studies for everyone.

Nevertheless, even given a fairly stable curriculum, the terminal
note was sounded in a number of ways in the teaching. Compre-
hensiveness and utilitarianism were characteristic since the end of
formal study was nigh; the contemporary and the immediate were
stressed since the "real" world was close at hand. Perhaps substan-
tially as a result of this situation, the teacher saw himself less as a
single link in an endless, continuing chain and more as one obligated
to do as much as possible for the person while he was still a student,
a status at best precarious and short-lived.

The Changing Role of the American Teacher

The years since 1940 or 1945 have been so filled with events of the most intense significance that nothing in their wake can have escaped profound modification. This chapter can do no more than mention such events as the establishment of the United Nations organization, the launching of earth satellites, the disintegration of colonial empires and the emergence of new nations, the Supreme Court decisions on racial segregation, and the assassination of a president of the United States. Seldom, if ever, in history has a single quarter-century encompassed so many developments of such profound significance; it would be naïve to behave as though these had had slight impact upon a major social institution. Thus, whatever the teacher of the 1960's is, he is, in part, because of such monumental happenings as these, and while this discussion focuses entirely upon matters essentially pedagogical or professional, the influence of these larger forces must never be overlooked.

VITAL STATISTICS

In the early 1960's, the "median" American teacher was about forty years of age, had something less than five years of college education, and had an income of approximately $5,500.00 (including income other than salary) after a little more than 13 years in the classroom. About two-thirds of the American teachers were women, of whom about three-fourths were or had been married. Single women constituted 17 per cent of the total number of teachers.

For the school year 1964-65, there were approximately 938,000 elementary-school and 700,000 secondary-school classroom teachers in the nation. The total number of classroom teachers was 115,000 larger than in 1961-62.

In 1961, the estimated median age of women teachers was 45.5 years; for men in teaching, the comparable figure was 33.6 years. It appears that, although relatively small, a steadily increasing number of men are entering elementary-school teaching and that both men and women are tending to remain longer in teaching at both levels.

In 1961, it was estimated that, of the elementary-school teachers,

23.8 per cent held no degree; 62.2 per cent held the bachelor's degree and an additional 14 per cent held a bachelor's and also a higher degree. The median number of years of college study completed was 4.6. For 1963-64, it was estimated on the basis of reports from 28 states that 82.1 per cent of the elementary-school teachers were college graduates.

In May, 1961, is was reported that approximately 98 per cent of the secondary-school teachers held the bachelor's degree, and about 36 per cent of the total held the master's degree. The median number of school years completed was 5.1 years. About one-sixth of the classroom teachers were teaching in independent or private schools.[7]

THE CHANGED OR CHANGING TEACHER

Probably the most fundamental change in the conception of teaching and teachers to be noted for the period is a shift in the focus of the goals set for education. To be sure, despite the cataclysmic character of recent history, twenty or twenty-five years is a very short period, and it would be rash to claim that this or that change had, in fact, transpired; especially is caution in order when one is attempting to consider matters as abstract and elusive as the general aims or purposes of such an enterprise as education. Nevertheless, changes in this basic aspect of American life do appear to be clearly in the making, if not already realized, and these are most profoundly evident in the case of the central goals being set for and by teachers.

There are at least three crucial respects in which educational goals can be seen to be in transition. In the first place, while American education before the war was governed by a primary concern

7. The 1961 estimates are from a sample study, *The American Public School Teacher, 1960-61*, pp. 77-78, 91. (Research Monograph 1963-M2, Research Division, National Education Association, April, 1963). Standard errors are reasonably small and careful attempts were made to avoid other types of error. The 1964-65 statistics are from *Estimates of School Statistics, 1964-65* (Research Report, 1964-R 17, Research Division, National Education Association, December, 1964). Other reports used were *Economic Status of Teachers, 1962-63* (Research Report, 1963, R 9, Research Division, National Education Association, August, 1963); *Teacher Supply and Demand in Public Schools, 1964*, p. 24 (Research Report, R 9. Research Division, National Education Association, April, 1964). *See also*, W. W. Charters, Jr., "The Social Background of Teaching," in *Handbook of Research on Teaching*, pp. 718-19 (Chicago: Rand McNally, 1963).

for services to the personal aims and needs of individual students, the basic dedication of the school in recent years has been shifting more and more toward the meeting of broad *national* needs and the facilitation of *national* policies. The teacher is currently called upon to exert his efforts in behalf of the development of a citizenry which is not simply literate but is literate *in relation to* pressing political and social realities. One has but to examine the federal educational legislation of the postwar years with its primary encouragement of subjects with immediate or potential political and military useful-ness to sense the changing climate, and the teacher (even at the elementary-school level) must perforce respond.

Thus, in the second place, the broad, underlying commitment to the psychosocial development of boys and girls which has been the most influential element in the American teacher's outlook for sev-eral decades appears to be giving way to a more concentrated focus upon the cultivation of intellectual power. If national requirements are to take precedence, then, it is widely believed that skill and understanding in the basic *disciplines* must stand as the paramount concerns of the school; mathematics, English, the basic sciences, history, and foreign languages simply must be mastered by all stu-dents to the limits of their abilities. An essentially academic orien-tation is gaining in prominence, perhaps most dramatically in the elementary grades to which, in recent years, the attention of leading scholars in nearly every field has been drawn. The exploding de-mand for college and university education has significantly accel-erated movement in this direction; mastery of the central academic disciplines has become the crucial consideration in the increasingly rigorous college-admissions policies that presently obtain.

In the third place, the ruling conception of the nature and aims of education reflects growing rejection of an idea of education as having a fixed beginning or end point, as being susceptible of or-ganization into neat orderly packages. Earlier notions as to the ease and tidiness with which one could distinguish "elementary" from "secondary" schooling—and both from "higher" education—are no longer regarded as tenable; the process has come to be seen as con-tinuous, seamless, and endless. The school today is less likely than previously to be organized in terms of a commitment to "third-grade arithmetic" or "freshman literature"; the grade placement of

subject matter fades as the stress upon its *continuity* from grade to grade grows more pronounced. The teacher in this circumstance is less likely to act as though any lesson, class, or course of study is complete and conclusive. Rather, he becomes far more the exemplar and promoter of what the University of California (in designating its program of continuing education) calls "lifelong learning" —a commitment to the proposition that the basic function of formal education is to try to help people *learn how to learn*, to be able in some measure to go on teaching themselves for the rest of their lives. Thus, it is probably an accurate epitome of the prevailing sentiment simply to observe that the designation "terminal education" is now likely to be regarded as a contradiction in terms. Clearly, the governing emphasis can be said to lie more and more with the development of intellectual power and with a command of the basic intellectual processes as a foundation for continuous further learning.

Inevitably, a shift of this magnitude in the general direction of the central goals for education is accomplished by, if indeed it does not reflect, basic change in the ways in which students and teachers are themselves perceived. It has been suggested that the dominant prewar idea of the school-child was comprehensive, that the derivative definition of the school's responsibilities embraced nearly every phase of the child's development. It is clear that the prevailing definition of the child at school, whether inclusive or somewhat selective in nature, was essentially multiple and complex in its composition.

While it could hardly be suggested that personalities have grown less complex in recent years, it does appear that the basic concern of the educator reflects movement toward a more unitary view of the child *as student*. Subscription to the proposition that the "whole child" comes to school and that therefore the school must attend to *all* of him is being supplanted by the conviction that the school has particular, unique functions to perform and that these relate directly only to particular aspects of the developing person. It is, of course, the intellectual and the disciplinary (in the sense of *the disciplines*) to which this emphasis is pointing, and other matters are subordinated or left to agencies outside the school. This attitude is reinforced as note is taken of the increasing, and increasingly

complicated, intellectual or academic demands upon the school. New problems, new subjects, new fields, in a sense even new disciplines appear in profusion with incredible rapidity. To accommodate these, adjustments in outlook and curriculum are inescapable.

The growing concern for the cultivation of the country's intellectual resources to their full potential has been evidenced in still another change in the approach to the student; a most significant recent development has been a dramatic increase in concern for different *types* of students. While this trend may appear to run counter to the tendency to narrow the school's view of the student, it is in reality another indication of the impact of the effort to concentrate the school's energies. If the focus in terms of which children *in general* are taught is being reduced in scope, at the same time the focus in terms of which *individual* children are received for instruction is being vastly expanded. Whether one thinks of ability grouping within the normal range of scholastic capacities or of programs designed for "exceptional" students of one sort or another (from honors programs to classes for the mentally retarded), it is evident that attention to differences among students is growing more systematic and more extensive. But the crux of the change would seem to be that the treatment of such differences, hence the activity of the teacher, is based, not upon the all-embracing view of the child at school which prevailed earlier, but upon the more explicit, more modest definition of the child *as student* which has recently gained in prominence.

All of the trends noted are producing profound changes in the behavior of teachers, in the way in which they conceive of their function and are perceived by society at large. These changes, of course, are presaged, where they are not actually specified, in all that has preceded in this discussion; now we endeavor to note the impact of them upon teaching as explicitly as possible.

First, it is apparent in a variety of ways that the role of the teacher is in the process of transformation, changing from the pluralistic to the singular, from the diversified to the specialized. On the one hand, increasing stress on knowledge and mastery on the part of pupils mandates the same for the teacher. The result has been a growing tendency to see the teacher, regardless of level, as a specialist to some degree in a basic field of learning. On the other

hand, the same narrowing focus has meant a decreasing expectation that the teacher will serve a multiplicity of functions, only some of which are essentially academic in nature. The tendency is to elaborate a number of specialties, both in and outside the school, to deal with the array of responsibilities which have been customarily assigned to the teacher. The high school has traditionally been constructed on the basis of specialties in subject-matter fields; the elementary school, with specialists in the teaching of reading or arithmetic or earth sciences, is rapidly developing toward the same pattern. Teachers at both levels are increasingly supplemented by specialists in various capacities—counselors, school psychologists, psychometrists, curriculum co-ordinators, supervisors, school social workers—whose very presence encourages the more concentrated approach to teaching.

Second, the teacher is moving away from the position of being exclusively or predominantly a source of data and a dispenser of information. The recent developments with which this chapter is concerned point to a major redefinition of the teacher's basic responsibility. The growing stress upon "learning how to learn" means that the elemental ingredient in education is not discrete fact but underlying principle, not details of information but insight into intellectual processes. This means that the teacher must function more as catalyst, as one whose prime obligation is the stimulation of the urge to inquire and the oversight of individual, independent study. Fact and information are vital, of course, but in this perspective they become instruments for teaching and learning rather than ultimate ends in themselves.

Third, and in line with the foregoing, the conception of the teacher's role grows less didactic and more tutorial; he becomes less the source than a resource for information, which is to say that he tends to stand increasingly as a mobilizer of materials for learning. The idea, especially prevalent at the elementary level, of the teacher as self-sufficient is supplanted by such patterns as team teaching and teacher aides and by the ever more elaborate mechanization of apparatus for instruction, arrangements in which the individual teacher is no less important than before but within which he must perform in rather different ways.

Thus, in terms of the role he plays, it is unmistakable that the

American teacher in the 1960's is fast becoming something markedly different from his counterpart of thirty years before. Three central characteristics appear to be gaining in prominence, and it is abundantly evident that, to the extent that these become predominant, the position and the function of the American teacher are transformed. The three characteristic elements are: *specialization*—the concentration of focus and energy upon a narrower range of subjects and responsibilities; *intellectualization*—the assignment of clear priority, within the process of formal education, to the cultivation and refinement of the ability to utilize the basic disciplines; and *continuity*—the recognition of true education as continuous, self-generating, and interdependent.

Changing Approaches to Teacher Education

In 1962, philosopher Sterling McMurrin, former United States Commissioner of Education, suggested the shape of things to come in American teacher education:

In the future every effort must be made to identify persons of high intellectual competence and talent in the art of teaching and to attract them to the teaching profession. And the standards of our colleges of education must be raised to exclude those who do not have real promise. The finest education must be made available to those who qualify: first, a genuine and rigorous liberal education in the full sense of that word, an education in the arts and sciences of the kind that frees the mind, that acquaints it with at least the rudiments of the world's basic knowledge, and cultivates critical and creative intelligence. To insure this kind of education, the education school must become a part of the mainstream of the intellectual life of our universities. The education of teachers is properly the task of the entire faculty, not simply of those who specialize in the teaching art and its related sciences.[8]

It is significant that this statement summarizes much of what has begun to happen in American schools. Let us consider the current developments in the education of teachers in terms of the three elements discussed in the concluding paragraph of the preceding section.

8. Sterling McMurrin, "A Crisis of Conscience," in *American Education Today*, pp. 22-23. Edited by Paul Woodring and John Scanlon. New York: McGraw-Hill Book Co., 1963.

SPECIALIZATION

We have noted something of the degree to which the entire school enterprise grows steadily more specialized. This relates both to subjects (e.g., French, mathematics, biology) and to professional functions (e.g., counseling, school administration, student personnel work)—and as this situation has emerged, so necessarily has teacher, or professional, education itself become more specialized. This development is manifested in several ways.

Perhaps most important is the more vigorous emphasis upon subject-matter mastery as the central component of the teacher's equipment. It would be grossly inaccurate to suggest that subject matter was earlier widely regarded as an unimportant factor, but its pre-eminence in teacher education certainly has been seriously challenged in recent decades. Opinions differ as to the extent to which this challenge bore fruit, but there were clear and prominent patterns of requirements and curricula for prospective teachers which sharply exemplified a primary commitment to the understanding of children and learning processes rather than to the teaching fields. Such is decreasingly the dominant pattern; in one form or another, contemporary programs of teacher education are characterized by more explicit and more substantial attention to the cultivation, by the prospective teacher, of attachment to and facility within one of the established school-subject areas.

This development is particularly evident in the approach to the preparation of teachers for elementary schools. It has been customary to regard the job of the elementary-school teacher as consisting of responsibility for instruction in a very broad range of fields and for an array of nonacademic social or hygienic or recreational functions as well. Such a conception of the teacher's role seemed to call for a pattern of preparation which was correspondingly extensive and diversified, in which breadth and general familiarity with a number of areas were basic. Recent tendencies in the approach to the elementary-school curriculum and the definition of subject matter have clearly begun to direct this effort along narrower, more systematic lines. If, so the logic runs, it is important that we enable children to become literate in, for example, physical science, and if it is demonstrable that the process of promoting such

literacy can and should be started in the early years of schooling, it follows that we need some persons in the elementary school who really know physics. And so for each of the fundamental fields or disciplines, there should be increasing stress on subject-matter mastery, on expertness in some central field, as a prime element in the preparation of elementary-school teachers. It follows that the conventional general major in "elementary education" is giving place to regular majors in a single subject or a cluster of interrelated subjects and that the general program for those intending to teach at the elementary-school level is becoming ever more closely identified with the mainstreams of college or university activity.

As with the subject fields, so with the pedagogical side of teacher education; the impact of specialization is unmistakable. There are at least two bases for this development. In the first place, the demands upon organized education and the rising level of the country's scholastic expectations extend the responsibilities of the schools far beyond the reach of the individual teacher or the single classroom. A battery of specialists in a wide variety of technical areas is essential if such responsibilities are to be met; the definition of the teacher's role, hence of teacher education, has broadened to include such specialties as counseling and school psychology, administration and student personnel work, curriculum co-ordination and librarianship. With the emergence of particular professional concerns of this sort, the education of teachers and, indeed, all school personnel necessarily grows more specialized.

In the second place, specialization in the several pedagogical branches of teacher education is a direct result of the growth of knowledge about the educational process. While commentary and theorizing on education are as old as language, the organized study of this process is itself a very recent phenomenon. More recent still, essentially within the period discussed in this chapter, is the emergence of large-scale support, public and private, for the organization of scholarship in an attack upon educational or pedagogical problems.

While, in relative terms, the investment in such study is minuscule, the elaboration and definition of needed specialties within the educational enterprise have been mightily encouraged. Perhaps the most noteworthy of such developments in recent years has been

the growth of new hybrid fields, marrying a commitment to a particular subject to an equally strong commitment to the improvement of instruction in that subject. Thus have appeared such essentially new specialties as "mathematics education," "science education," and "economics education" through which the resources of authorities in one or another field are joined with the talents of experts in the *teaching* of that field.

INTELLECTUALIZATION

Woodring once wrote that the primary function of schools in a free society is "to prepare the individual to make wise decisions. All else is but contributory." [9] While this statement when first written was an expression of one person's own educational outlook, it can stand as an index to one of the characteristic phenomena of postwar American education. We have noted the changing character of elementary- and secondary-school curricula, the more concentrated role of the teacher, and the consequent narrowing of the focus in teacher education. All of these, it seems clear, are responses to an increasingly *intellectual* emphasis in formal education at all stages, and this emphasis certainly has influenced the direction of programs for the preparation of teachers.

Perhaps the most forceful evidence of the intellectualization of teacher education is the growing recognition and acceptance of this function as properly, indeed necessarily, belonging to the university *as a whole*. Much that has already been considered in this chapter suggests the augmented place of the subject-matter faculties in the governance and conduct of teacher-education programs. To be sure, in most institutions, especially with respect to secondary-school teachers, the arts and sciences departments have heretofore been responsible for the major portion of the course of study, but until recently this was rarely considered in relation to the expected ultimate teaching task. Increasingly, and dramatically at the level of elementary-school teacher education, the faculties in the basic fields have been examining their programs in the context of responsibility for the preparation of teachers; increasingly the relationships be-

9. Paul Woodring, *A Fourth of a Nation*, p. 111. New York: McGraw-Hill Book Co., 1957.

tween these areas and the central pedagogical considerations grow more intimate and more reciprocal.

Almost equally significant, though perhaps less precisely a post-war phenomenon, is the development of rising standards for teacher certification and education. This has taken a number of forms, from the extension of basic certification requirements (to four or five years of college study) to the institution of above-average scholastic requirements for admission to or continuation in programs of teacher education. Accompanying and facilitating such developments have been substantial contributions to the body of data and knowledge about education itself, contributions which have tended to underscore the view that the study of education is, in essence, analogous to the study of any social institution or social process. Thus, the education of teachers, as it is more closely related to its parent fields—psychology, philosophy, anthropology, for example —becomes more directly a scholarly, hence an intellectual, enterprise. Again, many of the current assumptions about the preparation of elementary-school teachers and the emerging patterns for their training eloquently demonstrate this spirit.

CONTINUATION

The tendencies toward specialization and an intellectual emphasis in the education of teachers have clearly resulted in, or at least have accelerated, acceptance of the principle that professional preparation for teaching is a continuous process. This, of course, is in part a reflection of the generalization introduced earlier that education itself is coming to be seen as endless and lifelong. But, with particular respect to teachers, the reference is to more than this; the crux of the matter here is that the teacher cannot, and cannot be expected to, perform his duties adequately except as he is himself continually engaged in learning. This is to say, therefore, that education is coming to be regarded as an integral part of the teacher's entire professional life, not just of his preliminary preparation.

There are several manifestations of this in contemporary developments in teacher education. One such is the rather widespread interest in re-examining the timing and sequence of the component parts of a teacher-education program. Questions are insistent and experimentation is rife on issues such as when or whether a student-

teaching experience is mandatory, the best point in the sequence of courses for the detailed study of the psychology of learning or the behavior of children, and the desirability of removing all study of education *per se* to a post-baccalaureate period. More basically, questions are raised as to whether certain aspects of professional training, traditionally assigned to colleges and universities, might be more usefully and efficiently handled on the job, might be assumed by the schools themselves as integral partners in the teacher-education program. Again, though once more precedent dates from long before World War II, the past two decades have witnessed very substantial reallocation of functions and responsibilities in teacher education, reinforced by an underlying conviction that the process is never completed.

These developments have been accompanied by marked expansion of scholarly activity in teacher education. The presumption that professional study for teachers knows no terminus has meant that some familiarity with research and scholarship is coming to be regarded as an essential component of any teacher's experience and equipment. Ever more widely, it is assumed that, at some point if not periodically in his career, every teacher will be engaged in advanced study—in his chosen field or the pedagogy thereof, in some particular professional specialty, or in some basic area with significant meaning for his general cultural or intellectual growth. Teacher education, then, like education in general, is coming to be seen as a process of continuous development; to commit one's self to teaching is to obligate one's self to a lifetime of study.

Envoi

To summarize this examination of the changing American teacher: We have been moving since the war toward a more modest and a more manageable conception of the teacher's function. The increasing concern for specialization and the intellectual dimension does not preclude concern for other responsibilities—social, aesthetic, physical, vocational—which have been, and continue to be, important elements in the life of a school. But the trend is toward focus and concentration and toward a contracted (not necessarily a constricted) view of the individual teacher's role within that school. Indeed, the establishment of less ambiguous, hence more

functional, priorities for both school and teacher for the latter third of the twentieth century may be the most important legacy from the educational discussions of the years since the war.

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The Curriculum *

JOHN I. GOODLAD

Introduction: The Reform Movement

Curriculum change usually stems from assumed excesses or in-adequacies in what exists. A period of change produces its own shortcomings and creates the need for another. In relatively stable times, change is likely to be evolutionary and modest in character and to come from within; that is, school people effect it under the direction of their own professional leaders. But in periods of un-usual political, social, or economic stress, curriculum change in the schools is likely to be more counter-cyclical in relation to the past, to occur rapidly, and to be led by persons not identified with earlier curricular change or, for that matter, with the schools—in effect, to be somewhat revolutionary in character. The curriculum change now underway in the United States, aspects of which date back to about 1951 and which has been intense for a decade, has been marked by both evolutionary and revolutionary characteristics.

Initial leadership came from outside of what Conant identified as the "education establishment" [1] that loosely knit group of edu-cators made up of state department of education personnel, school

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* This chapter, following instructions for all chapters of this section, seeks to document in short space what is and for some years has been a very com-prehensive movement in American education. The many generalizations set forth here stem from the writer's analysis during 1963-64 of more than 25 projects in curriculum reform and continuing analysis of additional projects during 1965. Because of the scope of this movement and space limitations, the data and specific examples to support the generalizations are not reported ex-tensively here. They are available elsewhere (see John I. Goodlad, *School Curriculum Reform in the United States*. New York: Fund for the Advance-ment of Education, 1964).

1. James B. Conant, *The Education of American Teachers*. New York: McGraw-Hill Book Co., 1963.

superintendents, principals, and teachers, and the professors of education who contribute to their professional preparation. University professors in the academic disciplines corresponding to subjects taught in the schools have been involved in unprecedented fashion, most of them for short periods of time but some of them on a continuing basis. In this second group, the names of Zacharias, Suppes, Begle, Karplus, and many more come readily to mind.[2] They came to effect needed change; they stayed out of fascination with the complex problems of educating the young.

Just as recent curriculum change has not been inspired and led at the grass-roots local and state levels by teaching, supervising, and administrative personnel in the schools, neither has it been financed by the state or its school districts. Financial support—quite handsome by previous standards—has come from the National Science Foundation, the United States Office of Education, and private foundations. This flow of funds from the first two sources has placed the federal government squarely in the mainstream of educational affairs, inescapably affecting what is taught and learned in the nation's schools. The academic debate over whether or not there should be federal aid to education proceeded "hot and heavy" while federal aid became a substantial reality.

In effect, the recent and continuing effort for curriculum change in elementary and secondary schools has received its momentum from forces and interests lying largely outside the state and local school systems charged legally with responsibility for determining what to teach. It is easy to see, therefore, given its pervasive scope, why the movement frequently is labeled "national." But it is not at all national in the sense of being nationally or federally controlled. The federal grantors have been circumspect in maintaining a "hands off" policy regarding the production of curriculum materials and have been exacting in their restrictions pertaining to advertising or

2. Jerrold R. Zacharias is professor of physics at Massachusetts Institute of Technology and has been a prime mover in precollegiate curriculum reform; Patrick C. Suppes brought his philosophical, mathematical, and psychological abilities to bear on the development of a mathematics program for young children; E. G. Begle has headed the School Mathematics Study Group, first at Yale and then at Stanford; and Robert Karplus has experimented with new approaches to science for young children in his Science Curriculum Improvement Study.

proselyting of any kind. Nor is the movement national in the sense of providing a single "national curriculum." The alternatives in mathematics, the sciences, and, more recently, English and the social sciences are increasing at a gratifying but bewildering rate. There is no question, however, given the initial emphasis on mathematics and the sciences and a corresponding imbalance in funding, that the current curriculum-reform movement is, in a large measure, federally influenced and will continue to be so for some years into the future.

Perhaps this curriculum-reform movement of the 1950's and 1960's is best described as nation-wide, in that its impact has been felt in Maine and California, Oregon and Florida, and throughout the great heartland of the United States. Relatively few high-school students study physics, but more than half of those who do use materials produced by the Physical Science Study Committee. Many take biology, and more than half of the high-school biology textbooks sold in this country during 1965-66 bear the label of the Biological Sciences Curriculum Study. The substance of curriculum projects, such as the Chemical Education Materials Study, is finding its way into the publications of commercial houses not officially releasing project materials. And curriculum products have been translated into many languages for distribution around the world.

SMSG, PSSC, BSCS, CHEMS, ESS—these are the new alphabet soup of American education. Many of these curriculum projects use up to a million dollars each in a year for the purpose of developing and refining instructional packages. Most of them are, in large measure, predicated on the assumption that the ends and means of schooling (but not necessarily of education as a whole) are derived first from the academic disciplines and only secondarily from characteristics of children or youth and of society in general. Let us now examine some of the forces and factors thought to be productive of the movement and then move on to some of its most central characteristics.

Influencing Forces and Factors

It is impossible to explain the current curriculum-reform movement in any one-to-one relationship to possible casual factors. But,

certainly, the following conditions are at least partially descriptive of the setting in which it was spawned.

First, World War II and its immediate aftermath revealed extensive (it has been described by some as shocking) mathematical and scientific illiteracy among high-school graduates. As scientists became increasingly aware of this fact and, subsequently, looked into the quality and quantity of science and mathematics taught in secondary schools, realization of their own responsibility struck at least a corps of them with increasing force. In fact, E. G. Begle, director of the School Mathematics Study Group, traces the roots of this far-reaching project directly to a soul-searching conference of mathematicians held in the early '50's.[3] Except for setting admission standards to their own institutions of higher learning and prerequisites for admission to their courses, the academicians had been standing aloof from involvement with precollegiate curriculum matters.

Second, the United States was barely out of a "hot" war before it found itself in a "cold" war, a war calling particularly for personnel knowledgeable in the physical sciences and mathematics. A few far-sighted scholars, leading citizens, and members of Congress —somewhat belatedly, admittedly—saw the need. But both general concern and action lagged until 1957, when the launching of the first Russian satellite shook the American people out of their lassitude and focused upon the public schools the most critical attention they had received in decades. Educators, dodging the blows and licking their wounds, could not then have envisioned the attention, encouragement, and support that were to come to them in a short span of years, partly as a consequence of being placed at the core of the nation's malaise and, subsequently, as a consequence of being seen as at the core of the nation's welfare. Sputnik has been referred to so many times and in so many contexts that we are too much inclined to ignore or underestimate its significance as a factor productive of school curriculum reform.

Third, the crippling economic depression predicted almost

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3. Reported to the writer in a conference with Professor Begle in the process of collecting data for *School Curriculum Reform in the United States, op. cit.*

monotonously during the 1950's simply did not materialize. As a
consequence, an expanding middle class knew greater prosperity
and higher standards of living at an earlier age than ever before.
And this relatively young group of ambitious men and women saw
education as the road to the good life for their children—education
of a sort thought basic for admission to the prestige colleges of the
land. Meanwhile, repeated reports in the popular press predicted
bulging college enrolments and an inadequate number of places for
all who would be knocking at the doors. Parental attention turned
to the public schools which, strangely and ironically, were expected
both to do the job of preparation and to create the necessary college
places. This attention no doubt stimulated educational change and
innovation in general, but it may have given special stimulus to the
kind of curriculum reform getting underway. Most of this reform
was spear-headed by distinguished scholars. Was it not, therefore,
reasonable to assume that such persons would know best how to
redesign the precollegiate curriculum for college preparation? It is
not surprising that requests to participate in plans to develop and
use the new curriculum materials came most frequently from sub-
urban communities where this young, vocal, and ambitious group
had come to rear its children.

Fourth, values which had long guided American life were shift-
ing and crumbling, a process sharply accelerated by World War II.
To be sure, there always had been surges of defiance against what
appeared to be prevailing values—but at the periphery and by a
few rather than at the center and by many. But now, the lives of
millions were changing rapidly and fundamentally, in directions and
ways that often were beyond their control. Young couples who had
been taught the absolute virtue of buying only what they could
pay for discovered that what they wanted had, in many instances,
doubled in price by the time they possessed the cash to pay for it.
They would have been served better by a rational understanding
of consumer economics than by absolute rules. Job opportunities
took these young couples from the stable communities of their
parents and grandparents to bedroom communities with no past—
and frequently to a new, new community every other year. Job
obsolescence clouded the future, creating the specter of unemploy-
ment in a land of plenty. Unemployment, in turn, threatened an

individual's sense of worth, especially if his father had been deeply motivated by the work ethic. Home, job, values—these and everything else one had known—were changing. From New York's Madison Avenue to Chicago's South Side and San Francisco's North Beach, it was becoming increasingly apparent that "you can't count on nothing these days." The man on the street was feeling what the scholar was seeing: the emergence of new cultural values stressing uncertainty, adaptability, and the cultivation of rationality.

Fifth, and closely related to the above, the knowledge explosion was ruling out traditional approaches to curriculum-planning. It was at long last becoming apparent that the search for those most important bits and pieces of knowledge ("facts") for transmittal to the young is futile. The very concept of fact was changing from that of a verifiable certainty to that of an observation taking its relevance from the theoretical construct in which it is used and by which it is described. Facts become facts only within the perspective of the viewer and are communicable as facts only within the communicated content of his perspective. Further, man's ways of viewing the universe and the accumulated products of his investigations now far surpassed the capacity of a single individual to encompass them. The curriculum increasingly was seen to need both fresh infusions of content and comprehensive reorganization emphasizing the structures of the academic disciplines and man's ways of knowing. The words "structure" and "intuition" marked the new pedaguese and were bandied about as carelessly and with as little understanding as "the child's needs" and "readiness" had been used in a preceding era.

Sixth, this growing preoccupation with the structures and strategies of the subject fields led to experimentation with children's abilities to learn them and a wave of new interest in early childhood schooling. At least a few of the scholars who had set out merely to demonstrate the ability of the young to handle solid fare discovered that curriculum development is more than arranging a series of topics in assumed order of their difficulty. The study of children's learning took on fresh and essentially scientific respectability. Piaget was rediscovered and his studies were replicated using modern statistical techniques. Similarly, what began as a rather mechanistic process of arranging content according to its assumed structure and

of experimenting with gadgetry soon matured into studies of pro-
graming, instruction, and persistent problems of curriculum. Pressey,
too, was rediscovered.

The above list represents a sample of both societal pressures aris-
ing outside the formal processes of education and substantive pres-
sures arising from advances within education and its study, all of
which appear to have affected the force, direction, and nature of
current curriculum reform. It is difficult to separate cause and
effect or to distinguish between primary and secondary factors.
The fact that both "crash" programs in practice and comprehensive
programs of research have been mounted almost simultaneously is,
in large part, due to both widespread recognition of need and the
unprecedented response of the federal government to this need. Two
other needs pertaining to the research-practice interplay, each the
converse of the other, are becoming increasingly apparent. First, we
need a larger contingent of researchers who step sagaciously from
the laboratory of careful control into the laboratory of polyglot
practice. Second, we need a larger contingent of educational leaders
who point to the areas of drought yet to be made fertile through
research and who use relevant research in their own decisions.

Characteristics of the Changing Curriculum

Initial curriculum reform was concentrated on the high-school
level. Procedures developed at this level were subsequently carried
over with little modification into revision at the elementary-school
level. But the difficulties there encountered were of such nature
that re-examination of certain basic assumptions at both secondary-
and elementary-school levels was called for. It seems advisable,
therefore, to examine separately the characteristics of the new sec-
ondary as compared with the emerging elementary curriculum.

THE SECONDARY PHASE OF SCHOOLING

The current curriculum-reform movement was, at its inception,
a reaction to the fusion and correlation of subjects so often recom-
mended but less often practiced during previous decades. Therefore,
emphasis was upon discreteness of the academic disciplines: not
science but biology, chemistry, and physics; not social studies but
history, geography, and economics; not English but literature, com-

position, and grammar. The physics curriculum would be planned by physicists; high-school students would come to think like physicists.

The curriculum in each field was to be organized around primary *structural elements* of the discipline. Scholars, working primarily in summer institutes, sought to identify these elements, disagreements over which are primary, often being settled by teachers selected from high schools who attempted to judge their appropriateness for adolescent learners. Interestingly, the identification of structural elements—concepts, key ideas, principles, and modes of inquiry—often postdated the selection of new content and did not, therefore, give direction to this process. The Woods Hole Conference (1960)[4] of scientists, psychologists, and educationists brought together to discuss problems of teaching various academic disciplines, attracted considerable attention and stimulated a good deal of this belated curricular activity.

It was assumed that understanding these elements (rather than merely possessing facts) would give the student intellectual power —power to attack previously unknown problems and power to grasp *intuitively* the relationship of new phenomena not previously encountered to phenomena already experienced. Therefore, ability to think inductively became a built-in goal and teachers were encouraged to let students discover meanings for themselves. The word "discovery" popped up everywhere in articles describing new curriculum projects, authors frequently failing to distinguish between discovery as an aspect of inductive behavior to be sought in learners and discovery as a process of attaining or teaching for such behavior.

Commonly, specific curriculum-planning in a subject field began with determining what a "typical" student should know on completing high school or the course. Work was then planned backward or downward to what was to be the student's beginning point and, later, upward to provide for the extended program of the more able students. Courses were intended to fit into existing time allotments but, as work progressed, the desire for more time was

4. Jerome S. Bruner, *The Process of Education*. Cambridge, Massachusetts: Harvard University Press, 1960.

voiced, especially by scholars and teachers planning and teaching single-year courses. Of course, for those planning in fields such as geography and anthropology, as yet lacking a clearly staked claim to a place in the high-school curriculum, any time at all would represent gain over the existing situation. Time for them was and is still a key problem.

In curriculum theory, the term "organizing elements" frequently is used in referring to the concepts, skills, or values serving as threads from which specific learning stimuli are to be organized.[5] We have seen that, in the curriculum-reform movement discussed here, the identification of organizing elements frequently followed rather than preceded the selection of specific stimuli if, indeed, the former were identified at all. Herrick[6] and others refer to these stimuli as "organizing centers" for learning, points in time and place through which the student is guided toward the more fundamental organizing elements underlying the curriculum. Clearly, selection of these organizing centers was a prime concern during the early years of this high-school curriculum revision.

Guiding criteria for their selection, usually implicit rather than explicit, included the following: (a) The content used in the organizing center must be authentic and important to the field, as determined by leading scholars in it. (b) The content in the organizing center must have linkage value, that is, it should relate to other possibilities already experienced or to be experienced. (c) The organizing center should have great potentiality for involving the student fully, for assuring that he will become active in thinking and doing. (d) The organizing center should present alternative avenues of approach—reading books, viewing films, experimenting in the laboratory, and so on. (e) The organizing center should lead the student to discover for himself. Criteria pertaining to students' past experience, present interests, and individual differences were less apparent. If previous eras of curriculum reform can be de-

5. Ralph W. Tyler, *Basic Principles of Curriculum and Instruction*. Chicago: University of Chicago Press, 1950.

6. *Strategies of Curriculum Development*. (Selected writings of the late Virgil E. Herrick.) Edited by James B. Macdonald, Dan W. Anderson, and Frank B. May. Columbus, Ohio: Charles E. Merrill Books, Inc., 1965.

scribed properly as child-centered or society-centered, the one currently underway can be described just as properly as discipline- or subject-centered, especially in reference to its beginnings.

Given criteria such as the above for selecting organizing centers, central focus on the development of a comprehensive instructional materials package comes as no surprise. Products of the Physical Science Study Committee set standards of excellence for textbooks, laboratory equipment, films, and supplementary materials of many kinds. Painstaking care in this project and others has gone into the production of superb films to demonstrate deceptively complex principles and to document the problems, motivations, and excitement of scientists at work. Sometimes, a collection of materials is to be consumed in the classroom as a total package; sometimes it may be broken up at the discretion of the teacher. In some courses, there is a precise place for textbook, film, and laboratory, each alternating with the others according to a predetermined sequence. In others, films and experiments are optional components of the teacher's total repertoire.

At the outset, curriculum reformers recognized formidable subject-matter deficiencies in teachers and set out to remedy them in summer and year-long institutes, financed primarily through provisions of the National Defense Education Act and by the National Science Foundation. Tens of thousands of teachers participated, mostly in mathematics and the sciences, studying both content and ways of teaching it. Several of the curriculum-revision projects restricted use of their materials to school systems sending teachers to their institutes. Tens of thousands of additional teachers participated in local school-district workshops designed primarily to update their subject-matter understanding. It is fair to say that, as a consequence, many teachers who had become lethargic and discouraged enjoyed fresh stimulation and satisfaction in their chosen work.

THE ELEMENTARY PHASE OF SCHOOLING

Only a few of the curriculum projects at the elementary-school level date back to the 1950's. In fact, interest comparable to interest in the revision of the secondary-school curriculum is only beginning to become apparent. Actually, however, a number of passes

at the task were made in the second half of the 1950's, using many
of the assumptions underlying high-school curriculum reform. But
many of these assumptions did not hold up, and the passes fell far
short of concerted action.

What has occurred so far at the elementary-school level resem-
bles the high-school picture in several respects: tangible curriculum
materials are, in general, more available in mathematics and science;
the instructional-materials package is central and is given high visi-
bility; teachers in service have participated in workshops and in-
stitutes stressing the new content; curriculum discourse has stressed
discreteness of the academic disciplines; and those words, "structure,"
"intuitive learning," and "discovery" have come to the fore again.
But beyond these similarities, there are very basic differences in
approach which already are affecting some high-school curriculum
revisions and which, when followed through even to tentative con-
clusions, will have profound implications for the full sweep of the
school curriculum.

Two troublesome questions have been encountered in seeking
to extend separate disciplines downward. First, if root concepts in
biology, chemistry, and physics are the basis of curriculum-planning
in the high school, what should be the basis in the elementary
school? Presumably, these same concepts should be taught in a
simpler but, nonetheless, honest way. The search for downward
extensions of these organizing elements and for organizing centers
through which to develop them with young children has proved
both challenging and baffling, separating the men from the boys in
curriculum reform. No doubt, getting back to the research labora-
tory and to college teaching suddenly appeared very attractive to
those scientists who really came face to face with the problems.
Clearly, adequate solutions required virtually a full-time career
commitment.

Second, which disciplines should be included in the elementary-
school curriculum or any division of it? The existing curriculum
consisted, for example, of a hodgepodge of topics in *science,* not
separate sequences in the several science fields. Either the commit-
ment to preserving the integrity of each discipline had to go, or
some very tough decisions as to priorities had to be made, or some
pattern of alternating attention to many disciplines had to be de-

veloped. For, clearly, there could not be thirty or more separate academic disciplines in the kindergarten!

In mathematics, the difficulties were not so formidable. Mathematics was firmly established in the curriculum in some form, and high-school mathematics always was based on the assumption of studies preceding it. The program of the School Mathematics Study Group, for example, planned from the top down rather than the bottom up, encountered a squeeze in the lower years because of an occasional poor fit between time available and substance to be put into it—a situation somewhat comparable to buttoning one's shirt from the top down and then discovering that there is no hole remaining for the bottom button. But elementary science was much more troublesome, and now social studies is proving to be equally so.

In retrospect, it is difficult to determine whether the issues were perceived in advance or whether the practical problems simply were dealt with on an *ad hoc* basis. At any rate, in elementary-school science at least four patterns have emerged: selection of a single discipline not normally taught in the high school (represented by the University of Illinois Elementary-School Science Project which is organized around selected major themes of astronomy); development of sequences in several sciences which then can be interchanged and alternated over six or seven years of instruction (represented by the Elementary-School Science Project at the University of California, Berkeley, which includes such fields as mathematics, physics, physiology, botany, chemistry, paleontology, and zoölogy); specific identification of basic skills and competencies thought to be essential to learning science but only general guidance in the selection of topics through which scientific behavior is to be achieved (represented by "Science—A Process Approach," developed by the Commission on Science Education of the American Association for the Advancement of Science, and organized around such behaviors as observation, classification, measurement, communication, inference, and prediction); and development of a kind of spreading tree of concepts thought to be basic to science and its man-made divisions, with little or no effort to distinguish among these divisions (represented by the Science Curriculum Improvement Study, with headquarters at the University of California, Berkeley). Already it is becoming apparent that all of these and perhaps additional pat-

terns are likely to emerge in the social studies, with such previously neglected fields as economics, law, and political science also entering the picture.

Partly because of some of the dilemmas which become sharply apparent in considering the elementary-school curriculum, work at this level has proceeded more slowly and in a more exploratory and experimental fashion. There has not been anything like the degree of intense action in which scholars arrived at some preliminary agreements at spring meetings, joined teachers for summers of hurried writing, tried out preliminary materials during the year, returned for an additional summer of writing, and then moved into trial editions of textbooks and supplementary materials—often within two years or less. Nor has there been the same assurance with respect to basic assumptions.

Notable among missing assumptions is uniform precommitment to at least the broad configurations of existing curricula—to time allotments, grade placement of courses, and traditional subjects, for example. Elementary-school curriculum reformers seem to have embraced, albeit hesitantly and partially, the notion that schools need not remain as they have been. Some of them have identified rather closely with recent increased interest in individual differences and with such innovations as nongrading, team teaching, programed instruction, and more flexible school facilities, often adapting their materials to them. In curriculum-planning, some of them have been willing to break away from a commitment to separate disciplines in the search both for more meaningful syntheses and for behaviors cutting across several fields within a general division of knowledge. And they have shown some inclination to plan from the bottom up rather than from the top down. As a consequence, they have tended to pay more attention to the developmental characteristics of children.

These curriculum ideas are not all foreign to secondary education. They received much attention in the 1930's and 1940's. But the scholar is closer to the high school than to the elementary school —he receives its recent products—and, therefore, he probably concludes, the high school should be close to his discipline. Ideas such as the core curriculum, life-adjustment education, and problems of social living, rampant in the prewar period, seemed to take the high

school away from his discipline; it became something of a foreigner to him. Reform had to be away from what was presumed to exist. As a consequence, there has been an inadequate blending of new and old. These curriculum ideas will return to the high school, but probably not for a few more years.

The elementary school, on the other hand, always has been a stranger to the scholar. He can admit his ignorance freely and can listen to those who appear to be on intimate terms with it. There appears, therefore, to be more of a dialogue between those scholars coming new to the field and those scholars and teachers who have lived with the field of elementary education for some years. Perhaps because of this, curriculum change in the elementary school has been and probably will continue to be marked less by "crash" than by evolutionary characteristics. Nonetheless, some of the changes are likely to be quite sweeping.

Critique

In that the current movement set out to correct certain curricular deficiencies and imbalances and to a considerable degree has succeeded, it has provided some notable assets. But inasmuch as it was also a reaction to previous excesses and shortcomings, recent curriculum change has spawned some excesses and shortcomings of its own.

ASSETS

The serious involvement of scholars in fields such as mathematics, biology, chemistry, physics, and, more recently, English, economics, history, geography, anthropology, and sociology was long overdue. While most of them still view this activity as peripheral to their own interests, they now recognize its importance and seem pleased that at least some of their colleagues are seriously involved. However, relatively few professors would urge any substantial career commitment to precollegiate curriculum-planning for their own graduate students. The problem of engaging the attention of first-rate academic men and women on a continuing basis remains.

The participation of scholars which already has occurred has produced some penetrating analyses of the lower branches of the liberal-arts tree—at least enough to expose both the importance and

the complexity of this work. Up to the post-World War II period, there had not been, in relatively recent times, any serious, specific consideration of what the nature and structure of knowledge might mean for curriculum and instruction. For nearly three decades, the attention of those persons most interested in precollegiate education had focused primarily on the educational implications of human development and societal conditions. Although organized subject matter had remained central to what went on in the classroom, the possibilities of organizing it *uniquely for instruction* were largely ignored. Interestingly, Dewey's concern for this question had been virtually by-passed but is now being rediscovered. While scholars in subjects taught in the lower schools injected emphasis on their disciplines into these schools, the empirical questions are being pushed mainly by psychologists, many of whom have more than a passing interest in programed instruction. Little of an immediately practical nature has as yet emanated from this work, but at least its potentiality is now spotlighted.

Similarly, psychologists in increasing numbers are studying directly the complex processes of human inquiry rather than those rote processes which more readily seem to permit inferences from studies of animals. Again, much of the stimulus came initially from subject-matter specialists, especially in the sciences, who saw that any attempt to "cover" the vast accumulations of knowledge in their fields not only was doomed at the outset but also was inimical to the processes thought by them to be central to science and to the work of scientists. Educational theories stressing inductive reasoning for students and inductive methods for teachers run through educational literature of the twentieth century. But they are now receiving a centrality and a respectability not previously enjoyed, providing an example of change that is more cumulative than countercyclical. Such theories have both contributed to directions inherent in the new curriculum reform and have been strengthened by it.

There is ample testimony and some research [7] to the effect that

7. See, for example, Robert M. Gagné and Associates, "Factors in Acquiring Knowledge of a Mathematical Task," *Psychological Monographs: General and Applied,* LXXVI, No. 7 (Whole No. 526), (1962), 1-21.

many students of previous pedestrian performance in a given field perform well in a restructured program. Perhaps this is because some new behaviors are stressed; because more varied avenues for learning usually are provided; because stimuli are more carefully programed to reduce the possibility of error; or because of some combination of these and other factors. At any rate, the hypothesis that reasonable academic attainments are within the capabilities of all students, given proper and adequate modifications of learning environments, opens up virtually limitless possibilities for educational research and practice. In our more rapturous moments, we are able even to envision the ultimate emergence of a science of pedagogy supporting individual diagnosis and subsequent prescriptions from a pharmacy of tested educational alternatives.

Still another asset in present-day curriculum change is extensive inclusion of materials other than textbooks in the total instructional package: films, filmstrips, programed exercises, living creatures, and realia of many kinds. It often is impossible for teachers to offer the courses without using the new audio-visual media. As a consequence, they are discovering that modern technology can carry instruction far beyond the almost exclusively telling-and-listening activity still characterizing teaching and that a considerable amount of it can be put to work merely by pressing buttons and switches. Most of us remember only too well the frustrations of noisy projectors, broken film, and missing pick-up reels, but the 8-millimeter film cartridge and accompanying projector promise to end all that. The picture is not quite as rosy as some audio-visual enthusiasts would have us believe, but the problems now call largely for wise expenditure of funds and improved education of teachers.

Widespread in-service education of teachers, primarily in the subject matter to be taught but also in methodology including the use of audio-visual techniques, has been a significant contribution of the reform movement. Perhaps even more significant than the fact of updating has been a growing realization of the need for continuing self-improvement. One's formal education is merely a beginning; at its best—seldom achieved—preparation for self-propelled learning. Repeated testimonials following NDEA- and NSF-supported workshops and institutes suggest significant rejuvenation of many teachers and an invigorated profession.

Extensive infusion of new personnel and funds and the collaboration of many groups have dramatized the conditions essential to significant, continuing curriculum revision. Afternoon meetings of tired teachers, on their own time, kept the school ship afloat during previous decades but did not bring about significant curriculum renewal. The tools were missing. Worse, educators were only dimly aware of the lack. But now we know what can be accomplished through combining millions of dollars, the talents of psychologists and of leading scholars in the fields to be taught, subsidized summer time, and the competence of publishers and film-makers with the practical experience of teachers. To date, however, we have seen only a rather crude process of trial and error, lacking in theory and truly experimental self-correction. The full promise of this unique combination of resources still lies ahead.

LIMITATIONS AND LIABILITIES

Reaction in current curriculum reform against supposed overemphasis in previous decades on problems of social living and self-adjustment has resulted in heavy emphasis on problems inherent in the disciplines. There is some danger, as a consequence, that those significant mankind problems growing out of where and when one lives—problems which cut across subject lines—may not be brought into the classroom. Similarly, there now appears to be growing concern that present emphases on underlying concepts, abstractions, and so-called intuitive behavior, especially in mathematics, is resulting in neglect of more immediately practical operations and applications. Disagreement of this kind, likely to grow in the immediate future, carries us into issues pertaining to goals and evaluation which are discussed later.

To date, focusing on the separate disciplines has tended to spotlight those already firmly established in the curriculum. It was only natural that existing curriculum areas would receive first attention as the need for reform became increasingly apparent. But a less apparent curriculum reform also was needed. For some years, fields which had only a toe-hold on the college curriculum have been gaining a central place in it, and new ones have emerged as a result of splitting off from existing disciplines. What should be the place of these emerging fields in precollegiate education? At the very

period this question should have been receiving serious attention, the race was on to strengthen subjects already in elementary and secondary curricula and to retain them *as separate disciplines*. Inevitably, the competition for time increased. The conditions have not been favorable, then, for incorporating new fields, either as separate entities or in combination with related subjects. Resolution of this problem is an agenda item for the future, one that is likely to be taken up first for the elementary school.

Planning from the top down and within the structures of the disciplines has tended to slight the developmental processes of learners—their interests, the irregularity of their growth, and their individual differences. Further, it is fair to say that the new curriculum movement virtually ignored the fact that thousands upon thousands of teachers who were to be involved had been through a postwar decade of intensive child study. Many students of education saw that considerations pertaining to students, on one hand, and to subject matter, on the other, should be brought together. But the marriage did not occur. The leadership for reform came from outside of the education establishment, was contemptuous of it, and suspicious or ignorant of the child study movement then sweeping America. Appropriate interrelating of all dimensions of the curriculum becomes another agenda item for tomorrow, one that increasingly is becoming apparent to researchers and practitioners alike. Interestingly, it was Zacharias, a prime mover in current curriculum change, who at the 1965 White House Conference on Education forcefully expressed his concern over the absence of the child in present educational discourse.

The implied completeness and order of some instructional packages may very well deny, for a time at least, the spontaneity and pupil-teacher planning of less structured curricula. Many teachers do not yet feel adequately comfortable with the new curricula and are reluctant, as a result, to depart from the manuals and materials provided. Consequently, the free-wheeling, exploratory processes so valued by project staffs and their advisors often are aborted at the most critical point—the point where student and teacher come together. In this connection, the writer remembers only too vividly visiting a classroom using—thankfully, only beginning to use—the materials of a new project in elementary-school science. Arriving

a few minutes before the class was scheduled to begin, he almost tripped over a cluster of excited children examining a handsome box turtle. Said the teacher, "Now, children, put away the turtle. We're going to have our science lesson." The lesson was on crabs!

The broken-front, separate-piece approach to curriculum-planning has placed severe burdens of choice and synthesis on local school districts. They have few guidelines for choosing this mathematics program over that one, and the problem of choice will become infinitely more complicated when the many diverse programs in the social studies become available. It is difficult to provide satisfactory answers to querying parents because, according to project staffs, existing standardized tests do not measure what their programs are designed to do. There are no accepted yardsticks for adequately comparing new and old or several new curricula with each other. The absence of specific objectives does not help, especially when state and local school systems (which have some legal responsibility for deciding what their schools are for) are equally vague. As a consequence, school systems purchasing new instructional materials virtually "buy" the educational objectives built into them.

If subject-matter specialists have a difficult task in seeking to squeeze all they want to do into short spans of time, the problem is compounded at the level of the local school district. The computer is being used increasingly to solve complex problems of scheduling students in a wider range of curricula alternatives.[8] But it has not yet proved useful in increasing the total time available or in making the basic value choices, the fears of many persons notwithstanding. Summer-school programs have been vastly expanded, and talk of a longer school day and week often is in the air. But parents as well as high-school students increasingly express concern over the pressure and those ever-present tests of the College Entrance Examination Board. Clearly, appraisal and reorganization of the curriculum as a totality, rather than a collection of pieces, are called for.

8. See John I. Goodlad and Associates, *Application of Electronic Data Processing Methods in Education*. Project No. F-026, Cooperative Research Program of the Office of Education, United States Department of Health, Education, and Welfare, January, 1965. Washington: United States Government Printing Office, 1965.

Emphasis on the subject-field as both ends and means of schooling has brought with it several troublesome problems. In their preoccupation with what *content* is to be learned, some project staffs have flagrantly violated or ignored the old curriculum principle: specify what the student is to be able to do. One searches in vain for such specification in the manuals and other descriptive documents of many projects. Even in what one must conclude are the best programs, from the point of view of specificity in educational objectives, one is usually forced to settle for vague statements about learning the structures and methods of the subject and to think like a chemist or physicist.

The field of curriculum, although young, has some useful lore. Those who work in the vineyard have responsibility for familiarizing themselves with this lore, even if only to reject it after thoughtful consideration. The need to clarify educational objectives for purposes of selecting what to teach and evaluating both pupil performance and program effectiveness is a first principle, one that is increasingly being reinforced.[9] There is as yet little evidence that this principle is guiding current curriculum reform.

Failure to specify educational objectives confounds processes of curriculum evaluation and revision. There is no point in experimentally comparing methods of achieving objectives if these objectives are not desired. And if the objectives, once found, are also found wanting, then new statements of objectives as well as new means for attaining them are necessitated. Recent advances in analytical philosophy might well be put to work in clarifying terms and in distinguishing between normative and experimental processes in curriculum development. Such analyses are conspicuously absent.

By failing to clarify goals, the new movement likewise has failed to advance the search for relationships between immediate and intermediate objectives of schooling and more remote, long-term aims

9. A landmark document in this connection is *Taxonomy of Educational Objectives*. Handbook I: *Cognitive Domain* (edited by Benjamin S. Bloom. New York: Longmans, Green & Co., 1965, preliminary edition, 1954). More recent significant contributions include Robert F. Mager, *Preparing Objectives for Programmed Instruction* (San Francisco: Fearon Publishers, 1962); and David R. Krathwohl, Benjamin S. Bloom, and Bertram B. Masia, *Taxonomy of Educational Objectives*. Handbook II: *Affective Domain* (New York: David McKay Co., Inc., 1964).

of education. We can have little confidence that strictly academic goals for schooling, implied in the academic stuff to be learned rather than specified, are adequate. The correlations between academic grades and anything other than academic grades—good citizenship, vocational success, honesty, personal autonomy, or mental health—are shockingly low. Perhaps we need to look back upon possible aims of education provided by philosophical and theological speculation, to translate these into more specific human behaviors, and then to experiment with alternative ways of achieving them. The tasks call for a consortium of scholars and processes of inquiry unprecedented in education.

SOME CONTINUING ISSUES AND PROBLEMS

Problems and issues for continuing curriculum development have been implied or specifically identified in every section of this chapter. By way of conclusion, several of these will be discussed briefly for purposes of giving a sense of direction for the future.

The movement described has been experimental only in rare instances. It began and generally stayed with some initial assumptions, refining rather than testing them in practice. Thus, the request for and the nature of feed-back from co-operating schools have focused not so much on the viability of what was being attempted as on the effectiveness with which it was being accomplished. But, even here, there rarely have been clear-cut alternatives to test and from which to choose.[10] We are likely to witness a marked change in this situation during the next decade. The need to re-establish concern for subject matter in the curriculum is being met. There is no longer the same urgency about it; the pressure for crash programs, therefore, has been vastly relieved. The documents emerging from projects are less self-congratulatory and, especially at the elementary-school level, show increased awareness of the

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10. The writer realizes that, in making generalizations of this kind here and elsewhere in the chapter, he does an injustice to those projects which constitute an exception. For example, it is noteworthy in regard to this particular generalization that the Biological Sciences Curriculum Study presents Green, Yellow, and Blue versions, each differing in approach but each organized around the same unifying concepts. But to list any exceptions is to run the danger of slighting others even more than is the case when none is cited. For this reason, the writer has chosen the latter alternative almost exclusively.

curricular issues and alternative ways of resolving them. These conditions, added to the fresh interest of researchers in curriculum problems rather than curriculum production, augur well for some truly experimental work in the immediate future.

As mentioned earlier, there often is a formidable gap between the intent of curriculum projects and what actually happens in the classrooms. This problem is still regarded by many as a direct consequence of teachers' inadequacy in the subject's content, a deduction that follows consistently from the naïve notion that teaching begins and ends with the subject. Uncertainty about what is to be taught and learned is a factor, but one has only to observe the inept classroom behavior of teachers who know their fields thoroughly (most university professors, for example, who attempt to teach young children for a full semester rather than in occasional guest appearances) to realize that much more is involved. Part of the trouble lies also in personality difficulties; part of it in not adequately understanding the age group; part of it in not adhering to basic pedagogical principles. The first probably requires therapy for its correction. The other two can be and often have been taught and learned in teacher-education programs. Regrettably, in recent years, they have been given back-of-the-hand treatment or shrugged off as unimportant. They must return to the center of the ring, this time with subject matter to be taught, if the gap between the "paper curriculum" and the instructional curriculum is to be closed.

It is becoming increasingly clear that the prepackaging of curriculum materials for a complete course, useful though this has proved to be, is not adequate for the diverse demands of students and teachers. At the same time, however, teachers are acutely aware of the value of many different kinds of stimuli which bring the student into direct confrontation with the content of instruction. Materials centers in each school which facilitate the building of one's own course to supplement or replace existing ones are essential. These, in turn, should be backed by district-wide centers and computer-based information libraries listing what is available in adjoining districts, the state, or the region. Modest facilities of this kind exist in many places, and encouraging plans for their further development and expansion are underway. But it is sobering to

realize that only 30 per cent of the elementary schools in the United States possess libraries of any kind and that most of these schools are woefully short of books for their libraries. There appears to be one level of discourse in education where we talk champagne and another where we drink near-beer.

There is a host of more theoretical and speculative problems and issues to occupy our attention in the coming years. The most important of these is the question of ends. We are in a seething period of world-wide change, some of it revolutionary. We cannot predict the kind of world today's school population will live in and what will be expected of it. An academic overhaul of our schools appears clearly to be necessary and we are in the process of effecting it. And yet, we can have little confidence that the new curricula come even close to doing what should be done. In fact, we know precious little about what they are accomplishing, whether what they are doing would please us if we knew more precisely what it is. Both the criteria and the machinery for assessment are lacking. The issues and the problems involved in establishing such criteria and such machinery are complex and difficult. But they grow no easier because of our neglect.

Four kinds of activities for the preliminary resolution of these problems and issues appear to be called for. First, a colloquy over possible aims for American education needs to be initiated at the national level and carried over into state and local school districts. It is interesting to note that President Johnson already has moved to appoint a committee of distinguished citizens to formulate statements of the nation's educational, economic, and social needs. Whether it will initiate the colloquy referred to here remains to be seen. Second, state and local school districts need to commit themselves to priorities stated as educational goals. Third, techniques for assessing the attainment of whatever goals are chosen must be developed. Fourth, we must engage in vigorous trial and experimental comparison of alternative ways of achieving these goals. This last task might well be appropriate for a research and development center of the kind now being financed through the United States Office of Education.

A previous section of this chapter suggested that the cart often is put before the horse in regard to the relationship between organ-

izing elements and organizing centers in the curriculum. It will be recalled that the former are the fundamental concepts, ideas, principles, skills and values serving to tie together the organizing centers to be strung like beads on the threads, so to speak. Hopefully, organizing elements are what the student is to discover for himself and, subsequently, to deepen and broaden in meaning. There are essentially two types of organizing elements: substantive and behavioral. In planning for learning and teaching, one is rather meaningless without the other.

Let us imagine a two-dimensional grid with the intended behavior to be developed on one axis and the substantive concept or principle on the other. The organizing center is shown at the point of intersection (Fig. 1). Through it, students are to be presented
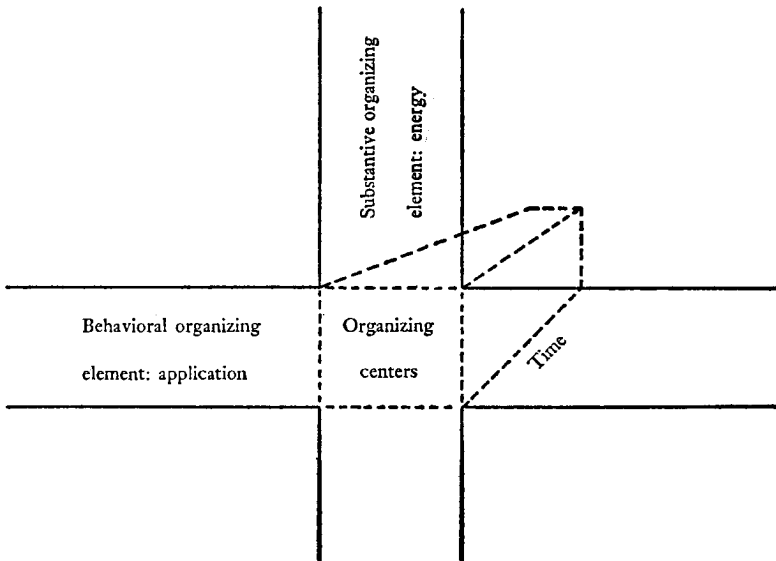
Fig. 1.—Grid of substantive and behavioral organizing elements in science with organizing centers at the point of intersection and extending through time as the third dimension.

with opportunities to apply (behavioral organizing element) principles of energy (substantive organizing element). A series of such organizing centers through time provides a third dimension and

suggests possible increasing complexity of students' learnings in a course or over a period of several years. We now see the utility of educational objectives specifying both behavior and content and their relationship to other curricular decisions: selection of learning opportunities, determination of sequences, evaluation of student progress, and so on. The end product of a whole series of such decisions is a curriculum design.

Needless to say at this point, neither the study of curriculum design nor the production of curriculum designs based on answers to the whole gamut of pertinent curriculum questions has attracted much attention in recent years. The specification of organizing centers and the production of materials for them have been the dominant preoccupations. The more theoretical issues of curriculum-planning have gone begging. Interestingly, public school personnel (notably the curriculum staff of the Montgomery County, Maryland, Public Schools, for example) are occasionally becoming aware of the need, partly because they see the usefulness of design in making other educational decisions and partly because they are discovering significant lacks in the new materials coming to them, however much these improve on what was available before. The tasks of developing curriculum designs involve such a unique combining of theoretical and practical considerations and of talents that they appear to be appropriate for the new regional educational laboratories now being developed with financial support provided through the United States Office of Education.

A final set of problems has to do with self-renewing mechanisms. Three are of crucial significance: continued involvement of personnel representing a complete array of essential competencies, the preparation of teachers, and the education of teachers of teachers. Regarding the first, the heart of the matter is in keeping the subject-matter specialists involved, since the problems are inherently interesting to educationists and increasingly so to psychologists, linguists, and others committed to the study of human behavior. The professor of English, on the other hand, while interested in whether or not high-school students study Milton, is more interested in analysis of what Milton wrote. There is little hope that professors in the fields which are taught in elementary and secondary education may become permanently involved in planning precollegiate

curricula and, were they to do so, the freshness and vigor of their contribution would diminish. Curriculum revision will move forward adequately if these scholars can be attracted into summer institutes and other short-term activities and if educationists committed to curriculum development have the good sense to ask of them the right questions.

Regarding the second, the present undergraduate curricula for prospective teachers generally do not represent the approach which most of these young people will be expected to further when they begin their teaching careers. The scholars have not yet effected in their own institutions the curriculum changes which they have been urging upon the schools. The colleges of America are long overdue for sweeping educational reform and, although needed changes are appearing at an accelerating rate, particularly in several new state-supported institutions, the great mass of higher education is occupied more with numbers than with self-appraisal. Today's high-school graduates, many of whom have known *only* the new mathematics, biology, chemistry, and physics, are demanding something different of their chosen colleges and are becoming factors productive of reform. For some years yet, however, school systems cannot count on beginning teachers' awareness of modern curricular emphases and must provide immediate in-service education for them. Of course, school systems which intend to keep abreast of the times always must make every possible provision for the continuing self-renewal of their teachers.

The current curriculum-reform movement has proceeded apart from the education of teachers of our teachers. In general, project directors have not been surrounded by doctoral students in their own fields or in the field of education. Usually, they have left this curriculum work for periods of the day to lecture or to engage otherwise in activities bearing no relationship to it. Naïvely, given the inherent complexity of what they seek to do, they have employed assistants, rarely above the master's level, and a teacher or two from surrounding schools. Occasionally, they have employed psychologists and educationists as consultants, but rarely for periods of such length that groups of scholars have come seriously to grips with the issues. Similarly, doctoral students in education have been involved only rarely. Again, there have been notable exceptions.

But problems of practical significance offering basic research possibilities have gone begging.

The price of prejudice, ignorance, and poor communication—these are but some of the reasons for these inexcusable educational gaps—comes high. They have served to block full utilization of curriculum ideas and personnel essential to comprehensive curriculum development in all its aspects. In spite of this, significant excesses and shortcomings in previous curriculum development have been remedied. The excesses and shortcomings in the present movement are now quite apparent and can be corrected short of a counter-reform through the combined efforts of scholars in the fields to be taught, teachers in the schools, psychologists, and educationists. Perhaps, through an evolutionary process profiting from awareness of the past and especially from strengths and weaknesses in earlier curriculum efforts, we will both produce improved curriculum materials and advance the study of curriculum.

Guidance and the Pupil

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The "Tidal Wave" of Guidance and Guidance Counselors

School guidance in American secondary schools has come of age as measured in terms of the present quantity of counselors. In 1959 Tyler noted that there were over 11,000 equivalent full-time guidance counselors in the schools and estimated a need for an additional 26,000.[1] In 1964, Dugan estimated that there were 24,000 equivalent full-time, high-school guidance counselors and estimated a need for an additional 26,000.[2] In less than five years, then, the counseling staffs in schools have more than doubled. Since the number of counselors in the field has increased, it is not surprising to find that graduate study in counseling also is on the rise. Shoben recently noted that the number of graduate students in guidance now exceeds the combined total in physical education, business education, industrial arts, and music, and is equivalent to those in administration and curriculum.[3] This increase in the number of students is in part due to added financial support for training facilities and fellowships

1. Leona E. Tyler, *The National Defense and Guidance Training Institutes Program: A Report of the First 50 Institutes.* Washington: United States Government Printing Office, 1960.

2. From the testimony of Dr. Willis Dugan before the Sub-Committee on Education of the Committee on Education and Labor, House of Representatives, to amend and extend the National Defense Education Act of 1964. Washington: United States Government Printing Office, 1964.

3. Edward J. Shoben, Jr., "Guidance: Remedial Function or Social Reconstruction?" *Harvard Educational Review*, XXXII (Fall, 1962), 430-43.

provided by the federal government under the National Defense Education Act of 1958. Some sixty training institutes have been established through the Act and its first extension.

Guidance is burgeoning, at least as quantitatively measured. Training facilities have expanded, more graduate students are undertaking studies in guidance, and more school systems are employing more counselors. Guidance services have increased in every state and in practically every school district of modest size or larger. In this sense, guidance services as part of the American educational enterprise seemingly enjoy a heyday. It is particularly important now to examine some of the reasons why guidance has so recently caught fire, for the forces which have produced its dramatic expansion may paradoxically also be hindering its development as a profession.

THE CAUSES OF RECENT EXPANSION

The expansion of guidance services has been caused both by the desire on the part of more youth for post-high-school education and, more recently, by a recognition of the special educational problems which confront our urban schools. The so-called "tidal wave" of students preparing for college has been the major source of both the need and support for the present expansion. Simultaneous with an increase in the desire to attend college, the growing spectre of technological unemployment through automation has provided additional impetus to increase services usually loosely referred to as those of "vocational" guidance. Some recent estimates indicate that well over half of the high-school students now go on for further collegiate or technical education.

These trends indicate that the high school increasingly serves the function of transition, not to the adult world, but to further, more demanding education. This trend will in all likelihood continue, and with it guidance will assume an even greater importance. Guidance staffs will expand and their visibility will increase. The visibility of the "college night" (admittedly the bane of both the guidance counselor and the college-admission officer), the career day, the extensive school visiting by college-admission officers or the alumni, the publicity accorded local scholarship recipients, the massive testing programs for guidance which have been incorpo-

rated into practically every school system—these are some of the factors which cast a spotlight on guidance as never before.[4]

In view of publicity and public expectation, it is not ironic that the guidance counselor is often seen as more important than the teacher—he can do more *for* the student. As the college-admission panic continues to spread, the numerical increase in real and "multiple" applications will cause the college-admission procedures to become both more selective and more confusing to the public. This will only serve to raise the public's expectations for the guidance service, namely, that the counselor will perform great feats, such as finding vacancies in acceptable colleges or turning up obscure scholarships. The supposed intricacies of the procedures of the College Entrance Examination Board, the requirements of the National Merit Scholarship Program, and the multiple-application procedure (vertical, never horizontal) are all seen as mysteries for which the guidance counselor has the key. It is, of course, not surprising in such a context that the greatest growth of guidance services has been in the suburban school districts where guidance has become the *sine qua non* of college-going.

Another recent trend indicates further expansion of guidance services. While the suburbs have tended to view guidance as functional in terms of college attendance, the urban schools now view guidance in terms of dealing with special problems, such as the school dropout (the early school-leaver), the juvenile delinquent, and those segments of our youth which it is fashionable nowadays to call "alienated." Extrapolating from the pioneering Higher Horizons Project in New York, it is clear that the Great Cities Program presently envisages an extremely important and significant role for guidance counseling in schools in which such services have been heretofore nonexistent. Experimental procedures are presently being tested for dealing with school dropouts at both the junior

4. The public pressure on guidance for college-going service results from much of the unfortunate emphasis on and publicity enumerating the materialistic benefits of higher education. The public literally has been oversold on the monetary value of college so that college choice is now "too important to leave to the pupil." The parental anxieties are immense and disruptive. For a recent excellent summary of the college-admission and the "parent" problem, see Charles H. Doebler, *Who Gets into College and Why* (New York: Macfadden-Bartell, 1964).

high and senior high levels. Guidance services are also being proposed for the elementary school, traditionally the exclusive domain of the school psychologist, as a "noninstructional" service. It is also suggested that guidance become a part of the junior-college program. Thus, the present finds guidance services expanding from senior high school down to elementary school in nearly all systems from the suburban to the great sprawling urban ones and usually serving such explicit purposes as college-going or as remedial or reclamation procedures for use in connection with the actual or potential school dropout-delinquent. The total impact is to be noted in the increased visibility, recognition, and acceptance of guidance, but, even so, the most optimistic would conclude that guidance in its present state is more technological than professional.

GUIDANCE AT PRESENT: ANCILLARY TO TEACHING

The concept of service presently dominates the role of guidance. At best, guidance is supplementary to the basic teaching function of the school. Its status, as such, hinders the development of a profession since guidance remains a set of techniques, sensitively or insensitively administered, and little more. The role and function of the counselor is seen in terms of what he can do *for* the teacher, student, or parent through his specialized knowledge of tests, of college-entrance requirements, of vocational information—in short, through his knowledge of the "rites of passage" which confront our youth. Even with sophisticated technical knowledge, the counselor, by and large, presently functions as an agent who seeks to implement certain goals set by society in general and by the community in particular. Tiedeman and Field note, "In this framework it is easy to comprehend the efforts of early guidance practitioners to evaluate, to select, and to place pupils in order to achieve the goals of the school and of the community." [5] As an aide, not a partner, in the educational process, the counselor remains ancillary to the teacher or principal or both and, hence, to the process of education itself. He does more *for* and less *with* the pupil. Or, as Shoben puts it, the counselor provides remediation rather than reconstruc-

5. David V. Tiedeman and Frank L. Field, "Guidance: The Science of Purposeful Action Applied through Education," in *Harvard Educational Review*, XXXII (Fall, 1962), 483-501.

tion.[6] Thus, while guidance services expand, the base upon which they stand remains narrow and limited, largely because of an inadequate rationale. At present, the only clear-cut rationale for guidance is that of the importance of pupil contact with an adult in the school but outside of the classroom. This heightens professional-role ambiguity. The average guidance counselor is expected to perform a plethora of functions from solving the problems involved in facilitating college-going, using vocational information, dealing with school dropouts, and so on, to the other extreme of approving all courses selected by students, managing or administering individual and group testing for classification and selection purposes, and, finally, even to the extreme of disposing of disciplinary problems. In many instances, the list could be lengthened by the inclusion of teaching courses variously titled "Occupational Information" or "Group Guidance." In this framework, it is hardly surprising that a substantial gap exists between the present reality of guidance in practice as technology and the ideal of guidance as a profession.

A Rationale for Guidance: The Challenge of Complexity and Change

In general, there has been an emergence and realization of possibilities for a legitimate and central role for guidance in education. The growing recognition of the complexities of modern society, although usually translated into a kind of public pressure for extrinsic services, as we have noted, may provide a rationale for a substantially different definition for guidance in education. Dugan notes that active assistance for youth has become a modern necessity: "The complexities of today's living and the multitude of choices that face American youth make it incumbent upon responsible citizens to provide adequate guidance and counseling for our children at all educational levels." [7]

Adequate guidance in this context is not a once-and-for-all solution conveyed by an adult to a child but, rather, the process of developing within the pupil the ability and urgency to choose wisely for himself. As our society continues to implement the democratic

6. Shoben, *op. cit.*

7. Dugan, *op. cit.*, p. 140.

ideal of maximum self-development by removing the encumbrances of external forces and of artificial delimiting factors, the need for adequate guidance increases. When the individual cannot abdicate the right of choice, long denied because of accidents of birth, race, status, or other outside forces, power for self-direction and purposeful living will meet its severest test. For example, as we eliminate barriers to equal opportunity in education or in employment, we present youth with a bewildering complexity of choice. In the area of employment alone the wide variety of choices is indicated by the more than 40,000 titles listed in the *Dictionary of Occupational Titles*. Yet, to train or teach a pupil for a specialized job in today's world seems only to create a need for retraining or untraining a few years hence. It is platitudinous but true to say that more pupils go to school and remain in school longer than ever before. We have opened the range of futures, increased the time lag between preparation for a career and the implementation of it, and, as a result, we have increased the need for wise individual choices throughout the entire process of education.

Wolfle describes the problems of change and complexity as follows:

How can boys and girls and young men and women now in school best be prepared to cope with the problems they will face twenty years from now? The world of then will be different from the world of now, at least as different as the world of now is from the world of 1940. There will be technological and industrial changes, social changes, changes in international relations, and changes in educational methods and organization. Some of these changes will offer promising opportunities; some may pose disturbing threats. Some of the changes can be predicted; others will come as surprises. That there will be major change is absolutely certain, for we have developed a society that simply cannot stand still.[8]

In such a dynamic society, as Allport cogently notes, the old guide posts have fallen:

No longer can youth contemplate its future under the protection of the great social stabilizers of the past. No longer can one counsel within the framework of Victorian decorum, theological certainties, or the Pax

8. Dael Wolfle, "Preface," in *The Counselor in a Changing World*, by C. Gilbert Wrenn. Washington: American Personnel and Guidance Association, 1962.

Britannia. . . . The comfortable stabilities of culture, caste, the gold standard and military supremacy are no longer ours.[9]

Wrenn, in his excellent review, has enumerated some of the new challenges for guidance in the present world of change. The social force of growing democratization amidst changing family patterns, the nature of work opportunities, and the continued urbanization and suburbanization of society, et cetera, provide a frame for guidance in a larger context than extrinsic supplementary service in an educational setting.[10] These forces, rather, create the opportunity to build a legitimate basis for guidance in education—to promote maximum self-development by enhancing the individual's power to choose for and to direct himself. As Katz succinctly puts it:

> Thus guidance helps the student to find order in the complexities of decision-making, helps him enrich his experience by examining it, and helps him to become the conscious artist of his own career.[11]

The emergence of these social complexities with such clarity and force has caused professionals within the guidance field to re-examine the rationale for and function of guidance. The old model for counseling as an adjunct to teaching or career choice (as a single, almost simple, decision) is no longer viable. There are new developments within the field which are focused particularly on a differentiated professional role. There is also in conjunction with them the emergence of theory for counseling and career development. We now turn to an examination of these changes: (*a*) the growth of professional organization, (*b*) the development of an inclusive frame for counseling concepts and (*c*) recent trends in vocational theory.

The analysis which we attempt is largely of the emergent position from within the field of guidance. Yet, we wish to stress that the developing frame, in our view, stems from the recognition of complexities of the present society and the implicit challenge to individual initiative. More importantly, our view stems from the

9. Gordon W. Allport, "Psychological Models for Guidance," in *Harvard Educational Review*, XXXII (Fall, 1962), 377.

10. Wrenn, *The Counselor in a Changing World, op. cit.*

11. Martin Katz, *Decisions and Values: A Rationale for Secondary School Guidance.* New York: College Entrance Examination Board, 1963.

realization that advantage from such knowledge is best obtained by the individuals we seek to help, not by our possession of it. Such an advantage can be realized only when guidance is conceived as a profession. The extent to which guidance can become a profession is still problematic. It will depend on whether guidance can directly and successfully meet the implicit challenge instead of merely proliferating a set of ancillary functions.

Emergence of Professional Organization and Leadership

The past decade has witnessed substantial growth of professional leadership. In 1952 the National Vocational Guidance Association and its journal, *Occupations*, were superceded by the enlarged American Personnel and Guidance Association (APGA) and its journal, *The Personnel and Guidance Journal.* The growth of this enlarged association has been remarkable, not only in terms of membership, but, more importantly, in terms of its leadership in an inherently amorphous field. For the school counselor, the creation of the American School Counselors Association (a division of APGA) represented a major step. Leadership for school counseling was unified by the newly created organization, a distinct improvement over the previous overlapping with the National Vocational Guidance Association and, to a lesser extent, with the Division of Counseling and Guidance of the American Psychological Association. Neither of the two latter organizations did nor could function as an effective voice for the school counselor. The American School Counselors Association (ASCA), in a short space of time, has emerged as an energetic and forceful voice.

Concurrent with the formation of ASCA, the National Association for Guidance Supervisors and Counselor Trainers modified its organization within the APGA and became the Association of Counselor Educators and Supervisors (ACES). The combination of ASCA and ACES under the aegis of APGA provided a workable liaison for leadership in counseling and toward improvement in counselor training. Significantly, both groups have made serious study of basic policy issues and of standards for the training of counselors.[12] In 1964, an ASCA committee completed a five-year

12. It should be noted that many of the recommendations adopted in both the ASCA and ACES reports were anticipated by the Wrenn report, *The Counselor in a Changing World, op. cit.*

study of role and function of secondary-school counselors. Some of the most important implications of the study were (a) that the major role of the counselor is individual counseling ("The school counselor should devote no less than 50 per cent of his assigned time in counseling with individual pupils or small groups of pupils."), and (b) by conspicuous and intentional omission, that classroom teaching is not a necessary prerequisite for professional competency. Along with the specification of the counseling function as the major role, the ASCA committee also proposed a definition of counseling. It may seem absurd, after all these years, that a definition of counseling is necessary. Yet, this step is important, since one of the problems that has continually dogged the practice of school counseling has been a definition that eschews individual counseling. The deliberate omission of the teaching requirement and the specific emphasis on individual counseling, taken together, indicate an independent direction for the professionalization of guidance.

The deletion of teaching as a prerequisite for guidance, thus implying a differential function, may be resisted. Wittlin, for example, views guidance as part of the bureaucracy which is inconsistent with the professional status of the teacher because it reduces the possibilities for original and spontaneous action. She notes that, "The presence of guidance officers may deprive some teachers of a sense of individual responsibility needed by an adult for successful performance." [13]

Rivalry between teachers and counselors is probably inevitable and may already exist to some extent. A recent study by Russell and Willis found that the majority of teachers surveyed felt that most of the guidance services could be handled more effectively by the teachers themselves if they had more released time from the classroom.[14] At the same time, there is impressive recent evidence that counselors can play a most significant role in the school, at least

13. Alma S. Wittlin, "The Teacher," *Daedalus*, XCII, No. 4 (Fall, 1963), 745-63.

14. James C. Russell and Arthur R. Willis, "A Survey of Teachers' Opinions of Guidance Services," *Personnel and Guidance Journal*, XLII, No. 7 (March, 1964), 707-9.

from the pupils' viewpoint. Herriott's recent study demonstrated the important influence of counselors in determining educational plans and aspirations of pupils,[15] while Krumboltz and Varenhorst provided evidence to show that counselors significantly influence general pupil attitudes.[16] These results should be taken as only indications of what is possible since the studies were restricted to particular schools and may not support a broad generalization. But they do point to a function separate from teaching. Cremin, for example, notes that the growing specialization in school curricula may leave the guidance counselor as the one professional primarily responsible for seeing the child's education "whole." [17] As we have noted, while the possibility of rivalry in this context is present, the clarification of a guidance role may promote a genuine understanding of function by both counselors and teachers.

While the American School Counselors Association was completing its study of the counselor's role and function, a parallel step toward the establishment of professional standards was taken by the Association for Counselor Education and Supervision (ACES). The ACES completed a study designed to set forth suggestive standards for training institutions. The study took five years and involved over one thousand persons actively engaged in counselor education across the country. The major implication of this study is represented by its proposal of a two-year training program at a graduate level as necessary for counselor competence. While the ASCA study focuses on the creation of an independent profession of school counseling, the ACES's proposal is designed as the framework for professional training to insure minimal competence upon entry to counseling. The proposal, which may have a truly significant effect upon graduate programs, heavily emphasizes training in theory (human behavior, counseling and career-development theory, and

15. Robert E. Herriott, "Some Social Determinants of Educational Aspiration," *Harvard Educational Review*, XXXIII (Spring, 1963), 157-77.

16. John D. Krumboltz and Barbara Varenhorst, "Molders of Pupil Attitudes," *Personnel and Guidance Journal*, XLIII (January, 1965), 443-46.

17. Lawrence A. Cremin, "The Progressive Heritage of the Guidance Movement," in *Guidance in American Education*, pp. 11-19. Edited by Edward Landy and Paul A. Perry. Cambridge, Massachusetts: Harvard Graduate School of Education, 1964.

the like) and intensive supervised practice in individual counseling throughout a two-year program.[18] This study represents an impressive achievement because ACES was able to devise a comprehensive, and yet specific, set of standards for training counselors which has been both accepted and supported by counselor trainers representing virtually all of the graduate institutions in the country which offer education to counselors.

The immediate future will see the struggle for professional practice shift from proposal and definition to implementation. The individual state certification requirements represent a wide range of differing standards. There are few, perhaps no states with the same requirements. However, the most common requirement is a certain number of years in classroom teaching plus a number of hours (usually from 12 to 30) in graduate courses in guidance. The accrual of course credits plus the acquisition of classroom experience represent the bases of certification. This requirement generally promotes the practice of part-time graduate study over an extended period of time, sometimes at a number of institutions—a practice decried so eloquently by Conant.[19]

The reality of certification procedures represents a point far removed from the framework advocated by the professional associations. Through the delineation of positions by ASCA and ACES, however, the direction of desired change is indicated. The associations are now shifting their focus from the internal to the external, to change the state requirements to foster more congruence in their position. The unified position taken by both ACES and ASCA is of overriding importance in implementing the changes which must be made, and, we should add, which are now in fact being made in some states. There are presently some states which are experimenting with the idea of provisional certification based on specific graduate training in guidance plus experience in school counseling rather

18. The proposal specifies, as minimal, 60 hours in a series of counseling sessions with each of several secondary-school-age youth. The connotation is clear; competence in extended counseling rather than a "one-shot" informational service.

19. James B. Conant, *The Education of American Teachers*. New York: McGraw-Hill Book Co., 1963.

than in teaching as requisite for permanent certification. We applaud this development as well as underline its significance for the future. We have indicated that, because the numerous elements within both ACES and ASCA could agree on specific role, function, and training requirements, the move toward a separate profession will accelerate. As the necessary changes are made, even though on a limited scale at first, the impetus toward this goal will gain momentum because of the particular sanctions implicit in statements of role, function, and standards for training. For example, in setting up specific requirements for counselor education, ACES pointed out that the National Council for Accreditation in Teacher Education (NCATE) was already evaluating in the area of counselor education. The implication to the ACES membership was clear— unless the organization which purports to represent counselor education was able to agree on standards and on ways to achieve them, other agencies would take over the functions of accreditation. The warning was heeded. APGA is now in a position to attempt accreditation with the likelihood of the acceptance of its judgment should members of the Association decide upon such action.

Emergence of Theory: Counseling

In concert with significant changes made in the organizational structure, with the unification of position, and with real evidence that standards are being implemented, theoretical and directional concepts for guidance are emerging. The development of an adequate conceptual framework for guidance is still in its infancy. A recent survey of the present theoretical state of guidance noted that "such a science must come from a scholarly orientation that does not yet exist as a basis for training; it requires the employment of multidisciplinary means for metadisciplinary ends." [20]

The consolidation of counseling theory and career development may provide a viable framework for needed scholarly orientation. The frame may become the explicit model for the future of guidance theory within the over-all educative context of guidance as a separate but complementary function to teaching. We will attempt to outline the recent changes in counseling theory and concepts of

20. Tiedeman and Field, *op. cit.*, p. 496.

career development that are indicative of the important changes of focus toward a comprehensive theory for guidance.

Counseling theory has undergone changes partly created by the differences between the directive and nondirective schools of thought and partly by the growing realization that the position of neither group is tenable. The literature during the past decade has been the battleground of the two contending groups in their attempts to establish their positions. Both the directive and nondirective positions have tended to become reified and rigid. For example, the directive position on counseling has been based on the assumption that the counselor is in possession of information, content, and facts which he verbally imparts to the student.[21] An informational deficit is, in effect, the problem of presentation and can be quickly and efficiently resolved. In our view, this concept of guidance is superficial, even though, as we indicated in the introduction, the position represents the presently accepted major rationale for guidance practice. The imparting of information as the theoretical role for guidance is as disjunctive to the goals of guidance as is the presenting of information by the classroom teacher to the goals of teaching. Both activities deny major educative goals—carrying forward disciplined inquiry in the case of the classroom, and learning to make one's own personal decisions in the case of counseling. The assumptions underlying a directive approach to counseling are nowhere more apparent as well as nowhere more problematic than in the words of a college student who spoke of previous attempts to "guide" him:

> . . . Other institutionalized bits of guidance to students have said things like, "You shouldn't take this before that; you should enter college right away; don't take a year off because your scholarship won't be any good." . . . These groups are wrong. I know what I want if you'll just let me; . . . give me the time to think on my own without this pressure to—you know—"Buddy you better live by the rules."
>
> The thing about this protective . . . it's often blind to its character—uh—the adviser—the unwelcome advisor never knows he's unwelcome because there's no doubt he's telling you The Right Thing! The as-

21. The interested reader may find an extensive development of this approach in Edmund G. Williamson, *Counseling Adolescents.* New York: McGraw-Hill Book Co., 1950.

sumption always is, how can you turn away advice when it's always the right thing—somebody's saying this is the way I ought to go through college and now I'm saying wait a minute I'm paying the bill, I've got a life that I want to build, I'll do it my way. Just warn me in time if I start . . . well, even then leave it to me. . . . How does anyone else know what's really right for me! I have to find it! [22]

The theoretical anomaly of a counselor as super-ordinate and of a client as sub-ordinate is unresolved when the crucial focus of counseling purports to be on the individual's ability to make wise decisions for himself, to set his own goals, to bring about his own future effectively and responsibly. It appears to the writers that there has been a noticeable decline since the early 1950's in the acceptance of the theory and method of directive counseling. As long as the counselor remained as expert in information to be transmitted, so long would he remain a technician or perhaps a teacher-counselor, an impossible combination based on an inadequate view of teaching and counseling. The decline in importance of directive theory has been paralleled by a decrease of the alternative—nondirective theory.

There has been a growing realization that nondirective theory is inadequate as a basis for counseling. Super noted that, in the late 1940's, nondirective theory was viewed as the major focus for counselor training, producing total opposition to other approaches to counseling.[23] Yet, there is now an increasing attempt to seek a more comprehensive and flexible model for school counseling than that provided by the nondirective framework. The ideas prevalent in nondirective theory—that the counselor must never have an objective thought, that he must always respond in a prescribed way, or that "cognition is bad," as McGowan notes [24]—are viewed increasingly as a narrow base for school counseling. It is noteworthy

22. This excerpt and the excerpt quoted at the end of the chapter were selected for illustrative purposes from counseling interviews conducted with college students by the first author.

23. Donald E. Super, "Guidance in American Education: Its Status and Its Future," in *Guidance in American Education, op. cit.*, pp. 151-61.

24. John F. McGowan, "Developing a Natural Counseling Style," in *Counseling: Readings in Theory and Practice*, pp. 368-71. Edited by John F. Mc-Gowan and Lyle D. Schmidt. New York: Holt, Rinehart & Winston, 1962.

that recent research has demonstrated that the nondirective response-set declines significantly with the amount of professional experience of a counselor.[25]

Froehlich recognized that the theory of nondirective counseling does not fit a counseling model, ". . . the followers of this school of thought have overemphasized psychotherapy at the expense of counseling. Carl Rogers entitled an early book *Counseling and Psychotherapy*. One of his disciples has written a book entitled *Introduction to Therapeutic Counseling*. More recently Rogers has wisely dropped the pretense of counseling and has entitled his latest book, *Client-Centered Therapy*. . . ."[26] Much of the recent literature on counseling makes the point that a more flexible framework is possible which "implies flexibility of attitudes, feeling, and behavior in authentic response to the real situation."[27] The counselor is not rigidly bound to a single mode of response—reflecting feelings. McGowan, after reviewing recent studies on counseling style, suggests that "counselor trainers might do well to build upon basic skills that the counseling trainee has acquired in the past rather than try to force him into the use of a specific technique, at the cost of his flexibility and spontaneity."[28]

The controversy of many years over the classic directive *vs.* nondirective models may now be moribund. A synthesis of ideas and concepts for school counseling is in the offing. Most recently, Tyler's work exemplifies this development. She defines counseling as "appraisal with" the individual of his unique possibilities for

25. Hans H. Strupp, "An Objective Comparison of Rogerian and Psychoanalytic Techniques," in *Journal of Consulting Psychology*, XIX, No. 1 (1955), 1-7.

26. Clifford P. Froehlich, "Counseling, Its Use and Abuses," in *Guidance Readings for Counselors*, p. 373. Edited by Gail F. Farwell and Herman J. Peters. Chicago: Rand-McNally Co., 1960.
Perry (1955) has documented this same point by noting the astonishing decline of references to "counseling" in Rogers' more recent writings when compared to his earlier work and the dramatic expansion of client interviews from short- to long-term cases; from counseling to psychotherapy. In addition, Hummel (1962), Bordin (1955), and Shoben (1962) note both the economic and theoretical obstacles for psychotherapy as a legitimate school function.

27. Adrian van Kaam, "Counseling from the Viewpoint of Existential Psychology," in *Harvard Educational Review*, XXXII (Fall, 1962), 403-15.

28. McGowan, *op. cit.*, p. 371.

choice and action, leaving the counselor considerable flexibility in response to the student.[29] Others, such as Dipboye,[30] Pepinsky and Pepinsky,[31] Callis,[32] Perry,[33] Hummel,[34] and Barry and Wolf,[35] have indicated dissatisfaction with the rigid orthodoxies so prevalent in the previous counseling models. The dissatisfaction has produced a trend toward a more comprehensive and viable set of concepts for guidance counseling which is neither directive nor nondirective. Brayfield, in the most recent review of counseling theory, notes a consensus that counselors: (*a*) work with normal people; (*b*) emphasize the strengths and assets of the counselee; and (*c*) emphasize cognitive activities, especially those involving choice and decision.[36] The focus on choice, plans, and decision is not a naïve rationalism. The theorists, noted previously, recognize the subtlety, complexity, and disjunctive effects of emotion. These affective determinants are too real to permit a narrow pre-Freudian rationalism, or the power of positive thinking, to stand as a counseling model. Emotions are accepted, yet do not become an exclusive focus. Bordin's concept of the cognitive-conative balance describes a counseling model in

29. Leona E. Tyler, "The Methods and Processes of Appraisal and Counseling," in *The Professional Preparation of Counseling Psychologists*, pp. 76-89. Edited by Albert S. Thompson and Donald E. Super. New York: Bureau of Publications, Teachers College, Columbia University, 1964.

30. Wilbert J. Dipboye, "Analysis of Counselor Style by Discussion Units," in *Journal of Counseling Psychology*, I (Winter, 1954), 21-26.

31. Harold Pepinsky and Pauline Pepinsky, *Counseling Theory and Practice*. New York: Ronald Press, 1954.

32. Robert Callis, "Toward an Integrated Theory of Counseling," in *Journal of College Student Personnel*, I (June, 1960), 2-9.

33. William G. Perry, "On the Relation of Psychotherapy and Counseling," *Annals of New York Academy of Sciences*, LXIII (November, 1955), 396-407.

34. Raymond C. Hummel, "Ego-Counseling in Guidance: Concept and Method," *Harvard Educational Review*, XXXII (Fall, 1962), 463-82.

35. Ruth Barry and Beverly Wolf, *Epitaph for Vocational Guidance*. New York: Bureau of Publications, Teachers College, Columbia University, 1962.

36. Arthur H. Brayfield, "Counseling" in *Annual Review of Psychology*, XIV (1963), 319-50. Edited by Paul R. Farnsworth. Palo Alto, California: Annual Reviews.

this respect, which does not deny the reality of irrational forces but still retains the major focus on cognitive choice processes.[37]

The recognition of a differentiated theoretical basis for counseling is the major consequence of these theoretical developments.[38] A generic term "counseling" emerges implying, at least, setting, client population, and process focus. Counseling in this frame describes a professional educative role that is not a watered-down version of psychotherapy. A distinction is possible between the primary and secondary prevention of mental illness. The latter comprehends the therapeutic treatment of serious emotional problems, a corrective emotional experience of unconscious conflicts. The former focuses on the general psychosocial development of normal pupils as they proceed on the path from dependence to effective self-management. Mathewson's emphasis on a developmental framework for counseling is particularly pertinent in this regard.[39] Viewed from the point of growth and development, the individual moves through a process of successive differentiation and integration as he confronts and, hopefully, surmounts discontinuity. The confrontation implies the possible time for examination of one's purpose and plan at successive intervals. The goals are highly compatible with those of the school, namely, the goal of an enhanced rational ability to direct one's own life. The guidance function is thus complementary to teaching, and moves from the fringe of education to a full partnership with teaching. We will further delineate this concept of "complementarity" following a description of the new departures in the theory of career development which have, to some extent, anticipated directions similar to those of counseling.

37. Edward S. Bordin, *Psychological Counseling.* New York: Appleton-Century-Crofts, 1955.

38. There are other attempts at differentiation for guidance counseling. Noteworthy is the recent work of Krumboltz at Stanford who seeks to create a model for counseling which specifies behavior change through the use of operant conditioning. See, John D. Krumboltz, "Parable of the Good Counselor," *Personnel and Guidance Journal,* XLIII (October, 1964), 118-23.

39. Robert H. Mathewson, *Guidance Policy and Practice.* New York: Harper & Bros., 1962 (third edition).

Emergence of Theory: Career Development

As in the case of the development of new directions for counseling theory, career-development theory has delineated a broader and more comprehensive framework. The modification of occupational psychology, or, as it is now termed, career development, is recent. Prior to 1950 most studies in this area were primarily of job success, work adjustment, or vocational interest—aspects of a career, not the career process itself. Dawis, England, and Loftquist have recently attempted a broader definition by means of their theory of work adjustment.[40] However, their theory accounts for accommodation but not for the choice process, a concept essential in a theory of career development.

The studies of vocational interest are also important precursors of the present direction but are not adequate in themselves as a basis for theory. Interests have not been studied so that they might be placed in relation to choice by the individual. Recent years have witnessed an extension of this methodology to include the simultaneous consideration of a series of aptitude, interest, and personality variables with large groups of subjects.[41] However, interests still have not been considered a personality variable which might well guide choice if the history of preferences were known and, more critically, if responsibility for election were fully assumed by the individual.

Despite the noted inadequacy of the studies of interest, job success, and adjustment, they form cornerstones in the emerging theory we attempt to trace here. Other recent and relevant studies have been the work of: (a) Ginzberg, because of his emphasis not on the occupation itself but on the fact that we require choice of occupa-

40. Rene V. Dawis, George W. England, and Lloyd H. Loftquist, *A Theory of Work Adjustment*. University of Minnesota, Bulletin 38, 1964. Minneapolis, 1964.

41. For example, *see*: William W. Cooley, *Career Development of Scientists* (Cambridge: Graduate School of Education, Harvard University, 1963); Robert L. Thorndike and Elizabeth Hagen, *Ten Thousand Careers* (New York: John Wiley & Son, 1959); and John C. Flanagan *et al.*, *Studies of the American High School* (Pittsburgh: University of Pittsburgh Press, 1962).

tion;[42] (b) Roe,[43] Holland,[44] and Bordin, Nachman and Segal,[45] because of their focus on the influence of personality and the type of career selected; and (c) Miller and Form,[46] and Super,[47] for the concepts of career pattern within vocational development.

In a most significant way, and with particular indebtedness to Super, these changes have introduced the individual as an agent in the process of vocational development. It is a mark of the genius of Super that this modification is so far advanced from the understanding of vocational psychology which existed before he initiated his efforts to explain vocational development. Super's studies of career pattern are most noteworthy. His research indicates that vocational maturity is a planning orientation within the individual and is *not* related to the amount of specific information or content that an individual knows concerning a vocation.[48] Analogous to the super-

42. Eli Ginzberg, Sol W. Ginsburg, Sidney Axelrad, and John L. Herma, *Occupational Choice: An Approach to a General Theory*. New York: Columbia University Press, 1951.

43. Anne Roe, "Early Determinants of Vocational Choice," in *Journal of Counseling Psychology*, IV (Fall, 1957), 212-17.

44. John L. Holland, "Major Programs of Research on Vocational Behavior," in *Man in a World at Work*, pp. 259-84. Edited by Henry Borrow. Boston: Houghton Mifflin, 1964.

45. Edward S. Bordin, Barbara Nachman, and Stanley J. Segal, "An Articulated Framework for Vocational Development," *Journal of Counseling Psychology*, X (1963), 107-16.

46. Delbert C. Miller and William H. Form, *Industrial Sociology*. New York: Harper & Bros., 1951.

47. Donald E. Super, "A Theory of Vocational Development," in *American Psychologist*, VIII (1953), 185-90.
Super denotes this process of vocational development as the implementation of the self-concept which, as Kehas notes, has hueristic value but is not based on an adequate description of self-concept theory. See Chris D. Kehas, "To the Editor," in *Journal of Counseling Psychology*, IX (Spring, 1962), 91.

48. Donald E. Super and Phoebe L. Overstreet, *The Vocational Maturity of Ninth-Grade Boys*. New York: Bureau of Publications, Teachers College, Columbia University, 1960.
For another aspect of the importance of planning, *see* Raymond C. Hummel and Norman A. Sprinthall, "Level of Academic Achievement in Relation to Measures of Interests, Attitudes, and Values," *Personnel and Guidance Journal* (in press). This research reports that a planning orientation was the most significant variable related to academic success of secondary-school students. A planning orientation may have generic significance to vocational maturity, academic achievement, and purposeful action.

ficiality of directive counseling, the provision of vocational information for an individual has little relevance to the emergence of his career pattern.

From the perspective of vocational development, clarification of a theory of career development becomes possible.[49] Research can shift to the study of the election and cultivation of structure by the person. Vocational choice can be viewed as a process of differentiation and integration throughout life, with the differentiation providing the structure for the developing career. In a recent study by Tiedeman and O'Hara, this paradigm is illustrated through a series of case studies.[50] Cognitive problem-solving, similar to Super's concept of a planning orientation, implies that it is possible to choose educational and vocational pursuits rationally. When one chooses on a rational basis he has opportunity to lay out alternatives, to assess both wishes and risks, to examine favored alternatives, and to construct a *definition of himself in the situation* which guides his pursuit of the elected course. The existence, validity, clarity, force, tentativeness, and openness of this definition, as its actual and imputed consequences as experienced, are of concern in the study of career development. It is for this reason that the existing career development of each case in the Tiedeman and O'Hara monograph is analyzed not only in terms of the vocational choice but also in terms of psychosocial crises, interests, self-evaluation, and awareness of the depth and the complexity of the situation.

The studies cited in the foregoing paragraphs indicate that the techniques of vocational guidance are being modified by and anchored in a growing theory of vocational development. Obviously this direction for vocational guidance provides a convenient connection to the changes in the concepts of counseling theory; the forging of this theoretical bridge is still to be made. However, the denotation of the agency of the person in the election of study

49. For the most recent comprehensive summary of theory, practice, and research in vocational guidance, see *Man in a World at Work*. Edited by Henry Borow. Boston: Houghton Mifflin, 1964 (50th Anniversary volume of the National Vocational Guidance Association).

50. David V. Tiedeman and Robert P. O'Hara, *Career Development: Choice and Adjustment*. New York: College Entrance Examination Board, 1963.

and work clearly implies a congruence to counseling as appraisal with an individual of his unique possibility for choice and action. Another aspect of this congruence may be seen in the new emphasis on rational powers, which nevertheless comprehends the complexities of emotion, for both vocational guidance and guidance counseling. In fact, we predict the distinction between these "types" of guidance will inevitably fade as the full force of these changes becomes understood and acted upon. This development may also arrest a drift that Tyler notes toward the possible repudiation of vocational-educational counseling by counselors in favor of a stronger investment in psychotherapy.[51]

Implications and Future Trends

We emphasize a major implication of current developments in this survey—namely, a professionalization in guidance. The growth of the professional leadership; the gradual establishment of criteria for role, function, and training; and the consolidation of concepts from counseling and career theory, anticipate a union to push guidance from its current status as supplementary to teaching to a position of being complementary to teaching. Guidance as an educative function which complements teaching becomes a "separate but equal" basis for professionalization. Elsewhere, the concept of purposeful action has been denoted as the rationale for guidance.[52] By enhancing the power to choose, the counselor aids the student, whether as vocational guidance or guidance counseling, toward effective self-management. A special guidance function denotes practice which does not compromise the initiative and responsibility of pupils. Rather than incorporating purposes and plans that an adult has for the student, the guidance process points toward the student's power over his own destiny, especially important in the complex society of the future.

If freedom is to be guaranteed for youth, the substance of education, the process of education, and the assumption of purposeful action should be offered to youth in a divided way so that the freedom for the goal elected—but not of the election of goals—is left

51. Tyler, *op. cit.*

52. Tiedeman and Field, *op. cit.*

unchallenged. The attainment of this objective requires that ultimate authority for the several parts of education should be primarily in the hands of each youth and that each of a subset of its parts should be primarily in the hands of an adult who supervises youth in the mastery of each part.

Freedom is protected through the establishment in the school of a guidance service *complementary* to teaching rather than *supplementary* to teaching. The pupil must at all times be vested with authority and responsibility for structure, process, and the union of structure and process through the assumption of purpose in action. The teacher must be given authority and responsibility for providing the structure and for training a pupil in the logic of process. The counselor, the second professional *necessary* to organization for liberation through education, must be given authority and responsibility for the supervision of a pupil's acquisition of the logic of process and for the cultivation of purpose in youth through counseling. The efficient discharge of the responsibility will require that counselors observe children as they are being taught, counsel with them quite frequently, and consult with teachers about individual problems. Worthen experimented with this possibility at the 1963 Harvard-Lexington Summer Program, which offered a supervised period of schooling for experienced teachers and counselors organized as teams. The six-weeks' program focused on pupil problem-solving through four basic subjects. Teachers and counselors proved able to share responsibility organized within such teams despite difficulties inherent in such collaborative activity when time is at a premium.[53] The team organization of teachers and counselors offers means whereby the services of teacher and counselor can be kept complementary.[54] In this frame the pupil can retain the responsibility for goals more inclusive than those of the teacher.

The organization of counseling as the complement to teaching, rather than as its supplement, avoids the possibility that the goals of

53. John Worthen, "The Development and Implementation of a Program in Guidance through the Position of Assistant Director and Instructor in the Harvard-Lexington Summer School," Project Report, Harvard Graduate School of Education, 1964.

54. For a substantive analysis of the team-teaching framework see Judson T. Shaplin and Henry F. Olds, Jr., *Team Teaching*. New York: Harper & Row, 1964.

youth will be set for them by teacher, psychologist, or psychiatrist, as is now possible under the procedure by which psychologists and psychiatrists interested in the cultivation of mental health through education prefer to operate. Psychologists and psychiatrists now assume responsibility for tutoring teachers in the process of education and let the teacher operate on the child while attempting to attend to structure, process, and purpose simultaneously. The problem of setting goals can be avoided by the pupils when process is introduced into school organization in this way.

There is a particular relevance during adolescence for liberation through guidance. From career theory, Super notes the developmental concept, during adolescence, of an exploration stage for vocational choice.[55] From personality theory, Erikson has designated this stage as the adolescent identity crisis, a period of inner examination of not only who one is but what one stands for (identity and fidelity). These two strands, career and personality, are no longer separate. In fact, Erikson makes particular note of career identity during adolescence, "In general it is primarily the inability to settle on an occupational identity which disturbs young people." [56] Thus, perhaps through biological and social forces, the high-school student is faced with a period characterized by self-exploration and the peremptory aspects of choice. He *must* choose. Avoidance of choice, purpose, and plan enhances the chances of an irreversible future and delimits freedom. Learning to choose effectively and responsibly places the pupil in charge of his own life, a process set in motion through guidance *in* education. The confrontation with choice may best be illustrated by again turning to a brief excerpt from a counseling session. A student is struggling with the recognition of independence.

. . . I liked to have my decisions made for me, uh—having things set up for me to follow the path of others rather than find my own path in the wilderness. Uh, yet if I choose the decision-making path I'll never

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55. Donald E. Super, *et al.*, *Vocational Development: A Framework for Research*. New York: Bureau of Publications, Teachers College, Columbia University, 1957.

56. Erik H. Erikson, "Identity and the Life Cycle," *Psychological Issues*, I (1959), 92.

be settled down—but I never thought of going back so explicitly—if I decide to make decisions I'm going to have to do that all the time . . . seems like a pretty shabby alternative to the other.

Indeed, to one who faces choice for the first time, it *is* a shabby alternative to prescription and authoritative direction. This fact represents the real guidance problem.

The changes that have occurred in the past decade have been substantive for the future of guidance. It is, at the same time, obvious that there will always be a discrepancy between the public expectations and the kind of professional practice we envisage. But this is hardly unique to guidance. Certainly the controversy over teacher as professional or journeyman (unionism vs. professional association) is still with us. The acceptance of guidance as something other than an efficient administration of technical selection and classification for pupils will be the most difficult. For, implicitly, it means the supplementary functions which guidance has comprehended in the past will be shed.[57]

If the pupil is seen as the focal point of guidance—as a person who chooses from among alternatives and, hence, directs his own life—the role of guidance, as functional for society's problems, must shift to emphasize professional assistance for each pupil. One of the most promising possibilities for implementation of this concept may be the further development of professional teaching-teams, including a guidance counselor in an integral position. In the more usual school organization, these changes imply a reduction in the normal student-counselor ratios from 500:1 or 250:1 to 100:1 to permit guidance to function as we have outlined. The progress toward this goal may be slow, indeed, because of knotty problems in finance. Yet, the progress already achieved for guidance counseling has been remarkable, for example: the insistence upon individual counseling as the major role, the elaboration of a two-year training program,

57. Recently the Lexington (Massachusetts) School Guidance Program, under the direction of able leadership, was completely redefined in function and purpose. All of the ancillary tasks were eliminated from the counselor's role—including course scheduling, proctoring study halls and lunch rooms, supervising discipline, attendance, course transfers, etc. This illustrates that these changes are possible in public schools. The counselor need not fill the role of school "handyman," particularly if a differentiated professional role continues to develop.

and the advances in conceptual development. We expect dramatic changes in school practice as a result of this progress. The foundations for the future of a new guidance have been laid down. The liberation of pupils through guidance becomes possible. The critical danger is that the adult world and its particular representative, the school, will not trust, allow, or enhance the pupil's ability for self-directed choice. As Erikson so aptly notes, the long period of childhood dependence exposes adults to the temptation of control. "We have learned not to stunt a child's body with child labor; we must now learn not to break his growing spirit by making him victim of our anxieties." [58]

58. Erikson, *op. cit.*, p. 100.

CHAPTER IV

Instructional Resources

EDGAR DALE

Instructional resources are assuming a sharply increased significance in the changing American school. This chapter examines the role of instructional materials in educational practice. It treats (*a*) available instructional resources and their significant characteristics; (*b*) social forces influencing instructional resources; (*c*) examples and issues in the development of new instructional materials; and (*d*) the organization and use of instructional materials.

Available Instructional Resources and Their Significant Characteristics

One fruitful way of looking at instructional resources is to see them as related to the major categories of communication: speaking and listening, visualizing and observing, writing and reading. We can also regard these categories as representing instances of producing and consuming messages. The following table shows that varied combinations can be made; for example, reading-speaking, listening-writing, visualizing-writing.

TABLE 1

PRODUCING MESSAGES	CONSUMING MESSAGES		
	Reading	Listening	Observing
Writing..............................	*		
Speaking (including music)..............		*	
Visualizing (including plastic arts)........			*

When instructional materials are classified under the foregoing categories, the wide range of instructional media which are now available is clearly seen.

TABLE 2

Speaking (or composing)-Listening	Radio, language laboratories, tapes, recordings
Visualizing-Observing	Television, films, videotapes, filmstrips, 2x2 slides, overhead transparencies, pictures, photographs, flash cards, flip books, maps, posters, charts, diagrams, bulletin boards, flannelgraphs, dioramas, models, mock-ups and simulation devices, field study
Writing-Reading	Books, newspapers, magazines, pamphlets, self-instructional material, charts, diagrams

Computers and self-instructional devices may be placed in more than one of these three classifications.

The writer has also classified instructional materials as a cone of experience which ranges from direct, purposeful, sense experiences at the bottom of the cone to highly abstract experiences at the top. He has suggested that teachers and curriculum specialists need to see learning experiences on a concrete-abstract continuum in order to fit them more precisely to the background of the learner.[1]

As one studies the wide range of instructional materials noted above, it is clear that a rich variety of instructional materials for specific learning outcomes can now be provided. Reading and writing need no longer be the only methods used for communication, and new approaches to speaking-listening and visualizing-observing can be made. It would be inaccurate to state that the schools have overemphasized reading as the chief method of communication, but they certainly have underemphasized the use of other media which can bring rich experiences to all learners.

The writer believes that the changing school is seen in better

1. Edgar Dale, *Audio-Visual Methods in Teaching*, chap. iv. New York: Dryden Press, 1954 (revised edition).

perspective if it is viewed as related to a changing and more effective system of communication. Further, we can more effectively create a modern school if we make more thoughtful, better coordinated use of the new instruments and channels of communication noted above.

A survey of the key inventions related to communication discloses characteristics described in the following paragraphs:

1. The new media can capture and record any event for later use. This means that the camera, the sound recorder, the video-tape recorder can be used to duplicate and re-create events. The cyclopean eye of the satellite can bring entirely new messages to us. The past can be made a realistic and understandable part of the present. Tape recordings can also be used to make a record of pupil or teacher performance which can be played back at will. There is no longer need to depend on print as the chief source of records of past events.

2. These records can be amplified or enlarged to make them available for group use. The sound of an insect can be amplified and a motion picture or still photograph used to put the insect onto a large screen for careful analysis.

3. Records of human performance or other events can be instantly transmitted over long distances to make them available for study, as in television or radio broadcasting or the use of computers. Through the group telelecture, we can confer with specialists by phone from almost anywhere in the world. The language laboratory is a reality and methods are now being developed by which students can easily tune in on or select recordings by a simple dialing system. A student in San Francisco may be "taught" by a computer in New York City.

4. Many of the new materials, especially those using music, speech, and pictures, greatly extend the user's range of understanding. The four-year-old cannot read, but he can understand many of the things he sees on television. The music over radio or by recording can raise or debase his tastes.

The color photograph or sketch of a flower or plant has a high point-by-point congruency with the real object. Its concreteness makes it a good example, an easily understood substitute for the original. If such materials were placed on a concrete-to-abstract

scale, they would often fall toward the concrete end of the scale. They are much easier to understand than is the printed word.

A perceptual-conceptual problem is faced in all learning—especially in reading. The alphabet furnishes a code by means of which speech can be translated into highly abstract symbols. But to learn to read, the child must "break the code." This is a perceptual problem, a matching of sound to letter and syllable. But learning to read also involves a concern with what the words and sentences mean, the experiences which they conceptualize.

Two conclusions flow from the wide range of experience which can be secured from new media that do not depend chiefly on the reading level of the learner. First, the range of experience open to an individual or to a group of four or five or of two hundred can be greatly extended. The learner is not narrowly bound to reading experiences. Second, the school must show increasing concern for the out-of-school experiences of the learner.

Social Forces Influencing Instructional Resources

The preceding section presented an overview of the instructional materials made available by modern technology. The same forces that produced modern technology are still at work and will continue to be factors in changing the school—its organization, curriculum, teachers, and instructional materials. It is important, therefore, that we understand these forces and assess their continuing influence on the instructional resources of the school. Many of these social forces have been described at length elsewhere in this yearbook and are restated here only to emphasize their influence on instructional resources.

Certainly, the changes caused by mass production and automation influence the schools both directly and indirectly. Our more than 250 metropolitan centers, each with a population of over 50,000, are a direct outgrowth of industrial development. Changes also come from the dislocation of workers caused by automation and mass production.

Technological unemployment will increase, not decrease. This will make for job unpredictability, cause increased mobility of the working force, and call for continuing changes in schools and in adult education. A measure of this job unpredictability is indicated

by statistics which reveal that the typical worker will make six or seven job changes in his lifetime, the last one at age 53.[2] Modernized instructional programs and materials for retraining and for continuing education are a necessity. Further, the demands for high-level professional and semiprofessional skills will increase and the demand for low-level skills will decrease.

There are also intellectual and ideological forces which will influence instructional materials. Certainly, the generally favorable attitude toward the idea of progress has been a factor in social change in America. That America is a country in which the future will be better has always been a basic part of our national ideology. We believe that change and innovation are good and in the American tradition.

The democratic tradition that everyone should have an equal opportunity, although not always honored, has been our stated, socially accepted philosophy. This has affected not only the nature and quality of instructional materials but also their financing. For example, federal aid has long been available to provide educational materials and programs in agriculture. The production of increased amounts of food and fiber was assumed to be in the national interest and to merit federal financial and educational support. The publications of the United States Department of Agriculture have been one of the major tools of instruction of students and adults living on farms.

However, the benefits of industrialization have not been adequately shared by all members of our population. There are gross inequities in educational opportunities and facilities among the various states. For example, the massive unemployment in West Virginia caused by automation in coal mining has decreased the state population, increased the poverty, and was one of the causes of the inauguration of the vast Appalachia program. It is seen more clearly now as a result of increased mobility that the undereducated person from one state may become a relief client in another state. Poor local education has national consequences.

Today, there is a major national thrust to raise and equalize the

2. *Manpower Report of the President,* No. 10, June, 1964, p. 2. Washington: United States Printing Office, 1964.

quality of instruction in the various states, cities, and counties. We already equalize fairly well the instructional materials within city or county systems but do not do so uniformly throughout a state; among states the quality of instructional materials varies widely. Federal assistance through NDEA funds, through funds available under the Economic Opportunity Act of 1964, and from other sources is aimed to provide every child everywhere in the country with equal opportunity to use the best available library books, films, recordings, television programs, materials for learning foreign language, and the like.

We are increasingly assuming that excellence in instructional materials and facilities must be shared. Since federal aid is moving into the area of categorical assistance as well as general assistance, it may be expected that the improvement and equalization of instructional materials for all children everywhere will be an increasing reality.

There has been mounting concern for the intellectually gifted as well as for slow learners. Some able critics of instructional practices have described our instructional programs as typically aimed at the middle half of our pupils, with the consequent neglect of the upper and lower fourths. In the past decade, a sharply increased effort has been made to give special guidance to the culturally deprived, the disadvantaged, and the gifted, with consequent changes in the kinds and characteristics of instructional materials made available for each. Indeed, one of the arguments advanced for the increased use of audio-visual materials is that they provide the rich and varied concrete and semiconcrete materials for conceptual development.

Greater attention throughout the nation is being given to the systematic, progressive organization of subject-matter. But the learner cannot start with the subject matter in a highly organized form. Rather, he moves toward an increasing conceptualizing, intellectualizing, and reorganizing of experience into interrelated systems of knowledge. Varied materials of instruction furnish a background for a unified combination of both the perceptual and conceptual approaches to learning. The development of learning systems will affect the nature of the instructional materials, as noted later in the description of new courses in the sciences.

It is likely, too, that learning activities will demand more active learner involvement, not necessarily as overt physical activity but, rather, in the sense of experimentation, inquiry, and exploration. Learning by discovery will have greater prominence, and this means the provision of a richer variety of materials and problems. There will be less passive sitting, listening, and reading. Experiences which responsibly involve the learner will increase in number.

The findings of behavioral scientists studying child behavior will affect the instructional program of the school. There is a nation-wide concern for developing the entire environment of the child as one which encourages inquiry, exploration, and learning. The play-ground, for example, will become an integral part of the planned instructional program of school and community.

A persistent and growing social force relates to the socialization or democratization of knowledge. We are concerned that all persons realize their potential—that they be a part of our American dream, not apart from it. How can changes in instructional materials build the necessary common denominator of ideas and values?

If communication is defined as the sharing of ideas and feelings in a mood of mutuality, it is clear that current instructional materials are not usually created and used to develop this sharing. Communication at its best is an interaction, a transaction, a situation in which modification of one's own ideas is a logical and often necessary part of the process. Some so-called communication is manipulative, a one-way conveying of meanings from the strong to the weak, from the superior to the inferior. The communicator wants to change the other fellow's views, not his own.

Communication means getting into the other fellow's shoes, and permitting him to get into ours. It means an empathic relationship, sensing the way a given idea or experience affects other persons. In political life it means not merely the *consent* of the governed (one might get this in a dictatorship) but, rather, the *consensus* of the governed. Communication is sharply increased in a school and community atmosphere which is friendly to the give-and-take of ideas, which provides situations in which those in authority learn to "listen with the third ear," in Theodore Reik's trenchant phrase. The quality of the associated lives of those within a school or college is, therefore, a critical test of the success of communication.

What social forces within the school will help create the high ideal here set for communication? Obviously, the concern which teachers and pupils have for their own growth and fulfilment as well as for the growth and fulfilment of others is vital. Too often, the architecture and arrangement of a school or classroom suggest that the teacher is an authoritarian figure dispensing ex cathedra judgments on arithmetic, spelling, grammar, and current events. Many teachers assume the role of guardians of a correctional institution, the red-ink scourgers of error.

The materials and methods of instruction often used in the past to teach grammar illustrate this attitude. Poor scholarship covered itself with a cloak of authority; the process was authoritarian, not authoritative. Hopefully, new materials of instruction which increasingly teach by heuristic methods, through learning by discovery, will be factors in breaking down the authoritarian quality of one-way communication.

Examples and Issues in the Development of New Instructional Materials

IMPROVING CLARITY OF EDUCATIONAL GOALS

Instructional materials have usually been ready-made, rarely tailor-made. Instructional materials have not been developed to fit the great variety of needs and interests of learners. It has been assumed, even though the assumption was known to be false, that nearly all children learn best from the same textbooks and that reading and reciting are the best method for teaching. We salved our conscience by permitting some pupils to progress faster than others.

In the past, the vexatious problems thus generated partially disappeared because the students who found the curriculum irrelevant and fruitless dropped out or, perhaps more accurately, were pushed out of school. Indeed, even today, one-third of those who enter public school do not graduate from high school. About one-third of the college Freshman class drops out of those state-supported universities where all high-school graduates are permitted to enter. We have usually assumed that the student has failed the school. A more candid and discerning analysis would show that the school

has failed the student. The goals set were neither clear nor realistic, nor were the instructional materials carefully programed to attain the stated behavioral objectives.

The situation described in the preceding sentence has been improved by the development of new curricula by the Physical Science Study Committee, the School Mathematics Study Group, the Chemical Education Materials Study, the Biological Sciences Curriculum Study, and others. Curriculum studies supported by the National Science Foundation and studies in reading, English, and foreign languages supported by funds provided through the National Defense Education Act are changing the character and quality of instructional materials.

To improve the means of instruction, we must clarify the ends of instruction, rigorously setting forth what we intend to do. Past goals have been either vague and abstract or so narrow and particularistic that little or no generalizing knowledge was created. Instructional materials will increasingly change and improve because we are delineating more sharply the behavioral outcomes desired and are developing instructional materials to secure these stated behavioral goals. Programed instruction has contributed significantly to this process.

Major analyses of behavior goals include the following:

Taxonomy of Educational Objectives. Handbook I: *Cognitive Domain.* Edited by Benjamin S. Bloom. New York: Longmans, Green & Co., 1956.

David R. Krathwohl, Benjamin S. Bloom, and Bertram B. Masia, *Taxonomy of Educational Objectives.* Handbook II: *Affective Domain.* New York: David McKay Co., 1964.

Will French, *Behavioral Goals of General Education in High School.* New York: Russell Sage Foundation, 1957.

Nolan C. Kearney, *Elementary School Objectives.* New York: Russell Sage Foundation, 1953.

Arthur Melton, *Categories of Human Learning.* New York: Academic Press, 1964.

Let us look at the three types of objectives described by Bloom (Handbook I). These types are so different in their characteristics that markedly different kinds of instructional materials are required to achieve them. Bloom divides goals of instruction into three classes: informational-intellectual, perceptual-motor, and values-attitudes.

The informational-intellectual goals (which Bloom describes as cognitive) range from remembering information to applying and evaluating it; from simple behavior requiring only imitative reaction to complex behavior requiring creative interaction.

Bloom's perceptual-motor skills require overt practice for their achievement. Pupils do not learn to play basketball, to prepare meals, to do handwriting, or to operate a typewriter by just reading about those activities or the skills involved in learning them, and the more complicated the skill, the more varied the practice and supervision which it will require. Instructional materials must, therefore, be developed to meet these practice requirements and, wherever possible, be made self-teaching. The success of practice laboratories for learning audio-visual skills (e.g., the operation of projectors) shows clearly that precious teacher time is being wasted in supervising a skill which the student can learn by himself, given appropriate equipment and instructions. Self-teaching procedures can be used in all types of instruction. We can assume that the curriculum of the future will be based on rigorous studies of the teaching of desired motor skills; that through such studies we can discover those skills which can be taught efficiently with the use of less teacher and pupil time than is now given to them.

Bloom's classification of values and attitudes deals with goals relating to emotion, feeling, taste—the affective domain. The achievement of these goals may require different kinds of instructional experience from those required for the achievement of goals dealing chiefly with information. Values may be present which have not been intellectualized or verbalized. Indeed, premature verbalization may have detrimental effect, as suggested by studies in the teaching of mathematics.

The study by Krathwohl, Bloom, and Masia demonstrates the need for clarifying goals relating to value outcomes. Our schools have emphasized cognitive goals and neglected goals relating to emotional development. A person can be intellectually convinced of the importance of doing something but lack the will, the drive, the motivation to do it. Many students have information about great literature but no taste for it. They can read, but they do not do so.

One other point should be made about clarity of goals. Flanders makes clear that ambiguous goals increase the dependence of the

learner upon the teacher and that, given such goals, "existing dependency on any authority figures will be high." [3] When there is adequate teacher-pupil planning, when goals become clear, then "students are more likely to initiate their own problem-solving procedures and set their own criteria of 'right' or 'wrong' action." [4]

Clear goals are, therefore, a necessity in developing the independent learner. Clarity of goals is a major responsibility of the teacher. However, students must also learn how to clarify ambiguous goals since they will not always have a teacher at hand to clarify them.

It is evident that if clear-cut goals are to be matched with learning resources, much more varied materials of instruction will be required than are now available. And if we wish to differentiate the kinds of materials used to fit types of objectives—intellectual-informational, perceptual-motor, and affective—a basic change is needed in the way learning experiences for students are arranged.

THE ISSUE OF EDUCATION AND TRAINING

In an unpredictable world, the curriculum must provide experiences which enable an individual to deal flexibly with new problems. In short, he must be able to think critically. In a predictable, imperceptibly changing world, training individuals for their "station" in life has sufficed. But in a democratic, changing, unpredictable world, education (not training) is a necessity. What does this mean in relation to learning resources?

The aim of developing the educated citizen is being reflected specifically in increasing concern for critical reading and writing, speaking and listening, viewing and observing. Margaret Fuller, the transcendentalist, once reluctantly agreed that she would accept the universe. Carlyle is alleged to have said, "Gad, she'd better not." The trained person accepts things as they are; the educated person does accept the universe, but usually with some haunting doubts, amendments, or reservations.

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3. Ned A. Flanders, "Diagnosing Social Structures," in *The Dynamics of Instuctional Groups*, p. 207. Fifty-ninth Yearbook of the National Society for the Study of Education, Part II. Chicago: Distributed by the University of Chicago Press, 1960.

4. *Ibid.*

In the future, we will increasingly consider the effect of all teaching and instructional materials on developing transferable principles. The following table notes differences between training and education, and the reader can draw conclusions regarding the differences in instructional materials required for the two types of learning.

TABLE 3

Training emphasizes:		Education emphasizes:
1. Imitative reaction——————→		1. Creative, imaginative, reflective interaction
2. Short-range, limited goals——→		2. Long-range, broad goals with flexible ceilings
3. Fixed ends and means————→		3. Flexible and changing ends and means
4. Passive, uncritical memorization——→		4. Thoughtful evaluation and application
5. Unthinking conformity————→		5. Thoughtful conformity and non-conformity

We must not fall into the error of thinking of training and education as neat and exact opposites, as representing a kind of black-and-white, either-or proposition. Nor should we conclude that all training is bad. The arrows suggest the wisdom of moving training toward the "education" end of the scale. Indeed, there is a place for some training which includes imitative reaction. This is how all of us learned to speak, to write, to ride a bicycle, or to operate a motion-picture projector. But what is recommended here is an increasingly thoughtful attitude toward all merely imitative experiences. Great artists, such as Van Gogh, have at some point in their careers imitated the paintings of earlier great artists. Their aim was not to paint like the earlier men but, rather, to understand how those men got the effects they did in their painting. They wanted to see what it was like to paint like the old masters and to experiment with materials and techniques which challenged and excited them.

Further, study of the communication processes of reading and writing, speaking and listening, visualizing and observing reveals that we have put heavy emphasis in our teaching materials on passive, uncritical reading and listening and on reciting. Indeed, it is fair

to say that training has been the chief method of instruction for all types and levels of learning. Today, as the mass media flood us with printed, spoken, and visualized material, instructional materials are needed which help the student become a discriminating reader, listener, and viewer. Not only are new instructional materials necessary to meet changing objectives but also the *ways* of using such materials must change. Discriminating, critical evaluation by the learner is a necessity.

Efforts to provide guidance in discriminating consumption are described by Jewett who notes that:

> . . . two-thirds of the courses of study and guides include suggestions for teaching about magazines, newspapers, radio and television. The chief aims of such instruction are to help pupils become discriminating in their selection of mass media, to evaluate what they read and hear, and to appreciate and enjoy worthwhile programs based on well-known literature.
>
> Almost half of the courses covering grades 7 through 12 have one or more units on mass media. A few courses offer units at successive grade levels. For example, the Minnesota *Guide for Instruction in the Language Arts* includes these units: "Choosing Books and Movies" (grade 9); "Radio and Television" (grade 10); "The Role of the Press" (grade 11); and "Motion Pictures" (grade 12). Besides having separate units on mass media, courses of study suggest many activities related to newspapers, magazines, movies, and television in other units which are literature- or language-centered.
>
> Units on television in recent courses of study often include the following topics for study: (1) sources of information about programs; (2) criteria for judging quality of programs, especially newscasts, panels, and variety shows; (3) the nature of advertising; (4) the effect of language; and (5) the influence of television on people.[5]

THE TEXTBOOK AS A LEARNING TOOL

The textbook has been and is the chief instructional tool of the school and college. It has long been under criticism as inflexible, as promoting uncritical memorization, as out of date. Too often, however, criticisms of the textbook have been ineffective because they

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5. Arno Jewett, "English Language-Arts in American High Schools," in United States Department of Health, Education, and Welfare, Office of Education Bulletin 1958, No. 13, p. 94. Washington: United States Government Printing Office, 1958.

were too general, lacking in depth and precision of analysis. Further, no adequate substitute for the textbook had been provided.

The thoughtful critics of instructional materials usually have not attacked the textbook as such. Their chief criticism is that too often it provided a student with a lesson to be learned which had limited relevance to his key concerns. The emphasis was on training, and irrelevant training at that. Dewey's criticism was of "academic and aloof knowledge," [6] and he called for materials which "at the outset fall within the scope of ordinary experience." But Dewey, contrary to what uninformed critics believe, was deeply concerned about the "orderly development toward expansion and organization of subject-matter through growth of experience" and noted the importance of the "principle of continuity of educative experience," the "conscious articulation of facts and ideas."

Dewey was critical of the kind of progressive education that failed to recognize that the problem of selection and organization of subject matter for study and learning is fundamental. He believed in improvising as a way to keep teaching alive, but he pointed out that "the basic material of study cannot be picked up in a cursory manner." [7]

Dewey's concern was the unthinking memorizing of organized knowledge which deprived the student of experience in organizing that material himself. Dewey was an advocate of "an expanding world of subject-matter, a subject-matter of facts or information and of ideas."

As long as there are coherent bodies of subject matter which can be systematically stated and presented, there will be textbooks. It must be recognized that *any* body of information, however presented, can be uncritically memorized, is inflexible, and can go out of date. But is there something inherent in the nature and make-up of the textbook itself which accounts for its weaknesses as an instructional resource?

Certainly the cost of producing and buying such books may

6. John Dewey, *Democracy and Education: An Introduction to the Philosophy of Education*, p. 161. New York: Macmillan Co., 1931.

7. *Ibid.*

prevent frequent revisions. Less expensive methods of production can be developed. It is also true that the materials presented in a textbook may not be very exciting, interesting, or fruitful. These weaknesses are not inherent in textbooks nor in their basic subject matter but, rather, in the ineptness of those who write, edit, and publish textbooks. Further, the excellent textbook can develop a spirit of inquiry, a concern for problem-solving.

However, placing a single textbook in the hands of every pupil who then uses it as his sole source of information and ideas is not acceptable as a method of learning. But publishers recognize this, too, and are supplementing textbooks with a variety of additional materials and are developing an integration of various types of instructional resources.

We may conclude that wherever there are unified bodies of subject matter there will be a textbook (perhaps radically different from present ones) to assist the student in becoming aware of the structure of the field. Some device is necessary to present this structure, which then can be further amplified and integrated by other related materials of instruction.

A major improvement in all textbooks, pamphlets, encyclopedias, and other reference materials will come from greater attention to readability levels. In the instructional materials, a better match is needed between the reading level of the learner and the readability level of the printed material prepared for him. As noted earlier, our curriculum materials have been typically ready-made, with one garment to fit all children, one textbook for all pupils in the same grade. Several approaches have been made to develop or select materials which better fit the learner. The readability formula is being used to determine the conceptual level of the materials under study. Early formulas have included those of Washburne, Vogel, Lewerenz, Gray, Leary, Lorge, and Dale and Tyler. Recently developed formulas are those of Dale and Chall, Flesch, Taylor, and Spache.[8]

The formulas have been used to designate the level of reading

8. See Jeanne Chall, *Readability and Appraisal of Research and Application* (Bureau of Educational Research and Service, Ohio State University, Monograph No. 34, 1957); and George R. Klare, *The Measurement of Readability* (Ames, Iowa: Iowa State University Press, 1963).

of books in the booklists of the American Library Association. Thus, the teacher can more intelligently recommend such books to children of various reading levels. Publishers have used the formulas to evaluate reading grade-levels of manuscripts and as a basis for making needed changes. Necessary "hard" words are explained either directly in the text or through context clues. Double-track readers have been developed for a single grade, with one reader intended for the upper half of the class, the other for the lower half.

Some publishers field-test their materials to determine whether they are clear to students of the intended grade levels and to discover those phases of the subject which have high or low appeal to the students. It is increasingly common for new-type instructional materials to be given experimental tryouts in the schools and for weaknesses to be remedied as a result. This approach has been used with new physics, chemistry, biology, and mathematics materials.

Readability studies have sometimes raised the issue of controlled vocabulary, and some critics have questioned the wisdom of such control. If understandability of the materials is a necessity—and it is—our only choice is between skilful control of vocabulary and inept control. The aim of vocabulary control is to insure the greatest possible amount of learning. If vocabulary is appropriately controlled, the student will be challenged and not frustrated. Writing can be simple without being simple-minded.

INDIVIDUAL AND GROUP INSTRUCTION

The development of interest in self-instruction as well as a concern for the dynamics of groups has led to concern about the specialized characteristics of individual and group instruction. Learning results from the interaction of an individual and a stimulus. The stimulus may be that of reading a book, looking at a television program, listening to a recording, experimenting in a laboratory, or talking to a more knowledgeable person. The stimulus may also come from a group, of which one is a part. Instruction and instructional materials, therefore, can be prepared for an individual or for a group. When should the approach be to individuals, to groups, or to some combination of the two? The reader will find

many suggestions for answering this problem in *The Dynamics of Instructional Groups.*[9]

One point to be made is that a physical group may be either an aggregation of separate individuals or a "congregation" made up of persons with similar purposes and points of view. If a lecturer is in reality speaking to an aggregate of separate individuals and there is no class interaction, the student might just as well receive the material over the phone or by television or in a learning booth.

Some learning, however, requires a group situation, interaction and discussion. Few people will continue to read serious books unless there is someone with whom to share new ideas or critical reactions. Furthermore, although we can individualize certain phases of language instruction by use of language laboratories, the essential social nature of language suggests interpersonal discussion if effective speech is an aim of language instruction. Individualizing instruction, whether by formal-program methods or more informal ones, is likely to bog down unless some kind of group interaction is involved.

There has been much discussion about presentation of ideas and information to large groups by such means as television, film, or overhead projection. Some of these presentations can also be made within self-contained classes through the use of filmstrips, tape and disc recordings, and motion pictures.

These recorded materials are also increasingly available to individuals. Edison first saw his newly invented motion picture as a device for individual viewing. Projection on a screen for group viewing was a later development. Today, with the 8-millimeter sound projector and the single-concept film, we may return to the use of the motion picture as an individualized learning tool. An individualized approach has already been made with the filmstrip and the recording.

Instructional materials of the future may be increasingly selected in terms of the intensity and the quality of the communicated experiences. Thus, group experiences may be provided, not primarily

9. *The Dynamics of Instructional Groups.* Fifty-ninth Yearbook of the National Society for the Study of Education, Part II. Chicago: Distributed by the University of Chicago Press, 1960.

as a method of saving teacher time but as a way of intensifying the
desired impressions, of developing appropriate social attitudes. For
this, group interaction is a necessity. Schools must set up learning
experiences in which students do important things together to get
the feeling of what it means to be a part of something larger than
one's self.

What prediction can one make about the share of time that will
be devoted in the future to instructional materials which emphasize
individual as contrasted with group learning? The best answer,
and perhaps an inadequate one, is that the division of time will be
determined by our efforts to more sharply define those experiences
which can readily be learned alone, those which require group
experience, and those which combine the two. Further, many
experiences which now require group presentation may be presented
to individuals through recorded materials.

If we can develop superior presentations which are recorded
and available, the teacher need not use his time on the tasks involved
in presentation. He can spend the time saved in counseling, guiding
and motivating students. In similar fashion, if students can learn
many of these activities as individuals, they can then bring to the
group a background of rich experiences and begin discussion at a
much higher level.

Olson has pointed out that "the sober truth is probably that the
individual differences among children are so great that it is difficult
to detect the persistent effect of anything which is so gross in
character as the size of a group or the particular arrangements for
the provisions of experience. If a plan for grouping introduces
distinctly different learning experiences, the effects can be demon-
strated. . . ." [10]

In all instruction the close, person-to-person relationships are
likely to be neglected. Hundreds of college Seniors and teachers
questioned by the writer report very limited personal relationships
with teachers. Some find it difficult to remember even two or three
situations in their entire school and college career in which there
was person-to-person discussion with a teacher on a plane of
"equality." Yet, this kind of communication is strongly desired by

10. *Ibid.*, p. 275.

learners and is reported by them to have greatly influenced their attitude toward a teacher and a field of study.

THE MULTIMEDIA APPROACH

An example of a multimedia approach to improve the science curriculum in the high school is the work of the Physical Science Study Committee (PSSC) established under a grant from the National Science Foundation. The PSSC undertook a comprehensive project of curriculum improvement in school physics by producing a variety of instructional materials integrated with a textbook based on newly defined instructional objectives of high-school physics. Similar approaches have been used in biology, chemistry, mathematics, and English. The PSSC textbook, revised in 1965, has a companion booklet of laboratory exercises. Integrated with the textbook—to amplify certain topics and to present special insights— are 53 physics films covering topics from *Time and Clocks*, to *Vector Kinematics*, *Photons*, and *Matter Waves*.

The PSSC has gone even further. For students stimulated by this new science course and desirous of following up their interests, a series of thirty or more paperbacks on the world of science in its broad aspects was commissioned from the country's foremost experts. *The Science Study Series* monographs cover many interesting topics suggested by the course.[11] Evaluation aids have also been prepared, and standardized tests are made available through a nation-wide testing service.[12]

The Committee (PSSC) states the educational theory underlying a wider variety of student experiences in science as follows:

> . . . because learning is by its very nature so difficult, the Committee seeks to broaden all the roads to learning that may be unrolled before the student. All his senses should be appealed to: his eyes, his ears, his sense of touch, his senses of muscular displacement, and where it is appropriate his sense of taste and smell. Textbooks are not enough. The

11. For example, see *The Physics of Television, The Restless Atom, How Old Is the Earth?* These and others are available from Doubleday & Co., Inc., Garden City, New York.

12. Cooperative Test Division, Educational Testing Service, Inc., P.O. Box 589, Princeton, New Jersey.

student must be offered the best in films, the best in laboratory work. If inventions are called for, they must be made.[13]

Obviously the multimedia approach needs to be closely linked to intended behavioral outcomes which are sufficiently specific to make possible the matching of learning experiences with outcomes. In some of the national studies there has been a vague linking with "structures," but the varied content of different courses based on the same structure suggests the need for more detailed behavioral analysis.

SIMULATION AS AN INSTRUCTIONAL TOOL

Another educational resource likely to experience sharp growth is the use of simulation as a technique of instruction. Webster defines a simulator as "a device in a laboratory that enables the operator to reproduce under test conditions phenomena likely to occur in actual performance." Simulators, of course, are found outside the laboratory as well. Teacher-education is making increased use of simulation devices.

To simulate is, in part, to imitate, but it is something more. A mere imitation of a device with a change of scale is called a model. But when the task to be finally performed is changed or amplified at key points to make it more understandable, the process is termed "simulation." Simulators have been used most widely in military activities; for example, the devices now being developed to land on the moon. Their usefulness as teaching devices in a number of areas suggests that they have an unrealized potential for all teaching.

For teaching purposes, an entire business may be simulated, as in "business games." Simulation can be used in the teaching of social studies, as noted by Cherryholmes.[14] Aspects of administration may be simulated, as in the widely used "In-Basket" simulation developed by the University Council on Educational Administration.[15]

13. *Physics*. First Annual Report of the Physical Science Study Committee, (preliminary edition), Vol. I, p. 15, January, 1958.

14. Cleo Cherryholmes, "Developments in Simulation of International Relations in High-School Teaching," *Phi Delta Kappan*, XLVI (January, 1965), 227-31.

15. University Council on Educational Administration, Ohio State University, Columbus, Ohio.

We simulate those situations and operations which simplify the teaching process and give more practice at less expense than would be the case if "the real thing" were used. Simulation can give "on-the-job" training to persons who would otherwise have to learn by less effective, more abstract methods.

PROGRAMED INSTRUCTION

A new instructional resource developed in the past few years has been titled programed instruction, automated instruction, auto-didactic instruction, self-instruction, and the teaching machine. The writer sees "programed instruction" as a subsystem under the pro-graming *of* instruction. Indeed, the problems in preparing units of programed instruction are those of the curriculum specialists. For example: (*a*) What terminal behavior is sought? (*b*) What experiences must be undergone to reach this behavior? (*c*) How are the learning experiences best organized? (*d*) How can we check to determine whether the terminal behavior has been realized?

Programed instruction is a method of self-correcting, self-instruction which has the following characteristics:

(*a*) It has developed chiefly in those fields of learning where the elements of learning are basic, systematic, and predictable.

(*b*) The learning experiences are organized into steps called frames. The most desirable size of these steps is debated by learning theorists. Early writers in the field emphasized the importance of small steps. The writer, however, suggests that the steps should be as large as the learner is able to understand. There has been a tendency to assume that individual differences are taken care of by offering a small or a large spoonful of the same material. However, merely changing the size of the steps or their number is not an adequate solution to this problem.

(*c*) At present the programed learning experiences have chiefly involved reading, but there is no reason to confine them to this single method of communication. Further, most emphasis has been upon individual, self-paced instruction. However, there is evidence that group instruction through films or other media is also successful.

(*d*) The student checks the accuracy of his replies and moves forward either step-by-step or by branching when basic weaknesses are exposed.

Some kinds of learning do not lend themselves to the neat and specific step-by-step approach to learning. And since most programing has been developed through verbal behavior, it is possible that the same superficial learning will result from using programed material that has resulted from the use of textbooks which emphasized uncritical memorizing. Programed instruction must make explicit provision for learning by doing.

We also face the problem of transferability of programed instruction to life problems. Some enthusiasts of programed instruction visualize the programing of entire courses, but the writer believes this development an unlikely one. We are more likely to have adjunct programs which relate closely to other forms of instruction. Programed teaching may well be part of a unit of instruction which follows rich and varied experience. The programing phase may then present incisive, thought-compelling questions on these experiences or may review and distill concepts only partly developed. The teacher controls the programing; the programing does not control the teacher. The writer's own experience with programed instruction in the systematic development of vocabulary suggests strongly the need for considering carefully the important role of the teacher in the entire process.

Some have suggested that we can reserve programed instruction for drill and rote learning. To do so is hazardous and labels programed instruction as inferior—as training, not education. Many students are bored by the mechanized, rote approach to learning found in some programed instruction. Such learning is not "suffused with suggestibility," a provocative phrase of philosopher Alfred North Whitehead.

Nevertheless, in spite of weaknesses evident in present programed instruction, the writer believes that it has an important role to play as a method of instruction. It will be widely used in business and elsewhere where short programs of instruction are needed. The response to programed instruction is neither rejection nor unbridled enthusiasm. What is required is a "hard-nosed" but creative approach to this new method of instruction. When developed according to good curriculum practices, it facilitates the movement toward adequate description of terminal behaviors and, if thoughtfully developed, contributes to their attainment.

The Organization and Use of Instructional Resources

The writer has described the various learning resources now available to schools and has delineated their significant characteristics. He has noted the persistent and emerging social forces which have influenced the kind and amount of learning resources and has described some specific developments in instructional materials. The question now arises: How can these materials be best organized and used to insure the realization of greatest educational value?

If curriculum objectives are set up on a detailed behavioral basis, more specific and more varied materials of instruction must be selected and used to reach these objectives. This suggests the need for sharply improved diagnoses of individual and group needs and the selection of learning materials to fit a prescription. Further, programs of continuing evalution are imperative if continuous pupil progress is a major objective. Tests will be used before and after instruction. Wherever possible, they should be self-administering devices. Programed instruction will make an important contribution in an integrated plan of instruction.

With clear and relevant reading materials, with easily available concrete and semiconcrete learning experiences, with better programing of instruction, and with suggested guidelines for individual study, continuous pupil progress becomes a reality. There will be no need to continue unsuccessful efforts to meet individual differences by a watered-down curriculum for the less-able students and nebulous, ill-defined, more-of-the-same-thing enrichment for the highly gifted.

As desired behavioral outcomes are better defined and refined, as self-instructional materials are used where they are appropriate, and as self-testing procedures are arranged, many more pupils will achieve a higher level of competency. This higher achievement may occur in subjects like arithmetic, in which presently there is less spread of competence than in reading. We shall have to face, therefore, the likelihood of even greater differences among the pupils of a single grade. It will be necessary to treat groups of children as a family whose age likenesses mask sharp differences in abilities and concerns. It becomes glaringly evident that to have all students in a single grade study the same topics at the same time is

an impossibility. Certainly administrative ingenuity and curricular inventiveness of a high order, as described elsewhere in this volume, are required.

Further, increasingly varied goals of instruction, coupled with greater variety in materials of instruction, will require more flexible approaches to learning styles or techniques. Because a child can learn well by reading does not mean that he will also learn well by observing or listening. Even though learning competencies may be correlated, some students may be at the top of the class in one aspect of learning and only average in another. The changing school will make use not only of new materials of instruction but also of new methods of learning.

Still another complicating factor must be faced in organizing and using instructional materials. The learning that goes on outside the school must be taken into account. This means a closer linking of the educational activities of the community, the home, and the school. As the education of parents increases, they will become better able to take more responsibility in the formal as well as the informal education of their children.

Not only will parents work with the school increasingly on "formal" education—as they do now in helping children with home-work—but there will be more planned informal education aimed at building background for the more systematic experiences of the school. For example, national, state, and local parks are taking on an educational function. Life and buildings of the past have been reconstructed at such places as Mystic, Connecticut; Greenfield, Michigan; Cooperstown, New York; and Williamsburg, Virginia. Parents are traveling more and farther with their children. And the urge to have their children get educational advantage from these trips is great, often the justification in the family for "expensive" vacations. Today, compensatory education for the culturally deprived closely relates the school and the home, especially in the earlier, more formative years.

A CAFETERIA OF LEARNING MATERIALS

We have usually thought of books as the only source of excellent ideas. Literacy has been regarded as synonymous with ability to read. It has been held that the best ideas in the world are to be

found in the books of the library. Now we realize that the modern library will include excellence in varied media, not print alone. We realize, too, that there is film literacy, literacy in the reading of photographs, literacy in evaluating great drama, literacy in critical listening.

What does this mean for the school? It must select, catalogue, distribute, and supervise the use of many types of materials and make them available in a learning-resources center. The center will include films and filmstrips, recordings that will range from the best in music to those designed to teach critical listening. There will be packets of programed materials related to the various units taught in the school. These will include pamphlets, realia of various kinds, transparencies, recordings, photographs, charts, posters, and the like, depending upon the subject to be taught. There will be a concern about instructional systems of the type described by Finn and others.[16] Computers will be used increasingly in guiding the use of materials and in other aspects of instruction.

Obviously, these instructional systems will require a new type of approach to all instructional materials. The "librarian's" concern will be with that of bringing together *all* materials necessary for the education of children—the best of recorded ideas. The teacher must become keenly sensitive not only to the varied needs of children but also to all the available rich resources for education. An instructional-systems approach will require curriculum co-ordinators to work with teachers and administrators in planning needed educative experiences. This will require specialists in behavioral technology to prepare materials, to help arrange for the systematic integration of varied opportunities to learn.

DEVELOPING THE INDEPENDENT LEARNER

The goal of all learning is to develop the independent learner— the mature individual who no longer needs the protective counsel and guidance of the school or college. We may well expect, therefore, that instructional materials and methods will be used to decrease dependent learning and increase independent learning.

16. James D. Finn, "Take-off to Revolution," in *Revolution in Teaching: New Theory, Technology, and Curriculum*, pp. 23-31. Edited by Alfred de Grazia and David A. Sohn. New York: Bantam Books, 1964 (matrix edition).

Every individual must be prepared to meet new developmental tasks. He must be able to read, listen, and view critically and thoughtfully. He must be able to use a library of books, films, and recordings. He must have methods of study and attitudes which will enable him to learn and relearn at all age levels. Self-direction is the goal, and instructional resources should be selected with this end in view.

In Conclusion

The revolution in communication and technology has produced ideas faster than we can use them. There is a lag between what we know how to do and what we have done. We know far more about changing the tools than we know about changing the workman.

Instructional technology is no exception to this rule. The new tools are beginning to pile up, but the highly skilled competence needed to select, use, and evaluate them is lacking. Our big problem in making a changeover is not, I believe, that of teacher rejection. It is rather the complexity involved in trying to take seriously the individual differences among children, and to develop a systematic, co-ordinated program for meeting these differences. It is a tough and challenging task, worthy of our best professional skill and effort.

School Organization: Nongrading, Dual Progress, and Team Teaching

GLEN HEATHERS

Introduction

Educators disagree concerning the nature and significance of the relationships between school organization and the quality of instruction. Some contend that a school's choice of organizational plan has a major influence on instructional outcomes, while others hold that teachers determine what pupils learn at school largely without regard to the organizational settings in which they teach.

Obviously, no educator believes that our schools should be unorganized or disorganized. Teachers and pupils must be brought into structured relationships that take account of learning goals, the characteristics of pupils as learners, instructional methods, and teachers' knowledge and skills. Organizational arrangements also are necessary to make effective use of school facilities and learning media. Further, school organization must take cognizance of factors affecting staff utilization, staff morale, school costs, and school-community relations.

The issues concerning school organization arise mainly from two sorts of disagreement. One involves differing conceptions of school goals. The organizational requirements of a school program that stresses the pupils' personal-social development are different from those of a program that focuses on academic attainment. The other type of disagreement involves how and to what extent individual differences among pupils should be provided for in the school program. As Goodlad points out, a school may set out to teach the same body of subject matter to all pupils and at the same rate; it may offer all pupils the same subject matter but provide for different rates of advancement; or it may vary subject-matter offerings

from pupil to pupil as well as make provisions for different rates of progress.[1] The organizational implications of these three approaches are different.

Presently, the issues involved in such disagreements are being examined anew as critics of the schools attack the grade system and the self-contained classroom, and as innovators advance competing plans for organizing instruction. These plans propose new solutions to a number of persistent problems of school organization, such as pupil advancement, pupil grouping, scheduling, uses of space and equipment, teacher deployment, and teacher interaction. Three major types of organizational plans have been brought forward: nongrading, dual progress, and team teaching. Plans of each type have been developed during the past decade, have been put to test in a variety of school settings, and have been the subject of pilot research studies to determine outcomes.

This chapter examines these new organizational plans in relation to such questions as: What are the purposes and features of each type of plan? What forces and ideas in American society or in education have given rise to them? What are the theoretical bases for the plans? How extensive and how effective are the local adoptions? What are the prospects that these plans will contribute to the improvement of American education?

Purposes and Features of the New Organizational Plans

NONGRADING

The term "nongrading" indicates what the plan is not rather than what it is. Nongrading is a departure from the conventional graded system for organizing instruction. It rejects the grade-level curriculum, and grade-level placement and promotion, on the assumption that these fail to provide adequately for individual differences among pupils.

The purposes of nongrading (or "continuous progress") are indicated in Recommendation 23 of the National Education Association Project on Instruction as follows:

1. *Planning and Organizing for Teaching*, Project on the Instructional Program of the Public Schools. Written by John I. Goodlad. Washington: National Education Association, 1963.

The vertical organization of the school should provide for the continuous, unbroken, upward progression of all learners, with due recognition of the wide variability among learners in every aspect of their development. The school organization should, therefore, provide for differentiated rates and means of progression toward achievement of educational goals.[2]

Goodlad and Anderson surveyed the evidence on individual differences among children of a given age or grade group and concluded that the grade-level system is ill-suited for taking such differences into account.[3] Children of an age or grade differ so greatly in achievement, abilities, and interests that it is absurd to present all of them with the same learning fare and to expect them to progress at the same rate. Intraindividual differences in achievement and ability from one curricular area to another also are large and are not provided for in the graded system that moves pupils through the several curricular areas on an even front.

The graded system holds back the advanced or rapid learner and forces the retarded or slow learner ahead, beyond his capacities to learn. Nonpromotion, the device employed to deal with the failure of some pupils to achieve grade standards, is a poor solution. It forces tedious repetition of some materials already learned. It stigmatizes the learner by marking him as a failure. Further, it does not accomplish its purpose of fostering pupils' achievement. Research studies have shown that retarded learners, if promoted, usually achieve at least as well as when retained in grade.[4]

Most often, provisions for nongrading occur in suburban elementary schools and at the primary level. In the most frequent type of program, pupils may take two, three, or four years to accomplish the learnings that conventionally are included in Grades I-III. Grade-level divisions in the curriculum are erased to allow for continuous progress. Typically, sequences of levels are set up

2. *Schools for the Sixties*, p. 132. NEA Project on Instruction. New York: McGraw-Hill Book Co., 1963.

3. John I. Goodlad and Robert H. Anderson, *The Nongraded Elementary Schools*, chap. i. New York: Harcourt, Brace & World, Inc., 1963 (revised edition).

4. Dwain M. Estes and Henry J. Otto, "Accelerated and Retarded Progress," *Encyclopedia of Educational Research*, pp. 4-11. Edited by Chester W. Harris. New York: Macmillan Co., 1960 (third edition).

in reading and arithmetic. Pupils proceed upward in these sequences at different rates according to how readily they learn the subject. There are no learning requirements that all pupils are expected to satisfy in a given period of time. Year-to-year promotion and non-promotion are eliminated.

Grouping practices in nongraded primary schools vary. In some schools, groups are set up on the usual age-level basis with non-graded instruction facilitated by intraclass grouping. In other schools, multiage grouping occurs with groups formed on the basis of achievement level. Goodlad and Anderson make the important point that grouping practices are secondary considerations in non-graded programs. Nongrading applies strictly to the *vertical* pro-gression of pupils, while grouping applies to the *horizontal* organ-ization of the school that brings pupils and teachers into relation. No pattern of grouping ensures nongrading, though some grouping practices may facilitate it.[5]

Some school systems have nongraded the entire elementary school. The "Continuous Progress Plan" used in Appleton, Wis-consin, provides for nongraded advancement in reading, spelling, and arithmetic.[6] Nongrading occurs through intraclass grouping within the structure of the self-contained classroom. A pupil may take an additional year to complete the elementary program. Rapid learners may advance into the junior high school curriculum while still in the elementary school.

A number of high schools have introduced nongraded programs. The best-known program was initiated in 1958 at Melbourne, Florida.[7] The program replaces grade grouping with a system that permits continuous, nongraded advancement in mathematics, sci-ence, English, and history. Within each of these areas, the level of work the student performs depends on the scores he has obtained in nationally standardized achievement tests, while the setting in which he learns depends on his learning skills.

5. Goodlad and Anderson, *op. cit.*, pp. 214-16.

6. Arthur D. Morse, *Schools of Tomorrow—Today!* chap. ii. Albany: New York State Education Department, 1960. (Available as paperback from Double-day & Co., Inc., Garden City, New York.)

7. B. Frank Brown, *The Nongraded High School.* Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1963.

Nongrading, it should be noted, is not a new phenomenon in American education. Goodlad and Anderson point to the Pueblo, Batavia, Winnetka, and Dalton plans as precursors of today's nongraded plans and report that Milwaukee has had a type of nongraded plan in operation since 1942.[8] Also, it should be noted that many teachers have employed some nongraded approaches within the graded system, particularly in reading, a subject in which pupils inevitably break through the boundaries of the grade structure.

THE STODDARD DUAL-PROGRESS PLAN

In 1956, Stoddard outlined a new semidepartmental plan for organizing instruction in the elementary school that he later described in detail in his volume, *The Dual Progress Plan*.[9] Stoddard believes that both the graded system and the self-contained classroom fail to employ effectively what is known about child development, individual differences, learning, and teaching. He believes also that the instructional program they call for is not in harmony with societal requirements of education. To remedy this situation, he offers a plan that rejects or modifies each of the four main features of the conventional plan for organizing the elementary school —the grade-level curriculum, grade-level placement and advancement, the general elementary teacher, and the general-purpose classroom.

In designing the dual-progress plan, Stoddard sought to insure that all pupils accomplish the fundamental learnings that are required for effective membership in American society. These "cultural imperatives"—reading, writing, and speaking; and knowledge of social values, institutions, and behavior—lie, he believes, in the areas of the language arts and social studies. Also, Stoddard desired to give full recognition to individual differences in abilities and interests within those other areas of the curriculum in which society permits a range of accomplishments, depending on pupils' talents and preferences. These "cultural electives" he considers to be math-

8. Goodlad and Anderson, *op. cit.*, pp. 49-53.

9. George D. Stoddard, "New Ways to Reach the Mind of the Child," in *Education 2000 A.D.*, pp. 141-64 (Edited by C. W. Hunnicutt. Syracuse, New York: Syracuse University Press, 1956); *The Dual Progress Plan* (New York: Harper & Row, 1961).

ematics (aside from the essential arithmetic skills), science, art, and music. Further, Stoddard sought a plan that would provide each pupil in each curricular area with a teacher who knows his subject well, enjoys teaching it, and knows how to teach it to young children. Finally, he wished to offer the pupil an emotional-social home base, a setting where he remains with one teacher and one group of his age-mates for a major part of the school day. The plan devised by Stoddard to meet these requirements is semidepartmentalized, employs the graded system with a part of the curriculum and a nongraded system with the remainder, and utilizes full-time specialist-teachers within each curricular area.

Dual progress refers to two distinct bases for a pupil's advancement at school. In the language arts–social studies curriculum area, the plan calls for teaching as in the usual graded system. Pupils are assigned to grade-level groups for instruction in this "core" segment of the curriculum and are promoted to the next grade when they have satisfied the basic requirements of the grade-level curriculum in these subjects. On the other hand, in the areas of mathematics, science, music, and art, pupils are taught on a nongraded basis. For instruction in each of these areas, pupils are assigned to groups on the bases of achievement and ability without regard to grade level.

The plan provides six major categories of specialist-teachers serving the areas of language arts–social studies, physical education, mathematics, science, art, and music. There may be additional specialist-teachers of foreign language, reading, speech, and instrumental music. Each teacher is provided with a classroom equipped as a laboratory or studio for his curricular area.

In the dual-progress plan, a pupil spends almost half of the school day, morning or afternoon, receiving instruction in language arts–social studies with one specialist-teacher. During the same half day, he has a period of physical education with the teacher of that area. During the other half day, he proceeds from room to room, class to class, and teacher to teacher for instruction in the nongraded subjects.

TEAM TEACHING

Describing team teaching is made difficult by the fact that educators disagree on the varieties of organizational patterns to include

under the term. Shaplin's definition is as follows: "Team teaching is a type of instructional organization, involving teaching personnel and the students assigned to them in which two or more teachers are given responsibility, working together, for all or a significant part of the instruction of the same group of students." [10] Goodlad and Rehage would add the requirements that team teaching involve hierarchy of personnel, differential staff functions, and flexible grouping.[11] Anderson specifies that team teaching must involve co-operation among team members in planning, conducting, and evaluating instruction.[12] Woodring, however, notes that the actual teaching ordinarily is done by individual teachers rather than by the team and suggests that "team organization and planning" would be a better descriptive label than team teaching.[13]

In the pages that follow, Shaplin's general definition will be used. This definition excludes a common form of teacher collaboration when two teachers trade off, each teaching one part of the curriculum to both of their classes. Ordinarily, this sort of collaboration is an instance of departmentalization since each of the two teachers retains full responsibility for his class and joint planning and evaluation do not occur.

The team-teaching plans that fall under Shaplin's definition are diverse and reflect a diversity of purposes. Most generally, the plans are intended to benefit the school in relation to one or more of the following: the academic quality of instruction; the individualization of instruction; efficiency or economy in the utilization of staff, learning materials, space, and equipment; staff recruitment and retention; and staff morale.

10. Judson T. Shaplin, "Description and Definition of Team Teaching," in *Team Teaching*, p. 15. Edited by Judson T. Shaplin and Henry F. Olds, Jr. New York: Harper & Row, 1964.

11. John I. Goodlad and Kenneth Rehage, "Unscrambling the Vocabulary of School Organization," *NEA Journal*, LI (November, 1962), 34-36.

12. Robert H. Anderson, "Team Teaching," *NEA Journal*, L (March, 1961), 52-54.

13. Paul Woodring, "Reform Movements from the Point of View of Psychological Theory," in *Theories of Learning and Instruction*, p. 292. Sixty-third Yearbook of the National Society for the Study of Education, Part I. Chicago: Distributed by the University of Chicago Press, 1964.

It is not possible to offer a brief description of team-teaching plans that does justice to their great variety. The reader who is interested in detailed treatments of team teaching should turn to the contents and bibliographies of the books written or edited by Beggs,[14] Bair and Woodward,[15] and Shaplin and Olds.[16] The present account is meant merely to highlight features of team teaching with special attention given to hierarchical teams.

The pupil group in team teaching normally is two or more times larger than the conventional class group, ranging from 50 or 60 pupils to as many as 250 in the elementary school and 400 in the secondary school. Most elementary-school teams teach all the pupils of one grade level, or of two or three adjacent grade levels, and encompass all areas of the curriculum. Secondary-school teams most often involve either one curriculum area or two related areas. At the college level, a number of programs organize certain teacher-education courses under faculty teams.

While a team may have only two staff members, most have three or more, and the largest teams have as many as ten. Some teams are composed of equal-status teachers playing similar roles. Many provide a hierarchy of positions and a diversity of roles. In some school systems—Norwalk, Connecticut, for example—a teacher aide is used on a team in lieu of a certified teacher and the salary saving is used to provide salary increments for the team leader and the "co-operating teachers." [17]

In the hierarchical team, specialization of role usually applies to all members of the team. The team leader assumes responsibility for co-ordinating team functions in planning and conducting instruction, for principal-team liaison, and for teacher-education functions within the team. He may be relieved of part of the normal teaching

14. *Team Teaching—Bold New Venture.* Edited by David W. Beggs. Indianapolis, Indiana: Unified College Press, Inc., 1964.

15. Medill Bair and Richard G. Woodward, *Team Teaching in Action.* Boston: Houghton Mifflin Co., 1964.

16. *Team Teaching.* Edited by Judson T. Shaplin and Henry F. Olds, Jr. New York: Harper & Row, 1964.

17. *The Norwalk Plan of Team Teaching, Third Report,* p. 36. Norwalk, Connecticut: Norwalk Board of Education, 1961.

load to provide time for his special duties. Teachers on the team usually specialize in one area of the curriculum. At the secondary level, teachers may develop specialties within one subject, such as English or history. Teachers also may specialize in large-group instruction, television lecturing, or teaching with programed materials. Teacher aides or clerks relieve teachers of such nonprofessional duties as taking attendance, supervising study groups, preparing materials and equipment, keeping records, typing reports, and so on.

Some team-teaching programs make extensive use of teacher interns. The Wisconsin Improvement Program, for example, employs one or more interns-in-training each semester as assistants to team teachers. The interns receive approximately half-salary. The internship is part of a program at the master's level at the University of Wisconsin.[18]

A salient feature of many team-teaching programs is flexibility in grouping, in scheduling, and in the uses made of space and equipment. In both elementary and secondary schools, group size is changed from very large to very small, depending on the subject matter being presented and the characteristics of pupils as learners. Teachers may also work with individual students. In some team-teaching programs, stress is placed on independent study, perhaps with the use of programed materials, tapes, or film strips. Increasingly, nongrading accompanies team teaching. Many teams include pupils drawn from more than one grade or age level. Flexible grouping facilitates setting up multiage groups for nongraded instruction.

Large-group instruction, it should be noted, contributes in a major way to program flexibility. During periods in which one teacher instructs a large group, other team members are freed to work with small groups or with individual pupils, or for planning or conferences. Teachers may be made available for such activities also when pupils study independently or under the supervision of teacher aides.

In some team-teaching programs, instructional time per subject

18. *Making Teaching and Learning Better: The Wisconsin Improvement Program, 1959-1961.* Madison, Wisconsin: Wisconsin Improvement Program, 1962.

is varied to meet the learning needs of different pupils. Trump recommends that as much as one-third of the high-school pupil's time should be flexible, to permit its use for those activities that best suit his individual learning needs and interests.[19]

A highly visible aspect of many team-teaching programs is their departure from the usual "egg-crate" arrangement of school space into standard-sized classrooms. Schools designed or modified to accommodate team teaching provide "learning space" for large-group, small-group, and individual learning, in part through sliding or folding partitions that make the use of space flexible.[20]

Team teaching involves teamwork in planning and conducting instruction. The amount and types of teamwork vary greatly from one team project to another. Most teamwork occurs in planning rather than in conducting instruction. The bulk of teaching is performed by individual teachers. Further, most planning of instruction in a given curriculum area is done by the one or two teachers who specialize in that area. Whole-team planning is mainly a matter of setting up the over-all team schedule, sharing information about pupils needed for diagnosis and lesson planning, and making the needed arrangements for uses of space, equipment, and learning materials.

Forces and Ideas Reshaping School Organization

The development and reception of new plans for organizing the schools are in part outgrowths of great societal forces that are imposing changes on all our institutions, notably such forces as changes in job requirements, mounting unemployment, rapid population growth, and the civil-rights revolution. The routes along which these forces have come to bear on school organization often are indirect, and attempts to trace them are based, necessarily, on considerable speculation.

The nation's concerns with regard to the full utilization of talent have a bearing on school reorganization. To improve and hasten the

19. J. Lloyd Trump and Dorsey Baynham, *Focus on Change: Guide to Better Schools*, pp. 53-57. Chicago: Rand McNally & Co., 1961.

20. Cyril G. Sargent, "The Organization of Space," in *Team Teaching, op. cit.*, chap. vii.

education of talented young people, advanced placement programs have been established that enable gifted high-school students to undertake college-level work. These programs impose strains on the conventional patterns of high-school organization, since they call for nongrading and provisions for independent study.

Concerns about the educationally disadvantaged, likewise, are influences toward school reorganization. Programs, such as New York City's Higher Horizons and various programs designed to reduce the number of high-school dropouts, are challenging conventional plans of school organization that make limited provisions for dealing with special groups of students. The great movement to integrate the nation's schools probably will influence school organization. The problem which this movement poses to those who organize the schools is how to teach both the privileged and the disadvantaged in the same school without *de facto* segregation in grouping for instruction and on the basis of subject matter taught.

Societal forces are having an indirect influence on school reorganization by leading to a new formulation of the essential goals of education. Reform spokesmen have developed a conception of the education that is needed to prepare the individual for effective membership in a society characterized by rapid and unpredictable change. The need is for education for adaptability, that places its emphases on students learning the theories of the academic disciplines, on problem-solving thinking, and on developing skills of independent study.

The influence of the new conception of education on school organization is being mediated by the development of new curricula in mathematics and science. These curricula require that teachers understand, and be able to teach, theory and methods of inquiry in these disciplines. Since many of today's teachers do not meet such requirements, new patterns for deploying teachers are being resorted to as one way of improving instruction in the two subjects.

Societal forces are having a relatively direct impact on school organization in connection with the new media of instruction. Scientific and technological advances that produced television, magnetic tapes, and electronic computers are leading to educational television, lessons on tapes, and computer-based instruction. These media, in turn, are stimulating certain changes in school organization that in-

volve the redeployment of pupils and teachers. Other technological advances within education that are affecting school organization are programed instruction that calls for settings for individual learning and new designs for school buildings to accommodate schedule modifications, such as those employed in the Trump Plan for the high school.

Some of the influences leading to school reorganization arise from developments in behavioral science. In offering a rationale for nongrading, Goodlad and Anderson refer to findings from investigations of intellectual abilities, learning, and personality development that support the nongraded concept.[21] Bruner's book, *The Process of Education*, reports the deliberations of a conference that examined principles of behavioral science in their relevance to educational practice.[22] While this report is more directly related to curriculum, it has implications for such organizational features as nongrading and specialist teaching.

Certain developments within education during the past two or three decades have contributed to a readiness in the schools for organizational change. Goodlad and Anderson present evidence that indicates that, by 1950, many elementary educators were becoming discouraged about the prospect of taking proper account of pupil differences within the graded system.[23] Hundreds of research studies had failed to demonstrate effective ways of accommodating these differences through such devices as within-grade grouping and promotion or nonpromotion.[24] Also, there have been signs of a growing dissatisfaction with the self-contained classroom. For example, Ackerlund reported in 1959 that most elementary teachers of Grades III-VI in one large urban school system were opposed to the self-contained classroom. Many of these teachers reported that they disliked teaching certain subjects, and the majority of them

21. Goodlad and Anderson, *op. cit.*, chaps. iii and v.

22. Jerome S. Bruner, *The Process of Education*. Cambridge, Massachusetts: Harvard University Press, 1961.

23. Goodlad and Anderson, *op. cit.*, p. 205.

24. *Ibid.*, pp. 34-39.

felt that they were not well prepared to teach reading, history, geography, science, art, and music.[25]

The rapid growth of the school population, together with a national shortage of well-trained teachers, is an important factor in the growing receptivity of school leaders to new organizational plans. Many school administrators, beset with problems of the budget and of staffing their schools, are attracted to plans that promise to aid in teacher recruitment and retention, or that promise to utilize teachers' skills more efficiently.

We turn now to examine the relations that the three types of new organizational plans bear to the forces and ideas outlined in the foregoing paragraphs. It appears that the movement to nongrade the elementary school has arisen more from events occurring within education, less from societal changes outside education, than has been the case with the dual-progress plan or team teaching. To a marked extent, the trend toward nongrading results from educators' failures to solve problems raised by individual differences within the graded system.

Through its provisions for differential rates of progress, non-grading can help meet the special educational needs of talented students, slow learners, and the educationally disadvantaged. By freeing talented students from the shackles of the graded system, nongrading allows them to progress more rapidly toward achieving their potential. Through removing grade labels and through eliminating annual promotion or nonpromotion, a nongraded program less often stigmatizes the retarded or slow learner. It seems likely that nongrading will be resorted to increasingly in racially integrated schools as a means of dealing with the increased range of individual differences and with the emotional-social aspects of integrated schooling.

One important effect that nongrading can have on the quality of learning is to insure that all learners achieve the essential goals of each unit of study before advancing to the next. This would be expected to reduce pupils' experiences of failure at school, insure readiness for higher levels of work, and minimize the need for reme-

25. George Ackerlund, "Some Teacher Views on the Self-contained Classroom," *Phi Delta Kappan*, XL (April, 1959), 283-85.

dial instruction. In order to accomplish these purposes of nongraded programs, increased attention to diagnosing students' learning needs and abilities is required.

At Melbourne High School (Florida), according to Brown's report, independent learning is stressed, and systematic efforts are made to improve students' competencies in self-instruction.[26] This emphasis on independent learning is clearly related to the new conception of education for adaptability. Also, improved self-instruction leads to utilizing teachers more effectively since, when students learn independently, teachers may use their time for planning, for conferences, or for guiding the learning of students either individually or in small groups.

The dual-progress plan represents a deliberate attempt to gear the school's program to societal requirements or expectations of education. Thus, the graded system is used with the cultural imperatives to ensure that all pupils master the required learnings in language arts and social studies. Stoddard recognizes that mathematics and science are becoming increasingly vital in our society. The dual-progress plan, by placing mathematics and science on a nongraded basis, gives talented pupils fuller opportunities to develop their capabilities in these subjects while freeing less capable pupils of the requirement that they study these subjects at advanced levels.

To strengthen instruction in both imperatives and electives, the dual-progress plan provides specialist-teachers of each curricular area. This feature of the plan is of particular importance for the teaching of mathematics and science, areas in which most general elementary teachers have little preparation or special interest.

Stoddard believes that the plan of using specialist-teachers in the elementary school will help deal with the problem of the national shortage of teachers. For one thing, it may utilize teachers' strengths more effectively than the conventional plan. For another, the proposed plan may offer elementary teachers more desirable careers, thereby attracting abler people into elementary teaching and holding superior teachers longer.

Team-teaching plans have their most evident relations to societal

26. Brown, *op. cit.*, chap. v.

forces through the provisions they make for dealing with the national shortage of well-qualified teachers. These provisions are designed to make more effective use of today's teachers, to offer teachers more attractive careers, and to improve the in-service education of teachers. The features of team-teaching plans that are meant to improve teacher utilization are specialization in curricular areas and in instructional settings; the employment of teacher aides and clerks to relieve teachers of nonprofessional chores; the use of technological aids such as TV, programed instruction, tapes, and overhead projectors; and the increased employment of part-time teachers. These all are ways of stretching or focusing teacher talents that are in short supply.

New career opportunities for teachers include the roles of team leader and master teacher. Salary increments that some team plans offer are added attractions. The attractiveness of the teacher's position is enhanced also by the use of nonprofessional aides, by enabling teachers to specialize, and by giving teachers opportunities for individual or team planning during the school day. Proponents of team teaching believe that the team offers a superior setting for the in-service education of student teachers and newly certified teachers. If so, this means that team teaching is a way of strengthening the nation's complement of beginning teachers.

Team-teaching plans offer exceptional opportunities to provide for individual differences in learners through flexible grouping and flexible uses of teachers and of learning resources. When nongrading is employed within a team-teaching program, provisions for accommodating pupil differences are enhanced.

More than other types of new organizational plans, team teaching has incorporated the new educational technology. Numerous schools with team teaching make extensive use of educational TV, tapes, film strips, and programed instruction.

In developing, testing, and implementing the new organizational plans, the school-university partnership has been a major contributor. Particularly has this been the case with the dual-progress plan and team teaching. School-university relationships involving the Experimental Teaching Center at New York University have been

largely responsible for work on the dual-progress plan.[27] In connection with team teaching, Harvard University, the University of Wisconsin, Claremont Graduate School, the University of Hawaii, the University of Maine, the University of Oregon, and other institutions of higher learning have worked with the schools in their regions. A prominent feature of projects to develop the dual-progress plan and team teaching has been that teacher-education programs conducted by the participating universities have prepared teachers for their roles in the plans.

To sum up, we have seen that the new organizational plans bear important relationships to some of the societal forces and ideas that are reshaping American education. The clearest relationships are to the influences calling for better ways of dealing with differences among learners, for improving the teaching of science and mathematics, and for increasing the efficiency with which our short supply of well-qualified teachers is being employed.

It is essential to recognize that none of the new plans bears directly on improving the quality of instruction through development of teaching theory, problem-solving thinking, and skills in self-instruction. The primary routes toward such improvements are through innovations in curriculum and teacher education. At most, an organizational plan can provide better opportunities for employing curricula and teacher's competencies to good effect.[28] Provisions of plans that provide for nongrading, flexible scheduling and grouping, the use of new learning media, teacher specialization, and teamwork, all contribute toward that end.

Theoretical Foundations of the New Plans

In describing the three types of organizational plans, their purposes were indicated and their features outlined. Purposes should not be confused with theory. The theory underlying a plan should be a systematic set of assumptions or principles linking the features

27. "Three-Year Report of the Experimental Teaching Center, 1958-61." New York: Experimental Teaching Center, New York University, November 1, 1961 (mimeographed).

28. For a discussion of this matter as related to team teaching, see Glen Heathers, "Team Teaching and the Educational Reform Movement," in *Team Teaching, op. cit.*, pp. 347-52.

of the plan with its intended outcomes. Judged against this criterion, none of the plans under consideration is blessed with an adequate basis in well-formulated theory. This lack of a foundation in tested theory characterizes educational change generally. Thus, curriculum theory and theory of teaching are in early stages of development.

To say that the new organizational plans lack systematic bases in theory is not to say that they are devoid of theory. In fact, each of the plans rests on a number of theoretical assumptions, often implied rather than stated. The nature of these assumptions merits examination.

The basic assumptions underlying nongrading are that learning effectiveness, motivation to learn, and mental health all will be enhanced if the student's rate of advancement in each curriculum area is geared to his capacities. Nongrading, it is assumed, will reduce students' experiences of failure and rejection because the pace is too fast, or of boredom and cheap success because the pace is too slow. For the enhancement of learning effectiveness, motivation to learn, and mental health, nongraded plans assume that instruction adapted to individual differences will result from erasing grade-level boundaries, setting up nongraded curricular sequences, and employing such practices as multiage or achievement-level grouping. The rationales of nongraded plans would be strengthened if they added assumptions about teachers' motivation to conduct nongraded work and their skills in individualizing instruction, since teachers must be depended upon to carry nongrading from plan into reality.

Woodring cites the dual-progress plan as being "closely related to psychological principles." [29] This is true for some of the features of the plan, such as the provisions for an emotional-social home base in the language arts–social studies class, for different learning expectations for the "bright" and the "dull," and for specialist-teachers who know and like the subjects they are assigned to teach. However, in common with other organizational plans, the dual-progress plan lacks a theoretical foundation that takes adequate account of

29. Paul Woodring, "Reform Movements from the Point of View of Psychological Theory," in *Theories of Learning and Instruction, op. cit.,* p. 303.

the complex of variables involved in achieving desired learning out-comes in graded and nongraded subjects. True, in his volume on the plan, Stoddard devoted chapters to the developments in cur-riculum and teacher education that are needed to implement the plan.[30] But he has not offered a systematic rationale for the plan that articulates his ideas about school organization, curriculum, and teaching as they bear on intended outcomes of the plan.

The volume on team teaching edited by Shaplin and Olds rep-resents the most systematic attempt that has been made to develop a rationale for this type of organizational plan. Shaplin presents a chapter entitled "Toward a Theoretical Rationale for Team Teach-ing," while other chapters in the book consider the taxonomy of team teaching, team teaching and the curriculum with special ref-erence to large-group instruction, the role of the teacher, and prob-lems of organization and administration. The authors of the several chapters have looked to the theory of behavioral science for models that can be applied to the development of a rationale for team teach-ing. But the theory of behavioral science relating to groups and organizations is not well developed, as Bray has noted.[31] Also, the task of adapting such principles as have been established in behav-ioral science to the variables and conditions of team teaching is a difficult one that has not yet been solved.

School Reorganization Today: Its Extent and Significance

Today's movement to reorganize the schools has developed al-most entirely since 1957, though a considerable number of non-graded programs in elementary schools were established earlier. In 1957, the first major team-teaching projects were launched. In 1958, the dual-progress plan was first placed in operation and the first nongraded high-school program was introduced.

Data on the number of schools employing the new plans of or-ganization are scanty and unreliable. The most extensive data come from a 1961 survey conducted by the NEA Project on Instruction in which a stratified sample of the nation's elementary- and second-

30. Stoddard, *The Dual Progress Plan, op. cit.,* chaps., viii and ix.

31. Charles W. Bray, "Toward a Technology of Human Behavior for Defense Use," *American Psychologist,* XVII (August, 1962), 534-36.

ary-school principals responded to a questionnaire on practices in their schools.[32] The principals reported local practices as of 1956 and 1961 and predicted what the practices would be in 1966.

According to the NEA survey, some nongrading existed in 6 per cent of elementary schools in 1956, in 12 per cent in 1961. The incidence estimated for 1966 was 26 per cent.[33] No comparable survey data were obtained on nongrading in the high school. However, the Advanced Placement Program was credited with an important influence on high-school instruction by 15 per cent of the secondary principals and with a slight influence by an additional 44 per cent.[34] These survey findings on the incidence of nongrading give a false impression of the extent of the breakdown of the graded system. Goodlad and Anderson found in their 1960 survey that many schools calling themselves nongraded were confusing homogeneous grouping with continuous progress.[35] Also, most of the nongraded programs that exist are confined to the primary level and provide for continuous progress only in the skills sequences of reading and arithmetic.

The dual-progress plan, as of 1965, is in operation in about one dozen communities, mainly in the intermediate grades of the elementary school. It appears that a number of school systems has adopted the plan because it provides specialist-teachers in the areas of mathematics and science. In this connection, findings of the NEA survey on the extent of departmentalization in the elementary school are of interest, since specialist teaching and departmentalization usually go hand in hand. Evidently there is a trend toward departmentalization in the upper grades of the elementary school, since 20 per cent of elementary principals reported that some departmentalization existed in their schools in 1956, 36 per cent reported some in 1961, and 49 per cent predicted that some would be present

32. *The Principals Look at the Schools: A Status Study of Selected Instructional Practices.* NEA Project on the Instructional Program of the Public Schools. Washington: National Education Association, April, 1962.

33. *Ibid.,* pp. 39-40.

34. *Ibid.,* p. 26.

35. John I. Goodlad and Robert H. Anderson, "Educational Practices in Nongraded Schools: A Survey of Perceptions," *Elementary School Journal,* LXIII (October, 1962), 38.

in 1966.[36] Adoptions of the dual-progress plan also are consistent with the trend toward nongrading, since nongraded grouping and advancement are features of the plan.

With regard to the proportion of elementary schools having some team teaching, the NEA survey reported 5 per cent for 1956, 15 per cent for 1961, and 30 per cent (estimated) for 1966. At the secondary level, the corresponding per cents were 5, 12, and 31.[37] As is the case with the survey data on nongrading, it is likely that these per cents overestimate the incidence of team teaching in the nation's schools. Probably many principals labeled any type of teacher collaboration as team teaching. In this connection, it may be noted that 5 per cent of elementary and secondary principals reported some team teaching in their schools as of 1956—one year before the first major projects in team teaching were launched. Also, the NEA survey found that, in schools reporting team teaching, the practice usually involved only a small fraction of pupils and teachers.

It is hazardous to predict the extent to which the new organizational plans will gain acceptance in America's schools. Certainly there are good reasons for predicting that the conventional graded system will not survive the current tide of change in school organization. With respect to vertical organization, Goodlad and Anderson state that "there are probably not very many schools in the United States which have not been moving (consciously or otherwise) in the direction of a nongraded program." In support of this position, they write: "Witness the almost universal interest in report card reform, in the question of promotion *vs.* nonpromotion, in provisions for individual differences, in providing for the needs of atypical children, and in the adaptation of the curriculum to needs of the child." [38]

There are strong reasons for predicting also that the self-contained classroom will be replaced with other patterns of horizontal organization for instruction. The trends in this direction involve

36. *The Principals Look at the Schools* . . ., *op. cit.,* p. 13.

37. *Ibid.,* p. 18.

38. Goodlad and Anderson, *The Nongraded Elementary School, op. cit.,* p. 178.

provisions for new patterns of staff specialization; for greater flexibility in the uses of personnel, time, space, and equipment; and for greater teacher co-operation in planning and conducting instruction.

Appraising the significance of today's movement to reorganize the schools calls for answering three related questions: Are the plans well designed in relation to their intended educational outcomes? How fully are the plans being implemented in local programs? What evidence is there that the plans contribute toward the effectiveness or the efficiency of instruction?

Evidence that the plans under consideration have not been adequately designed was offered in the preceding section, where it was indicated that none of the plans has a fully-developed rationale that links its features with intended outcomes. In the earlier section relating the plans to societal forces and ideas, it was pointed out that the plans bear mainly indirect and tenuous relationships with the emergent conception of education for adaptability. Perhaps the most serious weakness in the design of the plans is that they describe structural features without specifying the processes whereby those features are to be brought to life in the conduct of instruction. This shortcoming in team-teaching plans has been analyzed in some detail by the writer.[39]

The bulk of the current literature on school reorganization would lead the outsider to believe that successful implementation of nongrading, dual progress, and team-teaching plans is the rule in schools that have introduced them. Certainly it is true that many schools have placed the main structural features of the plans in operation and with some success in that the plans usually have been retained in the schools that tried them. Also, administrators, teachers, pupils, and parents involved in the tryouts of the plans have usually become and remained favorably disposed toward them. Despite these positive indications, the evident fact is that seldom, if ever, has one of the plans been placed in full and effective operation. Even in local projects receiving the benefits of school-university collaboration and heavy foundation support, the problems of implementation have been only partially solved.

39. Heathers, "Team Teaching and the Educational Reform Movement," op. cit., pp. 357-62.

Implementing an organizational plan that is intended to improve the quality or efficiency of instruction inevitably goes beyond strictly organizational matters to involve problems of curriculum content and structure, pupil diagnosis and evaluation, and teacher education. The attempt to implement the plan, it proves, cannot be successful until all essential components of the school system, as system, have been brought into effective functional relationships.

Have the new plans been shown to contribute to the quality of instruction? The great bulk of the research studies that have been published have reported that the plan under investigation had no significant effects on pupil achievement as measured by nationally standardized tests. Only a scattering of studies of nongrading, dual progress, or team teaching have yielded significant differences in pupil achievement that favored the new plans.[40] A number of reports of tests of the new plans have claimed that the plans have improved instruction in relation to such aims as teaching problem-solving thinking and independent study. However, these claims have not been substantiated since the achievement tests used—the Stanford, Iowa, California, Metropolitan, and the like—stress the measurement of terms, tool skills, and information rather than the understanding of theory, problem-solving thinking, or self-directed learning. The general failure of the new plans to increase pupil achievement may well be due to the fact that they have not been effectively implemented. Implementing the structural features of a plan is not likely to affect instructional outcomes until the content and methods of instruction have been adapted to the purposes of the plan.

One finding with all three types of organizational plans is that they are not deleterious to pupils' personal-social development. Many defenders of the self-contained classroom have warned that elementary-school pupils would be harmed by plans that required them to move from class to class, room to room, and teacher to

40. Glen Heathers, "Research on Team Teaching," in *Team Teaching, op. cit.,* pp. 326-31; Philip Lambert *et. al., Classroom Interaction, Pupil Achievement and Adjustment in Team Teaching as Compared with the Self-contained Classroom* (Madison, Wisconsin: University of Wisconsin, 1964); *Three-Year Report of the Experimental Teaching Center, 1958-61, op. cit.,* pp. 8-14; Robert F. Carbone, "A Comparison of Graded and Non-graded Elementary Schools," *Elementary School Journal,* LXII (November, 1961), 82-88.

teacher. The weight of the evidence, however, is that the great majority of pupils like the new plans, enjoy changing classes and teachers, and adjust well to the variety of learning settings the plans provide.[41]

Important purposes of the dual-progress plan and team-teaching plans are to improve the efficiency with which our limited supply of well-qualified teachers is used, as well as to provide new career opportunities that attract and hold superior teachers. How effective the plans have been in these respects can only be guessed at, since research reports provide scarcely any information as to the effects of the plans on teacher recruitment and retention or on the costs of instruction. Thus, in his review of research on team teaching as of 1962, the writer found virtually no reports bearing on these points.[42]

The findings reported in the preceding paragraphs should be considered as only preliminary indications of the outcomes to be expected from the new organizational plans. Most of the research studies on which these findings are based were poorly designed. Few of the studies included measures of the features of the plans being compared *as implemented.* Most of the studies lacked adequate controls of pupil, teacher, and general situational variables. For illustrative evidence on these points, the reader is referred to the writer's review of research studies on team teaching.[43]

The Prospects for Strengthening Education by School Reorganization

To date, the movement to reorganize the schools is characterized more by quantity than by quality. Most of the thousands of local programs that employ the new plans involve a hasty and superficial implementation of the structural features of a plan without making adequate provisions for the needed changes in instructional materials and procedures and without providing for the required staff retraining. As a result, we have numerous nongraded schools that

41. Heathers, "Research on Team Teaching," *op. cit.,* pp. 331-35; *Three-Year Report of the Experimental Teaching Center, 1958-1961, op. cit.,* pp. 14-20; Carbone, *op. cit.*

42. Heathers, "Research on Team Teaching," *op. cit.,* pp. 339-41.

43. *Ibid.,* pp. 322-41.

erase grade labels but fail to provide nongraded instruction, dual-progress-plan schools in which pupils are grouped in graded and nongraded classes under specialist-teachers but with few changes in instruction, and schools with team teaching that employ little teamwork in planning and make few changes in procedures of grouping and teaching from those of the self-contained classroom.

Even the major research projects on the new organizational plans, despite leadership from the universities and large financial support, have serious weaknesses with respect to accomplishing the design, implementation, and evaluation of the plans under study. Quite a number of these school-university projects are staffed with able leaders in both the universities and the co-operating schools. The shortcomings of these projects indicate that educators do not yet know how to design and conduct effective programs of organizational change.

A very recent development in education that may help remedy this situation is the establishment of regional Educational Research and Development Centers under the financial sponsorship of the United States Office of Education. Activities of the centers will proceed from behavioral-science theory and research through applied research and development to the dissemination of the materials, equipment, procedures, or programs which they have developed and tested. If the research and development centers are successful, education will have, for the first time, a basis for accomplishing fundamental reforms on a truly professional level.

Research and development centers that focus on problems of school organization must take account of the fact that successful school reorganization requires the achievement of effective functional interrelationships among all of the major components of the school as a dynamic system. This means that the centers should encompass in their work, alongside new organizational patterns and procedures, modifications in curriculum, in pupil diagnosis and evaluation, and in the training of local school leaders and teachers.

A key function of the universities should be to provide training programs for school leaders that will prepare them to plan and conduct local improvement projects. The weaknesses in the design and execution of most local projects in school reorganization attest to the fact that school superintendents and principals generally lack

the training needed for effective leadership in organizational change. A challenging task for university research and development centers is to design and conduct adequate preservice and in-service training programs for local school leaders in their roles as agents of change.

A lesson learned by leaders of projects designed to test the new organizational plans is that most teachers have had very little training in how to direct their instruction toward such learning goals as problem-solving thinking and self-directed learning, or how to individualize instruction. In consequence, project leaders find that teachers are unable to achieve the essential purposes of the new plans in the conduct of instruction. For example, teachers who did an inadequate job of individualizing instruction in the self-contained classroom are ill-prepared to individualize instruction in a nongraded school. Before the new organizational plans can be implemented successfully, such shortcomings in teachers' preparation must be remedied through radically new programs of preservice and in-service teacher education.

The prospect that the new approaches to school organization will improve educational practices in this country depends greatly on whether or not the universities achieve a high professional level in the conduct of their research, development, and training functions. The purposes and features of the three types of plans under consideration bear important relations to societal forces calling for educational change, to developments in behavioral science that can contribute to the conduct of instruction, and to pressures toward reform arising within education. Across the country, school administrators and teachers, as well as community leaders, are showing a readiness to reorganize the schools in terms of nongrading, schedule modifications, new patterns of staff specialization, and teacher teamwork. It is the task of the universities, working in close co-operation with local school systems, to provide effective leadership in the development, evaluation, and implementation of such changes in school organization.

Schoolhouse in Transition

HAROLD B. GORES

Schoolhouses are the most numerous of all public buildings—there are more than 100,000 scattered across the land. And of all public buildings, the schoolhouse is the one which more people care about and argue about than any other public building. How it should serve and, therefore, what it should be, is today a lively issue.

The existence of this issue may come as a surprise to the readers of the literature of education, which deals largely with change in subject matter and how teachers and children should relate to each other. This is understandable. After all, not much was happening to the schoolhouse until recently. And because teachers and children are more important than anything else about a school, concern about the buildings, the equipment, and the total environment has often been left to architects and officials "in charge of school plant." The intellectuals, the pundits, and many practicing educators have ignored the physical environment of education, believing it to be —without having looked to see—mostly a matter of nuts and bolts. The philosophical neglect of the American schoolhouse has resulted in the forcing of education to fit thousands of Procrustean beds.

But there is movement now in a new direction. Superintendents, headmasters, principals, and teachers, those charged with educating the young, have come to realize it is proper and necessary to spend time and thought on how the persons involved in and the processes of education may best be sheltered and served. Even the man in the street knows that the nature of the schoolhouse affects his children's learning and, wanting the most for his money, will vote—if given the facts—for schools that serve their proper function.

Happily for our nation, the day is gone when the schoolhouse was regarded primarily as an antiseptic, indestructible container for

grades and classes, a ceramic egg-crate of uniform boxes. The ancient (circa 1957) criteria for judging the excellence of buildings no longer suffice: the life expectancy of concrete floors, the number of generations of service given by an iron chair, cheapness of maintenance, and, looming over all, the initial cost per square foot, per head, or per seat.

Fortunately, more communities now care more about performance than permanence, more about economy in the long run than cheapness in first cost. And many communities care more deeply about the waste of unfulfilled potential in the schoolhouse that does not support learning than about the cost of one which does.

The change in today's school buildings derives, as it should, from the change in education itself. Teachers and students are meeting in a changing educational atmosphere. The student is learning new ways to learn, to search out information on his own, to use new tools. Major revisions in content, improved knowledge about learning, and advances in teaching technology are affecting the form and structure of education. These, in turn, are affecting the form and structure of the schoolhouse.

The facts behind this new vitality are endlessly expounded in our daily newspapers and other media: urbanization of the population with its concentration of large numbers of children in single school systems; more children and youth of school age and more of them attending school (90 per cent of the youth of high-school age in secondary schools today compared to 11 per cent in 1900); the years of schooling extended downward from kindergarten and upward from the college; a lack of qualified people to teach them— the unmet current shortage soaring in the neighborhood of over 50,000 able teachers; and the restless, rapid growth in the body of knowledge, with an accumulation of facts and information un-dreamed of a brief twenty-five years ago and already too great to be contained within the formal allotment of school years. The problems growing out of these facts and the new ideas about how to deal with them are the forces creating the present ferment in education.

More than one hundred years ago, the ferment of ideas and needs of that time gave rise to a new type of school building—the graded classroom building. The first such building, put into use

in Boston (Quincy School) in 1848, set the pattern for schoolhouses for the century that followed. Its basic unit was a box—a room of more or less fixed size and shape. Within the room, one teacher was all things to a set number of students, grouped by age rather than by ability, all of them learning the same thing at the same time and all taking prescribed subjects during prescribed years. The class might be larger or smaller, the students might be subdivided into more manageable groups, or they might be shifted from room to room at regular intervals. The rooms themselves could be arranged in squares, strung out in rows, piled one on top of another, but they remained boxes. And as they multiplied, more solitary boxes accommodated more solitary teachers, each with a set number of charges.

And so the pattern continued—not fundamentally modified but often questioned—until the second half of the present century. Then suddenly it became possible for eight-year-olds to use electronic devices to learn a foreign language. High-school students could build nuclear reactors, getting up-to-the-minute televised instruction from practicing scientists rather than from texts that had become obsolete by the time they appeared in print. With increased ways of getting information to the child, whether by book, tape, disc, slide, or shadows on a tube, teachers could become / catalysts of ideas rather than dispensers of facts.

These possibilities, combined with the urgencies of the day, have led educators to a new appraisal of the old arrangements. And from that appraisal comes the nongraded school (not the ungraded school that preceded the graded school), the teacher team, large-group lectures, small-group seminars, independent study, advanced standing, honors classes, programed instruction, educational television, and other innovations, some unheard of and others not common below the collegiate level until barely a dozen years ago. But the motion into which the long-inert body of education has finally been prodded is stopped by the tyrannical classroom box. To deploy people and things in a new way requires school buildings with new kinds of space that can adapt to change.

The story of how our schools are responding to these needs is told by the evolving shape of the American schoolhouse. Here are some of the features of that story.

The Size of Schools

The age-old formulas for determining the size of a "good school," timeworn yet revered, have persisted until recently. In the 1920's the prevailing mystique for high schools was "not less than 750 pupils to be efficient, and not over 1,250 to be sensitive." The small school, it was held, could not offer a broad range of studies with operating economy, and in the large school the individual would be lost. As viewed today, both limits are untenable.

The lower limit assumed that the school would stand alone, unconnected with other schools and with other sources of instruction, and that a student could not have access to systematic instruction unless a group could be formed. But today it is possible, through such activities as those initiated by the Western States Small Schools Project, the Catskill Area Project, and other co-operative enterprises, for more and more small schools to join functionally with neighboring schools and colleges. Working together, they are able to share the services of specialized teachers, to provide advanced work for able students, and to expand the curriculum through the use of television, tapes, and film.

On the other hand, the upper limit assumed that large schools would be organized for a monolithic administration—one administrative hierarchy and one faculty of teachers—as admired by Horace Mann more than a century ago in his observations on Prussian schools. But again, with new organizational patterns—house plans and schools-within-schools—a school can be as good and yet as large as it needs to be. If, regardless of its size, a school is operated as though it were small, zoned into separate subschools or houses in such manner that the pupil identifies himself with some recognizable unit of, say, 400 pupils, which constitutes "his own school" and in which he is known and *knows he is known* by someone responsible for him, the traditional rules no longer apply. Given decentralized rather than monolithic organization, the primary criterion for school size becomes a matter of logistics: how many children can safely and economically be gathered together in one place for the purpose of attending school.

Related to the size of the school is the size of its site. Again the old formulas, based on the suburban school image and calling for "20 acres plus an acre for each hundred pupils," are outmoded.

Indeed, to apply the old formulas in some sections of our big cities today would result in wiping out the homes of the student body. With the steady urbanization of America's population, new ways of providing playing fields (and parking) have to be found, and are being found. Fields on the roof are already being developed, and soon, through the use of artificial turf and membrane enclosures, an acre of playing field will do the work of several acres of nature's uncertain grass. And best of all, black asphalt, the conventional substitute for grass, will have given way to resilient, shock-absorbing, esthetically pleasing plastics. This type of play space may jar the sensibilities of those who yearn for progress without change, but the alternative for the child at play is today's harsh and abrasive surface.

The Classroom

While the basic design of the classroom box has gone unchallenged for a hundred years, some of its characteristics have been subjected to question. Mostly, the questions debated were whether it should be square or rectangular, and how big. Again, formulas developed—e.g., though we never were sure how large a classroom should be, a kindergarten, it was believed, should always be one and a half times as large. Indeed, many school districts (not to mention the Air Force Academy) deliberately specified *small* classrooms in order to prevent later increases in class size. This gambit was employed in the belief that overcrowding would be obvious to the later authorities.

But today's classroom, small or large, is breaking up. In its place is emerging zones of space, thousands of square feet in area, the equivalent of four or five classrooms, great bodies of mutable, malleable, universal loft space. These great spaces, easily divided in accordance with what the teachers and the children have planned to do together at any particular time, serve the individual in independent study, the seminar group when a teacher and a dozen children discuss important matters together, the standard class, and the larger groups assembled for a common experience—a demonstration, a film, a talk or other contribution by a selected visitor.

This is universal space; schools without walls. It ends the ancient custom of enclosing a teacher and 25 or 35 children in 780

square feet of space from September to June, there to work out in solitude a year's education. The provision of the zone of space indicates that thoughtful schools are reversing the hallowed arrangement of isolated teachers and grouped children. The emerging arrangement ungroups the children and groups the teachers.

Such dispositions of people and space are more than straws in the wind. California's Reed and Cupertino school districts are already designing space for each hundred pupils, believing this will be more sensitive than the customary space allotted to four teachers, each working alone. Indeed, 20 per cent of all the schools now on the drawing boards in that state are designed on the so-called "open plan." New York City will shortly open a school for the "early childhood cycle." The kindergarten and Grades I and II will occupy 7,850 square feet of uninterrupted freewheeling space for 150 freewheeling youngsters. Aspen, Colorado, is planning a high school in which 50 per cent of academic space will be library-type. All of these are schools with a vision of the self-educating child escaping his indenture to the group. Teachers will be members of a team, and they will plot and smooth the academic paths of individual students. The schools will be the gathering places of individuals proceeding at their own rates.

And just as the individual classrooms are melting into a larger zone of space, so are other special areas of the school moving toward generalized space.

The Library

More often than not a school library has been some multiple of a classroom—that is, if there was a library. In 1965, ten million children were attending schools that contained no library at all, and 60 per cent of all elementary schools were bare of anything that even resembled a central library. Where a library did exist, most often it was tucked away in a dusty corner of the building where it would not interfere with the orderly day-to-day operations of the school. Or, in the fewer but more sophisticated centers, where schoolmen held with the notion that the library should be "the heart of the school," it was literally buried in the heart of the school—in its very center. And this was the logical place for it in

the simpler days when the school library was to serve only during the academic day.

But now, this is changing. In Parma, Ohio, for example, the high-school library is placed on the periphery of the building. It is practically on its front lawn, there to be most accessible to students who desire access in the evening, on weekends, and during school vacations. In Clarksville, Tennessee, the library is a multiarmed organism, each arm extending into an amoeba-shaped zone of class-room space. Thus, in the places where work is carried on, be it in science-mathematics, in the humanities, or in the language arts, the relevant library resources are on hand, an integral part of the activities in that subject. If access to materials is the criterion for the location of a school library, Parma and Clarksville have taken a step in the right direction, and conventional practice is wrong.

Anticipating that the need for library services will grow as schools (and colleges) decrease the number of group-contact hours and free their more avid scholars for independent study, schools today are placing the library so it may absorb surrounding class-rooms as it grows through the years. If designers possess a sense of trusteeship, realizing that the building erected today will be only at mid-life in the year 2000, they will contrive to help the library grow organically by absorbing surrounding cells. They will antici-pate an increasing expansion of the body of materials for learning and the continual refinement of the different carriers of information; the library will be planned in accordance with this anticipation.

The Gymnasium

Until very recently, the American gymnasium was a rectangular box whose dimensions were determined by the rules of basketball. The basketball box has served education well. Though it hardly accommodated the physical activities which would persist into adulthood, it was, nevertheless, a useful shelter in the years when schools possessed no year-round, outdoor play space.

Though the American culture requires the playing of basketball, many schools today, as in Wayland (Massachusetts) and Holland (Michigan) are providing space in the round. Taking advantage of the fact that the arch never sleeps, that geometry is the cheapest way to fight gravity, great domes of fieldhouse space are replacing

the gymnasium box. The virtues are obvious: not only is money saved, but the dome requires no interior supports, no posts to obstruct both motion and vision. And esthetically, there are those who feel that a physical-education facility with a scoop of the sky somehow brings visual relief from the otherwise Cartesian geometry of our skylines.

The Auditorium

Even the auditorium is not what it once was. Historically, it has been a great coffin-shaped hall occupied on Friday mornings for assemblies and occasionally in the evening for public performances. For the remaining 90 per cent of the time, it stood idle or was misused. In reaction to this conspicuous consumption of space, economy-minded schools designed it as a multi-use facility: auditorium cum gymnasium cum cafeteria cum town hall—a solution which was alluring enough but inefficient, if not hazardous. The cost in staff time throughout the life of the building in setting up the room anew for each different use was considerable, and a lunchtime grease spot on the floor could cause a broken leg at gym time. Nor did the space serve its separate purposes well, since the combination inevitably involved compromises in acoustics, floor shape, room shape, and other details.

Today, there is a new, sensible way for auditoriums to earn their keep: that is, as instructional space. Owing to the development of operable partitions which can immediately divide space into acoustically private subspaces, a thousand-seat auditorium can be, at any time in the day, simultaneously a little theater and several studio-demonstration-lecture rooms for smaller groups. Thus, divisibility has saved the auditorium, restoring it from its white-elephant status and its everything-nothing disrepute by rendering it useful for instruction throughout the entire school day.

Classrooms, libraries, gymnasiums, and auditoriums are the major spaces whose sizes and shapes are responding most sensitively to educational change. In each case, new demands on the facility have prompted the development of new ways to meet them.

One of these ways is to provide flexibility—the ability of a space to change its size, shape, and use. For years flexibility has been sought and achieved in commercial office buildings and the research

laboratories of industry. It is understandable that business and industry, being unsure of future products and processes, would seek to minimize the cost of altering facilities to accommodate unknown but certain change.

By contrast, education has assumed until recently that the century-old, uniform teacher-taught groups would prevail throughout the life of the building and that whatever change occurred in education would be confined to its content and not its arrangement. For the last dozen years, education has been less sure of its future practices, and that uncertainty has resulted in the demand for flexibility of space. No longer do we see new schools designed as a chambered nautilus with immovable calcium partitions dictating how teachers and children shall ever after meet each other, and with the change of interior dependent on the district's willingness to destroy the walls.

Like nature, the free enterprise system abhors a vacuum. When education, in the late 1950's, asked for flexibility, industry responded; today, the school designer has access to several kinds of relatively inexpensive and reasonably sound-tight partitions, which are either movable as a panel or, indeed, immediately operable if the space has to be divided quickly and frequently.

Not only are the shapes of rooms coming to be easily alterable, but the tone, the spirit, the comfort and amenity of the rooms are changing.

Comfort without Guilt

Schools are just now coming out of the era of design for indestructibility. With a premium placed on how well the school performs its task of helping children learn, and acknowledging at long last what business and industry have known for a generation—that quality of environment influences productivity—educators and their architects are specifying surfaces and materials which increase the chances that the child will learn.

Quieting the school.—Everyone has always known that learning is impeded if one does not hear well. Yet, we have thousands of schools whose interiors are made of noise-venting materials—hard, reverberative floors; steel and plastic furniture; plaster or painted cement-block walls; with only token relief in this echoing chamber

supplied by acoustic tile in the ceiling. As the day wears on amid rising ambient noise, communication among children and teachers becomes increasingly strained as voices rise to overcome the rising sound. Add to this the steady hum of ventilator fans, and the sum total is noise.

Schools today are seeking quiet. The scraping of chairs and the reverberation from the floor are being subdued by carpeting. Because household carpeting has been sold to the American public as a status symbol—indeed, anything wall-to-wall smacks of the good life—there has been resistance in some quarters to the use of carpeting for quieting the school. Yet school libraries can now be carpeted without reprisal at the polls, and the floors of other equally important areas of the school are gradually receiving acoustic treatment—frequently after noisy public battle.

Cooling the school.—As long as schools served an agrarian calendar, the thermal requirements of design were simple: supply heat. In a primitive sort of way this dealt with fundamentals—a child's natural right not to be cold.

A child's natural right not to be hot was less clear, especially if everyone else was also "suffering from the heat." If the warm days of early fall or late spring raised the classroom's temperature into the 90's, thoughtful architects had arranged the windows to capture any vagrant breeze. And in more recent times there has been mechanical ventilation to stir and mix the air. As long as schools were closed during July and August, this worked reasonably well in northern latitudes, but not so well in the warmer and more humid zones of the South.

But with the coming of summer schools, the breezes of July and August were found wanting, even when assisted by mechanical ventilation. Strangely enough the very oldest buildings, the fortress-like structures left over from the nineteenth century, turned out to be best for summer use. Their thick masonry walls, still holding the cold of the winter and cooled by the summer night, were excellent insulators which helped prevent sudden changes in temperature and kept the rooms reasonably cool until the walls were thoroughly warmed through by the summer's sun. Least effective against the sun's heat are the relatively new glassbox schools whose

greenhouse effect on a hot summer's day make teaching or learning a difficult experience.

Though the rapidly mounting acceptance of air conditioning is attributable principally to the desire to run schools throughout the entire year, there is ample reason in most communities to cool as well as to heat the school. Even in winter, schools are generally too hot. The boiler is stoked to warm the school for the children's arrival, but by 10:00 A.M. on many wintry mornings in the North, and on most in the South, the thermal problem has reversed itself. The classrooms need to be cooled to offset the heat of the sun and the heat from the children themselves, each giving off the heat of a 100-watt bulb. The need for cooling in the wintertime in the densely occupied schoolhouse is not rare; it is frequent. To air-condition because of anticipated summertime use is to arrive at the right answer, but for the lesser reason.

If educational opportunity for all children is to be maximized, comfort is a necessary condition. If the child (and his teacher) is forced to expend energy to protect himself against environmental irritations, whether thermal, sonic, visual, olfactory, or esthetic, his total capacity to respond is lessened. Business and industry know this; education is learning it.

In many communities today, climate control in new schools is prescribed. The cooling of older schools awaits the rising consciousness of the public that these too should be made efficient. In the meantime, the air-conditioning industry could speed the process by displaying the same enthusiasm for economically cooling existing schoolhouses that it has shown for cooling those on the planning boards.

And it is not inconceivable that someday, in our industrial cities, the case for climate control will rest as much on cleaning the air the child breathes as on controlling temperature and humidity.

For the Future

Historically, the school building has not loomed large in the construction field, while home-building, commercial construction, and roads have offered multibillion-dollar markets. But now the burgeoning school population has set off a school and college building boom of the order of $6 billion annually for at least the next

ten years. This is not an inconsiderable market, and business and industry have discovered it. Poverty, as some wag has asserted, may be the new growth industry, but a serious case can be made that education, including its capital outlays, may well be the dynamic which will energize the American economy of the 1960's. Like the automobile in the 1920's, relief in the '30's, war in the '40's, and the backlog of demand for consumer goods in the '50's, the expansion of education will provide the focus for this decade's economy. Like the automobile in the '20's, education is today something that a lot of people want and that takes a lot of people to provide.

Among the developments just now emerging, the California School Construction Systems Development, described in the following paragraphs, is relevant.

Co-operative Buildings

America has 30,000 school boards. It is not surprising that they have problems of communication. Each prizes its autonomy, as it should, and sees the exercise of its independence as the best guarantee that the nation will not someday have a centralized, monolithic, federally controlled school system. Anyone thinks twice before suggesting that 30,000 units, ranging in size from those with practically no children under their governance to a district encompassing more than a million children, represent something less than a perfect arrangement for solving a common problem. However, the American school board is one of the unique aspects of American government, has a first-rate record of civic accomplishment, and seems to have attracted through the years a higher proportion of dedicated people and fewer rascals than any other of the larger offices of public service.

Nevertheless communication is not good. Big cities speak to big cities; the suburbs speak to their fellow-Brahmins; and the rural districts commune with their state departments of education. Communication between contiguous school districts, especially if they differ in size and expectations, is sometimes nonexistent. Under these circumstances it is understandable that the building of a schoolhouse becomes a purely local project and takes but small advantage of the industrial revolution. Consequently, the schoolhouse is assembled typically from the bits and pieces lying on the indus-

trial shelf, and final assembly requires an immense amount of hand-crafting.

Under this one-at-a-time system of building, a school is inevitably a small project. Even a $5 million school is hardly worth special attention from the industries which make its parts and pieces. Schools are bought one at a time and at retail price.

Just emerging now in the field of school design and construction is the consortium of neighboring districts, each maintaining its rightful and precious autonomy, yet pooling its requirements to secure the benefits of volume-purchase.

The first American consortium to construct schools—$30 million worth—is in California, where 13 school districts needing 22 schools at approximately the same time have planned together, bid together, and will now construct together. The schools to be constructed are not stock-plan schools, and no two of them will look alike. Only 54 per cent of each building will consist of the modular components created by industry to meet the performance specifications imposed by the 13 school districts and their co-operating architects.

The components—a structural system, heating–ventilating–air-conditioning system, ceiling-lighting system, demountable partitions, and two types of operable walls—may be pieced together to meet any set of functional requirements. And they provide freedom of exterior design broad enough to satisfy anybody's aesthetic. The sleek, machine-age interior workings can be sheathed in anything from Victorian gingerbread to Greek revival to the pristine precision of a Mies Van der Rohe.

Once pieced together, the interior spaces can be rearranged at minimum effort and expense. The walls can be moved by the custodial staff overnight, between terms, or between classes, because no major overhaul of the lighting and air-handling systems is required. In other words, the components provide a level of interior flexibility or mutability of space hitherto unobtainable.

This adaptability is possible because the structural system permits clear spans of loft space up to 75 feet by 30 feet without obstructing walls or columns, and because all of the components are designed to be compatible and to permit rearrangements of partitions on a four-inch module.

The system, developed by the School Construction Systems De-

velopment Project (SCSD) with financial support from the Educational Facilities Laboratories, makes possible speedier erection of the school. And it means that better educational space can be created at costs equal to and often lower than those obtainable under conventional construction methods.

Although the first California consortium involves only 13 school districts, it is a promising move toward co-operative planning among school boards generally. Just as the sharing of personnel and facilities across political boundaries is gaining acceptance, so can the same principle be applied now to the simultaneous need for school buildings. Benefits of the California project have already started to flow to other school districts. Barrington, Illinois, has adapted the SCSD system to the construction of its new middle school, and the Clark County, Nevada, school system is constructing a new school using a companion system developed in the competition sponsored by the California project.

In the long run, it may be that the enduring value of the consortium, as has been demonstrated in England, is the stimulation given private industry to develop better products for the school market, now that the size of the order—the volume—is sufficient to justify the cost of research. It may well reverse the flow of invention, which heretofore has always been from business and industry toward education. Indeed, someday the school market may provide the new ideas and inventions which the commercial world will seize upon, and to its benefit.

The Urban School

Schools are caught in a cross-rip of population movement. Back where the creeks fork, the rural school is being abandoned or being merged with its neighbor—one-room schools have declined in number to about 10,000 from nearly 200,000 a half-century ago. The burgeoning suburbs and exurbs are building schools—frequently very good ones.

It is the great central city school that is most in agony. The flight of middle-class leadership to the suburbs, archaic regulations dictating design and construction (many of which are to be found in the school board's own encrusted rules, if not in those of the city

hall), the erosion of the tax base, and the complexity of decision-making—all these frustrate the building of first-rate schools.

With few exceptions—the New Haven program is conspicuously an exception—urban-renewal programs have focused on about every vital artery of city life—housing, highways, and the marketplace—but have left the schoolhouse "by the road, a ragged beggar sunning." Only now is the schoolhouse (the chief determinant of where middle-class families with children will choose to live or continue to live) being recognized as the principal countervailing force for families which enjoy the luxury of mobility. The importance of the schoolhouse to the stability and equanimity of city life was well stated to New York City in 1959: [7]

In the necessary and continual questioning of municipal operations, the nature and worth of a schoolhouse defy simple analysis. Though it looms as the most frequently created of all classes of municipal structures, and therefore in the aggregate is the most expensive item of capital outlay, it is burdened by having to perform more than the commonly recognized function of serving well the instruction of the young. If the schoolhouse is to produce to the maximum, it must also perform the less commonly recognized, but nonetheless vital, function of leading the city toward a better and higher plane of living.

The schoolhouse that is only a place where children are taught during the day fulfills its primary function. Many cities are satisfied with this much and only this much. But there are those who expect the schoolhouse to serve its city in additional ways: it must serve to strengthen the whole fabric of city life by serving its whole community; its architecture should lead the neighborhood on to its own renewal; and it must help to anchor those families who are needed to keep a city in balance culturally and economically, and who are encouraged to desert to the suburbs if the city's schools are dreary and cheerless.

Cities are organic; therefore, they must continually renew themselves. Their growth and greatness may have come about by accident or good fortune; but their decline can be forestalled only by design. Of all municipal structures, the schoolhouse, being the most numerous, holds the key to a city's physical and, indeed, sociological future.

Certainly one could never claim that good schoolhouses alone are the answer to the country's or to the city's educational problems. But the spiritless schoolhouse can make all the problems more difficult.

The nature and condition of the schoolhouse suggest to the community and to the child the importance of the enterprise for which it

was built. The building says to them what Plato said to all of us: "What is honored in a country will be cultivated there." [1]

Granted that teachers are more important than school buildings, the fact remains that the worn-out schoolhouse which dots the cityscape in scandalous numbers can diminish the teacher's capacity to teach, undermine neighborhood morale, depreciate real-estate values and speed the mobile families on their way. If to the general depression of the environment is added the new threat of physical danger in the streets, the basic forces are present for eventually emptying the city of its young families.

The neglect of the city schoolhouse has hastened the day of federal relief, and many cities are now impelled to seek new solutions outside the conventional one of hastily replacing the old schools, one by one. New forms and new arrangements are erupting: New Haven (Connecticut) converted to the 4-4-4 organization, and a special commission has recommended it to New York City; East Orange (New Jersey) is considering an "education plaza" which would eventually consolidate on one site the thirteen school buildings it now operates. Pittsburgh (Pennsylvania) is studying the "education park" for a major district of the city. Broward County (Florida) is gathering thousands of students on a former Air Force base and will someday enrol Grades K-XX under a mixture of public and private auspices. Title III of the Education Act of 1965 provides $100 million of federal assistance for "Supplementary Educational Centers"—a new agency calculated to strengthen instruction in conventional schools by creating centers, saturated with talent and tools, to which children from both public and private schools can be brought. At this time of writing, Cleveland (Ohio) appears to be the first city to establish a major supplementary center for the school year 1965-66—in a commercial building converted to school use.

The Supplementary Educational Center represents a major effort in the search for new forms. It attempts to do for a cluster of schools what no one school can do for itself. And, in many instances,

1. *School Construction in New York City*. Report of the State Education Commissioner's Committee on Inquiry into Charges of Waste and Extravagance in the Construction of School Buildings in New York City, May, 1959. Albany: University of the State of New York, 1959.

while improving educational opportunity, it can, because it enlarges the attendance district, provide a heterogeneous student body in racially imbalanced neighborhoods.

In Sum

After a hundred years of essentially standard design, dictated by standard specifications, the schoolhouse has broken out of its boxes. Educational change has brought architectural consequences. Indestructibility, antisepsis, and cheapness are no longer the first conditions of design and construction.

Many persons sense the change and, in increasing number, have come to expect and to be willing to pay for function and beauty. For the first time we are connecting the nation's future prosperity with the present condition of the local schoolhouse and now give consent for building schools which provide comfort and amenity. The new school proposes to nourish the child's spirit and dignity. We are coming to accept the schoolhouse as more than shelter for the young; it is a facility for living and for learning how to live.

FORCES AND IDEAS HOLDING POTENTIAL FOR
INFLUENCING THE SCHOOLS

Instructions to the Writers

JOHN I. GOODLAD

You are to identify, describe, and analyze those central social, economic, and political forces or major ideas from the behavioral sciences, from research on instruction, and from philosophical inquiry to which schools might (or even should) have been expected to respond since World War II. You need not specify what the schools' response should have been, but you must clarify your reasons for expecting a response from the schools. This may necessitate the use of specific school practices to clarify your position. The nature of your task will demand, no doubt, analyses of forces or ideas that go back much farther than World War II. Nonetheless, you should concentrate on the past two decades, drawing on the more distant past only to illuminate this more recent period.

CHAPTER SEVEN

With respect to some of the most difficult school problems, education has become almost inextricably entwined with complex social, political, and economic factors. The school integration problem of the South and of the big cities is a striking case in point. Your task is to pull out and make explicit those social, political, and economic forces that appear to have a bearing, actually or potentially, on what schools do or should do.

It probably will be desirable to begin with some observations of reality (some facts of our society): population growth, urbanization, automation, oversupply and undersupply of manpower, the surge of disadvantaged groups for rights and recognition, increased costs of education, conflicting expectations for the schools, rapid expansion of knowledge in some fields, and so on. To be adequately

selective, with the role of the schools in mind, is a difficult task. But to stand back from these developments in order to find in them a central focus and significant patterns that should have implications for the schools' role is doubly difficult. Limitations in space necessitate choice and the rigorous development of criteria for choice.

CHAPTER EIGHT

The behavioral sciences give us insight into the nature of man and how he behaves in small groups, as well as into those larger social forces influencing our lives (chap. vii). Significant ideas have come from biology, biochemistry, psychiatry, psychoanalysis, and psychology, to name only a few fields. And schools have responded to some of these ideas, at least in part, in their daily activities of grouping students for instruction, differentiating assignments, motivating learning and rewarding responses, selecting pedagogical procedures, and so on. Undoubtedly, however, there is a gap between present school practice and what practice might be were it to reflect present knowledge adequately.

What are some of the key ideas from the behavioral sciences (ideas not already covered in chapter vii) to which the schools should have responded?

CHAPTER NINE

Advances in our understanding of the theory and practice of instruction appear to be of high relevance to the central functions of schools. What are the emerging thrusts in this important field? Help us to get a better understanding of the research work now underway, research which already should have influenced school practice or which should influence it in the future.

CHAPTER TEN

Few educators question the relevance of the behavioral sciences, especially psychology, for schooling. They are less ready to acknowledge the significance of philosophy. And yet, the questions to which philosophers address themselves are fundamental to questions of what the schools are for, what is worth knowing, and how we know. Further, branches of philosophy provide the tools for

determining the logical nature of our deductions and the values implicit in our discussions.

No philosopher or philosophy since Dewey has been charged with significantly influencing the schools. And yet, philosophers have been at work and their recent inquiry surely has implications for schooling. What aspects of their thinking are relevant to schooling? To what trends of philosophical thought might the schools have responded since World War II?

Economic, Social, and Political Forces

J. STEELE GOW, JR.

BURKART HOLZNER, and WILLIAM C. PENDLETON

Introduction

Suppose that our educational system kept perfectly attuned to our culture and that the schools responded crisply to our dynamic society's new needs and opportunities. Would the educational enterprise look as it does? Would we be making the changes in it that we are making? Would the alterations and innovations discussed elsewhere in this volume be the kind to receive priority attention? Even to begin exploring for answers to such questions, we first ought to step out of the field of education itself for other perspectives on the character of significant changes that have been occurring in our culture and society, This chapter attempts to take that first step, beginning with a consideration of some cultural themes and social forces that seem to us to be relevant to the process of change in the schools. Then the three perspectives of economics, sociology, and political science are employed separately, and the chapter concludes with some observations on what those perspectives seem to reveal about the schools' role in shaping societal change.

Cultural Themes and Social Forces

THE EMERGENCE OF A NEW CULTURE

American civilization, during the last few decades, has become the leading force in many spheres of Western culture. American intellectuals, in a dialogue of increasing intensity with the intellectuals of Europe and of other parts of the world, have contributed greatly to the creation of a new pattern of culture. This culture of

the modern age builds, to be sure, upon the traditions of the past and preserves important continuities, but the total configuration is new and distinctive. Modern culture holds out new promises and poses new problems which affect not only the few, highly educated, creative men who work at the edge of cultural growth but all of society. While this new cultural configuration still is emerging and is not nearly in a finished state, we can recognize certain of its salient features.

A new and pervasive view of the world has developed, one which contrasts sharply with the accustomed patterns of thought found in Europe and America in prior periods. For instance, the images of society and of the world as fixed structures, so characteristic of earlier philosophy and theology, are being abandoned. Also, the conception of a process of inevitable evolution toward an ever greater society, the idea of progress, has been found misleading. However, the earlier reactions to naïve progressivism, the great pessimism and cultural relativism of the period of the great wars, have proved their failure as well.

The modern intellectual sees himself concerned with sets of events, not with fixed and immutable structures nor with processes the direction of which is predetermined and unchanging. He orients himself to probabilities, not certainties, thus facing up to the fact that man is compelled to make responsible decisions in the face of uncertainty. He recognizes that certainty is unattainable in any field of human knowledge or of belief. Modern man, being open in his orientation to the world, is aware of the vast range of the unforeseeable and has learned to accept change as the rule rather than the exception. The modern policy-maker is explicitly aware that his decisions are based on the weighing of probabilities and desirabilities. He relies less on established prescriptions which determine the right course of action at all times, and more on rational and worked-out methods for solving the action problems he confronts.

Thus, modern man feels that progress, if it is to occur, has to be fashioned—and that it is, at best, precarious. He recognizes the severe psychological demands made upon him by his stance toward society and the world. He requires a high level of tolerance for uncertainty and the ability to overcome through action the anxiety naturally arising in situations of crises; and he is often fearful lest

these demands prove too much for him and his fellow-men. With his intensely humanistic image of the world, he relies almost alone upon man and his rationality. Yet, recent history has taught him well just how fragile this rationality of free men may be, how millions may abdicate their responsibility with a sigh of relief to become servants of the dark forces of passion. The shock of the Nazi catastrophe in Germany and the continuing conflict with totalitarianisms has driven the American intellectual, like many of his European counterparts, to struggle for a new conception of the free and responsible man in an uncertain world.

In this intellectual struggle, man himself has become an object of close scrutiny. He knows that human experience and truth depend on the perspectives of the observer, that they afford no absolutes in themselves. Modern American culture, much like that in the other nations of the industrialized West today, encompasses an unprecedented diversity of views. These clash often enough, but there exists a dialogue between intellectual opponents made possible by the attempt to understand each other's perspective, as in the great dialogue between the Christian churches today.

The new world-view is pervasive and appears already in virtually all fields of culture, in science and art, in philosophy and theology. It has transformed the character of the natural sciences, for example, by changing the pattern of scientific concepts. At least since the development of the new physics, based on the work of men like Albert Einstein and Max Planck, natural science is oriented not to fixed objects, as such, but to events recorded by an observer whose position and method of recording profoundly influence his results. Modern art, with its eagerness to experiment and with its multiplicity of perspectives, illustrates the same point: fixed and standard forms, as such, are not acceptable, but, instead, there is a constant struggle to find more and more adequate media for the expression of the ever changing range of human experiences. Most explicitly the new view is found in philosophy, especially in the movement of existentialism, which underlines the nature of the human condition as that of the agent who confronts problems of responsible decision in the face of uncertainty. It is found, too, in theology with its increased openness and renunciation of dogmatism in favor of the central religious experience, the confrontation of the individual with

his God. Modern religion, like science and literature, is aware of the many possible perspectives in which this central experience may be described and expressed. This awareness makes its theology more complex than the dogmatisms which it replaces, but it also makes for flexibility and social responsibility.

As a consequence of this new humanism, the cultural position of modern man has become much more problematic than it ever was before. Exposed to an unprecedented range of cultural diversity and unable to rely on the guideposts of a now largely irrelevant tradition, man is searching for new, more reliable criteria of judgment and is reflecting more and more upon himself. Indeed, modern culture is reflective in the extreme. This is expressed also in the tremendous impact of behavioral science, especially psychology and sociology, on modern culture. The investigation of psychological and social forces goes deeper and deeper. Its results are being absorbed, often in distorted form, into popular culture. Today, a level of psychological sophistication is taken for granted in public discussion, which would have been quite unthinkable only a few decades ago. The many-faceted nature of human motivation and action is readily acknowledged; rarely is a motive or an action accepted purely at face value, and complex and devious attempts at manipulating human motivation have become commonplace. The new reflectiveness of modern culture takes it for granted that human behavior and motivation can be and must be interpreted on several levels at once.

This awareness of the many layers of the human problem has led to a new recognition of the interdependence of the sciences of man, ranging from the medical fields through psychology to the social sciences, and of the limitations of each approach as well as of its contributions. The awareness has been heightened by the fact that in the last few decades the sciences of man have acquired a high relevance in all practical matters of private decisions and public policy. It has become a matter of common routine, and of great public interest, to take the pulse of social life not merely through the keeping of vital statistics but through the detailed and often sophisticated analysis and monitoring of social-psychological processes, such as changes in attitudes or motivations. Even the prediction of the behavior of large populations has become possible with

an amazing degree of accuracy. Thus, aspects of social life have become matters of public, empirical knowledge, which in previous periods were entirely hidden from view, or at best were objects of cloudy, moralistic speculation. This development illustrates best the dilemmas of our reflective, self-analyzing culture, in which man knows himself as the decision-making agent, who thinks of himself as free, and recognizes as well that he is an object of scientific study and prediction. The moral issues of such a situation cannot be solved by reference to the morality of the past. These problems are new and their solution is a task which only modern man has faced.

The social sciences, expressions originally of man's self-awareness and reflection upon himself, also have become tools of manipulation and may be used unscrupulously to deprive many of their reflectivity and ability to think for themselves. On the whole, however, the impact has been less to create "a nation of sheep" than to make room for a realistic appraisal of social life and its forces and has provided the climate in which concerted efforts at social planning and social reform have been carried out and are being driven forward. Contrary to the pessimistic appraisals given by some observers of the American scene, it is now a well-documented fact that, through the rise of the social sciences, the American intellectual in particular has come into his own. He, in turn, has used social science as a fighting weapon, often endangering its claim to scientific objectivity, in building his new view of man and society, in the defense of his values of equalitarianism and liberty, against dogmatism and prejudice, and in the shaping of public policy. The modern American intellectual is all too aware of the dangers of irrationalism, not only in Nazi Germany and contemporary totalitarianisms but also here at home, and he hopes to defend his commitment to rationality and liberty with tools provided by social science.

The intellectual discussion in the United States in recent years has reached ever increasing circles of the population. Not that it has become general, or even included most Americans; it has not. But intellectual discussion is no longer confined to the narrow circles of the highly educated few. The rising educational level of American society in general, and the emergence of the paperbacks, bookclubs, and other innovations, including even the mass media, low as their intellectual level is most of the time, have contributed

to the inclusion of large numbers in the circle of those concerned with the discussion that drives cultural growth onward.

There has emerged a new working conception of the individual in the context of his society, a conception not naïvely confident like that of the "rugged individualism" of the high capitalist period in which American industry was being built. Then, the state and political organization of any kind were viewed negatively—as threats to individual initiative. The true "individualist" was the man who could successfully fight his way to the top through his energy and, often, his ruthlessness. The new individualism has emerged through the concern for the responsibility of society to its members and of the citizen to his state. It is based on the humanistic world-view discussed earlier and on the perspective of the social sciences. This view of individualism is reflected in the movement to provide equal opportunities for all children, to overcome discrimination, and to build a new conception of the state as the protector of the individual.

Countercurrents to these great trends exist, as is well known. They are strong and significant. However, their very nature documents the direction of the central trend of cultural growth in the United States, for they are reactions to the movement just described and do not show new directions of their own. The trend to the new individualism and to the new culture of which it is a part is there, and it seems unlikely that it will be reversed in the near future.

Modern culture has become enormously diversified. Science, as a part of culture, is so extended and specialized that it is impossible for the educated to comprehend more than a few of its major principles and results. Much the same holds true for other areas of cultural activity even though not all of them have developed with equal vigor.

Specialization has been accompanied by a startling increase in our power of symbolization and symbol manipulation. The most obvious example is the invention, refinement, and widespread use of the computer. It makes possible complex mathematical and logical operations which would have been impracticable even a few years ago. These capabilities of the computer already have extended the realm of technical control beyond the most fantastic speculations of earlier years and, similarly, have extended our range of scientific understanding. The computer is but one result of scientific and

mathematical developments made possible because of increased sophistication in the use of analytical tools which we now possess. Mathematics has made great strides and has developed entirely new tools for the analysis of series of events and of structures, extending the range of rigorous analysis into realms previously considered to be inaccessible to analysis. Modern philosophy has made contributions which may be as important as those of mathematics, especially through its clarification of language and of logical systems. In another realm, modern art has created new media of symbolic expression in painting, in sculpture, in music, and even in literature. There is, then, a general increase in the range of symbolic systems, conceptual tools, or expressive media available to us. Through them, our powers of analysis and reflection have multiplied many times.

The awareness of the intricacies of symbolization and of analysis by means of symbols was probably the most significant consequence of the general turning away in philosophical thought from concerns with substantive metaphysics to the emphasis on methodologies. The consequences of this shift can be observed both in the somewhat esoteric realm just discussed and in the general life of society. Substantive prescriptions and norms have given way to reflection about methods for the solving of problems. The professional expert has risen in status. He is consulted nowadays in a great many areas of social life in which traditional morality previously was the only guide. Expertise itself has come increasingly to mean not only the ability to provide "solutions" but also the ability to offer methods for the study of the problem under investigation, which afford the person concerned with the information needed for rational decisions.

We have put forth, in this overview, our conviction that there is emerging a new cultural configuration, a new view of man and of society, and a new range of "languages" or symbolic systems for analysis and expression. This new culture has little place for dogmatisms and certainties. It is built on the conviction of the centrality of man acting in uncertainty, and it is creating methodologies rather than metaphysics. It is intriguing, indeed, that this great transformation can be seen so clearly in virtually all areas of cultural endeavor that we may speak of the emergence of a new culture.

THE DEVELOPMENT OF A NEW SOCIAL STRUCTURE

The change in Western, and especially American, culture has had an intensive and pervasive impact on the structure of American society, just as profound social processes have left their imprint on cultural creativity. American social structure has changed during the last twenty-five or thirty years in ways that can be compared in historical significance to the building of industrialism which transformed agricultural America into the industrial giant we know. It was brought about by the dynamics of technological and economic development, which in turn were made possible by the high rate of discovery in science, by the changed role of the United States in world politics as a consequence of the World Wars and of the Cold War, and by the forces of population growth and the dynamics of migration.

Just how fundamental the change of American social structure has been is rarely recognized in full. This unawareness is, in itself, an important fact which may become dangerous in the future. Social change is not merely still occurring but, in fact, is accelerating even though the period of transition seems to have passed and the outlines of the new social structure have become clearly visible. Not to see this, or to interpret the present and the recent past in terms of ideas that were adequate only prior to the twentieth century, leads into serious error and possibly into grievous mistakes in political, economic, or educational action.

While the misunderstanding is dangerous in some respects, it has its own advantages. As we will show, change has been so drastic that it must be considered an accomplishment to preserve cultural continuity and identity, a sense of sameness between present and past, even though it may, in part, be illusory. Throughout American history we find major value themes which have been used as important criteria for social evaluation and self-interpretation. They have become fused with a very stable image of American society which often enough has clashed with the facts, but which is tenaciously upheld. Much of this image is myth, but values and myths are not simply irrelevant; they are themselves major social forces. Among our enduring values are those of individualism and personal accomplishment, of freedom from state interference and restrictions,

of localism, of equalitarianism and co-operation. These value themes can be found in the major political documents of American history. They can be found in the popular ideology. They have inspired much of American literature.

To be sure, the value themes, if carefully analyzed, can be shown to be in conflict with each other. Nevertheless, they are significant and have helped to inspire the popular myth of the United States as a society in which these values are realized, where unlimited opportunities are open to all, where the individual can unfold his capacities to the utmost through free enterprise and private initiative which lead to the building of private property. This myth, or ideology if you wish, developed in an earlier America which was dominated by a society of independent farmers and private entrepreneurs. That even then servile minorities—slaves and recent immigrant groups—were ignored in the myth-making did not weaken the myth which, to this day, has provided the continuing source of social self-interpretation for the majority of Americans.

The existence of the myth has led to a curious split between social reality and its interpretation. Thus, it is possible today for the public to debate whether or not the federal government should aid education when in fact, albeit somewhat disguised in various projects, the federal government is spending more than two and a half billion dollars a year in aid to education. It is possible for the representatives of large corporations, doing most and sometimes all of their business with the government so that they are virtually public institutions, to praise the system of private property and enterprise and to demand that the government limit its economic role. The old images of American society are being applied to the present scene by many and, while the resulting distortions have seriously hampered intelligent adjustments or rational anticipations of social change, they have provided a sense of continuity and cultural identity, which is of great importance indeed.

There exist, of course, counter-ideologies which dispute the dominant pattern of thought. We hear socialist-inspired conceptions of society as a vast battlefield of special interest groups and social classes, but these concepts originated also in a different, earlier age. They, too, are of no particular aid today. American society, and this can be shown with any degree of accuracy required, does not

fit the model of Marxian class analysis, nor the more sophisticated derivations thereof which we encounter today. The confusion of ideologies has resulted in a great many debates in which semantics becloud the picture and prevent a realistic grasp of social change. The central difficulty is just this: What we are dealing with is a process of fundamental, structural transformation which, while it preserves important historical continuities, has introduced a new pattern of social life which cannot be grasped with the concepts of the past.

What, then, is the trend of social change in the recent past and in the present? It is best described as the transformation from the economy of the open market and the class society of industrialism in the steam and iron age to the highly regulated economy and the organizational society of the age of automation. Of course, the transformation is not complete, and the older structures survive vigorously in some areas; but it is, nevertheless, profound and clearly discernible. We must now recognize that different systems of social structure co-exist with each other in the same society, so to speak— the old as the sediments of social history along with the new. The social structure of rural, small-town America did not yield completely to the social structure of the rising industrial society with its new classes of labor and entrepreneurs and its ethnic strata, and this, in turn, has not yielded completely to the new structure of organizational society. In Europe, the same process exists with characteristic differences: the open-class system of industrial society superseded only partially the status-group system of feudal society and is today, like in the United States, yielding to the structure of organizational society. The differences between Europe and the United States remain as results of their different histories and values, but the principle of structural change is the same.

In the United States, the transition involves the following aspects: continued urbanization, with the growth of mammoth metropolitan agglomerations and changes in the nature of city life; the growth of complex, and interlocking organizations in the public and private domains, accompanied by increasingly organized regulation of social life; greater homogeneity of the population through a redistribution of wealth, the relative decline of ethnic stratification, and a decline in the polarization of the social classes; increasing sim-

ilarity between the great regions of America and an enormous increase in the interdependence of the whole nation in the political, economic, and cultural fields. All of this has resulted in the development of new patterns of social stratification which determine the life chances of individuals and require different kinds of skills for successful participation in the society, thus affecting directly every person.

Urbanism to metropolitanism.—Since 1940, the population of the United States has grown from about 132 million persons to upward of 190 million. The net increase is larger than the total population of some of the great nations of Europe. The population increase has resulted, of course, in a denser inhabitation of the land mass of the United States. By itself, this is not as significant as the changing distribution of the population. In 1940, about 56 per cent of the American population lived in places which the census defined as urban. In 1964, about 70 per cent lived in such places. Most of the increase in the urban population was in the suburbs outside the central cities of the big metropolitan areas. From 1950 to 1960 alone, the population of the central cities increased by 10.7 per cent, but the population in the standard metropolitan areas outside the central cities increased by 48.6 per cent.

These figures show a change in the American pattern of living. But, in fact, they only hint at the magnitude of the change. We no longer can deal with the simple juxtaposition of urban and rural places, because the urban way of life has invaded many of the rural areas and in itself is more complex, more influenced by national forces. The great growth of the American suburbs, made possible by the automobile—usually at the expense of urban transit systems —and fostered by large-scale developments on a commercial basis, has supported the development of this new urban style of life which carries urbanism into the country.

Suburbanites, generally dependent for their livelihoods on the central city, often were not so much lured by the suburb as repelled by the economic and educational problems which the central city faced. The suburb offered, for many, an opportunity to create a satisfying compromise between the ideals of individual home ownership or "rootedness in the land" that came from the past and access to the central city. Often, however, suburbanism has accentuated

the problems of the central city. The political patterns of community organization could not keep pace with the rate of growth, so that many urban areas are divided into a "crazy quilt" of cities, villages, townships, boroughs, all of which continue to govern themselves as they did in an earlier age, intensifying problems of metropolitan planning. This is an obvious problem in the organization of education. Often the central city, because of the nature of the population in it and because of the paucity of its tax revenues, is left with the most serious difficulties. At times, it even seemed as though American cities might dissolve under the pressures of the suburban development and no longer be recognizable entities of their own but become, instead, sprawling masses of dense settlements without a vital center. More recently, strong efforts have been made through urban redevelopment and metropolitan planning to arrest and reverse this trend.

The often antiquated administrative and political fragmentation of the large urban centers of America is the more surprising since complex organizations of both the public and private kind have developed a pervasive network of interlocking regulations that leave little of social life to chance.

Interlocking organizations.—In the business world, the trend to bigness in corporate enterprise has not, as many feared, spelled the end of the small entrepreneur and small business, although there are few small businesses that are not directly affected by the large business organizations. There are many which are considered "small enterprises" and are such in name only because they are affiliated with large chains, and others which exist only because they are suppliers of larger organizations. The American economic scene is definitely and strongly influenced by the growth and development of the large corporations and is profoundly affected by the structure of these complex organizations.

In the public sphere, government agencies have grown even more than the population. In 1940, there were 4.2 million nonmilitary government employees at the federal, state, and local levels as compared with more than nine million in 1964. The increase of government activity in many areas of social life also is documented by the growth of taxation. Since the end of World War II, the amount

of federal taxes collected has doubled, while state and local taxes have increased sixfold.

Although it would be an exaggeration to say that every American today is involved in some bureaucracy, it is true that almost all Americans are dependent on formal organizations in the most specific ways. One important area in which the trend toward the elaboration and growth of complex organizations has been particularly pronounced is the area of education and, more specifically, that of higher education. In 1938, institutions of higher learning operated plants of the total value of 2.6 billion dollars. In 1958, however, the total plant value of those institutions was 12.1 billion dollars. This growth is even more dramatically expressed in the increase in operating costs of colleges and universities. Current operations in 1938 required an expenditure of 475 million dollars by colleges and universities, while in 1958, they involved an expenditure of 4.5 billion dollars. The growth of college enrolment is a familiar story, as is the growth of faculties.

The American universities have thus emerged as major forces, not only in terms of their intellectual weight but also in terms of their sheer size. And they have not been exempt from the trend of bureaucratization. They have, in fact, evolved a new form of university organization, which no longer resembles the older models of the classic European pattern. The modern American university is engaged in the teaching of large numbers of students, along with complex research and consulting activities which relate it to government and industry at all levels and which often make it a major force in the economy of a region or even the nation, as Kerr [1] has documented.

The continued growth of formal organizations and bureaucracies at all levels of public life and in many private spheres has increased the interdependence of American society. Many matters which formerly were considered issues of purely individual concern are increasingly becoming subjects of organized planning and regulation. The growing weight of government in these affairs is clear.

1. Clark Kerr, *The Uses of the University*. Cambridge, Massachusetts: Harvard University Press, 1963.

But government, in turn, is dependent on the large organizations of business, labor, and education so that there exists now, for better or worse, an extended network of interlocking organizations through which policy must be effected.

Homogenizing of population.—The homogeneity of American society has been increased by a rise in income levels and a certain redistribution of incomes. As Table 1 shows, the real income levels of families and unattached individuals, as measured in 1963 dollars, improved steadily over the last decades. In 1941, 17 per cent of the families and unattached individuals were in the bracket between $6,000.00 and $10,000.00, whereas in 1963, 30 per cent are found in that range. The income changes, a consequence of the unprecedented prosperity of the postwar years, have more than doubled the median family income from $2,621.00 in 1945 to $5,625.00 in 1960 (in current dollars).

TABLE 1 *

DISTRIBUTION OF CONSUMER UNITS BY REAL INCOME LEVEL

FAMILY PERSONAL INCOME IN 1963 DOLLARS (BEFORE INCOME TAXES)	FAMILIES AND UNATTACHED INDIVIDUALS (MILLIONS)					
	1941		1947		1963 **	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Under $ 2,000.....	11.1	27	7.1	16	6.7	11
$ 2,000 - 3,999.....	11.8	28	12.4	28	10.2	18
4,000 - 5,999.....	9.2	22	11.8	26	11.7	20
6,000 - 7,999.....	4.9	12	6.0	14	10.6	18
8,000 - 9,999.....	1.9	5	3.2	7	7.2	12
10,000 - 14,999.....	2.5	6	2.7	6	7.7	13
15,000 and over.....			1.5	3	4.6	8
Total.....	41.4	100	44.7	100	58.7	100

* Adapted from Jeannette M. Fitzwilliams, "Size Distribution of Income, 1963," *Survey of Current Business*, XLI (April, 1964), 4.
**Includes Alaska and Hawaii.

Many observers have interpreted this redistribution of income as a gigantic growth of the middle classes, and it is certainly true that more people than ever are now in the middle-range income bracket. A substantial portion of the population, however, has not shared in this development but continues to live in comparative poverty, even though the percentages today are considerably smaller than they were in the 1940's. One of the principal stimulators of conscious concern over this poverty amid plenty has been Harrington's book,

The Other America.[2] Now even our so-called "hidden" poverty, after too long neglect, has come under concerted attack by a society that realizes the poverty cycle no longer need be tolerated as the inevitable lot of any of its people. On the whole, the general rise in the level of incomes has made income differentials within the vast middle range less noticeable than they used to be. The growth of an enormous mass market and new production technologies have brought former prestige items, such as the automobile and the family home, into the reach of a great many more families, so that social differentiation by consumption patterns, while still obvious, is far less pronounced than it was in the period preceding World War II, during which, particularly in the large industrial centers, a huge working class lived in conspicuously different circumstances from the then much narrower middle and upper classes. In this sense, it is possible to speak of the growth of the middle class.

We must note, however, that the large majority of Americans, who by income criteria must be classified as "middle class," are differentiated in terms of distinct criteria of social status such as occupational prestige and education. In fact, the emphasis on status hierarchies has certainly increased, often using nonmonetary rewards as status symbols.

Ethnic differentiation, by contrast, has decreased in importance over the years. This is simply the function of the process of assimilation and of the history of immigration to the United States. The large masses of immigrants who came to this country early in this century are assimilated and the new immigration is much smaller. At the peak of immigration, in the five years of 1906-10, almost five million immigrants came to the United States. In the five years from 1936-40, however, there were only 308,000 immigrants. In the last several years, immigration has increased a little, but the social composition of immigrants has changed somewhat in that it now is more similar to the social composition of the United States as a whole. In 1940, particularly in the urban centers, there were large numbers of foreign-born and first-generation citizens. They formed cohesive

2. Michael Harrington, *The Other America: Poverty in the United States.* New York: Macmillan Co., 1962.

social strata, often united by discrimination against them from the outside and by the hard struggle to establish themselves in a new society. While ethnic identities tend to remain in existence even to-day in some fashion, on the whole they no longer represent sharply distinct subcultures.

One conspicuous exemption from this process of assimilation un-til recently was the large American Negro population. In the sixties, the struggle for equality, on the part of the Negro and his organiza-tions, has reached a climax of intensity and has scored conspicuous successes which, however, have not yet overcome the pattern of discrimination against this group.

The Negro's now powerful movement toward equitable partic-ipation in the American way of life is not to be categorized with the successive assimilations of ethnic groups in the past. For one thing, the Negro is no newcomer among us as were those in the waves of immigration, so that he has a long, bitter memory of subjugation in our land. For another, he has had to storm his way into the ranks of the equal and has devised his own particular strategies for doing so. There are signs that others of the dissatisfied among us are adopting similar strategies, and this may have great consequences for our soci-ety and its schools. At present, however, the racial integration "problem" outranks all others for seriousness in the minds of most school officials.

Decrease in regional differences.—The trend toward increased homogeneity of American society is also expressed in the gradual disappearance of some of the most conspicuous differences between the major regions. We must qualify this statement because regional-ism, both politically and economically, still plays an important role. Nevertheless, the American population, which was earlier concen-trated in the East, has spread to the West. The Pacific region has experienced recently the most dramatic population growth. In the years from 1940-50, the population in the Pacific region grew by 47.8 per cent and in the years from 1950-60, by 40.2 per cent— about twice the figure for the nation as a whole.

The income levels in the different regions have, on the whole, become more similar, with the relatively low-income areas of the South experiencing significant improvement over the last decade. The state of Mississippi, for instance, had the highest per cent in-

crease in the median income in the years from 1949-59, namely, 134.9 per cent. Similarly high are the increases in Georgia, Arkansas, Alabama, and other southern states.

On the whole, the United States has become a highly interdependent society which represents one vast administrative unit and one vast integrated market. One consequence of this, often bemoaned by observers, is that of standardization in the patterns of life. Those American regions, which have been conspicuously exempt from this over-all trend and have remained or become "pockets of poverty," now are the object of publicly planned efforts to help them catch up with the rest of the nation. There is no doubt that these efforts will result in an even increased homogeneity in the standards and patterns of life throughout the nation.

Shift in social mobility channels.—As a consequence of the changes in the American economy and technology and in the extent of formal organization of American life, there have occurred major changes in the occupational structure and the stratification system of the country. It is in this area that the impact of formal organization and the requirements of living and working in a world dominated by formal organizations have left a very significant imprint. The shifts in the occupational system are discussed in more detail later but are readily understandable as a consequence of urbanization and the more complex technology and the different demands it makes upon training and skills.

The requirements of a complex technology, coupled with those of formal organizations, have resulted in a significant shift of the channels of social mobility. The usual pattern in America only a few years ago was that achievement in the occupational world and in the market brought with it large rewards, even late in life. Early formal education was of less significance than experience in the occupational world itself. Even in the days following World War II, in 1946, older, more experienced workers enjoyed somewhat higher incomes than younger workers with more formal education. Today, occupational advancement depends upon a combination of education and experience, with the emphasis on formal education. Job experience alone carries less weight these days. It can, indeed become obsolete overnight due to technological change. Only when experience is backed up with considerable schooling, as in many

professions, does the accumulation of experience lead to substantial increases in income. In 1961, the average annual income of male college graduates twenty-five to thirty years old was $6,640 and was higher than that of male high-school graduates forty-five to fifty-four years old ($5,589) even though the latter group had at least twenty years of additional work experience.[3] These figures reveal a very important change in the channels of economic mobility.

In fact, organizational society now requires for advancement skills and types of performance which are markedly different from those required in earlier industrialism. In addition to specific occupational skills, social techniques of relating to others, of adjusting to the imperatives of life in formal organizations and between formal organizations have become increasingly important. Modern man must be able to present himself well, he must understand the subtleties of manipulating organizational relationships. While there has been this qualitative shift in the channels of social mobility and the social requirements for success, American society has not become a closed society. Social mobility between the generations has remained high, at approximately the same level which existed in the United States over many decades. It is true, however, and especially significant that chances today for occupational and thereby social advancement are usually determined early in life by the amount and quality of formal education received.

With the change in the channels of social mobility and in the prerequisites of high status, there has occurred a broadening in the access to many of the important channels of social mobility. Today more children of lower-class parents receive advanced education than ever before, and similarly, we find an increase in the participation of educated persons from lower- and middle-class backgrounds in the powerful decision-making elites of the nation as a whole. These modern elites are, in fact, quite different from those of the past. While it was defensible to speak of a "ruling class" in the so-

3. Dennis F. Johnston, "Uptrends in Workers' Education," *Occupational Outlook Quarterly*, Vol. VII, No. 3 (September, 1963).

ciety of earlier industrialism, in which the great capitalist entrepreneurs established their power and imposed their will often through political action, the "ruling class," today, is increasingly replaced by the influential "functional elites," that is, persons who, while themselves not necessarily wealthy, occupy powerful positions in the formal organizations of the public and private domains.

The routes into the positions of the elite have also become obviously different, often involving clear-cut career channels with formal agencies engaged in rating and ranking of personnel. "Getting through" such channels often requires social polish in addition to technical competence. The skills of managing social relationships have become more subtle and sophisticated; therefore, it is not surprising that today a different social type altogether occupies the positions of leadership. Recent studies of the American military elites, for example, have shown how great the differences are between the military leaders of today and their counterparts of the past with respect to personal characteristics, education, and technical training. Something quite similar has occurred in both the business world and in the expanding realm of public administration and government. It is the social type of the highly educated and technically sophisticated professional who emerges increasingly as a member of the functional elites instead of the former, often colorful and flamboyant leaders of America. His position of power tends to be temporary, dependent on his tenure in the official position. The changed style of leadership has already affected profoundly the image which the United States presents to the world.

We have tried to sketch, in the foregoing, the major cultural and social changes in American society over the last two or three decades. We have argued that these changes were profound enough to permit us to speak of the emergence of a new cultural configuration and a new type of social structure which might be characterized with the slogan of "the emergence of organizational society." But now, more modestly, let us try looking through the eyes of today's high-school graduate at some ways in which the situation he confronts differs significantly from what his predecessor of two decades ago faced. We should be alert to implications for change in the schools as we adopt in order, the economic, the sociological, and the political perspective.

Examples from Three Perspectives on Change

ECONOMIC PERSPECTIVE

In the 1940's, with the Great Depression a recent and mindsearing memory, the Second World War's apparently temporary boom and impending economic collapse colored all prospects. The high-school graduate of the period had ample excuse for harboring anxieties about the economic system he was entering. So, too, does today's high-school graduate, but what a different set of anxieties he has. Behind him are, on the one hand, two decades of mounting prosperity and consistent progress for the nation, taken as a whole, and, on the other hand, bewildering changes in the structural pattern of the nation's economy which have increasingly imposed on its participants unprecedented demands for flexibility and adaptability. The difference in anxieties, we can anticipate, will be highly significant for the schools.

The economy had performed extraordinarily well during World War II and was continuing to operate at nearly full capacity despite massive cutbacks in government spending. Jobs, while not as plentiful as during the peak production years of the war, were not hard to find, and the high-school graduate who chose (and was permitted) to enter the labor force was quickly absorbed into the buoyant economy.

But the thriving present did little to dispel expectations of doom in the future. Economists and businessmen alike doubted that the private economy could rebound from the staggering reduction in wartime demand and successfully adjust to the new pattern of peacetime spending. Memories of the 1930's were still vivid; the economic logic that could account for both the 15 per cent unemployment rate of 1940 and the 1 per cent rate four years later was still but dimly perceived, and neither the process nor the propriety of a federal stabilization policy could boast many advocates. We were warned that we must expect an extended period of serious unemployment and lowered national output before the economic system adjusted to anticipated slashes in the federal budget and the invasion of returning servicemen looking for jobs.

These dire predictions proved to be wide of the mark. While a

slump did materialize, it was short, mild, and scarcely visible to persons other than the national record-keepers. The performance of the economy, in the aggregate, has been highly satisfactory, if not spectacular.

Several indexes testify to over-all performance during the past twenty years. Gross national product (measured in dollars of constant purchasing power) has grown more rapidly than our exploding population, rising from below $2,000.00 per capita in the late forties to nearly $2,700.00 today. The number of jobs, likewise, has raced more or less successfully against a relentlessly growing labor force. While unemployment rates have frequently exceeded levels we would prefer, 6.8 per cent is the highest annual rate for the postwar period, and the twenty-year average is just over 4.6 per cent. Even the much-maligned rate of growth, although below that of several nations more ravaged by World War II, has averaged about 3 per cent annually since the War. Additional data could be marshalled to add detail to this picture—hourly wage rates in manufacturing up nearly 50 per cent, an increase in average productivity per man hour of some 60 per cent, corporate profits rising to record highs. All attest to the basic prosperity of the past two decades.

But prosperity does not benefit all equally. For many, in fact, it may pose problems that a less ebullient economy might have postponed or created more slowly. High and rising incomes give rein to the whimsies of popular tastes and accelerate the changes in consumption that are tied to the level of income. As a result, some industries reap a rich harvest, while others, by-passed, see their profits dwindle and employment shrink. Newly acquired and well-financed leisure hours demand a procession of motor boats that could have evacuated Dunkirk one hundred times over. A new-found taste for almost any sound that can be committed to the wax disc virtually creates a new, large, and thriving industry. At the same time, a host of versatile synthetic fibers, unheard of before World War II, move into the domains of cotton and wool, and new methods of producing and transporting gas, fuel oil, and electricity drastically change the outlook for the coal industry. Such changes in consumption call for massive transfers of resources, both human and nonhuman—transfers that may be impeded by lethargy, ignorance, and the very real costs of movement.

Prosperity also encourages the search for new techniques of production. It opens new markets, frequently raises the costs of traditional methods of producing, and provides a reservoir of earnings to finance the "glamour boys" of postwar industry—research and development. Automated production lines, computer-monitored chemical processes, electronically controlled record-keeping, and less dramatic but fully as significant, mechanized agriculture—all of these changes in technology have embedded themselves in the American productive process during the past two decades. Their impact has been to alter substantially the relative costs of production of a wide range of goods and to change drastically employment demands.

To these dynamic forces must be added the vagaries of foreign commerce and the unpredictable demands of the federal government that directly determine the allocation of one-sixth of the national output. Having committed themselves to implementing a policy of freer international trade, recent administrations have warmed the souls of economists with their success in lowering tariffs, achieving freer foreign exchanges, and increasing the flow of goods, services, and capital between nations. But again, the domestic economic impacts are not equally shared. American producers must now add to domestic uncertainties the changes in demand and revolutions in technology that occur abroad. While American manufacturers of computers find their market swelled by European demand, American producers of steel, glass, and petroleum have been made painfully aware of low-cost competition from overseas. The changing requirements of national defense have similar effects. A fifty-billion-dollar budget in itself implies substantial leverage, but when it is wielded at the frontiers of technology, its impacts reverberate throughout the economy.

Thus, the prosperity of the last two decades, reinforced by the expansion of foreign trade and the growth of federal expenditures, has imposed on the economic system unprecedented demands for change and adjustment to change. Changing wants, changing costs, and changing incomes set in motion more fundamental but frequently less obvious changes in the earnings, location, and industrial orientation of the nation's productive resources. Capital must be eased out of coal mining and into electronics. Land must be trans-

ferred from agriculture into residential, transportation, and recrea-
tional uses, and workers must find their way from the textile mills
of New England into teaching, selling, or one of the burgeoning
personal-service industries.

To gauge fully the economic changes since the War, we must
look beyond the impressive national totals and examine some
changes in economic *structure*—the transformation in the composi-
tion of national output, shifts in the relative contribution of major
industrial sectors, changes in the make-up of the labor force—and
the implications of these changes for the prosperity of the several
economic regions of the country. Only by delineating changes of
this sort can we comprehend the economy of today and grasp the
directions of movement for the future.

A useful indicator of recent changes in economic structure is the
relative contribution of different industries to gross national product.
Table 2 presents for 1947 and 1963 the proportion of total output
accounted for by the eleven major industry groupings commonly
used in aggregating employment and production data. While mas-
sive aggregates such as these move slowly and conceal dramatic
shifts within their components, the changes in relative shares are
most instructive. And these increases and decreases acquire addi-
tional meaning in view of the nearly 75 per cent increase in total
real GNP that took place during this period. Several trends emerge
clearly—trends that were visible before World War II, but that
have been immeasurably accelerated by the prosperity of the past
quarter-century. One is the decline of the "extractive" industries,
agriculture and mining. Not only have they failed to grow as the
economy expanded but now represent a smaller *absolute* contribu-
tion to national output. The two largest sectors, manufacturing and
trade, while growing, have not kept up with the rate of aggregate
growth. The healthiest industries are clearly the "service" categories
—finance and related activities, the communications-public utilities
complex, services, and the public sector. All have increased their
relative importance, expanding faster than total output and, thus,
taking up some of the slack left by the goods-producing sectors.

Much the same pattern emerges—but its implications for labor-
force demands become clearer—when we look at recent changes in
employment by industry and at shifts in the occupational structure

TABLE 2

INDUSTRIAL COMPOSITION OF GROSS NATIONAL PRODUCT, 1947 AND 1963

INDUSTRY	PER CENT OF TOTAL	
	1947	1963
Agriculture, forestry, fisheries	9.1	4.0
Mining	2.7	2.0
Contract Construction	3.8	4.6
Manufacturing	28.4	27.5
Wholesale and Retail Trade	19.8	17.6
Finance, Insurance, and Real Estate	9.4	12.3
Transportation	5.9	4.2
Communications	1.4	2.1
Public Utilities	1.7	2.6
Services	9.1	11.3
Government	8.2	11.2
Other	0.3	0.5

Source: United States Department of Commerce, Office of Business Economics, *Survey of Current Business*, XLII, No. 10 (October, 1962), 14; and XLIV, No. 9 (September, 1964), 20.

of the labor force. Compared with an 18 per cent increase in total employment between 1947 and 1963, we find that employment in agriculture fell 39 per cent; mining was down 34 per cent; and manufacturing and trade were up 9 and 31 per cent, respectively. But the real stars were government, up 73 per cent; finance, up 62 per cent; and services, also up 62 per cent. Perhaps as telling as any other indicator was the decline in the "goods" industries' share of employment from 42 per cent to 36 per cent, with "service type" employment jumping from 58 to 64 per cent.

Slicing the labor force from a different angle—that of occupation—permits us to view structural change in another dimension. Table 3 sets forth the occupational composition of the civilian population in 1950 and 1962 and indicates the percentage change in numbers during that period. Again the pattern is clear. The most rapidly expanding occupations are in the white-collar group, with the highly skilled, high-income, professional category showing an amazing 78 per cent increase in twelve years. More generally, it was during this period that the number of white-collar workers exceeded the blue-collar group for the first time in our history.

Such are the broad outlines of structural change. But the picture they present is incomplete. Details—and very important ones—are obscured by the generality of the measures that were used. Because they are national figures, the differential impact on the regional

TABLE 3

EMPLOYMENT IN MAJOR OCCUPATIONS, 1950 AND 1962

MAJOR OCCUPATION GROUP	NUMBER (MILLIONS)		PER CENT OF CHANGE
	1950	1962	1950-62
Total	59.6	67.8	+14
White Collar	22.4	29.9	+33
Professional, technical, etc.	4.5	8.0	+78
Managers, officials, proprietors	6.4	7.4	+16
Clerical, etc.	7.6	10.1	+33
Sales	3.8	4.3	+13
Blue Collar	23.3	24.3	+ 4
Craftsmen, foremen, etc.	7.7	8.7	+13
Operatives, etc.	12.1	12.0	− 1
Laborers	3.5	3.6	+ 3
Service	6.5	8.8	+35
Farm	7.4	4.9	−35

Source: National Industrial Conference Board, *The Economic Almanac, 1964*, pp. 44, 46.

"little economies" is concealed. Because the industrial and occupational categories are so broad, the hardships and spectacular successes of more specific groupings tend to cancel each other out, and are reflected only weakly in the aggregates. For instance, not only does unemployment result from inadequate aggregate demand, but it may also persist in particular industries, occupations, age groups, and regions, despite the existence of a basically thriving national economy. A breakdown of recent unemployment figures suggests that just such a structural disequilibrium does exist. During 1963, for example, over-all unemployment averaged 5.7 per cent. The distribution among industries, however, was very unequal, with particularly high percentages appearing in construction, mining, forestry and fisheries, and trade. Lower than average rates were observed in the service trades, government, finance, and public utilities. With the exception of the construction industry, the pattern correlates highly with the longer-term, rate-of-growth characteristics noted earlier.

Even more precise is the inverse correlation between unemployment by *occupation* and occupational rates of growth. Laborers, operatives, and farm workers display above-average unemployment, while involuntary idleness among the professional, technical, and managerial groups is virtually unknown. Perhaps the most disturbing data are the percentages for young workers and nonwhites who are unable to find work. For the first age bracket, fourteen to nine-

teen years of age, the average 1963 rate was 15.6, nearly triple the national average. Among nonwhites it was 10.9, more than double the figure for white workers. Clearly, the new entrants to the labor force do not dovetail neatly with job openings; even less do available jobs meet the demand of the nonwhite component of the labor force for them.

An additional but closely related manifestation of imbalance is the prevalence of excessively low incomes—the problem of poverty. Even after making allowance for the ill, the aged, and others outside the labor force, the persistence of family incomes below the $3,000-level is clear evidence of the poor fit between jobs and job-seekers. The greatest concentration is in farming—the industry under the greatest pressure to contract—in which fully half of all families have incomes below $3,000.00. In the urban setting, poverty is increasingly associated with three other characteristics of the population: unemployment, race, and education. Data from the 1960 census show clearly, census tract by census tract, how the level of family income varies inversely with the rate of unemployment and with the percentage of the population that is nonwhite, and how it varies directly with the average number of school years completed. While such associations are by no means unexpected or new, they appear to have become more consistent during the postwar period.

Of particular interest is the very close relationship between earnings and education. During the past decade economists have been able to document how education has operated as a major determinant of both personal income and national production. The evidence is unambiguous on the association between income bracket and years of school completed. Making generous allowances for the costs incurred in acquiring education and holding other determinants of earnings constant, researchers have concluded that the rate of return to investment in elementary and secondary education is in the neighborhood of 10 to 15 per cent. While college education is subject to increasing costs, the net return has still been calculated to be about 10 per cent. These estimates underscore the strategic importance of formal preparation in meeting the new set of requirements imposed by the economic system on job-seekers. They also point clearly to education as a major instrument for increasing the capacity for adjustment in an economy so subject to change.

It may be useful to summarize briefly some of the implications of these economic developments of the past two decades. Perhaps most obvious are the new skills, abilities, and attitudes required of the labor force. Technological change—best exemplified in recent years by the congeries of new processes we term automation—both cuts down the demand for unskilled manual workers and expands the opportunities for workers with specific but often costly skills. Likewise, the proliferation of the service industries has placed new demands on that segment of the labor force—not least of which are far higher standards of literacy and articulateness. But at the same time the economy demands new and expensive skills, it withholds the promise that workers will indefinitely be permitted to exercise them. Well before the supply of key-punch operators has caught up with the demand, we are warned that the next decade will render this occupation obsolete. The premium is, therefore, not on skills *per se*, but on the capacity to acquire skills, to modify them, and perhaps to begin again. Adaptability and flexibility are the key qualities demanded of today's worker. And to these we should add mobility—for the multiplant firm, the new geographic patterns of production, and the expansion of overseas operations all point to the demand for a highly mobile working population.

Another area where the consequences of economic change have made themselves felt is the old problem—but new field of study—of regional development. Standard analyses emphasizing natural resources, river and rail transportation, or climatic factors favoring specific manufacturing processes may account for historical patterns of development, but other variables must enter our theories about the locational changes that are now taking place. The gifts of nature are a dwindling source of national product; transportation is both cheaper and increasingly pervasive; and, as services come to dominate the pattern of output, transport costs play an ever smaller role in the location of jobs.

The identity of the new determinants of regional growth is not at all clear, but some speculations are in order. As the physical inputs to production decline in importance, the quality of the labor force assumes a new and enlarged role. This is particularly true in the rapidly growing research and development sector. Not only does the level of skill of the labor force, in the usual sense, loom

larger but the availability of highly trained professional consultants and full-time employees is becoming a critical factor. Only in recent years have universities attracted to themselves giant industrial complexes like that which has come to the environs of Boston. Evidence is also accumulating that certain amenities, both physical and cultural, are a necessary precondition of industrial location. The availability of recreation facilities, an adequate medical complex, an efficient and forward-looking political system, and especially a superior public school system—all enter into the new model of location decision-making.

Finally, to return to our point of departure, the nation's economy can realize its full potential only if we are more successful than in the past in devising ways to accommodate structural change. One approach, of course, has been to fight it. A generation of agricultural price supports and a dozen varieties of "featherbedding" eloquently testify to our reluctance to face squarely the need to adjust. But the pressures of changing demands and technological improvement will not be denied. Few challenges offer a greater test of the vision and ingenuity of our business community, our government, and, we must emphasize, our schools.

SOCIOLOGICAL PERSPECTIVE

For the high-school graduate of 1940, his diploma was more valuable in entering the occupational world than it is today, simply because at that time the percentage of children of high-school age actually enrolled in high school was considerably lower than it is today. (It was approximately 67 per cent, while today it is over 90 per cent.) But he could not be certain of finding a job, and a good deal of anxiety undoubtedly centered around this question. Unemployment still ran high, being almost 15 per cent of the labor force. This made the occupational start difficult for the young. Only a minority of high-school students went on to college, the number being about one-third of the high-school graduates and about 15 per cent of the population enrolled in fifth grade. Today, more than half of the high-school graduates continue their education in college or junior college. This represents about one-third of the student population in the fifth grade.

Thus, to anticipate many years of higher education used to be a

somewhat extraordinary thing for a high-school graduate. He was inclined to stop his formal education with his completion of high school and to become a working member of society. Those who did go on to college came, more often than is the case today, from the middle and higher social classes. In fact, the society of the forties was a highly stratified one, not in terms of conscious class "ideologies" but in terms of patterns of living and social distinctions. Income and occupation as well as ethnic background played a major role in placing a person in his status within the community. For the majority, the idea of an organized career with foreseeable futures and distinct steps ahead was a strange one. Once entry into the occupational world was achieved, one worked one's way up through experience on the job and through the taking of opportunities when they occurred.

Warner, whose investigations into the social structure of an American community revealed the stratification system of this period, described six clearly distinct social classes.[4] In the small community which he described in 1941, there was a very narrow upper class, little more than 1 per cent of the total population, representing the old-family elite with long traditions and pride in those traditions. Somewhat lower in the social structure, accounting for almost 2 per cent of the community, was the lower-upper class, a group usually somewhat richer than the established families, but they were people who had arrived at their positions more recently so that they did not represent a so-well established, cultured, and generally respected class. The upper-middle class, with approximately 10 per cent of the population, consisted of successful business or professional men of some educational achievement, who had on the whole arrived in their status through hard work and the building of a comfortable living. The lower-middle class, with 28 per cent of the community, comprised the petty businessmen, school teachers, and foremen in industry. These were people with a narrow social life, dominated by a Puritan fundamentalism, and they were rigidly concerned with respectability. Almost one-third of the pop-

4. W. Lloyd Warner and Paul S. Lund, *The Social Life of a Modern Community*. New Haven, Connecticut: Yale University Press, 1941.

ulation was placed in the upper-lower class—the solid, respectable, laboring people—wage workers who took some pride in their reliability and looked down upon the lower-lower class of the very poor, accounting for the rest of the population, or about 25 per cent.

If our high-school graduate was born into any one of these classes, the chances were a little less than even that he would remain in the social class of his father. This means that he could, after all, expect social mobility through his own initiative and assertion, through accumulated experience on his job, through the skilful taking of opportunities when they offered themselves in the marketplace. In many instances these opportunities offered themselves because of technological change, economic expansion, and the fact that the families at the higher levels tended to have fewer children than those at the lower levels in the social scale.

The primary basis for social status was occupation and income, with education being of lesser importance. Very often education was not so much a means of advancement as a symbol of one's parent's social position. The children of families in the middle and upper classes were then, as now, more likely to go to college or to attain professional degrees than those of lower-class families. The trend since has been toward the elimination of this differential, as more and more children of all social classes attend secondary schools and institutions of higher learning.

On the whole, our high-school graduate of 1940 could expect a higher income over his lifetime than the person who had not graduated from high school, and he could increase his expected life earnings if he went on to college. However, once he had entered the occupational world without pursuing further education, it was quite likely that his final income level would be much higher than that of the college man who just entered his first job. Today, however, as indicated earlier, the beginning income of college graduates is greater than the income of high-school graduates after as much as twenty years of experience on their jobs.

The class structure of American society around 1940, then, did not emphasize the formal channels of social advancement (such as formal education and distinctly regulated career patterns) to the same extent as did the social structure of the 1960's. The time span for which the young worker of the forties would plan his life was,

accordingly, shorter than it is today. As a rule, he would be oriented to his job and possibly worry about the next one, but only the minority of the population could be described as thinking of distinct career patterns.

In the intervening period, the change of the occupational structure and the accompanying processes of professionalization in the occupations that require some formal training and increased formal structuring of career stages in many other occupations have altered the picture. The effect of the labor unions in the manual occupations must be mentioned as well. It has increased job security over the years, and in the sixties the unions are beginning to conceive a degree of long-range planning and regulation, which makes it likely that the wage earner of the future will think of his occupational life in terms of a distinct career, supported by the accumulation of "fringe benefits" over time.

Modern occupational life requires, on the whole, the ability to plan ahead, to understand and use to advantage the many regulations, supports, and benefits built up through the increased formal organization of many occupations. It requires, then, complex social skills in addition to the technical competency necessary for the job. The social structure of the 1960's is arranged so that it places a premium on the social skills of self-presentation, individual career-planning, and the ability to relate smoothly to others. It requires of the young person entering this world a much more differentiated understanding of society and a much larger time perspective on his own future.

In many instances, the social status of a person is no longer defined by a diffuse process of placement in the community but, rather, through the very precise awarding of status through formal organizations. This holds true in the career lines of the civil service and especially, of course, in the professional world. The pattern, however, is spreading to occupations which formerly were not at all similar to the established professions. The process has often been described as the spreading of "professionalization" to the technical occupations and to the occupations of the skilled craftsman. But this label is somewhat misleading because the academic and social professions themselves have continued to maintain their separate identity and have collectively even enhanced their prestige and influence

in the social structure. What we are witnessing, more accurately, is simply the adaptation of many occupational groups to the new work environment in formal organizations, which makes it quite realistically important for them to peg their claim to social prestige and status at a precise level. The white coat as a status symbol of the technician, the elaboration of formal work standards and the jealous guarding of these rules by the unionized craftsman, the use of official sounding titles for minor occupations—these are not simply imitations of the professions but attempts to place an organized work group into a clear status within organizational hierarchies.

It is quite important throughout American society today that, through formal organizations, the conception of clear status-hierarchies has become pervasive even in community life. American society as a whole, by becoming more organized and clearly structured, has also become more status-conscious than it was before, and the concern with status even in minor distinctions has reached into almost all levels of the society. At the same time, it has retained a very high rate of social mobility, indeed; but if a high-school graduate of the 1960's hopes to advance beyond the social status of his father, he will most probably do it through the formally structured channels of advancement.

However, the organizational-technological complex that is so central to modern society has not incorporated the total population. Participation even at the lower levels makes considerable demands on a person's social skill and realism, on his level of general education. A large segment of the population, clustering in the lower classes and including the discriminated-against ethnic and racial groups, particularly the Negro, has found it difficult to enter into this system. Indications are that the gap will not narrow by itself, through the process of assimilation, as it did in the past, primarily because modern society demands complex decisions early in life, for which lower-class families rarely, if ever, prepare their children. On the contrary, technological change and organizational growth proceed at a rapid pace and make for an ever increasing complexity with increased social demands on the people participating in them. If left to itself, the gap between those participating in the new society and those left out will widen, as it appears to have done in the phenomenon we now call "the poverty cycle." This is an area in

which the American schools have recently recognized a major responsibility.

The stratification system which Warner described for the past can still be recognized in our society today. Increasingly, however, the nature of the lower-upper, upper-middle, and lower-middle classes change to a different form of social stratification which is better characterized by "ladder hierarchies" than by social classes. They present, then, a continuum of status gradations which, nevertheless, are very important indeed to the people concerned. However, the major gap lies between those participating, no matter in how minor a form, in the building of organizational society and those who are left out altogether.

There is hardly an institutional sphere of American society that is more directly affected by recent social change than the educational system at all levels. Earlier, it was a social function of the public schools to create a homogeneous nation out of diverse ethnic groups and to prepare children for life in an open society. Today, this function has changed. The schools find themselves in a strategic place in the American social structure by being not only the agencies that provide general education to the masses but also that select persons and, at the higher levels, even award social status through academic degrees, which have a very real meaning in modern society. This development has thrust upon the schools, especially at the higher levels, the responsibility to provide both an education for large numbers of students and a reliable selection of the qualified. That the educational system be and remain designed for mass education has been made more important by the recent developments because only through such a system can the maximum number of persons be incorporated into the main stream of modern society.

POLITICAL PERSPECTIVE

A high-school graduate of two decades ago looked out upon a political scene in which our national government was exercising powers and performing functions vastly expanded by the Great Depression and World War II. At that time, the graduate still reasonably could wonder how lasting would be this development generated by two such extraordinary events. On the other hand, today's high-school graduate has little room to doubt that the now

still greater pervasiveness of the powers and functions of the national government is here to stay. The nation's leadership role abroad and the national government's direction-setting dominance at home have become established facts of life for those growing up in the last two decades.

The conduct of foreign affairs being the business exclusively of the national government, of course, the vast expansion of the United States' leadership role abroad has had its impact on the federal system at home. Major wars in the past have had a similar effect, but their impact could be considered temporary and reversible. Not that they actually were, but they could reasonably be considered likely to be so by contemporaries. Today's high-school graduate, in contrast, has difficulty imagining a future in which his nation's government is not deeply involved and heavily committed all over the world, and he has to expect to live with a government geared to the role.

For our purposes, the significance of the nation's continuous, wide involvement and commitment abroad does not lie alone in what the development does or should mean for the substantive content of educational programs in schools—international affairs, world cultures, foreign languages—important as that may be. The consequent magnification of the national government's role has significance also for the schools as creatures of state governments in a federal system. Few of our social institutions, and certainly not our schools, can escape the impact of this political development.

In domestic affairs, most of the evidence of fundamental political change in our system of government over the last two decades is too familiar to require documentation here. It includes the practice, by now well established, of the national government manipulating the economy to maintain stable prosperity and rate of growth. This function of the government now cannot reasonably be considered as only a temporary response to a critical emergency, as perhaps it could have been considered during the Great Depression and the economic dislocations of World War II. Not simply regulation of economic activity by government but also massive participation by government in the economic process, as both producer and consumer, have become firmly established. Maintenance of a permanently large military establishment and prosecution of space explora-

tion and its attendant scientific and technological development have put the government *in* the economy as never before, while simultaneously governmental regulation *of* the economy has grown, so that the government's leverage for manipulating the economy now is of a far greater order than even two decades ago.

Meanwhile, successive administrations and congresses, with bipartisan consistency in practice despite differences in theory, have firmly rooted in the national government not only particular social welfare programs but a dominating responsibility for setting the directions and determining the priorities for our social welfare in general. This major political development, without benefit of any economic crisis or war emergency, was reflected in the 1962 Social Security amendments and made even more apparent in the 1964 Economic Opportunity Act. For our purposes here, the significance of both is that the national government took the initiative, decided the priorities, set the directions, and left the states very little to do but to go along and to let their local communities follow the lead given by the national government.

In the matter of individual rights, also, the national government within the last two decades has enhanced its role in relation to the states, particularly in a series of Supreme Court decisions. Examples are the Gideon and Escobedo cases redefining the individual's rights before state courts, the school-prayer decision, the reversal of the "separate but equal" doctrine in the racial segregation issue, and the Reynolds' group of cases requiring "one man, one vote" representation in state legislatures. The first and last of these impose national standards upon the judicial and legislative branches, respectively, of the state governments themselves. The second and third interpose national standards between the state governments and their institutional creatures, the public schools. While the latter pair has the more direct bearing on the schools, all are significant in the line of analysis we are pursuing here. That is to say, these and numerous other decisions that might have been cited have brought us a long way toward a national standard of individual rights overriding state and regional differences.

Domestically, therefore, in regard to three important, sample areas—economic activity, welfare services, and individual rights—

the trend of political developments has been in the same general direction.

In a sense, the 1964 national election campaign confirmed what appeared to be the net product of political experience of the previous two decades. Not often have campaigns been as clear-cut as that one in serving such a purpose. That campaign helped to clarify, for instance, the dimensions of the body of public opinion which would posit states rights against national sovereignty on issues involving individual civil rights, which would cut back the national government's powers and functions in the economic and social welfare realms, and which would simplify the nation's world-leadership role to that of imposing decisions in conflicts rather than that of tedious policing of stability in international relations. Previous regional and social-class alignments were breached by both parties in the process of synthesizing a new national consensus out of the welter of unprecedented experiences of the post-World War II period, from the development of nuclear-power capacity for human destruction to the emergence of technical potential for eliminating human poverty.

While many of the implications of these political forces for the changing American school may be apparent, our analysis must go one step further by examining the interrelationship of the two social institutions of government and school in regard to the process of public policy implementation. Political forces of the last two decades have been reshaping not only the two institutions themselves but the patterns of their interaction and interrelationships.

The interrelationship between our national government and the schools has never been entirely clear-cut. On the one hand, we have believed with Jefferson that education of the people is essential to the successful operation of our form of government, that the viability of this government depends upon an informed citizenry. On the other hand, our federal system assigned to the national government no specific power to provide for the public's education, reserving that for the states. At the state level, we traditionally have believed that the schools should be kept out of politics, even to the extent of providing in most jurisdictions a governance of the schools separate from the general government of local communities.

For a far longer period than we are considering in this chapter, however, the schools have served the national purposes. They have

been the principal instrument of society for assimilating the diverse peoples who now constitute the citizenry. They have been the means for developing the competencies required as the nation progressed from an agricultural to an industrial society. In many ways, from land grants for colleges to support of vocational education, the national government long has had a hand in shaping our educational system and, despite the absence of specific constitutional authority in the field of education, has had significant relationships with the schools. Two such basic institutions of a society could not coexist without some interaction.

Nevertheless, until relatively recently, we could think and generally have thought of our schools as quite independent of the political processes by which specific national policies were formulated and implemented. While schools served basic national purposes, they did so largely as parallel institutions of the same society in which the political and governmental institutions functioned, pursuing the same social goals because they reflected the values and aims of the same society.

Whether we reasonably can continue to think in terms of parallel coexistence is much less clear now as the result of political developments of the last two decades. Within this period, we have had the creation of a national Department of Health, Education, and Welfare and such expansion of the constituent United States Office of Education that there has been serious thought given to the establishment of a separate department of education. The veterans' education programs, the National Defense Education Act, and the educational research and development aspects of the National Science Foundation and various offices of the Defense Department have evidenced the national government's changing posture toward the schools.

What seems to have been happening is not so much a change in the national ideology regarding parallel coexistence of an educational system and a political system as it is a pragmatic adjustment to certain facts of life in mid-twentieth-century America. There is little evidence that the people believe any less strongly now than before that, in principle, the schools should be kept out of politics, that the educational process has an integrity of its own to be preserved independently of the political and governmental processes.

Of course there has been talk in the last two decades, as there has for many decades before that, of the possibility of a truly national education system, shaped and directed by national government authority. However, no major candidate yet has had the temerity to run on any such platform plank, nor is anyone likely to do so soon. Localism and independent coexistence of the educational system seem still to be firmly embedded in our national ideology.

Historically, however, the people of the United States have demonstrated a remarkable capacity for preserving intact ideologic principles while devising pragmatic practices that permit adjusting to changing societal facts of life. There is a good deal of evidence that something of the sort has been happening with respect to the pattern of interrelationship between the schools, on the one hand, and the political-governmental system, on the other.

Among the relevant societal facts of life is the previously discussed, vastly increased pervasiveness of the powers and functions of the national government, in both its international and domestic dimensions. The political forces emanating from this development cannot help but impinge, one way or another, upon the schools— with or without any change in the ideologic or formalistic pattern of interrelationship.

The nation's involvement and commitment in far corners of the world have resulted in almost two decades of "peacetime" draft, in voluntary service in large standing military forces as an alternate career course, and in the Peace Corps—all facts of life for the young adults coming up through our schools. International competition in space exploration and technology development have radically altered occupational status rankings and priority among competencies needed to implement public policy. Such essentially political forces at the national government level have demanded appropriate responses from the schools, regardless of any ideologic or formalistic pattern of interrelationship that continues to exist between the national government and the schools.

Domestically, the national government has begun to contend, albeit belatedly, with some of the problems of advanced urbanization or metropolitanization of our society, with automation hard on the heels of mechanization, with the pockets of self-perpetuating poverty and inability to cope with life's demands in a complex so-

ciety, with the practical substance as well as legalistic forms of racial equality. The political forces marshaled behind public policies regarding these national issues press hard upon the schools, again regardless of what the ideologic or formalistic pattern of interrelationship may continue to be.

The fact is that massive political forces of the last two decades have called upon the schools to serve as principal change agents for the implementation of national public policies. The long-running debate as to whether the schools should reflect or should reshape their society has become largely academic. The schools have been driven by political forces into the position of spearheading societal change as that change is embodied in politically formulated public policy.

As striking an example as any is the way in which the schools have been drafted into the role of principal change agent to effect racial integration. Segregation, especially in our great metropolitan centers, has been firmly embedded in ghetto-housing patterns. So firmly embedded has it been there that, when desegregation became an active public policy nationally, not housing itself but the schools were made the lever. Programs for integrating neighborhood schools, even if it meant bussing children into and out of racial-ghetto neighborhoods, have been used as the means for manipulating the more difficult problem of altering housing patterns.

The casting of the schools in such a role may be decried and, indeed, it is decried in many quarters with deep sincerity. Many very real cultural values of which the schools have been conservators amid the whirl and change among other institutions of society may be seriously imperiled as the schools perform this immediate function of implementing public policy. A lot more than Latin and Greek could be sacrificed in responding to the pressure of political forces generated in the last two decades.

The point intended to be emphasized is that, within the last two decades, the schools have been cast in the role of a principal change agent for implementing public policy as formulated by political processes of a pervasive national government. This has occurred largely without change in the traditional ideologic or formalistic relationship of the national government to the schools. Local school boards, exercising authority delegated from the states, still operate

the schools. Increasingly, however, political forces acting through the national government set the direction the schools are to go.

Conclusion

If we glance backward now through the foregoing analysis, in the process of summarizing, we ought to find ourselves in a position to begin exploring for answers to such questions as those posed in this chapter's introduction.

From the political perspective, it appears that the increasing pervasiveness of national government influence throughout our way of life is having the effect of making schools the principal agents of change for implementing public policies arrived at through political processes. This is occurring without open rupture of our traditional ideology of pluralistic state-local responsibility for and control of education, but it is clearly evident in the "lever" role assigned to the schools on such national policy matters as racial integration, war on poverty, permanent overseas commitments, and scientific conquest of space.

Both the sociological and economic perspectives reveal education and the schools serving more than ever before as selectors in determining the social status and occupational roles of persons and the prospects for progress of communities and regions of the country. Structural changes in the economy and in the society generally are placing on the schools a major burden of responsibility for inculcating flexibility, adaptability, and a high tolerance for uncertainty and ambiguity among our people to enable them to cope with rapid change as an integral aspect of life.

In the new social structure that we are developing and in the new cultural configuration that is emerging, the emphasis is on methodologies rather than metaphysics, on new symbolic systems for analysis and expression rather than dogmatic "solutions," and on the centrality of man acting in uncertainty. Individualism acquires a new interpretation in terms of social responsibility, and a far greater proportion of the growing population participates in the processes of society and in the cultural advance. Characterized by metropolitanism, great interlocking organizations, a homogenizing of population and regions, and new channels of social mobility, our emergent pattern of living calls for coping skills or competencies

that may bear little resemblance to what we have been accustomed to acknowledge as the objectives of instruction in our schools.

Such, we would contend, is a measure of the social forces to which our schools are called upon to respond, not simply as conservators and transmitters but as expediters and shapers.

The Behavioral Sciences and the Schools

RALPH W. TYLER

The use of the term "behavioral sciences" has largely developed within the last twenty years as a label to cover most of the sciences that are primarily concerned with the study of human behavior. They include biological studies, such as neurophysiology, psychiatry, human ecology; social studies, such as anthropology, economics, history, political science, psychology, sociology; and some scientific studies of behavior in humanistic fields, particularly in aspects of philosophy and literature. In its narrowest usage, the term "behavioral sciences" refers to anthropology, social psychology, sociology, and related interdisciplinary fields. Since the previous chapter has dealt with economic, social, and political forces, this one gives primary attention to current work in other social sciences. During the past decade or two, major developments have included not only the great increase in numbers of investigations of human behavior and a corresponding increase in findings but also the emerging conceptions of the human being, of social organizations, and of the individual's relations with others. These ideas and the new data pertaining to them have important implications for the conduct of education.

The Nature of the Individual

In the effort at the turn of the century to transform psychology from a speculative study to a science, the traditional concepts of soul, spirit, and even mind were discarded. The human being increasingly was regarded as an organism responding to stimuli rather than initiating encounters with his environment, except for recognition of physical drives similar to those in other animals. The design

of most psychological experiments assumed that humans were largely incapable of autonomous action; consequently, their behavior could be largely, if not wholly, understood as response to aspects of their environment which were outside of their control. It was assumed that the drives within the individual could easily be set in motion by outside manipulation. It is still recognized, of course, that the biological functioning of a human organism largely guarantees drives to satisfy inadequate biological conditions. When hungry, man will generally seek food; if thirsty, seek water; if denied opportunity for sexual expression, will seek it. But these biological drives represent only a small part of human motivation, particularly for men whose biological functioning is not limited by shortage of food, water, or other essential conditions.

Investigations designed to assess human motivation and the direction and energy used in behavior indicate that the individual is a dynamic organism; he brings to situations in life an active personality directed not only by basic biological drives and needs but also by values and purposes. Values which appear to be learned because they are developed by the individual over time are found to furnish a major explanation for the direction of human behavior when the individual is in situations in which the basic biological conditions have been met. The values held by the individual are not as easily manipulated by others as are the physical conditions under the control of the experimenter working with animals. Furthermore, the human individual whose biological needs are met actively explores his environment and seeks encounters with it rather than being directed chiefly by external stimuli.

The picture of the human individual which is now emerging is one of a dynamic organism, acting in ways which help him attain his values as well as seeking to meet basic biological needs. Although it is possible to set up conditions under which he acts as though he were simply a pawn of circumstance, manipulated by persons and forces outside of his control, much of the individual's behavior can be explained as an active effort on his part to manipulate his environment to attain his values. This conception has led to many new investigations of perception since the ways in which the individual perceives himself and the external environment appear to be important factors in directing his behavior. It has led also to new

research on personality and personality development in efforts to understand the dynamics of the individual.

Current Studies of Perception

What one perceives has traditionally been thought to be a straightforward interpretation of some or all of the sensations received from the sense organs. It was commonly thought that one's perception of a class of objects or events developed gradually over a long period, becoming increasingly comprehensive and accurate as one had more and more opportunity to observe the phenomena. This explanation of perception was relatively simple. More recently, however, investigations of several kinds have given new understanding of perception and an appreciation both of its central role in behavior and of its complexity.

Studies in visual perception demonstrate that perceiving such basic factors as distance, depth, and vertical or horizontal orientation is learned and that the individual can relearn so as to interpret accurately external conditions when wearing lenses which markedly distort the visual stimuli reaching the eyes. Under such circumstances he learns to interpret the visual impressions in relation to his active exploration of the environment, that is, he learns to see the environment in a way that enables him successfully to make the movements he is attempting, in spite of intervening distortions.

A second line of investigation indicates that one's perception of objects, persons, or events takes shape during early contact with them and commonly remains fairly stable in spite of many later opportunities to check the inadequacies of the initial perception. Thus, children may develop early the notion that the sea is blue partly, perhaps, from observing it when it was blue and partly by the suggestions of others, as in paintings. It is found that most children continue to "see" a blue sea even when asked to observe it when it is clearly gray, or brown, or green. Or, children at an early age may develop the notion of a janitor as a thin, stern, and complaining man. This perception often continues to operate even when asked to observe janitors who are, to an objective observer, fat and jolly. Perception of both physical and social phenomena is quite likely to be stereotyped, in spite of many opportunities for correcting the inadequacies of earlier perceptions.

Another significant feature of human perception is the fact that it can be influenced by others. Studies in social psychology demonstrate the extent to which the individual's perception both of physical and social phenomena is affected by the way in which friends or respected associates perceive them. For example, in a typical experiment, an event is enacted before a group. Each member of the group is asked to write down the significant things he observed. The reports do not vary greatly from the objective record. On the other hand, when the same event is enacted before a group and an influential member, who is one of the experimenters, reports aloud certain features he "saw" which were not actually present, a considerable fraction of the group will then report the same perception of the event.

The importance of greater understanding of perception lies in the fact that the individual deals with the world as he perceives it. He also is influenced in his behavior by the way in which he perceives himself. His effectiveness as a person, therefore, is dependent to a considerable extent upon the validity and accuracy of both his self-perception and his perception of the external environment. Valid and accurate perception does not necessarily develop through many or long-continued experiences. Initial faulty perceptions tend to remain. Fortunately, more adequate ways of perceiving can be learned and this suggests a role of education in assisting with the learning process.

Personality Research

Increasing recognition of the extent to which the individual initiates activity and attempts to manipulate his environment has heightened scholarly interest in understanding more about the nature and operation of the human personality. Current personality research is proceeding on many fronts. One, most closely related to research in perception, is the investigation of the concept of self and of the environment held by different individuals. An important difference among people is the degree to which they see the environment as something out of their control and to which they must adjust, or as something which they can handle for their own purposes. Even among small children, differences are found which appear to be related to their early childhood experiences. This view of self affects

the approach the child makes to the school experience, that is, in seeing his role as active or passive.

Another significant dimension of personality is the degree of flexibility or rigidity evidenced in the ease with which the individual shifts his method of attacking problems when the initial attack does not succeed, or the extent to which he changes his perspective or point of view in harmony with new information or to understand the points of view of other people. Rigidity, as thus assessed, is related to the individual's view of the world in terms of sharply defined opposites, such as black and white, right and wrong, or correct and incorrect, as opposed to the recognition of the complexity of the world and the changing and developing nature of knowledge. The college student, for example, who is assessed as rigid, thinks of learning as finding and remembering the answers to questions. There are right answers which scholars have discovered, and the student's role is to find these answers in books, lectures, or in laboratory exercises and to remember them. The flexible student is more likely to approach learning as a task of constructing explanations or solving problems and to be creative and imaginative.

Some personality research is concerned with studies of individual interests and values because these throw light on motivation and the direction of behavior. Persons differ in the extent of their interests in objects, people, construction activities, theoretical ideas, practical problems, aesthetic qualities, altruistic tasks, social recognition, and the like. These interests and the values inferred from them are found to be correlated with occupational and educational choices and with the kinds of achievement recorded in school and college.

One area of personality research which is currently receiving much attention is that of individual motivation to achieve; that is, to be successful in what one undertakes. Studies of young children show that some mothers withhold immediate gratification of children's needs until an assigned task has been completed. As the child completes the task, he is rewarded with a show of affection and comments on how good he is. Child-rearing practices of this sort are thought to explain the greater extent of achievement motivation among children from middle-class homes than among children from working-class homes where such a regimen is less frequently found. By the time children enter school, wide differences are found in the

degree of achievement motivation, the kind of motivation on which most teachers heavily depend to give direction to school learning.

Still another line of personality research is investigating the characteristic ways in which individuals utilize emotional resources and channel the expression of feelings which are socially unacceptable or unacceptable to the individual. Some persons are able to draw on their emotions for energy used in thought and action and for the color and satisfaction of everyday experiences. Others appear to be in continuous conflict with their emotions, sometimes finding their expression enervating and sometimes fearing that their expression will be unacceptable. Effective channeling of aggression, anger, love, and fear, is difficult for many. Freudian theory has been the basis of much research on emotions, but there are other theoretical positions which also are guiding current studies. Because of the importance of emotional expression in the dynamics of the individual studies in this area, they are certain to provide greater understanding of education. The school is the environment in which children live an important fraction of their lives. It should be an environment which encourages the development of a rich emotional life and helps each child find acceptable ways of expressing his genuine emotions.

The five areas of personality research briefly outlined in the preceding paragraphs are not all the fields now under investigation. They are mentioned to illustrate the variety of investigations under way and to suggest the kinds of studies which appear to have implications for education and the school. One other kind of finding appearing frequently in current work is that personality factors do change and develop and that patterns of personality can be learned, although not as easily as specific habits can be acquired. Hence, personality factors can be viewed as among the ends of education as well as important influences upon the direction and extent of learning.

Research and Learning

A recent yearbook of the National Society for the Study of Education [1] provides an excellent account of recent research on

1. *Theories of Learning and Instruction.* Sixty-third Yearbook of the National Society for the Study of Education, Part I. Edited by Ernest R. Hilgard and Herman G. Richey. Chicago: Distributed by the University of Chicago Press, 1964.

learning and suggests many implications for instruction. Because this comprehensive report is available, it is not necessary in this chapter to do more than comment on the importance of studies in learning in providing a basis for the improvement of curriculum and instruction. Hilgard's chapter in this yearbook [2] outlines promising strategies for integrating the psychology of learning with the technology of instruction. In summary he states:

> In order to build a sound bridge from the experimental studies of learning to the classroom, we need a series of steps, for applied science consists of more than applying principles to practice. The main points are that in the research and development phases a collaboration is called for between psychologist, subject-matter specialist, and teacher; beyond this, careful consideration has to be given to techniques of innovation. If we achieve success in integrating these phases, we will move toward that improvement of education which will be satisfying to us all.[3]

The need for collaboration, which Hilgard recognizes, grows out of the fact that effective direction and control of the process of learning are different with different content, different educational objectives, and different learners. There are some common features of all learning; for example, that for one to learn he must carry on the behavior to be learned and must obtain reward for carrying it on successfully. But this general formula does not answer many questions about particular learning problems: Under what conditions will the learner attempt to carry on a certain kind of behavior? How does he discover the cues that are useful in guiding his behavior? What kinds of learning tasks will be at a level at which he can succeed and yet require him to go beyond what he has previously been able to do? An even more fundamental question is the degree of generality of the behavior which the student is to learn, that is, how general or specific should the educational objectives be for this subject and these students?

When learning was conceived by psychologists and by educators as restricted to building a connection to elicit a specific response to a specific stimulus, educational objectives were detailed and specific, and learning was practice or drill in making the appropriate response

2. *Ibid.*, chap. xvii, "A Perspective on the Relationship between Learning Theory and Educational Practices," pp. 402-415.

3. *Ibid.*, p. 415.

to the specific stimulus. As research has shown that human beings can learn more general behavior, such as principles which apply to many situations, techniques for attacking problems, approaches to discover data and relationships, and ways of searching new situations for factors that are relevant and applicable to their purposes, the need for collaboration in research and in developing instructional practices has become much more obvious. It is no longer possible to state for all a formulation of attainable objectives, a list of good teaching techniques, and the specifications for useful materials of instruction. These are matters to be worked out collaboratively, using research and development procedures.

In addition to the research reported in the Sixty-third Yearbook, other current studies verify the common view that there are important factors influencing learning which are not directly under the control of the teacher. The institutional expectations as perceived by the students, the peer groups to which the student belongs or whose members he respects, and the attractive personalities with whom he identifies are found to exert an influence on the direction and amount of learning. Most schools and colleges impress upon the students the kinds of persons valued by them and the kinds of achievements expected of them. In some places, intellectual achievements are highly valued; in some, athletic prowess; in some, social skills; in some, friendliness. In general, it can be said that the institutional emphasis which is perceived by the students affects the nature and extent of their efforts, either positively or negatively.

In most schools and colleges, the friendship groups of students are varied in their composition, and each group may openly or tacitly indorse different standards. Some may support the educational purposes of the school; some may emphasize social activity or other behavior which is largely irrelevant to the work of the school and often distracts its members from educational endeavors. Peer groups sometimes are in rebellion against the school or members of the staff. The attitudes of friends can substantially affect one's actions, materially facilitating or impeding learning.

As children grow up, they commonly find persons in their environment to whom they are attracted and frequently attempt to emulate their behavior. This process can exert a significant influence on learning and is particularly potent in helping the child develop

new attitudes and attempt new activities as he observes the behavior
of persons attractive to him.

Current research on learning is providing new understanding
of the process by which individuals acquire new behavior both
within and outside the classroom. It is now possible to consider the
total environment of the school in seeking to increase the effective-
ness and efficiency of learning.

Research on Social Groups

During the past twenty years, the study of social groups has
occupied the interests of many behavioral scientists. This research
has greatly clarified the significance of human groups in their rela-
tion to individual behavior. Man is born into a family. All of his
earliest potent experiences involve at least one other person, usually
his mother. Much of his early exploration outside the home takes
place with the children of his own family or of the immediate neigh-
borhood. The school, the church, the playground, the working
situation, to enumerate only a few, are all contexts in which life is
lived, and they are all group contexts. The bulk of the investigations
show that groups influence individual behavior profoundly as the
individual, at the same time, is influencing the group.

Studies have shown that most groups attend both to the recog-
nized purpose for which they exist and to the emotionalized social
relations within the group. When the group social relations are
under tension, or when the individuals are uncertain or unhappy
about their status in the group, there is little progress in attaining
group purposes. Where group relations are stable and individuals
are clear about their status and find it acceptable, group morale is
high; the group is in excellent condition for pursuing its basic pur-
poses. Recent investigations have indicated the importance for ef-
fective group action of the congruity between an individual's and
the group's conception of an individual's social role. If individual A
thinks of himself as the one to contribute ideas to the group and if
the other members of the group consider that to be his role, his ideas
are quickly incorporated into group thinking; but if they think of
him as aggressive, trying to show off rather than to help the group,
his ideas are ridiculed or attacked rather than accepted, and the
group benefits little from them. Or, if individual B thinks of him-

self as the group "disciplinarian," the one who whips the others "into line" and if the other members of the group consider that to be his role, the group gets "into line" when he "goes after them" and is mobilized quickly for action. On the other hand, if other members of the group think of him as a "bully" or a "false front," his efforts bring greater confusion rather than mobilization of forces.

Studies also suggest that it is commonly in the various small groups of which an individual is a member that greatest development and modification of behavior takes place. Purely formal membership in a school, or church, or political party, or labor union, or other organization means little compared to the influence of the family, the gang, the friendship group, the small "outfit" with which he works, and the like. These groups provide the vital environment in which significant changes in attitudes, habits, and practices may take place. A wealth of detail is developing from current research regarding the conditions under which groups form, the typology of groups, how their directions are set, how they grow and change, and the conditions under which they die. Since education involves the activities of small groups in many contexts, familiarity with studies of this sort can contribute to the planning and operation of schools and educational programs.

Social Class and Occupation

Groups of small size are not the only ones which influence human behavior. Such groups as social classes, large-scale organizations, and those based on occupational status are also important. In chapter vii, several comments were made on the changing nature of social stratification in modern society. Mention was made also of the fact that today a large majority of Americans who, by income criteria, must be classified as "middle class" are still further differentiated in terms of distinct culture on the basis of occupational and educational status. Current research indicates that the modern community usually includes within it several social classes, typically three or more. A social class is defined as a collection of people of similar level of social prestige and public respect, but a class so defined can be identified most readily according to educational levels and the kinds of occupations represented. The families of skilled and unskilled laborers with limited educational background commonly

comprise the majority of the so-called lower-middle and upper-lower classes, while the families of professional and managerial people, most of whom have a college education, are commonly in the upper-middle class. From the standpoint of their influence on human behavior, there are two major characteristics of this social class structure: (*a*) each social class sets a pattern of "conventional" or acceptable behavior for its members, and (*b*) the hierarchy of social classes in terms of social prestige or public respect forms a ladder to direct the actions of members of a lower social class who seek to rise in public esteem and social recognition.

The pattern of acceptable behavior in a given social class is often called its "culture." It includes certain values which are preferred to others, certain attitudes which characterize its members, certain language patterns, including vocabulary, and certain ways of getting things done. The culture of one class differs in various respects from that of another. Among children of lower classes, fighting is an approved form of behavior. The use of certain four-letter words is acceptable in some classes and not in others. Sharp differences in etiquette, dress, table manners, and the like, are noticeable. Many parents in lower-middle classes desire higher prestige for their children. They often find cues for educating children for upper-middle-class status by observing the models of middle-class behavior shown in movies, television, radio, magazines, newspapers, and the like. Thus, the hierarchy of social classes exerts a powerful directive influence on those who seek to climb the "social ladder." The influence of social classes does not negate the earlier statement that small groups commonly exert the most powerful influence on individual behavior. Patterns of behavior set by social classes usually reach the individual through the mediation of small groups. Typically, the members of a small group are of the same social class and reinforce the patterns of behavior of that class.

Occupations exert powerful influences on their members through the fact that most gainfully employed adults identify strongly with the occupations in which they are engaged, and each occupation develops certain "ethics"—conventional behavior expected of its members, at least while they are at work. Recent studies of the sociology of various occupations, such as law, teaching, and medicine, indicate how extensively these occupational expectations guide the behavior

of their members. As with social classes, small groups of teachers, or lawyers, or carpenters, or farmers, often serve to reinforce the "culture" of the occupation.

The Study of Organizations

Another group structure, which has important influences, is the formal organization—the business firm, the government bureau, or the school staff. In chapter vii, a major point was made that for some years America has been moving from a society based on the open market and on traditional social classes to one which is more highly regulated, with the central activities, in general, performed by formal organizations. As this change has been taking place, an increasing amount of research has been focused on the nature of formal organizations. We know, of course, that most Americans are employed, more or less directly, by large organizations and that most of the goods we consume are produced by organizations. Increasingly, our leisure and our cultural life are provided by large organizations, and we live in communities which, as political units, are themselves large organizations. But we are only beginning to learn how organizations function so as to accomplish their purposes, carry on planning and execution, influence and direct the behavior of their members, and provide a milieu in which members obtain rewards.

Initial investigations, although they revealed some of the anatomy of the large-scale organization, overemphasized the power of the administration and its effects on the "organization man." Current research is more likely to be guided by the model of an open system, like a living system in biology, and seeks to find the features which provide mutual satisfactions to administrator and worker. In this connection, communication turns out to be very important in an organization, not only to give some coherence to the work undertaken but as a means to providing satisfaction or reward. Channels of communication, both formal and informal, need to be identified. The content and emotional character of communications through these channels need to be described in order to understand the way in which communications operate selectively to hold the organization together or to destroy its unity, to reward some members and

not others, and, more generally, to distort the intended messages. Four functions of communication in a large-scale organization are frequently noted: (*a*) To communicate the purpose of the job being done by a member of the organization in terms that give meaning and significance to it for him; (*b*) to further interpersonal relations in the organization by providing two-way channels by which the members may exchange expressions of their ideas and feelings; (*c*) to communicate significant features which guide the member's work—the work load, acceptable ways of doing the job, and so on; and (*d*) to provide a two-way communication by which the member can find out how well he is doing.

One of the areas of study in which widely different theories are guiding the research is that of the power relationships in a large-scale organization. This is an area of great importance in understanding how an organization works or fails to work, but there may be no single model which will be uniformly helpful in the explanation, because organizations differ among themselves in several respects which may be significant for the power relations. Some organizations, like the post office or the public schools, are monopolies that need spend little energy in meeting external competition. Some are almost closed systems where change is relatively slow; others, such as a graduate department of psychology, are open systems, open to new knowledge, new staff members, and new students. Some organizations, such as a medical clinic, are built around a high degree of expertness; others, such as a chain grocery, require few, if any, highly trained specialists. Some studies assume that, in one sense, power is a bargaining value so that power exercised by some has been granted by those assenting to power because they expect to gain something of equal value. On this assumption, different kinds of organizations have different needs for power and authority and may provide different values to those accepting the power relationship.

Current research on the functioning of large-scale organizations is very active and can be seen to have many implications for education as well as for the general understanding of our developing society. No doubt, the most obvious implications lie in the organization and administration of schools and colleges.

Research on Leadership

Although the study of leaders and leadership is a relatively old item on the agenda of the social sciences, recent work has taken some new directions. The early work of psychologists sought to find the characteristic traits of the effective leader. The only trait which was found almost universally among leaders of business, education, politics, and the military was a higher-than-average level of energy. No traits of personality or of intellectual functioning were identified. Efforts to discover other traits which might be common to effective leaders in a single field were not successful. Early sociological studies sought uniformities about leadership based on characteristics of those led or of the situation. But these investigations also were relatively barren. Current research is based upon a more detailed conceptual model of the leadership situation. Some investigators are studying leadership as an essential feature of a large-scale organization. Hence, they outline the anatomy of a given type of organization, identify places in the organization where leadership is expected to function, and then observe the functioning of the "leader" and the behavior he exhibits in this situation. This approach provides a multiplicity of leadership situations related to the anatomy and the constraints of the organization and permits identification of various kinds of leadership roles.

A second kind of approach which is common in studying leadership in a political organization is to view the office, like that of the president, as requiring leadership and then to analyze the various leadership roles in terms of a group or team of persons filling those roles. This permits leadership to be viewed according to conflicting requirements of personal abilities and traits since they can be filled by a combination of several people.

A third approach is that of social psychologists studying leadership as found in small groups—the behavior involved in taking initiative, in allocating rewards, and so on. Finally, investigations are still continuing on the personality characteristics of effective leaders using the guiding hypothesis that there are types of leadership situations, each of which may evoke its own special personality patterns.

Research on leadership is likely to be of continuing interest to educators because schools depend upon leadership not only for their

formal administration but also for the functioning of teacher organizations, classroom group activities, extracurricular programs, and civic groups concerned with education. Present knowledge provides helpful suggestions for study within the educational context, and new publications are likely to add to our understanding.

Other Research Areas

The foregoing discussion of research in the behavioral sciences which has implications for education does not exhaust the listing of active inquiries under way. Chapter vii outlined some important work in economics, political science, demography, social change, and decision-making. Mathematical game theory and information theory currently are used to suggest models for rational decision-making under differing conditions with regard to the relevant information available. The fields of communications research and of operations analysis are very much alive. Studies of the development of human resources in the newly emerging nations, by economists, anthropologists, sociologists, and psychologists, are revealing a variety of informal situations, groups, and agencies that contribute substantially to the training and education of youth and adults. Clearly, the concepts and the results of research in the behavioral sciences appear to have important bearing on our understanding of education. More adequate understanding, in turn, provides us with further bases for guiding work in the schools.

CHAPTER IX

The Design of Instruction [1]

ROBERT GLASER

The use of modern science in the interest of society has become an important obligation of our times. This is true no less in education than it is in medicine and engineering. As increasing knowledge is accumulated in psychology and the behavioral sciences in general, a foundation is provided for a growing scientific and technological base for instructional practice. The translation of scientific knowledge into practice requires extensive applied research and technological development. However, at this time, an entity to carry out the function of instructional design and development hardly exists. If a person (or organization) were to carry out such a function, how would he begin to work, and in what sort of conceptual framework would he perform his job? This chapter speculates about and discusses such a framework and describes some of the concepts that an "instructional designer" might use in thinking about his work. The tasks he must perform involve the interplay between theory, research, and application. This chapter describes, not application as such, but aspects of the necessary research and development which can eventually lead to innovation and redesign in instructional practice. Evidences of such innovation and redesign are beginning to mark the changing American school.

It is apparent that forces are at work which are encouraging the increasing growth of the scientific underpinnings of educational practice and the development of "engineering" enterprises that back up the teaching profession. In many ways these enterprises are like

the "engineering" organizations, such as pharmaceutical manufacturers and industrial research laboratories, that provide materials for use by the medical and engineering professions. The forces encouraging research and development basic to instructional practice are the following: (*a*) the increasing recognition among psychologists that their work has been too remote from the many problems of classroom learning, this recognition being spurred on, for example, by the basic research that had led to programed learning in the form of programed texts and teaching machines; (*b*) the increasing sophistication of the teaching profession which is forcing the behavioral scientist to provide it with knowledge relevant to the educational process; and (*c*) the increasing national sponsorship of centers and laboratories dedicated to mutually supporting relationships between behavioral science and educational practice.

Out of these trends will grow the "instructional designer" mentioned above, and the remainder of this chapter suggests some theory and research which can influence his activities. If the instructional designer, working in a research and development setting, did exist, then it can be assumed that he would operate in the following manner: First, he would analyze the subject-matter domain under consideration—reading, mathematics, or other. He would think of a domain in terms of the performance competencies which comprise it. He would analyze representative instances of subject-matter competence according to the stimulus characteristics of the content involved and the properties of the responses the student makes to the content. (Response is used here to mean broad activity ranging from memorizing to problem-solving.) He would further analyze the structural characteristics of the domain, perhaps according to its conceptual hierarchies and operating rules. Second, this instructional designer would turn his attention to the characteristics of the students that are to be taught. He would determine the extent to which the students already have acquired some of the things to be learned, the extent to which they have certain content prerequisites, the extent to which their antecedent learnings might facilitate or interfere with the new learning, and the extent to which the students have certain aptitude-like prerequisites consisting of necessary sensory discriminations and motor skills.

These first two steps provide information to the educational de-

signer about the target performance to be obtained and the existing preinstructional behavior of the learner. The designer must then proceed to get from one state to the other. This sets up his third task. This task consists of helping the student go from the preinstructional behavioral state to a state of subject-matter competence. This requires the construction of teaching procedures and materials to be employed in the educational process. As part of this process, he must take account of motivational effects and the ability of humans to generalize and extrapolate; this is accomplished by providing conditions which will result in the maintenance and extension of the competence being taught. Finally, the educational designer must make provision for assessing and evaluating the nature of the competence and kind of knowledge achieved by the learner in relation to some performance criteria that have been established.

To many present-day educational practitioners this description of the process of instructional design may sound harshly technological, and indeed, perhaps some elegance has been lost in analysis. But, presumably, once basic techniques are constructed, the teacher can use the tools of his profession with understanding, artistry, and sensitivity. The design components that have just been described are (a) analyzing the characteristics of subject-matter competence, (b) diagnosing preinstructional behavior, (c) carrying out the instructional process, and (d) measuring learning outcomes. This chapter comments further about each of these.

Analyzing the Characteristics of Subject-Matter Competence

When the psychologist turns his attention from analysis of the behavior involved in standardized, arbitrary tasks used in the laboratory to the identification of the processes involved in learning the nonarbitrary behavior generally taught in our culture, he runs head on into the problem of the analysis of subject-matter tasks. The significance of this problem was high-lighted by psychologists when they turned their attention to practical training, as they did in the Air Force program under the direction of Arthur W. Melton. The concern with task analysis is a reaction to the fact that, while the laboratory investigator decides upon and constructs an experimental task pertinent to his particular purposes, he is not in a position to do this in the ongoing educational setting. In the laboratory, by

preselecting his task to fit a problem, he has in a sense analyzed its stimulus and response characteristics. However, when working with nonarbitrary behavior, he is faced with the problem of identifying the properties of the behavior involved so that he can proceed to operate in his usual way. As a behavioral scientist he is accustomed to working with specified behavior, and he needs to do so in the instructional situation. The transition from the laboratory to application frequently requires this additional consideration. The recent writings and explorations of Bruner,[2] for example, continuously emphasize a concern with subject-matter structure, and this most likely develops out of his concern with real-life subject matter.

The significance of subject-matter analysis is emphasized when a psychologist,[3] involving himself in the learning of a second language, discovers to his good fortune that much time already has been devoted to the systematic specification of the terminal behaviors of language instruction. By contrast, working in the field of English, another psychologist[4] indicates that a major problem is the need for better specification of the behavior to be taught by English teachers. It is interesting to point out that, in English, the prescriptive nature of traditional grammar has "apparently settled in prescriptive methods of instruction."[5] In this case, the characteristics of the subject matter affected instructional techniques, and detailed analysis of subject-matter properties, in turn, probably will demand advances in instructional procedure. Some illustrative influences of

2. Jerome S. Bruner, *The Process of Education* (Cambridge, Massachusetts: Harvard University Press, 1960); and "Some Theorems on Instruction Illustrated with Reference to Mathematics," in *Theories of Learning and Instruction* (The Sixty-third Yearbook of the National Society for the Study of Education, Part I. Edited by E. R. Hilgard. Chicago: University of Chicago Press, 1964).

3. H. L. Lane, "Programed Learning of a Second Language," in *Teaching Machines and Programed Learning, II: Data and Directions.* Edited by Robert Glaser. Washington: National Education Association, 1965.

4. Susan M. Markle, "Programed Instruction in English," in *Teaching Machines and Programed Learning, II: Data and Directions, op. cit.*

5. *Ibid.*

subject-matter characteristics upon the investigation of learning and instruction are suggested below.

First is the distinction between component repertoires and content repertoires. Content repertoire refers to a subject-matter oriented analysis. Component repertoire refers to a behavioral analysis. A subject-matter expert can generally divide his subject into subtopics, primarily on the basis of content interrelationships and subject-matter logic and arrangement. By contrast, a psychologist considers content analysis less and behavior analysis more. Particularly, he looks for the kinds of stimulus-response situations involved. The concern of psychologists with taxonomies [6] reflects initial attempts to develop schemes for describing and analyzing component repertoires.

From the point of view of instruction, the practical requirement for component-repertoire analysis is to identify the kind of behavior involved so that the learner can be provided with instructional procedures and environmental conditions which best facilitate the learning of that kind of behavior. The underlying assumption is that the learning of various kinds of component repertoires requires different kinds of teaching procedures, and a research task is to identify the learning processes and appropriate instructional procedures associated with different component repertoires. This kind of thinking underlies Gagné's [7] analysis of instructional objectives for the design of instruction when he lists response differentiation, association, multiple discrimination, behavior chains, class concepts, principles, and strategies as categories of behavior and attempts to suggest learning conditions relevant to each category.

Designing optimal instruction may be a matter of choosing tactics appropriate to categories of behavior implied by the noncontent

6. Arthur W. Melton, "The Science of Learning and the Technology of Educational Methods," *Harvard Educational Review*, XXIX (Spring, 1959), 96-106. (Also in *Teaching Machines and Programed Learning*. Edited by A. A. Lumsdaine and Robert Glaser. Washington: National Education Association, 1960.)

7. Robert M. Gagné, "The Analysis of Instructional Objectives for the Design of Instruction," in *Teaching Machines and Programed Learning, ll: Data and Directions, op. cit.*; and Robert M. Gagné, *The Conditions of Learning* (New York: Holt, Rinehart & Winston, 1965).

characteristics of instructional objectives.[8] In this context, such fields as linguistics and logic, devoted to analysis of organized knowledge, should become increasingly useful in providing insights into the relationship between subject-matter structure and the behavioral structure required for learning. For example, a contrastive analysis of the linguistic requirements of a student's first language and the target second language to be learned can provide details for an instructional prescription.

Second is the distinction between *product and process*. The trend toward the behavioral analysis of instructional objectives has led to the use of the term, "process" objectives. The curriculum for science in the elementary grades,[9] developed under the auspices of the American Association for the Advancement of Science, considers process objectives, such as observation, classification, prediction, and inference. The content as such, whether magnetism, sound, light or heat phenomena, or biological events, is of secondary importance in this curriculum. The learning of "processes" is more important. Also, at the higher levels of science teaching, there is increasing concern with more than "formal and descriptive knowledge" of the current body of science. Emphasis is placed on such behaviors as generating hypotheses, selecting fruitful hypotheses, testing hypotheses and deciding upon experiments, and the more generalized traits of a scientist, such as perseverance and curiosity. The trend toward the statement of so-called process objectives reflects a recognition of the importance of the component repertoire.

It should be pointed out, however, that the word "process" in process objective can be somewhat misleading. A statement of an objective refers to a behavioral state which is some performance by the student, and the performance itself, or the results of the performance, can be measured in some way. It is important to distinguish between the behavioral state and the process of attaining the behavioral state, which is carried out by an instructional sequence. Perhaps nowhere in recent years has the confusion between process

8. Thomas F. Gilbert, "Mathetics: The Technology of Education," *Journal of Mathetics*, I (January, 1962), 7-73.

9. *Science—A Process Approach*. American Association for the Advancement of Science, 1963.

and state been more rampant than in the recent emphasis on "discovery learning." In both the practical and the research work in this area, there is a confusion between two kinds of events: one event has to do with learning *by* discovery (process), that is, teaching certain objectives by a discovery method; the other event has to do with learning *to* discover (a behavioral state), or teaching for a terminal state which is manifested by the ability to make discoveries.

Third is the significance of *transfer and concept formation*. Subject-matter properties very significantly determine the dimensions along which the student must be taught to generalize and transfer his knowledge. Presumably the ability to generalize and to transfer is a function of experience with a variety of examples and different subject-matter instances. But what defines variety and what defines different instances that lead to generalizable knowledge? For some subject-matter aspects, there is little ambiguity about whether variations in the examples presented to a student are instances of a basic rule. However, as a subject matter becomes complex, definition of a range of examples may become difficult, and problems arise concerning whether training in various instances does, indeed, carry over to new situations.

Generalization is a significant component of concept formation, and the influence of the analysis of subject-matter dimensions can be made most clearly when one considers the teaching of concepts. Many psychologists would agree that the basic procedure for teaching the ability to use concepts involves teaching the student to generalize within classes and to discriminate between classes. The student must learn to make the same responses to all members falling within a class and to make different responses to members of different classes. The procedure involved can be illustrated by the simple case of teaching a child the concepts of red and blue. Discrimination and generalization trials are presented with the colors red and blue. Other properties of the objects are varied randomly so that the student learns to generalize among objects having in common no characteristic other than their color. For example: First, the child is shown successive sets of three objects, two red ones and one not red. Each time these three objects are presented the question is asked, "Which is not red?" This is repeated a number of times with only two blue objects. In this way discriminations are established

between red and not red, and blue and not blue. The child might then be presented with two objects, one red and one blue and asked "Which one is red?" or "Which one is blue?" The number of non-red and nonblue objects could then be increased so that only one out of a number of objects is red or blue. In order to carry out training for generalization, objects with a variety of characteristics would be included in the sequence of color-discrimination training —large and small objects, dark and light ones, rough and smooth ones, near and far ones, square, triangular, and irregularly-shaped ones, and so forth. This would prevent the responses "red" and "blue" from being attached to stimuli other than the appropriate ones. With the properties of the objects varied, the child would learn to generalize among objects in which the common characteristic is color. In this way the child is presented with a series of progressively graded experiences by which he acquires the concepts of redness and blueness.

This instructional process becomes complicated when the subject-matter properties to be generalized and discriminated are not clear cut or become very subtle as, for instance, in the concepts classic and neoclassic art or early Mozart and late Mozart.[10] A major problem in teaching such subtle and complex concepts is the definition of the subject-matter classes. This becomes increasingly problematical when there is disagreement among experts and where there are semantic imprecisions. Sometimes the distinction between classes is not clear to the learner because he does not have the necessary training required. At other times the difficulty lies with subject-matter imprecision.

In the three points made so far, the attempt has been to show that the analysis of behavioral objectives is an area that cannot be overlooked in research and development on learning that leads to effective instructional practice. To emphasize the point, one can resort to testimonial quotes. "So important is the principle of programing that it is often regarded as the main contribution of the teaching-machine movement, but the experimental analysis of be-

10. *Vide* Francis Mechner, "Science Education and Behavioral Technology," in *Teaching Machines and Programed Learning, II: Data and Directions, op. cit.*

havior has much more to contribute to a technology of education." [11] This is from Skinner, and while he means somewhat more than only the analysis of behavioral objectives, his point is certainly related to that of the writer. In analyzing English teaching, Markle says, "In the case of critical and evaluative skills in literature, the technology of task analysis is crucial. Not the technology of designing frames." [12] Gagné, with his emphasis on sequential objectives, says, "The entire sequence of objectives . . . is considered to be the most important set of variables in the instructional process, outweighing as a critical factor more familiar variables like step size, response mode, and others." [13] Crawford, in considering the extensive experiences of the Human Resources Research Office of George Washington University in army military training, says that "perhaps the most important single contribution to the development of training through research has been the determination of methods for the formulation of objectives of instruction." [14]

Diagnosing Preinstructional Behavior

Once the objectives of subject-matter behavior have been analyzed, the instructional designer turns his attention to the characteristics of the learner who is to attain these objectives. This brings up the problems involved in diagnosing the preinstructional behavior or the entering repertoire of the learner. For measurement psychologists, this has been a primary concern. For psychologists interested in learning, preinstructional individual differences have been relegated, for the most part, to error variance in experimental design. It is increasingly obvious, however, that a psychology of learning relevant to instructional practice cannot consider individual differences as error variance. Classroom and laboratory studies are constant reminders that individual differences is one of the most im-

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11. B. F. Skinner, "Reflections on a Decade of Teaching Machines," in *Teaching Machines and Programed Learning, II: Data and Directions, op. cit.*

12. Markle, *op. cit.*

13. Gagné, *op. cit.*

14. Meredith P. Crawford, "Concepts of Training," in *Psychological Principles in System Development.* Edited by Robert M. Gagné. New York: Holt, Rinehart & Winston, 1962.

portant but least accepted principles of both learning theory and subject-matter teaching.[15]

In research on programed instruction, one is uniformly impressed with the extent of variability in student learning rates.[16] Rate of learning, however, is only one relevant dimension of individual differences. It is the dimension which programed instruction has emphasized, and it is probably the easiest one to accommodate (even though its adequate recognition certainly can upset the organization of a school). There are other dimensions of individual differences of equal or greater significance which pertain to the component and content repertoires of the student, i.e., aptitude pattern, skill level, et cetera. At least four classes of preinstructional variables are determinants of the course of achievement: [17] (a) the extent to which the individual already has acquired the responses sought, e.g., appropriate motor skills; (b) the extent to which the individual has acquired the prerequisites for learning the responses to be acquired, e.g., knowing how to add before learning to multiply; (c) the extent to which the individual has acquired the learning-set variables consisting of antecedent learnings which facilitate or interfere with new learning under certain instructional conditions, e.g., prior experience or information in a particular area; and (d) the individual's ability to make the discriminations necessary to profit from instruction, e.g., aptitude in spatial perception.

In the instructional process, just as objectives define the target behaviors which are accepted as givens to be attained, so must preinstructional behavior be accepted as a given, if we do not or cannot rigorously control or delimit student behavior up to the point of entry into instruction. The array of concepts involved in the pre-

15. *Vide* Patrick Suppes, "Modern Learning Theory and the Elementary-School Curriculum," *American Educational Research Journal*, I (March, 1964), 79–93.

16. Robert Glaser, James H. Reynolds, and Margaret G. Fullick, *Programmed Instruction in the Intact Classroom*. Pittsburgh: Learning Research and Development Center of the University of Pittsburgh, 1963. (Report issued under Cooperative Research Project No. 1343.)

17. Robert M. W. Travers, *Essentials of Learning: An Overview for Students of Education*. New York: Macmillan Co., 1963.

instructional measurement and diagnoses of aptitude, readiness, and achievement must be systematized for theoretical development and for use in instructional design. For example, the long-term prediction by aptitude tests of achievement scores at the end of a course might be supplemented by measures of behavior which predict whether the individual can achieve the next immediate instructional step. "In certain of the new curricula, there are data to suggest that aptitude measures correlate much less with end-of-course achievement than they do with achievement in early units." [18]

While most of the available products in programed instruction show an appalling lack of recognition of differences in entering behavior, recent discussions of programed instruction are very much concerned with it. Markle,[19] in commenting on English teaching, points out that student variability ranges from no information to misinformation and that the majority of presently available programs in English make no provision for diagnosing and then using this diagnostic information. She says, "The English instructor . . . must begin at many points and go at many paces while covering a multitude of points. . . . The task is impossible. . . . There can be little doubt that individualized instruction is a necessity, not a luxury, in English class." Carroll,[20] discussing implications for teaching of language development in children, says, "Teachers must ponder the extent to which they can attempt to alter a system of habits which are not only highly practiced, but which also probably serve a supportive role in the child's adjustment to his non-school environment."

If the assessment of preinstructional behavior is considered to be the determination of an entering behavioral repertoire which the instructional process is designed to guide and modify, then research becomes reoriented in a number of areas. In the analysis of readiness, for example, measurement of the fact that readiness factors

18. Lee J. Cronbach, "Course Improvement through Evaluation," *Teachers College Record*, LXIV (May, 1963), 675.

19. Markle, *op. cit.*

20. John B. Carroll, "Language Development in Children," in *Psycholinguistics: A Book of Readings.* Edited by S. Saporta. New York: Holt, Rinehart & Winston, 1963.

differ with age and with individuals must be supplemented by analyses of the conditions influencing these differences and the contribution of these differences to learning.

The approach to developmental norms requires reconsideration. Prevailing norms necessarily assume prevailing learning conditions; however, new learning environments can change the norms. One approach for research and development in education is to adjust a learning environment to preinstructional behavior capabilities and then to study maturational limitations.

Research on aptitudes might be reoriented. If designing instructional environments for early ages is considered, it is conceivable that the "curriculum" will not be formal subject matters like mathematics or spelling but, rather, instruction in behaviors which look more like aptitudes. The general kind of experiment that might be considered is to treat aptitudes as instructional requirements in a sequence of educational progress. Skilful teaching of the behaviors that comprise aptitude should then enhance subsequent learning achievement.

With respect to preinstructional repertoires, the important problem is to investigate the relationships between individual differences and learning variables and, more practically, to develop techniques for the accommodation of instruction to individual differences. Work along these lines points out that the identification of pertinent entering behavior can be a complex and subtle task. Entering behavior that facilitates the next learning step is related to such difficult problems as the identification of transfer hierarchies of learning. Furthermore, the identification of the relevant differences in preinstructional behavior, when one student learns and another student does not, may be extremely difficult to accomplish. Identification in nonspecific terms, such as "inadequate aptitude level" or "poor motivation," does not provide the behavioral detail required for the design of an appropriate teaching sequence.

Carrying Out the Instructional Process

Once the content and component repertoires involved in terminal behavior objectives and subobjectives are described, and once the entering behavior of the student also is described, a precise instructional process can be implemented. For example, if a student

is learning to sound out phonemes that correspond to displayed graphemes, and he does not have the pronunciation of phonemes in his repertoire, he must first be taught this behavior. If it already has been learned, then instruction concentrates on bringing the pronunciation responses under the control of appropriate graphemes. In subject-matter learning, the instructional process can be defined as a way of arranging the student's environment to expedite learnings which comprise subject-matter competence.

At least three kinds of processes seem to be involved: (*a*) setting up new forms of student behavior, such as new speaking patterns or a new skill like handwriting; (*b*) setting up new kinds of stimulus control, for example, learning to read after having learned to speak, so that the already-learned response of making speech sounds is attached to particular visual symbols; and (*c*) maintaining the behavior of the student. This third category is less involved with behavior change and more concerned with increasing the student's likelihood to behave and, therefore, often falls under the label of motivation. Brief elaboration of these general categories follows.

Setting up new forms of behavior.—A very evident characteristic of learning which leads to subject-matter mastery is the increasing precision of the student's responses. In learning complex behavior, the student's initial performance is variable and quite crude, rarely meeting the criteria of subject-matter competence. Effective instructional procedure tolerates the student's initially crude responses and gradually takes him toward mastery. The instructional process, then, must involve the establishment of successively more rigorous criteria in the progression of learner performance. Increasing competence in new learning is accomplished by gradually contracting the permissible margin of error. For example, if precise timing and tempo were being taught to a student of music, it would be unrealistic to reward the student only on those rare occasions when he briefly maintained an accurate response. Since the performance of the beginning student will be quite variable, standards should be initially gross, and performance criteria should be changed at a rate which insures continuing progress toward mastery. Each successive range of acceptable performance should include a major portion of the range of variations already in the student's performance so that there will be frequent opportunity for

the reinforcement of success. Over the sequence of instruction, the range of observed performance will align itself with the particular range of acceptable performance defined as subject-matter competence. In the course of the instructional sequence, a sudden or inappropriate constriction in performance criteria is one environmental change which can lead to frustration or loss of interest.

Setting up new kinds of stimulus control.—Compared with the process just described, an equally if not more significant process in subject-matter learning is the stimulus control of performance. Learning a second language, for example, has stressed the importance of the transfer from an initial repertoire to a target repertoire. There is often the difficulty, say, in teaching translation, of transferring from one stimulus class to another. The oral response "flower" has to be transferred from the English word "flower" to the German word "die Blume." The restructuring of the student's entering repertoire is the pertinent instructional task, and this involves teaching new forms of response and transferring stimulus control to new subject matter. As another simplified example of the transfer of stimulus control, consider a child learning color names. The child can say the words "red" and "blue"; these responses are available for the teacher to use. The teacher must now bring the response under the control of the proper color stimuli, red and blue, so that colors can be called by their names. The transfer of stimulus control is a major process involved in teaching students to make responses to more precise subject-matter discriminations and in teaching them to use previously learned skills in response to new subject material.[21]

Maintaining behavior.—The processes just described, setting up new forms of response and new kinds of stimulus control, assume only that the behavior of an expert in a given subject matter is characterized by the facility with which this behavior is called out by particular subject-matter contexts. A further characteristic of an expert's behavior is that it is apparently self-sustaining. The expert may continue to respond for relatively long periods of time without

21. *Vide* Julian I. Taber, Robert Glaser, and Halmuth H. Schaefer, *Learning and Programed Instruction*, chap. iii. Reading, Massachusetts: Addison-Wesley Publishing Co., 1965.

apparent external support and without support from aids and references that are needed by the novice. Not only is the expert's behavior guided or controlled by the subject matter but, with increasing competence in behavior, it can be characterized as self-sustaining and highly independent of environmental supports. Research and development on the teaching and learning of such self-sustaining sequences is an important problem—a problem that is related to such behavior-maintaining situations as those which come under the labels of motivation and curiosity.

SOME CONDITIONS INFLUENCING THE INSTRUCTIONAL PROCESS

If it can be assumed that learning involves the kinds of processes just described, attention can be turned to some conditions which influence these processes. The conditions to be described are those suggested by the work of experimental psychologists and by practical attempts at instructional programing. In discussing these conditions, it is useful to introduce another term, namely "transitional behavior." If an instructional sequence is concerned with modifying student performance in order to get from entering behavior to specified terminal behavior, then transitional behavior is defined as the performance carried out by the student in the course of attaining competence in terminal behavior. Efficient learning conditions for transitional behavior may be radically different from the eventual conditions under which subject-matter competence occurs. As illustrations of conditions influencing the instructional process which can be subjected to psychological study, the following are considered: sequencing, stimulus and response factors, practice, and response contingencies.

Sequencing.—The sequencing of transitional behavior is a condition of learning which requires detailed analysis. The idea of gradual progression in programed instruction is a related notion. However, more subtle analyses are required. Scholars frequently point out that their subject is not organized as sequentially as, say, mathematics, and that instruction cannot be so carefully sequenced. Further, their subject matter requires that many considerations be handled at one time so that the student can perform in an integrated fashion. However, when one undertakes to lay out details in instructional sequences and to establish partial attainment goals, the

"all things at once" idea [22] seems to fall. Decisions need to be made, on some basis, about what is to be learned before what. The sequencing requirement cuts across many areas of interest in psychological research, certainly the area of transfer—particularly transfer from the learning of one subobjective to the entering requirements for learning the next subobjective. As Suppes [23] has pointed out, the identification of the structure of subconcepts determining the nature of transfer is a central problem in learning theory related to instruction.

Sequencing cuts across the notion of a gradual progression of difficulty in learning hierarchies. An analysis of what is meant by "difficulty" and of the variables that influence "learning difficulty" can involve an amazing number of subject-matter factors. Silberman's [24] analysis of the factors influencing sequencing in learning to read illustrates the complexity involved. The variables he lists include word frequency, letter frequency, syntactic structure, meaningfulness, redundant patterns, pronounceability, word and sentence length, word familiarity, stimulus similarity, and grapheme-phoneme correspondences.

Sequencing requirements point up at least three general problems in designing instructional sequences: (*a*) regularity of structure, (*b*) response availability, and (*c*) stimulus similarity and dissimilarity. Regularity of structure refers to the structure of concept development. The neglect of this area is very forcefully brought out when one examines most present-day methods of teaching reading. There seems to be little regularity in the development of, say, phonemic concepts, or morphemic regularities as the former are taught in the reading program by Buchanan [25] or the latter in the word analysis program by Markle.[26]

22. Markle, *op. cit.*

23. Suppes, *op. cit.*

24. Harry F. Silberman, "Reading and Related Verbal Learning," in *Teaching Machines and Programed Learning, II: Data and Directions, op. cit.*

25. Cynthia D. Buchanan, *Programmed Reading*. New York: McGraw-Hill Book Co., 1963.

26. Susan M. Markle, *Words: A Programed Course in Vocabulary Development*. Chicago: Science Research Associates, 1961.

Response availability refers to the notion that the responses to be learned in the course of an instructional sequence should be available at the time these responses are to be associated with or come under the control of relevant subject-matter stimuli. This is an area investigated in studies of verbal learning; for example, Underwood and Schulz [27] concluded that the pronounceability of certain verbal units was a predictor of the extent to which these units were learned in experiments on word association. Response availability would seem to be neglected in instructional design. In teaching reading, for example, there is often little relationship in language and syntactic patterns between the oral language of children and the material by which they learn to read. It has been suggested that a closer relationship between the two can profit from the facilitation involved in response availability. In everyday school practice, the experience charts by teachers take account of the availability of already strong responses. In Gagné's hierarchical charts on subobjectives,[28] an important factor is response availability, which facilitates the learning of the next subobjective.

Stimulus similarity and dissimilarity in the sequencing of instruction relates to such procedures as introducing subject-matter content according to increasing similarity of form or meaning. Simple dissimilarities are introduced initially and, as these discriminations become learned, more difficult ones are introduced. In learning grapheme-phoneme correspondences, some programed instructional procedures [29] take account of this by introducing not all of the letters of the alphabet in early reading instruction, but only the maximally discriminable letters. More difficult letter discriminations are reserved until a sizable reading vocabulary has been built up with the initially learned letters.

Stimulus and response factors.—In addition to sequencing conditions, it is necessary in instruction to decide upon the ways in

27. Benton J. Underwood and Rudolph W. Schulz, *Meaningfulness and Verbal Learning.* New York: J. B. Lippincott Co., 1960.

28. Robert M. Gagné, "The Acquisition of Knowledge," *Psychological Review*, LXIX (July, 1962), 355-65.

29. Buchanan, *op. cit.*

which the student can perform and to determine how subject-matter material will be presented to him. This point has already been mentioned in considering the analysis of subject-matter content. The stimulus and response aspects of a subject-matter domain determine the dimensions along which a student can interact with it. In present-day instruction, since printed materials carry so much of the burden of instructional presentation, educators have scarcely begun to investigate new possibilities for providing interaction between the student and his subject matter, possibilities which are dictated by the stimulus and response characteristics of a subject matter. It seems possible to be able to present the learner with ways of seeing and manipulating his subject matter that extend and enrich his contact with it and to form a learning environment in which subject-matter dimensions need not be so drastically reduced as they may be when forced into a primarily paper-and-print learning environment. Engineering and engineering psychology have worked on the experimental analysis of the display and response characteristics by which a human can communicate with his environment. Similar concerns must be expressed in education with respect to the interface between student and subject matter. We need to examine the display and response characteristics by which a student can interact with a subject-matter discipline.[30] An example of this exciting trend is the development of graphical input and output facilities in automated instructional systems which can remove the student from the restrictions of keyboards and one-dimensional inputs. In computer-assisted instruction, a major innovation seems to be required in the form of input and output consoles which are possible with existing technology.

Practice.—Many of the early experiments in programed instruction involved the manipulation of the number of steps in a program so that programs with different numbers of frames, but teaching the same things, were compared. The results obtained from several studies along these lines are ambiguous.[31] However, they serve to make

30. Robert Glaser, William W. Ramage, and Joseph I. Lipson, *The Interface between Student and Subject Matter*. Pittsburgh: Learning Research and Development Center, University of Pittsburgh, 1964.

31. James G. Holland, "Research on Programing Variables," in *Teaching Machines and Programed Learning, II: Data and Directions, op. cit.*

one aware of how little is known that can be applied about the variable of practice, which is an old and respectable topic in learning. In designing programs, the amount of practice and review employed needs to be determined empirically and certainly is affected by individual differences. A pilot study by Hawker [32] shows that, after a program is completed, at least one-fifth of the frames can be removed without change in the average performance attained by a group.

A study completed by Reynolds and Glaser,[33] in which experimental sequences in junior high school general science were imbedded in a larger general science program, investigated the amount of repetition of stimulus and response in the learning of technical terms and also investigated the spacing of review sequences. The results, measured for immediate learning and retention, showed that variations in repetition had only transitory effects but that spaced review in the course of a programed instructional sequence significantly facilitated retention of the reviewed material. Similar results in a laboratory situation involving paired-associate learning with massed and distributed repetitions of items have been reported by Greeno.[34] The results suggest that the often-criticized monotony of repetition found in many early programed instructional materials may, in fact, be of little value in enhancing retention and may profitably be replaced by a series of short instructional sequences in several related topics, each interspersed with reviews of the preceding material. The general conclusion is that the entire question of practice, review, and retention with *meaningful* academic subject matter needs to receive more help from experimental psychology and requires extensive investigation in both laboratory and educational contexts.

Response contingencies—errors and correction.—The fact is that

32. Personal communication, 1964.

33. James H. Reynolds and Robert Glaser, "Effects of Repetition and Spaced Review upon Retention of a Complex Learning Task," *Journal of Educational Psychology*, LV (October, 1964), 297-308.

34. James G. Greeno, "Paired-Associate Learning with Massed and Distributed Repetitions of Items," *Journal of Experimental Psychology*, LXVII (March, 1964), 286-95.

practice, as such, does not change behavior but practice conditions which supply consequences of an individual's actions serve to modify his behavior. These response contingencies influence the course of learning. Because there are so many things that are not known, the study of the contingent relationships between behavior and consequent events is a key area for both basic and applied research in learning which is relevant to instruction. Although many studies have shown the powerful influence of various reinforcing operations,[35] Swets and his co-workers,[36] studying a task of categorizing the characteristics of different sounds, conclude that "fairly extensive feedback may be detrimental . . . and provide no support for the hypothesis that efficiency of learning varies directly with the probability of reinforcement." Such negative findings may be attributed to many sources and need to be analyzed carefully, particularly with respect to the nature of the terminal component repertoire and the sequencing between transitional and terminal behavior.

Response contingencies fall into several classes, reinforcing events being one class, and others being extinction, punishment, and correction. It is known, at least on a common-sense basis, that individuals learn from making errors, but very little is known about the process involved and how to use error behavior efficiently. Correction is highly relevant to instruction but has generally been neglected in psychological studies. Correction refers to the contingency whereby an incorrect response is followed by a stimulus event which serves to inform the student of the nature of the correct response in such ways as telling him the right answer, showing him how to get the right answer, making him perform the correct response, and so forth. How do students learn from their errors?

35. For example, Fred S. Keller and William N. Schoenfeld, *Principles of Psychology* (New York: Appleton-Century-Crofts, 1950); and C. B. Ferster and B. F. Skinner, *Schedules of Reinforcement* (New York: Appleton-Century-Crofts, 1957).

36. J. A. Swets and Others, "Learning To Identify Nonverbal Sounds: An Application of a Computer as a Teaching Machine," *Journal of the Acoustical Society of America*, XXXIV (July, 1962), 928-35.

Some investigators, like Kaess and Zeaman,[37] after studying learning in multiple-choice situations with incorrect alternatives presented to the student, conclude that incorrect alternatives increase the probability that the student will repeat his error. Suppes and Ginsberg [38] report the desirability of overt correction procedures to facilitate learning in children. The research literature appears to suggest that there may be differences in the effects of correction between adults and children and also differences as a function of the behavior being learned. However, these are matters for investigation. The main point is that an important area for learning research relevant to instructional practice is the class of response contingencies called correction.

In recent studies, there have been provocative contrasts in the findings on the subject of learning with errors versus learning without error. Skinner's work with the teaching machine has emphasized the minimization of error. There has been some questioning of theories in which responding to an inappropriate stimulus (and hence the occurrence of errors) is a necessary condition for the formation of discriminations. The general rationale for error minimization in instruction seems to be the following: First, when errors occur, there is lack of control over the learning process, and opportunity is provided for the intermittent reinforcement of incorrect responses. This results in interference effects highly resistant to extinction. Second, frustration and emotional effects that are difficult to control are associated with extinction and interference from error. And third, richer learning, that is, richer in associations, takes place when the associative history of the learner is applied to extend his learning. This is accomplished by mediators or thematic prompting which make positive use of existing knowledge and serve to guide learning. Perhaps another reason behind the drive to minimize error is, as has been said, that the use of errors and the possible value of incorrect

37. W. Kaess and D. Zeaman, "Positive and Negative Knowledge of Results on a Pressey-Type Punchboard," *Journal of Experimental Psychology*, LX (July, 1960), 12-17.

38. Patrick Suppes and Rose Ginsberg, "Application of a Stimulus Sampling Model to Children's Concept Formation with and without Overt Correction Response," *Journal of Experimental Psychology*, LXIII (April, 1961), 330-36.

responses has been neither as widely nor as systematically investigated as other response contingencies.

Individuals concerned with more adaptive teaching procedures than the Skinner-type linear program make the case that errors must be used in the course of instruction.[39] Their procedures require that the student reveal, by making some sort of error, the kind of instruction he should receive next. If adaptive control is competently designed, student weaknesses are revealed by his selection of response alternatives. Where no adaptive procedures are available for dealing with error, the minimization of error is forced upon the teaching procedure. The advocates of error minimization recognize the presence of error but attempt to cue or prompt it out of existence in the course of designing a program for a particular population of students. Such nonadaptive programs attempt to remove error without allowing it to be manifested in overt mistakes. These programs of instruction, which attempt to forestall error, need to make provisions for far more error possibilities than any one student is likely to have, and probably wind up with less than an optimal series of challenging tasks. The summary point to be made is that an interesting area for learning research relevant to instructional practice is study of the response contingencies which follow the occurrence of incorrect responses.

Response contingencies—effective reinforcers.—Another general problem with respect to response contingencies is to determine the effective reinforcers in a subject-matter learning sequence. There is also the related practical problem of what reinforcing contingencies can be employed in designing instruction. As is known, reinforcement can be quite subtle. For example, Skinner points out that certain "consequences are used to motivate the beginning reader when a textbook is designed to be 'interesting.' Such reinforcement is not, however, contingent upon accuracy of response in the manner needed to shape skillful behavior." [40] The point is that an interest-

39. Brian N. Lewis and Gordon Pask, "The Theory and Practice of Adaptive Teaching Systems," in *Teaching Machines and Programed Learning, II: Data and Directions, op. cit.*

40. B. F. Skinner. *Verbal Behavior*, p. 66. New York: Appleton-Century-Crofts, 1957.

ing text may reinforce the behavior involved in obtaining meaning from printed material but may not differentially reinforce correct phonemic responses.[41] Reinforcing events must be determined on the basis of detailed analysis of appropriate subject matter and component repertoire relationships. Just as one identifies what stimuli feel hot or cold, pleasant or frightening, one needs to identify what events can serve as reinforcers for students in the course of learning certain subject matters.

Studies in learning and instruction do suggest the effectiveness of certain events as general reinforcing conditions. As an example, an apparently powerful reinforcer in learning is overt control of the physical environment. This has been suggested particularly by the work of Moore [42] on what he calls a responsive environment. This is related to the learning of subject-matter content, especially with respect to the study of behavior generally labeled as curiosity and exploration.[43] An increasing amount of research has been directed to the study of this area within the past decade.[44]

In infrahuman studies, research has been aimed at the discovery and identification of variables which serve to elicit and maintain curiosity and exploratory behavior in the absence of conventional laboratory motives, such as hunger or thirst or other conditions of deprivation. The specific responses which have been observed are such behaviors as orienting, approaching, investigating, and manipulating. The significant variables influencing such exploratory responses have been characterized as stimulus objects or patterns that are novel, unfamiliar, complex, surprising, incongruous, asymmetrical, and so forth. All these aspects generally can be described as a change in the stimulus displayed to the individual. Research has

41. Silberman, *op. cit.*

42. Omar K. Moore, "Autotelic Responsive Environments and Exceptional Children," in *The Special Child in Century 21*. Seattle, Washington: Special Child Publications, 1964.

43. These comments on curiosity and exploratory behavior were significantly influenced by the work of the author's colleague, Professor Harry Fowler, at the University of Pittsburgh.

44. Harry Fowler, *Curiosity and Exploratory Behavior* (New York: Macmillan Co., 1965); and D. E. Berlyne, *Conflict, Arousal, and Curiosity* (New York: McGraw-Hill Book Co., 1960).

indicated that the strength of exploratory behavior that is elicited is positively related, within limits, to the degree of change in the stimulus situations introduced into the environment. Too great or too abrupt a change, however, is disrupting and may preclude exploration.

In complex situations, an individual encounters change by way of his interaction with or manipulation of the elements of a stimulus pattern. Such interaction provides the stimulus change which can elicit curiosity and exploratory behavior. Investigations have demonstrated that behaviors are learned when they lead to a change in the stimulus display. Thus, in addition to stimulus change eliciting exploratory behavior, experiments show that organisms will respond in order to secure novel, unfamiliar stimuli. In general, these findings demonstrate that stimulus change or sensory variation may be employed to selectively reinforce behaviors which result in stimulus change, and that this variation in the stimulus situation will serve concomitantly to elicit exploratory behavior. When stimulus change is used as a reinforcing stimulus, it seems reasonable to hypothesize that learning variables which influence acquisition and extinction will influence the acquisition and extinction of exploratory behavior and curiosity as they do other learned behavior. This suggests that a student's curiosity and explorations may be both elicited and selectively maintained in an instructional environment which provides for appropriate variation and change in both the stimulus characteristics of the subject materials confronting the student and the responses he must make to these materials.

Measuring Learning Outcomes

An effective technology of instruction relies heavily upon the effective measurement of subject-matter competence at the beginning, in the course of, and at the end of the educational process. The mastery of the skills and knowledges required to begin an instructional sequence and to continue along its course insures the availability of behavior which the teacher and the student can rely on for use in subsequent learning. Elsewhere the author [45] has

45. Robert Glaser, "Instructional Technology and the Measurement of Learning Outcomes: Some Questions," *American Psychologist*, XVII (August, 1963), 519-21.

pointed out that recent work in instructional design, such as pro-
gramed instruction, has raised into prominence a number of ques-
tions concerning the nature of measures of student achievement and
the assessment of subject-matter competence (as it may be defined
by recognized subject-matter scholars). Achievement measurement
can be defined as the assessment of criterion behavior involving the
determination of the characteristics of student performance with
respect to specified standards. Achievement measurement is distin-
guished from aptitude measurement in that the instruments used to
assess achievement are specifically concerned with the properties of
present performance, with emphasis on the meaningfulness of its
content. By contrast, aptitude measures derive their meaning from
a demonstrated relationship between present performance and the
future attainment of specified knowledge and skill. In certain cir-
cumstances, of course, this contrast is not quite so clear—for ex-
ample, when achievement measures are used as predictor variables.

The scores obtained from an achievement test can provide pri-
marily two kinds of information. One is the degree to which the
student has attained criterion performance—for example, whether
he can satisfactorily prepare an experimental report or solve certain
kinds of word problems in arithmetic. The second type of informa-
tion that an achievement test score provides is the relative ordering
of individuals with respect to their test performance—for example,
whether Student A can solve his problems more quickly than Stu-
dent B. The principal difference between these two kinds of infor-
mation lies in the standard used as a reference. The standard against
which a student's performance is compared in order to obtain the
first kind of information is the criterion behavior which defines in-
creasing subject-matter competence along a continuum of achieve-
ment. Criterion levels of competence can be established at any point
in instruction where it is necessary to obtain information as to the
adequacy of a student's performance. Behaviorally defined objec-
tives describe the specific tasks a student must be capable of per-
forming in order to achieve a particular knowledge or competence
level. The student's score with respect to these tasks provides explicit
information as to what he can or cannot do and indicates the cor-
respondence between what the student does and the achievement
criteria at that point in his learning. Measures cast in terms of such

criterion standards provide information as to the degree of competence obtained by a particular student which is independent of reference to the performance of others.

On the other hand, achievement measures also convey information about the capability of a student compared with the capability of other students. In instances where a student's relative standing is the primary purpose of measurement, reference need not be made to criterion behavior. Educational achievement examinations, for example, are administered frequently for the purpose of determining the comparative standing of students in a class or school rather than for assessing their attainment of specified curriculum objectives. When such norm-referenced measures are used, a particular student's achievement is evaluated in terms of a comparison between his performance and the performance of other members of the group. Such measures need provide little or no information about the degree of proficiency actually exhibited by the individual. They tell that one student is more or less proficient than another but do not tell how proficient either of them is with respect to the subject-matter tasks involved. In large part, achievement measures currently employed in education are norm referenced, and work needs to be done which will contribute to the development of criterion-referenced tests in order to assess the outcomes of learning. Criterion-referenced measures can provide information about both degree of competence and relative standing.

A further point along these lines relates to the fact that achievement tests are used not only to provide information about the student but also to provide information about the effects of different teaching procedures and instructional designs. It seems likely that tests which are constructed to be sensitive to individual student differences may not be the same kinds of tests that are sensitive to the differences produced by different instructional conditions. Test theory, for the most part, has been concerned primarily with the development of tests that are maximally sensitive to individual differences. Less work has been concerned with test development for the purpose of curriculum evaluation and curriculum design. This point is further discussed in the article referred to above [46] and

46. *Ibid.*

more fully in an article by Cronbach [47] concerned with course improvement through evaluation. Cronbach writes, 'I am becoming convinced that some techniques and habits of thought of the evaluation specialist are ill-suited to current curriculum studies. . . . how must we depart from the familiar doctrines and rituals of the testing game?" (p. 672) and, "The three purposes—course improvement, decisions about individuals, and administrative regulation—call for measurement procedures having somewhat different qualities" (p. 677).

Conclusion

This chapter has attempted to give some of the research approach and perspective that is likely to be introduced into the design of instructional procedures in the future, as behavioral science and educational practice begin to be related in a mutually helpful way. It is fair to say that at the present time the influence of modern experimental psychology is rarely significant in the development of instructional materials and teaching procedures. It is hypothesized that, in the future, four main areas of the educational process will be influenced: (a) Instructional goals will be analyzed in terms of both subject-matter content and categories of student behavior that suggest strategies of teaching. (b) The diagnosis of the learner's strengths and weaknesses prior to instruction for appropriate pedagogical guidance will become a more definitive process so that it can aid in the design of a curriculum specially suited for the student involved. (c) The techniques and materials employed by the teacher will undergo significant change. (d) The ways in which the outcomes of education are assessed, both for student evaluation and curriculum improvement, will receive more attention.

As these changes occur, it is likely that they will result in certain changes in school operation. First, the role of the teacher will be restructured. It seems likely that the teacher will be able to become more concerned with individual student guidance and individual progress than he is likely to be at present in his role as group mentor.

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47. Cronbach, *op. cit.*

Second, the educators' goal of the individualization of student progress based upon student background, aptitude, and achievement will come closer to realization through school reorganization and the adoption of new practices. Third, instructional materials and devices supplied by industry will come under close scrutiny as to their instructional effectiveness (just as tests came under close scrutiny with respect to reports on their reliability and validity). Fourth, subject-matter competence will be easier to attain for a larger number of pupils in our schools, and tests which measure progress toward mastery will become important aids for the quality control of educational excellence. These developments, necessarily based on a developing body of pedagogical principles, should advance teaching toward the status of a profession nurtured by underlying behavioral sciences which are becoming increasingly relevant to the educational process.

Philosophical Inquiry

WILLIAM K. FRANKENA

Introduction

What philosophical ideas or developments after World War II have implications for the schools and might or should have been responded to by them? What is there in "the new world of philosophy" that might or should have been taken as a basis for conclusions about education in our schools or about the schools themselves? That is the question of this chapter. Thus stated, however, it is somewhat too broad and vague to permit a very profitable response.

Since I can write profitably only about the work of professional philosophers, and since, even in dealing with this, I can say little that is new about the work of Dewey and his followers or of the Thomists, I shall restate the question in a clearer and narrower form. What is there in recent professional non-Deweyan and non-Thomistic philosophy [1] to which the schools might well have responded in some positive way, at least experimentally, i.e., what is there that has implications which might well be taken seriously by those who philosophize about the schools and school education, by those who plan the curricula, and by those who administer or teach in schools? There are at least these three levels at which the schools might respond, and I shall try to keep them all in mind, although it will turn out, as might be expected, that I shall find a good deal more to say to educational philosophers than to teachers, curriculum-planners, or administrators.

In order to get a purchase on our question, we must first see just how and where philosophy *might* come to bear on questions about

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1. Hereafter, by "recent philosophy" I shall mean "recent non-Deweyan and non-Thomistic (and non-Marxist) philosophy."

school education. Education was defined by Bertrand Russell as *"the formation, by means of instruction, of certain mental habits and a certain outlook on life and the world"*; and by John Dewey as "the process of forming fundamental dispositions, intellectual and emotional, toward nature and fellow men." [2] The task of education, if we accept the definitions, is the formation of desirable abilities, dispositions, habits, and traits of character—of what the Greeks called excellences. If this is true, then the theory of school education must answer two questions. (*a*) Which abilities, dispositions, and habits are to be cultivated by the schools? (*b*) How are school educators to foster these abilities, dispositions, or habits and by what methods, through what curricula, and in what kind of an atmosphere?

Now, anyone who seeks to give reasoned answers to such questions must rest his conclusions on premises of two kinds:

(*a*) normative premises, ethical principles, or basic value judgments, i.e., premises about the ends, values, or principles to be pursued or acted on;

(*b*) nonnormative or factual premises about the nature of man, the results of certain methods of teaching, the kinds of knowledge, and so on.

A partial answer to the first question might read:

(1) We ought to promote the greatest general happiness.
(2) Honesty will promote the greatest general happiness.
(3) Therefore, we ought to foster honesty.

Another answer might be:

(4) The aim of education is the transmission of knowledge.
(5) Religion and theology are not forms of knowledge.
(6) Therefore, they should not be taught.

And a reply to the second question might run:

(7) Schools should foster honesty.
(8) The indirect method is more effective in cultivating honesty than the direct method.

2. Bertrand Russell, *Mysticism and Logic*, p. 37 (London: Allen & Unwin, Ltd., 1917); John Dewey, *Democracy and Education*, p. 383 (New York: Macmillan Co., 1916).

(9) Therefore, schools should use the indirect method in fostering honesty.

In these examples, premises (1), (4), and (7) are normative, while (2), (5), and (8) are not.

Premises of both kinds may be supplied by philosophy. For instance, premises like (1) and (4) would be provided by ethics, value theory, or social philosophy, and premises like (5) by epistemology or metaphysics. Thus, one way in which philosophy may enter into our thinking about schools and their practices is by furnishing some of its *premises*, normative or nonnormative. However, philosophy may enter in another way. For all such thinking involves concepts or terms; in the examples given, there are the following: "happiness," "honesty," "teaching," "knowledge," "religion," "truth," "God," and "education" itself. None of these concepts or terms is entirely clear and unambiguous. They all need some kind of *analysis, clarification,* or *definition,* else our thinking about schools and education cannot have the accuracy, rigor, or certainty that it ought to have. It is just here that philosophy can make its second kind of contribution. For one of the main tasks of philosophy, especially as it is conceived today, is that of analyzing or clarifying the key concepts or terms of human thought, or the central phenomena of human experience, as phenomenologists prefer to say, including many of those that appear over and over in educational literature. Along the same line, philosophy can also make a contribution by analyzing and evaluating the logic of the slogans and arguments used in the discourse of education.

Philosophy might, then, influence the theory and practice of the schools in these ways:

1. It might supply its basic normative premises.
2. It might supply some of its other premises (still others would come from psychology, theology, anthropology, etc.).
3. It might provide analyses of concepts and slogans, evaluations of arguments, and clarification of terms.

Actually, there are two other ways in which philosophy might be related to the schools:

4. It might be made part of the curriculum of the high school.

5. It might be made part of the training of schoolteachers and adminis-
trators.

I shall take occasion later to say something about these last two
possible responses of the schools to philosophy but shall devote most
of this chapter to the first three.

Recent Philosophy and Normative Premises for the Schools

ANALYTICAL PHILOSOPHY AND EXISTENTIALISM

Let us ask, then, whether recent philosophy offers the educator
any normative (ethical or value) premises for answering the three
questions formulated earlier. In reply, it is necessary to observe, to
begin with, that both of the newer movements in philosophy, ana-
lytical philosophy and existentialism, have tended to avoid laying
down normative premises for human thought and action.

Analytical philosophers—those belonging to "the revolution in
philosophy" stemming from G. E. Moore, Bertrand Russell, and
Ludwig Wittgenstein—have tended to regard the making of norma-
tive or value judgments as not a proper part of philosophy and have
sought to limit philosophy to the analysis of concepts and the eluci-
dation of the logic of various kinds of terms, sentences, or reasoning.
Some of them have written at length in ethics or value-theory, and
even in social and educational philosophy, but even then their con-
cern has not been with making and defending any basic ethical
principles or value judgments, i.e., not with answering normative
questions but with answering metaethical ones, such as "What is the
meaning or use of expressions like 'good,' 'ought,' 'promise,' 'free
will,' 'choice,' 'action,' 'teaching,' etc.?" and "What is the logic of
justifying statements in which such expressions are used?" It can be
plausibly argued that some analytical philosophers have been more
normative than they claimed to be, but, at any rate, if they have,
it was by inadvertence from their own point of view.

This tendency of analytical philosophers to avoid taking norma-
tive positions has, at least sometimes, the effect of leaving the norma-
tive premises of educational thought to be provided by others—psy-
chologists, social scientists, or theologians—or by the prevailing
mores or popular demand. This seems to me, for example, to be the
net effect of Daniel J. O'Connor's approach to the philosophy of

education and especially to his "tentative list of the aims of educa-
tion." [3] On the other hand, while he dislikes "the endless talk about
the aims of education," Richard S. Peters believes that it is possible
to show by philosophical analysis that certain "pretty formal" prin-
ciples, which he calls "procedural," are "presupposed by the very
activity of giving reasons in practical discourse," namely, the prin-
ciples "of impartiality, truth-telling, liberty, and the consideration
of interests." For instance, the principle of impartiality tells us that
people are to be treated equally unless treating them unequally is
justified, i.e., that equality must be assumed and inequality justified.
These principles he then offers us as providing very general criteria
for justifying or ruling out more specific judgments and practices.
He argues also (*a*) that in moral education it is particularly impor-
tant to pass on these procedural rules, and (*b*) that the principle of
the consideration of interests requires education to be concerned
with the promotion of good or worth-while activities as well as with
the maintenance of rules for social conduct.[4] Here, at least, we have
an example of an analytical philosopher seeking in a novel way to
establish social principles which might well be taken seriously as a
basis for the theory and practice of the schools.

Another point may be made here. Even when they most com-
pletely avoid making normative commitments, analytical philoso-
phers are still presupposing the desirability of certain abilities or
traits of mind: clarity of thought, rigor of reasoning, awareness of
assumptions, a knowledge of the standards to be applied in each area,
and an ability to judge intelligently by them (which Aristotle re-
garded as the marks of an educated man). The insistence on such
abilities and traits is something—in my opinion, one of the main
things—that school educators and their teachers could learn from
recent philosophy. Here, surely, is a family of dispositions (not
enough insisted upon by Dewey and his followers), which the
schools ought to promote. Furthermore, teachers and educators

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3. Daniel J. O'Connor, *An Introduction to the Philosophy of Education*,
chap. i. London: Routledge & Kegan Paul, 1957.

4. Richard S. Peters, "Reason and Habit: The Paradox of Moral Education,"
in *Moral Education in a Changing Society*, pp. 51-53. Edited by W. R. Niblett.
London: Faber & Faber, Ltd., 1963.

can learn a great deal from the work of analytical philosophers about what it is like to be clear and rigorous and about the standards to be used in various fields of activity and thought, even if they cannot learn anything that they can take bodily into the classroom.

Existentialists reject the analytical philosopher's notion of neutral and objective analysis. They regard a philosopher as inevitably committed, engaged, and normative, and they call upon us all to choose an ethics, anxiously perhaps, but whole-heartedly and without self-deceit. Yet, paradoxically, they hesitate to help us by presenting us with substantive moral principles or ends which we might espouse and use as a basis of thought and action, whether in the field of education or elsewhere. They tend to stress the form or manner of our approach to life—it is to be authentic or existential rather than unauthentic and unanxious, et cetera—rather than its content or substance. In this respect, analytical philosophy and existentialism, temperamentally so hostile to one another, are curiously similar in outcome: both avoid laying out a normative ethics for us to go by.

Still, just as the practice of analytical philosophy involves a family of dispositions which may be taken as part of the goal of school education, just so does existentialism present a group of dispositions for us to foster. It is a very different family, including authenticity, decision, commitment, courage, autonomy, responsibility, devotion, and so on. These may be called moral dispositions as compared with the intellectual or logical ones emphasized by analytical philosophers, but they are moral dispositions that have to do with the *mode* of what we do in life rather than with its *content* (as do such dispositions as benevolence, justice, et cetera). They are dispositions which express themselves not so much in *what* we do, being compatible with doing all sorts of actions, good or bad by conventional standards, but in *how* we do it. To quote Wild:

> Value lies not so much in what we do as in how we exist and maintain ourselves in time. To express this new sense of existential value, a new terminology is required . . . words like *authentic, genuine, real,* and *really* . . . express those more basic 'existential values' . . . which underlie all the valuable things we do or say. Since they characterize our ways of existing in the world, they . . . apply to every phase and region of our care. There is nothing . . . that may not be done either authentically . . . or unauthentically. . . . They are not "values" at all, in the traditional

sense of this term. . . . They are patterns of our lived existence in the world.[5]

It is reasonable to argue that there is a place for a stress in education, both in and out of school, on such existential virtues, as well as on the analytical ones mentioned before. The two families of dispositions are not incompatible, for all the opposition there may be between the two kinds of philosophy advocating them. Even the Hatfields and the McCoys have learned to live together. Indeed, if we were to add these two groups of excellences to those stressed earlier by Dewey—scientific method, regard for empirical fact and experimental verification, democracy, and benevolence—then we should have a list of most of the dispositions our schools could be expected to help in cultivating. In this perspective, Deweyan pragmatism, philosophical analysis, and existentialism present us with three complementary (and even overlapping) sets of attitudes or traits for the schools to aim at.

OTHER RECENT PHILOSOPHERS

Some recent philosophers, however, have sought to be more directly normative than the analysts and the existentialists and to lay down ends or principles for human conduct, social or individual. Like Dewey, they have, for the most part, been utilitarians in ethics, though not hedonists. In other words, they would hold that education should foster those abilities and dispositions which most promote the good life for all concerned. This group includes Ralph Barton Perry, Brand Blanshard, P. B. Rice, Arthur Campbell Garnett, A. C. Ewing, J. J. C. Smart, and probably Richard B. Brandt. (Some analytical philosophers are at least very close to utilitarianism, e.g., Stephen Toulmin, R. M. Hare, and P. H. Nowell-Smith.) In fact, such philosophers would probably say that education should foster (a) those abilities and dispositions which put the individual in a position to live the best life he is capable of, and (b) those which equip and dispose him to respect the lives of others and perhaps even to help make them as good as possible, too

5. John D. Wild, *Existence and the World of Freedom*, pp. 164-65. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963.

It should be observed in this connection that one must distinguish between the morally good life and the good life, even if they tend to coincide. On such views as we are discussing, the morally good life is one of seeking the good life for all concerned as far as possible, but the good life to be promoted is not simply the morally good life. What, then, do the philosophers in question regard as the good life? As indicated, they have usually not been hedonists. That is, they usually refuse to equate the good with pleasure, for reasons we cannot go into here. On the other hand, they have generally not gone to any antihedonist extreme. They might be thought of as quasi-hedonists; for most of them, the good or the good life consists in the end of what is desired, enjoyed, satisfying, or found worth while, either for its own sake or (as for Dewey) on a reflective consideration of everything involved. Some of them, e.g., Rice and Clarence Irving Lewis, take the affective tone of activities and experiences (not to be identified with pleasantness) as the criterion of their value; others, e.g., Perry and De Witt H. Parker, take as the criterion of their value the fact of their being desired or of satisfying desire; and still others, e.g., Blanshard and Garnett, argue that the criterion is a kind of synthesis of affective tone with being desired or satisfying desire. Perhaps there is nothing basically new in all this, but I do think that the discussions of these philosophers would at least be useful to those responsible for the philosophy of education in the schools.

There is one formal principle which has found much favor with both analytical philosophers and more normative ones—though not with the existentialists. This is a principle which is involved in the *golden rule* and in Kant's *categorical imperative* and is now usually referred to as the *principle of generalization* or *universalization*. The idea behind it is that, when one judges a particular action to be right, one is thereby committed to the general rule that an action of the same kind would be right for everyone in the same kind of situation, and that one cannot regard an action as morally right for one person in a certain situation unless he is ready to see it universally acted on by others in similar situations. "What is right for one person must be right for every similar person in similar circumstances." Sometimes this is regarded as a substantive moral principle, e.g., by Marcus George Singer; sometimes as a logical "feature

of moral language" which, by itself, has no moral implications, e.g., by Hare, Nowell-Smith, Bernard Mayo, and possibly Lewis. In any case, however, it is insisted that, in determining whether or not one should do A, one must ask whether or not one is ready to see it become a universal law. If one is not, then one must judge A to be wrong, or at least admit that he is not trying to decide the question on moral grounds. The application of the principle may not be a sufficient condition for determining whether an action is right or whether one's approach is moral, but it is a necessary one.

However this may be, if the *principle of generalization* is correct, as it seems to me to be, this fact has an important implication for moral education which must be remembered in the schools. For it means that we must cultivate, among other things, a disposition to be consistent in our actions and judgments and to ask ourselves what maxims we are ready to see universally adopted—not ignorantly, but in the light of the facts.[6]

Recent Philosophy and Other (Nonnormative) Premises

Now, let us suppose that we have our axiological and ethical premises for answering our questions about the schools, whether we find them in recent philosophy or not. The next question is whether recent philosophy offers the school educator any nonnormative premises that bear on his problems—premises about the nature of man and the universe, or about the nature and limits of knowledge. It must be pointed out at once that no such premises can be regarded as having been established in any final way or even as agreed on by all contemporary philosophers. In a sense, then, it is not possible to say that there are any epistemological or metaphysical doctrines in recent philosophy to which the schools must respond by drawing out their implications and putting them into practice. It may be added, moreover, that public school educators must, in any case, be wary of presupposing any particular philosophical position, theistic or otherwise, as a basis for their conclusions about what is to be taught or how.

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6. For more about recent moral philosophy and moral education, see William K. Frankena, "Toward a Philosophy of Moral Education," *Harvard Educational Reviews*, XXVIII (Fall, 1958), 300-313.

One could argue that recent philosophy is in a very broad sense empiristic in opposition to the various forms of rationalism prevailing in the past. It would require some temerity, therefore, for an educator to rest any of his theories or practices on rationalistic premises, e.g., on a rationalistic view of the nature of mathematics. On the other hand, it is not clear that the various empiricisms of today, except perhaps for existentialism, would require any very different responses on the part of the schools from those already made. Analytically minded philosophers are perhaps more insistent than ever before that scientific questions are to be answered by scientific methods, historical questions by historical methods, and so forth. They tend, however, to avoid seeking for substantive epistemological or metaphysical doctrines from which educational conclusions can be drawn and to limit themselves to more purely analytical and methodological findings, such as we shall look at in the following section. As for existentialism—in its more extreme forms, at least—it seems to offer a view of man which makes it hard to see how education can play any important part in his formation. It is so antideterministic, so insistent that man is a creature of his own free unguided choice, that it even talks as if an individual chooses his nature and dispositions independently of experience and training or even of heredity. There are, as we saw, certain dispositions which it advocates, but its assertion of the priority of existence to essence is such as to render the role of education in their formation unclear. In any case, however, existentialism, in so far as it is wedded to the phenomenological method, is surprisingly like analytical philosophy in being averse to speculative metaphysics in the grand style. To quote Wild again, the function of philosophy is "not to establish an objective science of being" or "a great super-science of the universe" but to be "an expression of the basic, noetic freedom of man, refusing to be locked up permanently in any fixed frame . . ." [7]

Philosophical Analysis and the Schools

GENERAL REMARKS: HOOK'S CRITIQUE

In the preceding section, I was looking, not very successfully, for sweeping substantive premises or "world-hypotheses," estab-

7. Wild, *op. cit.*, pp. 121, 131.

lished by recent philosophy, which might well be taken as premises for deducing educational implications for the schools. Now we must look at the works of so-called analytical philosophers to see what relevant findings, if any, they may contain.

We must remember here that the purer analytical philosophers do not think of themselves as searching for or discovering any substantive insights or synthetic truths, factual or normative. This they leave to the empirical scientist, the historian, the theologian, the artist, and the moralist, though they are, of course, quite ready to try to analyze the nature of the various kinds of insights and truths at which these people may arrive. Rightly or wrongly, they typically think of themselves as seeking and gaining insights of a different sort, variously described as analytical, logical, methodological, formal, conceptual, or linguistic. To borrow an example from one of them: It is an empirical truth that human beings often dream at night, but it is a conceptual or linguistic truth that stones cannot dream. The validity of any such sharp distinction between two or more kinds of insights would be questioned by some Deweyans; it is, in fact, questioned by some analytical or near-analytical philosophers whose views may be thought of as pragmatic or even as "beyond pragmatism." [8] We cannot discuss this issue here, of course, anymore than we can discuss the question of whether analytical philosophers are merely descriptive and elucidatory in what they do or whether they are legislative and normative. Our job is to see what bearing their analyses have on the thinking and practice of the school educator, if any.

The importance of analytical philosophy for the school educator has been discussed and somewhat impugned by Hook in the second edition of *Education for Modern Man.*[9] In part, his complaint is that what is wanted is answers to educational problems of a normative sort about the aims, methods, and content of education and that

8. Morton Gabriel White, *Toward Reunion in Philosophy*, chap. viii (Cambridge, Massachusetts: Harvard University Press, 1956); Willard V. O. Quine, *From a Logical Point of View*, Essay 2 (Cambridge, Massachusetts: Harvard University Press, 1953).

9. Sidney Hook, *Education for Modern Man*, pp. 45-51. New York: Alfred A. Knopf, 1963.

analytical philosophy does not and cannot provide answers to such problems—even "analytical philosophy of education" cannot do so. He is right, in my opinion, in both parts of this complaint, but it does not follow that analytical philosophy of education is "misconceived." For analytical philosophers would be the first to say that analysis does not by itself answer normative educational problems. Neither does it follow that analysis is irrelevant to "the theory and practice of education," for, even if it is not *sufficient* to answer the questions of educational theory and practice, it may still be *helpful* in doing so or even *necessary*. Hook does not deny, in fact he admits, that conceptual and linguistic analysis may be very *helpful* in preventing confusion and looseness in educational thinking and writing and in enabling us "to express things in a way that leads to greater self-understanding or to readier inquiry and test." And this is most, if not all, of what an analytical philosopher would care to claim. All that needs to be added is that the analysts could confer an untold benefit along this line, at least in the area of educational theory, as anyone can see by looking at the quality of thought and expression that infects so much of our literature on education.

For the rest, Hook argues (*a*) that linguistic analysis is not needed for the solution of educational problems, and (*b*) that the findings of such analysis are sometimes bizarre and inept. On the latter point he is certainly right; but he does not cite the best examples of analytical work on slogans or on the concept of teaching. The analyses of Scheffler in *The Language of Education* [10] and of Komisar in *Language and Concepts in Education* [11] do not exhibit the faults Hook finds in others. These authors are no less analytical, but their analyses are more complete. As a contemporary Francis Bacon might put it, the remedy for a little analytical philosophy is not something else but greater depth in it. I also find it hard to believe that such analyses would not be *helpful* in the thinking of educators and teachers. It would, no doubt, be too much to claim

10. Israel Scheffler, *The Language of Education*. Springfield, Illinois: Charles C Thomas, Publishers, 1960.

11. B. P. Komisar, "Need and the Needs-Curriculum," in *Language and Concepts in Education*, chap. ii. Edited by B. Othanel Smith and Robert H. Ennis. Chicago: Rand McNally & Co., 1961.

that any teacher *needs* "the benefit of linguistic analysis to realize
that a child may learn to answer questions on the duties of a good
citizen correctly yet habitually disregard them . . . ," et cetera. But
this is because he has already achieved some conceptual clarity, be-
sides experiencing some empirical failure. Would it also be too much
to claim that many teachers (and their teachers) need more con-
ceptual and linguistic clarity than they show when they talk about
what they do and why they do it? Or that linguistic analysis is
sometimes necessary at the level of educational theory, if not of
practice? On this last point, it may be enough to remark that Hook
himself often finds it necessary to do what is actually a kind of con-
ceptual analysis. Did he not, his thought would be much less clear
and his arguments much less cogent.

SOME CONTRIBUTIONS, ACTUAL OR POSSIBLE

However this may be, there is at any rate a growing interest in
analytical philosophy among educators, and it is by no means all
negative, though a philosopher can only shudder at some of the
forms it takes. In addition to the volume, *Language and Concepts
in Education*, this interest is attested to in books edited by Joe Park,
T. H. B. Hollins, Reginald D. Archambault, J. E. McClellan, and
B. P. Komisar, as well as in papers by G. L. Newsome, C. D. Hardie,
and others. As a matter of fact, it is not hard to find places in edu-
cational discussion where the analytical philosopher can make a
contribution.

Consider, for example, Dewey's discussion of the criteria of an
educative experience in *Experience and Education*.[12] He correctly
points out that, although all education comes about through expe-
rience, not all experiences are educative. Then he states two general
propositions about experiences, (*a*) the *principle of continuity*,
which says that every experience is affected by previous experi-
ences and affects the nature of subsequent experiences, and (*b*) the
principle of interaction, which says that every experience is the re-
sult of an interaction between external and internal factors. But,

12. John Dewey, *Experience and Education*, chaps. ii and iii. New York:
Macmillan Co., 1938.

even though he sees that these two principles are true of *all* experiences, Dewey persists in speaking as if they can also serve as criteria "by which to discriminate between experiences which are educative and those which are mis-educative." He does not notice that the two principles are purely factual, and that a normative principle is also needed if one is to be able to tell which experiences are educative and which are not; e.g., the principle that an experience must contribute to growth rather than to its opposite. An analytical philosopher might not be able to show that Dewey is mistaken here in any matter of substance, but he would have little trouble in showing that Dewey is confused about the form in which he puts what he is saying.

Consider, also, the following argument from Hutchins, one of Dewey's critics: "Education implies teaching. Teaching implies knowledge. Knowledge is truth. The truth is everywhere the same. Hence education should be everywhere the same." [13] It takes only a little logic to show that Hutchins needs at least one more premise to establish his conclusion, namely, the normative premise that everyone should be taught the same truths, which is just the question at issue. But a little more analytical philosophy—conceptual analyses of "education," "teaching," "knowledge," and "truth," and of their relations to one another—would be necessary to show whether or not the original four premises are true. It would then turn out, I think, that they are either false or in need of qualifications of such a kind as to render the argument quite inconclusive.

One hesitates, in a case like this, to mention one's own work, and I do so only because my article, "Public Education and the Good Life," [14] has found some favor with educators. In it, I discuss a problem which is important for both "the theory and practice of education" in public schools, namely, the teaching of values and moral principles, and much, though not all, of what I do is analysis. I seek to show that even though the public schools cannot teach re-

13. Robert M. Hutchins, *The Higher Learning in America*, p. 66. New Haven, Connecticut: Yale University Press, 1936, 1961.

14. William K. Frankena, "Public Education and the Good Life," *Harvard Educational Review*, XXXI (Fall, 1961), 413-26.

ligion, they can still do something worth while toward promoting the good and the moral life, and the analysis I use seems to me not only helpful but necessary in making this point. There seem to me to be many more educational questions in connection with which conceptual and linguistic analysis would be useful.

Another potential contribution of the analytical philosopher is indicated by the Educational Policies Commission's booklet, *Moral and Spiritual Values in the Public Schools*.[15] I skip over the vagueness of the word "spiritual" and the failure to distinguish between values proper like happiness and knowledge, moral virtues like honesty and co-operativeness, and ethical or political principles like "The individual personality is supreme," "Institutional arrangements are the servants of mankind," or "Mutual consent is better than violence." (These are three very different sorts of things, but they are all called "values" and are treated as if they were alike and as if they figure in education in the same ways.) What concerns me is the discussion of "sanctions" or reasons for conduct, e.g., for Johnny's returning a dime given to him by mistake. The use and teaching of sanctions or reasons is regarded as important in the schools. Seven different sanctions are distinguished:

1. Justice: "The dime doesn't belong to you. It isn't fair for you to keep it."
2. The Law: "Keeping the dime is stealing, and the law punishes stealing."
3. Property Rights: "What would you think if someone else kept something that belongs to you?"
4. Integrity: "You would lose respect for yourself."
5. Group approval: "Others will feel that they can't trust you."
6. Authority: "It is wrong to keep it, and I shall punish you if you don't return it."
7. Guidance: "What do *you* think, Johnny [after full discussion]?"

It is recognized that religious sanctions cannot be appealed to in public schools, but it is not adequately noticed how different the above seven are or that some of them are much more appropriate in moral education than others. Effectiveness is said to be the test

15. Educational Policies Commission, *Moral and Spiritual Values in the Public Schools*. Washington: Educational Policies Commission, 1951.

of the use of a "sanction," and it is deemed wise "to utilize a variety of sanctions" rather than to rely on one alone.

Now, it happens that the business of "sanctions" or reasons for action and moral judgment have been much discussed by recent moral philosophers, especially analytically minded ones like Charles L. Stevenson, R. M. Hare, W. D. Falk, Kurt Baier, and Bernard Mayo. They make or debate distinctions between telling and getting to; between guiding and goading; between reasons, motives, and causes; between justifying reasons and motivating ones; between moral and other reasons; between reason and authority. Both in this way and in others, they have much to say to those who write about the teaching of moral and spiritual values in the schools and, perhaps, also to those who do the teaching.

A related vexing question which has been agitating both educational theorists and practicing teachers is that of the extent to which education does, may, or may not involve the teacher "imposing" his values or ethical principles on the child. Here again there is much that the analytical philosopher could do to help the discussion along, e.g., by exploring the logic of terms like "teach," "impose," "authority," "guide," "autonomy," and so on. As a matter of fact, such authors as were just referred to have already done a good deal of work on some of these notions. Besides, the worry about imposition in the case of ethical and value judgments stems in part, I am convinced, from the fact that such judgments are widely assumed or feared to be mere subjective or relative expressions of attitude or preference. And, again, the writers mentioned, along with others, have done much to show that this assumption or fear is not correct, i.e., there are important ways in which ethical and value judgments are susceptible of rationality, if not of proof. No doubt O'Connor is right in saying that the problem of how to justify such judgments is still unsolved, but at least some progress has been made—along rather different lines from those taken earlier by Dewey or Perry.

RECENT METHODOLOGICAL DISCUSSIONS, E.G., HISTORY

I have been trying to indicate areas and ways in which analytical philosophers have done or might do work that is relevant to the theory and even to the practice of school education. Another such area may be pointed out as follows. One of the chief articles in the

Deweyan pedagogic creed is "the centrality of method," meaning by "method" the method of intelligent or scientific inquiry conceived as consisting of five steps: [16]

1. The presence of a problem
2. Clarification and definition of the problem
3. Formulation of a hypothesis as to its solution
4. Deducing and envisaging the consequences of acting on the hypothesis
5. Acting on the hypothesis and observing whether the predicted consequences take place or not.

The notion is that the central point of education is to foster the ability and the disposition to use this method in all fields of belief and action. Now, whether one takes method as central or merely as important, one must have some conception of it. There has, however, been much discussion of method since Dewey's day—in science, mathematics, history, and so forth—some of it by followers of Dewey like Ernest Nagel and Abraham Kaplan; some by others like Karl Popper, Nelson Goodman, R. B. Braithwaite, Carl G. Hempel, Toulmin, and Scheffler. I have little competence in this field, but it strikes me that this recent discussion of method is better than Dewey's was and that it is educationally relevant—just as relevant as Dewey's own views were. Is Dewey's pattern of reflective inquiry correct even for science? Is "scientific method" the same for all sciences? Is the same pattern applicable in history, mathematics, the humanities, and the arts? In so far as method is important in education, it must also be imperative that school educators have some awareness of the most recent answers to these questions.

Recent debate on the nature of historical inquiry may be taken as an illustration here. Roughly speaking, the debate is between those who think that history is a science and those who think it is something different—with such writers as Hempel and Patrick Gardiner on one side; R. G. Collingwood, W. H. Walsh, and William H. Dray on the other.[17] Is the aim of history a knowledge of the particular events of the past? Does or should the historian seek

16. Hook, *op. cit.*, chap. vii.

17. E.g., William H. Dray, *Philosophy of History*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964.

to explain past events by exhibiting them as examples of general laws or in some other way? Is history objective or subjective? While the recent discussion of such questions has not brought about agreement, it has been acute and interesting and should be instructive both to those who wish to evaluate Dewey's views on history and to teachers of history.

OTHER POSSIBLY USEFUL ANALYSES

Now I shall cite a few fairly specific examples of recent philosophical analysis which strike me as bearing on the theory and even the practice of education in the schools. Much of the activity of recent philosophers has been in the area of the philosophy of language—many of them even conceive of philosophy as in some sense a "linguistic" inquiry. Many of their studies are very interesting, and it seems to me that some of them may well be of use to school teachers and curriculum-planners. One of the objects of concern has been the possibility and manner of distinguishing between two or more types of discourse, e.g., between discourse that is descriptive, factual, cognitive, constative, scientific, and so on, and discourse that is nondescriptive, evaluative, normative, noncognitive, nonscientific, performative, et cetera. In one of the more elaborate studies, Charles W. Morris distinguishes five "modes of signifying." [18] These are identification, designation, appraising, prescription, and "formation," and are exemplified, respectively, by "there," "deer," "fine," "Run!" and "or." He then also distinguishes four kinds of sign uses: the informative, the valuative, the incitive, and the systemic; and, finally, combining the five modes and the four uses, defines sixteen "major types of discourse," e.g., scientific discourse, which is designative-informative, and poetic discourse, which is appraisive-valuative. Whatever one may think of this particular theory of signs—and I hold no brief for it—it does seem to me that some acquaintance with such recent work would be of use to teachers of, what used to be called, grammar and rhetoric.

As also of possible interest to such teachers, as well as to other

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18. Charles William Morris, *Signs, Language, and Behavior*. New York: Prentice-Hall, Inc., 1946.

educators, one might mention P. W. Taylor's attempt to work out a systematic account of normative discourse (evaluating according to standards, evaluating according to rules, and prescribing), its various "realms" (moral, aesthetic, intellectual, religious, economic, political, legal, and conventional), and eight corresponding kinds of education.[19] Along a somewhat different line, there is the sort of grammar or semantic analysis done by Zeno Vendler in his articles on verbs and on the words "each," "any," "every," and "all"; or by Ziff, as well as Vendler, in works on the word "good." [20]

Perhaps the most heralded of recent work in this area of "linguistic phenomenology," as he himself calls it, is that of the late J. L. Austin.[21] Among other things, Austin is famous for calling attention to "performative utterances," i.e., sentences in which we *do* something as contrasted with sentences in which we merely state a fact or describe something (which he calls "constative"). Kinds of performatives, with examples, are the following:

1. Verdictives, e.g., "We find him guilty," "I estimate. . . ."
2. Exercitives, e.g., "I appoint . . . ," "I bequeath. . . ."
3. Commissives, e.g., "I promise . . . ," "We swear. . . ."
4. Behabitives, e.g., "I apologize . . . ," "Congratulations!"
5. Expositives, e.g., "I assume . . . ," "We affirm. . . ."

In the course of seeking for a way of distinguishing constatives and performatives, Austin makes a very important division between three kinds of speech acts. When I utter a sentence like, "You can't do that," I am saying something or performing a *locutionary* act. *In* saying this, I am also performing an *illocutionary* act—that of forbidding you to do something or protesting against your doing it. *By* doing *this*, I may keep you from doing it, bring you to your senses, or annoy you; i.e., I bring about a certain effect, and Austin

19. Paul Warren Taylor, *Normative Discourse*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1961.

20. Zeno Vendler, "Verbs and Times," *Philosophical Review*, LXVI (1957), 143-60; "Each and Every, Any and All," *Mind*, LXXI (1962); "The Grammar of Goodness," *Philosophical Review*, LXXII (1963), 446-65; and Paul Ziff, *Semantic Analysis* (Ithaca, New York: Cornell University Press, 1960).

21. John L. Austin, *How To Do Things with Words*. The William James Lecture delivered at Harvard University in 1955. Cambridge, Massachusetts: Harvard University Press, 1962.

calls my doing so a *perlocutionary* act. Some illocutionary acts are: reporting, asking, promising, thanking; some perlocutionary acts: persuading, inspiring, impressing, amusing. Both may be done through the performance of a locutionary act, i.e., through uttering a sentence, but they may also be done through acts that do not involve speech, e.g., through gestures or movements of the body.

It would, no doubt, be too much to suggest that Austin's findings should be taken bodily and taught in the schools, nor would I go about it. But it does seem plausible to maintain that some of them might well be made part of the training of English teachers and perhaps even trickle into their classroom instruction. At any rate, Austin does have incidentally instructive things to say about indirect speech, about the difference between threatening and intimidating, and many other matters relating to how to do things with words, which is certainly one of the things we have to learn as we grow up. In general, if there is any value in our having some conscious understanding of our modes of speech, it would seem appropriate that we should be initiated into this understanding before we come to take philosophy courses in the university.

Phenix says, ". . . knowledge has a fundamental role in education. . . . It follows that . . . it is important to know what knowledge is. The ways and content of teaching and learning depend very much on what one understands knowledge to be." [22] This statement is not so wholly true as it might seem to be or as educators have often taken it to be, but perhaps we may assume that there is something in it. If so, then it may also be relevant here to call attention to some recent discussions of knowing. It may be well to point out at once that they do not all go on within the old idealism-realism-pragmatism triangle. Rather, these discussions are often motivated, at least in part, by a wish to undercut such "skeptical" conclusions as "One can never know what another person is feeling," "We cannot be certain that there is an external world," or "We cannot really know anything except what is true on analytical or logical grounds alone." They tend to take the form of studies of the use of expressions like "I know . . . ," "I am certain . . . ," and

22. Philip H. Phenix, *Philosophy of Education*, pp. 297-98. New York: Henry Holt & Co., 1958.

"I believe . . . ," and of cognate forms in other persons and tenses. The possible relevance of these discussions to education in the schools is indicated by the fact that they sometimes include such questions as "How do we learn the use of the expression 'I know'?" or remarks like "When I say 'S is P,' I imply at least that I believe it and, if I have been strictly brought up, that I am (quite) sure of it."

One of the earliest and best-known contributions along this line is Austin's paper on "Other Minds." [23] Here Austin makes a number of points, among them the following: (*a*) When one says, "I know . . . ," one is not reporting or describing the state of one's mind or passing on a piece of information, as older views seem to assume. "I know" is not "a descriptive phrase." (*b*) Rather, it is a performative utterance of some kind. When I say, "I know," I am doing something. In fact, I am doing something similar to what I am doing when I say, "I promise." When I say, "I promise," I am not reporting or describing what I am doing; I am doing it— I am promising, binding myself, giving another my word. Likewise, "When I say, 'I know,' I give others my word: I give others my authority for saying that 'S is P.'" (*c*) Thus, "I know" is different from "He knows," much as "I promise" is different from "He promises." (*d*) It is also very different from "I believe," "I am sure," "I am absolutely sure," "I swear," and the like. (*e*) If I say, "I know *p*," someone may challenge me by asking "How do you know?" and, in reply, I may be expected to show that I am in a position to know and what my evidence is. (*f*) It is not strictly correct to say, as some do, that I can know *p* only if *p* is true. If I say, "I know *p*," I cannot also say,"But I may be mistaken." But I may be justified in saying, "I know *p*" in some cases in which it later turns out that *p* is false; and in those cases it is not always appropriate to round on me by saying, "You've been proved wrong, so you *didn't* know" anymore than it is to say "You haven't performed, so you didn't promise." (*g*) When someone has said to me "I know," I am entitled to say "*I* know" too, at second hand. "The right to say 'I know' is transmissible, in the sort of way that other authority is transmissible."

23. John L. Austin, "Other Minds," reprinted in his *Philosophical Papers.* Oxford: Clarendon Press, 1961.

Some of these points and others like them are now common currency, but some of them have been challenged by later writers, especially (*b*), (*f*), (*g*), and even (*a*).[24] Austin himself later indicated doubt whether "I know" is a commissive or an expositive. However, what has been said will exhibit the terms in which the discussion is going on, besides showing that it may be instructive for educators who use terms like "believe" and "know" (and not only jargon like "cognitive response," "identify with," and the like).

Perhaps a further note about point (*g*) will be of interest here, since education is often conceived of as involving a transmission of knowledge. It seems, among other things, to bear on the question of the admissibility in education of second-hand knowledge, of learning by being told rather than by doing. It may, therefore, be worth noticing that Hintikka in *Knowledge and Belief* agrees with Austin that knowledge is transmissible and that belief is not.[25] "If I know that you know that *p* is true, I virtually know myself that *p* is true. Hence, if you tell me that you know that *p* is true, I cannot (defensibly) deny that I know myself whether *p* is true without indicating that I do not wholly trust you (your judgment or your sincerity)." But Hintikka doubts that Austin is right on point (*b*) and offers a different account of the transmissibility of knowledge. The explanation is not that A, in saying "I know *p*," is passing on his *authority* or right to say it to B, but that B *trusts* A when A says it. If B does not trust A, then A's saying "I know *p*" does not justify B in saying it also, unless A gives B his evidence for *p*. If we substitute a teacher for A and a pupil for B, then it looks as if two different conceptions of education go with these two different explanations of the transmissibility of knowing.

Conclusion

With some trepidation, I offer the above as an attempt to review three of the ways in which recent philosophy might or even should have a bearing on the theory and practice of the schools: (1) by

24. Cf., e.g., Alan R. White, "On Claiming To Know," *Philosophical Review*, LXVI (April, 1957), 180-92; Winston H. F. Barnes, "Knowing," *Philosophical Review*, LXXII (January, 1963), 3-16.

25. Jaako Hintikka, *Knowledge and Belief*, pp. 61-64. Ithaca, New York: Cornell University Press, 1962.

providing normative premises, (2) by providing premises of other sorts, (3) by providing conceptual or linguistic analyses, methodological elucidations, and so forth. There are, as I said in the first section of this chapter, two other ways in which philosophy may be connected with the schools: (4) by being made a part of their curriculum, and (5) by being included in the training of their teachers and administrators. Space does not permit me to take up these topics, which are in any case of a very different order from the others dealt with here. They have, however, been rather thoroughly canvassed by philosophers in the following works: *Philosophy in American Education*, by Brand Blanshard, *et al.*; [26] and two committee reports, "The Teaching of Philosophy in American High Schools" [27] and "Philosophy in the Education of Teachers." [28] As a philosopher, I cannot but approve, in connection with (5), Conant's recommendations [29] that our future teachers be required to take a general philosophy course taught by a "real philosopher," and that future courses in the philosophy of education be taught by people "well trained" in philosophy. What I have said may, in fact, be taken as part of an argument for these recommendations. It should not, however, be taken, in connection with (4), as part of an argument for teaching recent philosophy in the schools, for it shows at most that recent philosophy has something to say that may be of value to school educators both for their theory and perhaps even for their practice. Of course, if what I have said be error and upon me proved, I should like to claim that I never writ. But it is too late for that now.

26. Brand Blanshard *et al.*, *Philosophy in American Education*. New York: Harper & Bros., 1945.

27. Committee on Philosophy in Education of the American Philosophical Association, "The Teaching of Philosophy in American High Schools," *Proceedings of the American Philosophical Association, 1958-59*, pp. 91-137. (Published for the Association by Antioch Press, Yellow Springs, Ohio, 1959.)

28. Committee on Philosophy in Education of the American Philosophical Association and the Committee on Cooperation with the American Philosophical Association of the Philosophy of Education Society, "Philosophy in the Education of Teachers," in *ibid.*, pp. 139-56.

29. James B. Conant, *The Education of American Teachers*, pp. 127-31. New York: McGraw-Hill Book Co., 1963.

CRITIQUE

Instructions to the Writer

JOHN I. GOODLAD

You have had an opportunity to read chapters which describe and analyze significant re-examination and change which have occurred since World War II in several aspects of schooling. These chapters attempt to relate theory to practice; to determine if any theory does underlie proposals that have been made and whether such theory actually has guided school changes presumably resulting from these proposals. You are free to disagree with the authors whenever their perceptions and your own appear not to coincide.

You have had an opportunity, also, to read several chapters which identify and analyze significant forces and ideas to which schools might (or even should) have responded in the post-World War II period. Is there any coincidence between the forces and ideas propelling recent school changes and the significant forces and ideas in American life which have appeared during this same period? Or do the authors of Sections I and II, respectively, appear to be talking about two different Americas and two different school systems?

School Change in Perspective

FRANCIS S. CHASE

Introduction

Sections I and II of this volume offer at least three kinds of ideas for the reader's consideration: (*a*) descriptions and evaluations of some of the more significant changes now taking place in elementary and secondary education; (*b*) analyses of the transformations in culture and society to which education must respond; and (*c*) speculations as to how philosophy and social science may become instruments in the development of educational institutions and practices calculated to realize individual potential and social ideas. In this final chapter, I shall try to take account of the information and interpretations presented in the preceding ten chapters; but I am under no illusion that I can contrive a neat matching of challenge and response; and it is not my ambition to do so. Instead, I shall attempt in my own way to pull together the strands that appear in the earlier chapters and to interweave them with other influences which seem essential to understanding the impetuses for educational change, the conditions which determine the kinds and amount of change, and the bases for hope that education may become more responsive to the needs of our society and the individuals who compose it.

Genesis of New Demands on Education

In the 1950's, America slowly awoke from dreams of unassailable strength and unchallengeable world leadership to a new and fearful sense of vulnerability. A series of shocks, which rocked our national complacency and produced more or less prolonged nightmares, preceded the awakening and colored the ensuing perceptions of reality.

Among the more humbling aspects of the recent events was a belated recognition that the United States has no monopoly on "know how" and the accompanying realization that we might be lagging in the training of scientists and engineers. The speedy emergence of the U.S.S.R. as a nuclear power had given rise to doubts which were reinforced both by the resurgence of European industry and the rapid industrialization of Russia and other communist societies; and the Russian lead in space exploration, dramatized by Sputnik I, detonated the accumulated misgivings and loosed a clamor for corrective action. A less spectacular but scarcely less profound blow to our belief in the inevitable triumph of the American way was the slowly dawning realization that prosperity and continuing increases in the gross national product were not eliminating unemployment and poverty. Other shocks were traceable to incidents which highlighted crime in our cities, the exclusion of one-tenth or more of the population from participation in the opportunities and benefits of our society, and the pollution of air and water.

Perhaps these recent events evoked memories of earlier threats to complacency. The Great Depression had exposed serious malfunctioning in the economy and brought for the first time to the general view the prospect of widespread unemployment and poverty and the existence of large groups to whom the boasted opportunities of American life were largely closed; but the lessons of the depression were quickly forgotten in the return of prosperity with its new dreams of abundance and the persistent illusion that all obstacles to well-being would yield to ever increasing productivity. The depression-conceived W.P.A. nursery schools, which might have given us a thirty-year start on "Head Start," were allowed to wither along with C.C.C. and N.Y.A., which offered new hope to disadvantaged youth. Other programs for lifting the poor to greater self-dependence and for extending the benefits of American life to the socially handicapped, likewise, were permitted to lapse. Not only were the depression-exposed shortcomings of society and education largely forgotten but the lack of employment for youth was turned into a virtue by the upward extension of compulsory school attendance which helped create the illusion that we were educating all children and youth. In fact, we were only holding more young

people in school longer and refusing even this boon to the children of migrant laborers, a majority of Negroes, and others whom we wilfully or negligently exempted from regular or prolonged school attendance.

The Second World War and the subsequent rise of a powerful bloc of communist nations posed problems of great magnitude without seriously shaking our faith in the capacity of the American economy, the American character, and American education to overcome all obstacles to our "manifest destiny"; but they did perhaps trouble the American subconscious with problems which the more recent shocks brought vividly to public consciousness.

The effect of the recent reinforcement of earlier misgivings was to awaken us to the harsh fact that world leadership could slip from our grasp and, worse, that the health of our society and functioning of our own institutions were in jeopardy. The consciousness of vulnerability evoked some hysteria among the less stable elements of the population and led to attacks on those in positions of responsibility in education, government, and elsewhere as well as to some hastily conceived crash programs. These flurries on the part of the half-awakened nation were soon followed, however, by a deepened sense of national purpose, a recommitment to democratic ideals, and critical examination of the problems to be solved and the weaknesses to be overcome. Whereas the mood of dismay had produced sweeping criticisms of education and ambiguous demands for schools to cure whatever was believed amiss with our society, the newer mood of rational action, which gathered strength between 1957 and 1964, produced, first, better definitions of problems and the relevance of education thereto; and, second, a set of more discriminating demands on education, accompanied increasingly by new resources for meeting the demands.

Changes in culture and society, and the corresponding changes in education, seem to exhibit the characteristics of a deep, powerful current, not to be easily deflected. Because of its depth and because it flows out of sources not well understood, this current is not readily charted or its strength easily calculated. The casual observer is likely, therefore, to depend for bearings on surface manifestations, which may indeed be related to the underlying movement but which are poor indicators either of power or direction. It cannot

be denied that some of the surface detonations are spectacular, or that frequently they are legitimate causes for concern both for their direct effects and for their subsequent impact on human behavior. The eruption of the new knowledge and new technologies of inquiry in the physical sciences in the mushrooming spreader of death is a case in point. The mere existence of such a weapon under the uncertain control of competing and myopic national societies tends to produce counter measures irrelevant to, if not actually destructive of, the goals to which man in more lucid moments aspires.

My point is that the bomb, the perfection of rockets and missiles, the dramatic competition in space exploration, the most recent electronic and cybernetic developments are all surface manifestations—frequently misleading—of the thrust generated by man's inherent curiosity equipped with rapidly elaborated technologies for discovering and applying knowledge. When man depended on cruder implements to feed his impulse to know, and when newly discovered knowledge was transformed into instruments for supplying man's material and other wants only through slow processes of trial and error, aided by occasional intuitive insights, there was time for social adaptation to changes wrought in the environment and time for reflection regarding choice of direction. Even so, the testimony of history seems to be that rational choices, based on consideration of long-range consequences, are seldom made; and adaptation of social institutions follows slowly, painfully, and imperfectly the new needs created by man-made changes in the environment.

The events of the past decade which produced popular reactions supportive of drastic measures in defense, education, and social welfare were related to fundamental transformations of culture and society. These transformations, occurring chiefly in the past fifty years, have made necessary the re-examination, if not the reconstruction, of all institutions; and they hold particular implications for education. So great have been these transformations that scholars and writers struggle for terms to indicate a great break with the so-called modern tradition and the beginning of a new era. Some call it the "post-modern age." Bridenbaugh, in his presidential address to the American Historical Association in 1962, called it "the greatest turning point in all human history, of which we have any record," and continued:

The nature of human existence has undergone "a great mutation." . . .
So pervading and complete has been this change, and so complex has life
become . . . that it now appears probable that mid-nineteenth century
America or Western Europe had more in common with fifth-century
Greece (physically, economically, socially, mentally, spiritually) than
with their own projections into the middle of the twentieth century.[1]

The transformations in culture and society throughout the world
have been so radical in the present century as to be apparent to even
the superficial observer. Changes in the technologies through which
man adapts himself to his environment are so rapid as to justify the
oft-repeated assertion that, for the first time in history, change has
become an ordinary occurrence, and adaptation to a succession of
changes has become a necessity for survival. The highly developed
techniques for discovering and testing knowledge which are known
collectively as science are the chief propellants of change; and the
constantly elaborated technologies of communication, production,
transportation, and warfare, in interaction with the new techniques
of inquiry, serve as accelerators of change.

The resulting proliferation of knowledge and changed views of
the function of knowledge produce impacts on the culture with
which education is struggling. Other social institutions also are hav-
ing great difficulty in accommodating themselves to the successive
jolts to accustomed ways of thinking and acting; and this, in turn,
places new burdens on education. Moreover, man often feels a sense
of loss of control, arising from those very factors which were de-
signed to increase his control over his environment; and finds him-
self at times less at home in this new world which has been fashioned
out of the mind of man than in the old world where his control over
natural forces was less complete. One of the functions of formal
education has always been to bring men (especially the rising gen-
erations) into possession of the culture; that is to say, of the world
created out of the ideas of men. This function is more difficult today
than at any time in mankind's past. Not only is the culture itself
incredibly more complex and specialized than was true of a few
decades past, but disjunctions in society have intensified and multi-

1. Carl Bridenbaugh, "The Great Mutation," *American Historical Review,*
LXVIII (January, 1963), 316-17.

plied the demands for education. The present demands incorporate the old need to help man gain mastery of himself and free himself from the tyranny of external circumstances; but now for the first time, "man" means *all* men, and the external circumstances are global rather than local. Consequently, what we require of education today is that it should reach out and encompass all, including those formally thought ineducable, while simultaneously defining in more rigorous terms the powers to be developed through education.

The Response of Schools to the Social-Cultural Transformation

FACTORS CONDITIONING THE RESPONSE

Organizations and institutions, like individual organisms, tend to react to changes in their environments in ways which will perpetuate themselves. Sometimes the reactions appear to be unreasoned and largely defensive; sometimes they show evidence of calculation and planning. Sometimes the response is slothful; sometimes partial; sometimes prompt, but irrelevant; and sometimes characterized by foresight, orderly planning, and comprehensiveness. The more stable an organization or institution is and the more deeply it is entrenched in the larger society, the more difficult it may be for it to respond to changes in the environment. Hence, the so-called social lag—the piling up of challenges year after year without corresponding reactions on the part of social organizations and institutions until the cumulative effect becomes so great as to produce abrupt change in or even destruction of institutions—is always a real and present danger in education. This is in part because an institution which carries so many of the values and hopes of the society is naturally resistant to change; and in part because the resistance is reinforced by the inertia built into the organizations (i.e., the schools and colleges) through which education is provided.

Among the conditions which make the transmission of the culture incomparably more difficult than in any past period are: (*a*) the highly specialized nature of modern knowledge which tends to make each segment the private preserve of a particular group of scholars instead of the general property of educated men; (*b*) the great acceleration in the discovery of knowledge as a result of sci-

entific technologies of inquiry, and the consequent necessity for constant reformulation of the corpus of knowledge in all fields touched by science; and (c) the redefinition of the culture to include civilizations previously largely ignored in Western education, and the growing perception of the need for a world view, if not for a world culture-synthesis.

It is important to remind ourselves of the many steps necessary to make the fruits of scholarly inquiry available for classroom instruction. First, the new knowledge either has to be fitted into existing formulations or older knowledge has to be reformulated to accommodate the new. This is a task that goes beyond research and requires the building of new conceptual structures, a task which is a major concern of higher education. For example, note the continuing reconstruction of physics with each addition to knowledge regarding the structure of the atom; or the impact on biology of increasing knowledge of genetic coding; or the effects on psychology of psychoanalytic theory. Second, the new statements of relationships must be published and subjected to the scrutiny not only of the specialized groups of scholars immediately concerned but also of others in the wider academic community. Third, the bearing of the new knowledge on the whole body of knowledge in a particular discipline and on the larger culture must be communicated through an extended series of interpretations and applications. Fourth, the new knowledge and the light and shadows it casts must be built into instructional materials of diversity sufficient to meet the needs of all learners who are expected to profit by it. Fifth, teachers must be helped to assimilate not only the new generalizations but also to understand the supporting evidence and how it was acquired. Sixth, teachers must be helped to find ways of communicating the essential meanings of the new knowledge to those from the slums as well as from the suburbs, to the lethargic as well as the alert, to the action-oriented as well as the studious. And, seventh, teachers must show great ingenuity in adapting their own behaviors to the new knowledge.

In earlier eras, the first of these steps alone might have occupied a generation; but today, because of the accelerated pace of change and the resultant stresses on human society, all of the steps need to be compressed within a few years. Colleges and universities have

always carried a major burden of the responsibility for transmitting the culture to on-coming generations for three reasons: First, they serve as major repositories both for that knowledge which is part of the written record and that which is still only in the minds of living persons; second, they play a major role in the codification of knowledge; and, third, they prepare the teachers for their roles in the transmission of the culture.

Up until fifty years or so ago the task of the colleges and universities in preparing teachers to understand and to help others understand the culture was taken for granted because it was imbedded in the normal operations of higher institutions. The professor of history, chemistry, literature, or mathematics assumed—and had some right to do so—that his contribution to the preparation of teachers could be made by effective instruction in whatever branch of knowledge he was teaching. In former times the teacher who pursued the standard course of arithmetic in elementary school, algebra and geometry in high school, and two years or more of standard undergraduate mathematics in college was assumed, rightly or wrongly, to be reasonably well prepared to teach mathematics in elementary or secondary schools. Such an assumption is utterly untenable today. There is no guarantee that even those teachers who have had four years of mathematics and some graduate training in a strong college or university will be equipped to teach the mathematics programs developed by the School Mathematics Study Group or similar programs of "new mathematics." The same thing may be said for the biological sciences and all of the physical sciences; it is rapidly becoming true for the social sciences, with new approaches to world history and the impact of new perspectives in the behavioral sciences; and similar disjunctions may be noted in modern languages, including English, because of the influence of linguistic analysis and other recent developments.

To sum up, educational advancement and adaptation to new needs require speedy incorporation of applicable knowledge and techniques to the content and organization of curriculum, to methods and materials of instruction, and to ways in which the educational enterprise is organized and administered. New knowledge, however, does not automatically become available for education upon discovery; but must pass through the frequently neglected

processes of codification, interpretation, and dissemination. For example, the scientific discoveries of the past fifty years were reflected only slowly and imperfectly in textbooks for school use and in programs of teacher education. They did not in any real sense become available for instruction in the schools until the national curriculum study groups identified the salient concepts and worked out relevant materials and methods of instruction. Goodlad (chap. ii) shows the nature and magnitude of the resources required to perform the essential tasks in each of the sciences and mathematics. It may be noted that he attaches importance not only to the careful way in which each of the components of the several programs was developed but also to the manner in which the parts were fitted together and "packaged" for classroom use.

What has been said of new knowledge bearing on curriculum content applies with equal force to the findings of the behavioral sciences which have implications for instruction and other school practices. For example, the psychological concept of reinforcement undoubtedly carries profound implications for instruction; but its full meaning has not been explored as yet; and teachers require considerable help in understanding the possible applications, and even more help in adapting their own behaviors in accordance with the new knowledge. The behavioral sciences certainly do not justify anticipation of significant changes in instruction merely through circulation of reports showing what psychologists have learned through experimental analysis of behavior. The concept of reinforcement, like other concepts derived from social science research, has to be built into strategies and techniques of instruction before being put to effective use by teachers. Even the invention of an instructional technique or device based on the new knowledge may not carry the concept very far toward effective application to teaching and learning. As a case in point, the technique of programing and the teaching machine as a dispenser of programs certainly make it easier to provide immediate reinforcement for whatever learnings accessible programs offer. Yet it may be a dubious contribution to educational improvement, or to effective reinforcement of learning, to move toward universal use of programed instruction before tested programs of considerable profusion and variety have been constructed. Even then, widespread adoption is likely to be followed

by disillusionment unless adequate provision is made for the education of teachers in the limitations as well as the potential uses of the technique.

Adoption on an experimental basis is quite another matter since educators cannot expect techniques custom-made to their requirements unless they accept responsibility for contributing to their development. Failure to assume this responsibility lengthens the technological lag in education.

Perhaps the best illustration of this is the five-hundred-year-old technology of printing, which has not yet been fully exploited in the schools. To be sure, the schools for reasons of economy and less defensible reasons were formerly limited largely to the output of the textbook publishers; but improvements might have come earlier if teachers had been aware of and sufficiently articulate concerning the magnificent undeveloped possibilities inherent in the technology of the book. The recent flood of paperbacks and other tradebooks offers a wide range of materials and makes possible much greater individualization and differentiation of instruction by schools and teachers sophisticated enough to take full advantage of what publishers provide. But teaching competence is itself a factor in the availability of knowledge and technology for school use. It may be noted also that there is still a paucity of printed materials suitable for those whose interests and early experiences differ significantly from the middle range of the population to which the materials commonly are directed.

In short, educational availability cannot be measured by the possibilities inherent in the computer or other technology until the applications to instruction are well worked out and tested under a variety of conditions; and the potential cannot be realized until the necessary skills, attitudes, and habitual behaviors are developed in teachers and other school personnel.

ATTEMPTS TO UNDERSTAND CHANGE PROCESSES

Many persons are concerned with speeding up the processes of change in education; yet, it is apparent that not all kinds of changes in education constitute fitting or effective responses to the transformations in culture and society. The existing literature on educational innovation and social change provides little either in the way

of empirical data or verifiable hypotheses on how to accelerate the process of making education a more effective instrument either for the realization of social goals or for the development of individual capacities and talents. Without an adequate understanding of the forces influencing change in education or the processes through which the institutions of education interact with culture and society, it is difficult to predict the direction and amount of future change or to specify the factors which are likely to determine changes in the future. Consequently, attempts to intervene in educational change processes are likely to be inept and ineffective.

Too often the implicit assumption seems to be that the adoption of a new form of organization, technique of instruction, or way of grouping learners is in itself an indication of progress and, therefore, to be applauded. Yet, an examination of the changes in educational practice which have occurred over the past fifty years would lead to considerable doubt about the educational significance of many of them. Professional and popular books, periodicals, newspapers, and telecasts create the impression of sweeping changes over the past several years in the content and method of instruction, in school buildings and facilities, and in ways of grouping learners and using teachers. The new mathematics, the new science programs, the new emphasis on the teaching of foreign languages, the use of television and programed instruction, nongrading and continuous progress, and team-teaching are all much in the educational news. Yet, careful observers, including several of the authors of this yearbook, report that many classrooms are little affected by the new ideas and that the exciting developments which are taking place are attributable generally to teachers of unusual intelligence, resourcefulness, and sensitivity to needs of learners.

We need far more accurate statistics and descriptions than are now available regarding the diversity of practices within and among school districts, within and among the several states, within and among the several geographical regions of the country, and in comparison with practices in other countries. We need better descriptions also of the experiences which children have as they pass through the schools and a better assessment than we now have of the effects on their development of the experiences provided.

Many studies of innovation in education make no distinction be-

tween the rates of diffusion for simple social inventions which may be adopted by administrative decree and far-reaching changes in the content of the curriculum or in technologies of communication and instruction. Reflection on innovations of the past fifty or more years will show that some—such as the Carnegie unit or the elective system in high schools—were adopted universally in a very short time; others, such as homogenous grouping, spread rapidly among the larger and more "progressive" schools for a period of ten years or so, then lost favor and suffered a decline for something like a quarter of a century before gaining new impetus which is not yet spent; and still others, such as the amount and kind of instruction in science, have taken place over long periods of time with recurrent changes of emphasis. It might be illuminating to construct curves showing the rate of adoption for different kinds of innovations.

There is little agreement regarding the crucial factors determining the rate at which innovations are adopted. We know that certain kinds of decisions depend upon the availability of funds—as would be true, for example, of the introduction of closed-circuit television or the reduction of the pupil-teacher ratio; but we know all too little about the conditions under which the availability of funds may lead to the adoption of an innovation which otherwise has little to recommend it or which is not close to the top of a school's own priorities for improvement. Likewise, we know that some changes are dependent upon the availability of qualified personnel; but we also know that, under certain conditions, schools will embark on new programs or new subjects of instruction even in the absence of qualified personnel. Similarly, we know that community demand is a factor; but we are not readily able to distinguish the occasions when community demand grows out of a direct perception of need from those occasions when demand is fanned by promotional techniques, the pronouncements of high prestige figures, or simply a desire to be "modern." Not only are there diverse motivations for the adoption of new practices or technologies but there are also diverse sets of factors which determine which particular innovations will be selected for adoption and the extent and rate of adoption.

The studies that have been done on educational innovation have led to a number of imperfectly verified generalizations which fall

short of providing tight conceptual frameworks for further research, speculation, or practice. Some studies stress the importance of personality factors; others emphasize the structural features of the organizations involved; others borrow explanations from social-systems theory or other theoretical formulations; and others reach in yet other directions for plausible and verifiable explanations of change processes in education.

There is reason to believe that the significant and persisting changes in education represent responses to fundamental transformations in culture and society. Moreover, a marked response typically appears not to a single event or force but to a concatenation or chain of events and forces; and pronounced and lasting change appears to follow forces that are persistent in their effects and not simply momentarily disruptive. It may be observed, also, that the response of educational agencies is not to the force itself (however deep and persistent it may be) but to men's perception of its impact on culture and society. For this reason, the response seldom anticipates the social impact of a discovery or a development but is delayed while the effects of the impact are assessed and absorbed by those who occupy strategic roles. Thus, the speed and character of the responses tends to be determined by the perceptiveness, vigor, and leadership capacities of those in high-status positions who play roles enabling them to influence the decisions and actions of others in the society. (Witness: the decisive influence of the President of the United States on recent events affecting education.) Effective response by an institution which interpenetrates the entire society, as education does, depends also on the translation of the perceptions of need into symbols and forms of communication which will prepare public opinion for the required changes.

It appears that a conjunction of external (societal) pressures toward change and internal dissatisfaction with the ways in which educational needs are being met is a favorable—and perhaps a necessary—condition for sustained action genuinely responsive to social needs on the part of schools and other educational agencies. The amount of problem-orientation or sensitivity on the part of teachers and school officers to unmet needs for education among the population served can be a major factor in the receptivity to change. School faculties which cultivate the habit of looking for the prob-

lems behind such symptoms as dropouts and low achievement tend to become aware of potentially removable barriers to learning, inadequate provision for the development of self-esteem, and inadequate encouragement for achievement at progressively higher levels; and this awareness leads to exploration of knowledge and technologies applicable to the problems identified.

This type of sensitivity to the needs of students was evident in the several pioneering or experimental schools which I visited between 1957 and 1965; and the factor appeared in equal strength whether the school was located in a Swedish town, a Pakistani village, an American suburb, or a metropolis such as Chicago, Istanbul, or London. This type of problem-orientation, in my opinion, was one of the more important factors in the success of such educational reformers as John Dewey, Francis Wayland Parker, Maria Montessori, Johann Friedrich Pestalozzi, and many others. This is not to deny the power of either the conceptual structure or the charismatic leadership provided by the great reformers; but it is to hypothesize that, in the more successful ventures, an equally important factor was the active involvement of teachers and other school personnel in a continuing effort to understand and to meet more fully the needs of particular individuals growing up in a particular society.

The factor that I am calling "problem-orientation" includes the generalization, supported by social-science theory and research, regarding the importance of involving those affected by change in the planning of change; but it suggests a particular approach to involvement in the form of participation in the search for solutions to problems encountered by those the school is trying to serve. There is a significant difference between this approach and the approach in which involvement starts with examination of proposed innovations. The difference is that attention focuses on selection of techniques for their usefulness in meeting identified educational needs and objectives rather than on exploiting possibilities thought to inhere in given techniques.

In schools as with other organizations, institutional rigidities or ineffective leadership may produce spasmodic or poorly planned change and may delay, deflect, or even prevent adequate response until new organizations and new approaches are developed to cope with the unmet needs. In such cases, the older organizations may

be displaced entirely or may be incorporated into new configurations involving a plurality of agencies addressing themselves to various aspects of the new demands which older agencies failed to meet. There are indications that this is happening in the field of education to an extent not yet generally recognized.

THE INFLUENCE OF POWERFUL IDEAS

Common human motivations tend to generate, in every society and nation, impulses to respond to proliferation of knowledge and complication of technologies by elaborating the means of education; but the form of the response is shaped to a considerable extent by conditions and traditions operating in particular societies and nations. The distinctive patterns which emerge may be traceable to powerful ideas which often have a prescientific origin and which are not yet susceptible to empirical measurement, but which often play decisive roles in engendering and shaping changes in education. I refer especially to ideas with regard to the nature of man; the possibilities in man; the relationship of man to his fellows; the function of society; and a whole constellation of concepts regarding equality, freedom, authority, and so on. With particular reference to the American experience, the concept of the equality of man and of certain inherent prerogatives of man has had a powerful and continuing influence on social institutions of all kinds. For example, note how the attempt to redefine the meaning of equality in modern times has contributed to the civil rights movement in this country and to the closely related movement to remove the barriers to learning that are raised by social disadvantage or cultural deprivation. As Robert Frost said regarding the celebrated phrase in the preamble to the Declaration of Independence:

> That's a hard mystery of Jefferson's.
> What did he mean? Of course the easy way
> Is to decide it simply isn't true.
> It may not be. I heard a fellow say so.
> But never mind, the Welshman got it planted
> Where it will trouble us a thousand years.[2]

2. Robert Frost, "The Black Cottage," Frost's *Complete Poems*, p. 74. New York: Holt, Rinehart & Winston, 1949.

Because of the power of this idea and the necessity to interpret it anew in each generation, the evolution of education in America has been characterized by successive moves toward greater inclusiveness. In Colonial days and in the earlier days of the nation, education was restricted severely; and even after the victory had apparently been won for state systems of public education, great inequities persisted. Well into the present century the rural child's access to education was far less than that of children in the cities and in the wealthy suburbs. Moreover, large segments of the population, including Negroes, Mexicans, and other minority groups and such occupational groups as the migrant workers, were virtually cut off from opportunities for education of their children. Nevertheless, the quest for substantial equality of opportunity has been so powerful that it has often seemed to take precedence over considerations of excellence.

In England and other countries of the Old World, both secondary schools and colleges reflected very strongly both the state of the culture and the organization of society and, at best, were open to those who exhibited an aptitude to profit from study in institutions adhering to certain standards of academic excellence—inforced typically by external examinations. In the United States, on the other hand, with its virtual absence of external criteria of excellence, secondary schools came to be thought of as serving a given age group; and to a lesser extent the same thing was true of colleges. Thus, we successively open the doors of our schools and colleges to each group in the population that demands admission; and when the older schools and colleges do not accede to this demand, we create new ones which will. This tendency is widely recognized and often deplored, but it is not so generally recognized that the thrust to open educational opportunities to those previously excluded typically is followed by a second thrust to raise the quality of the education provided. The latter tendency may be read in the evolution of the high school and of such post-high-school institutions as the land-grant colleges, the normal schools, and the junior colleges. Through the diversification of educational organizations, the American people have successively extended the benefits of secondary and higher education to rural youth, to children of European immigrants, to women; and now, at last, is in the process of extending

them to Negroes and to other still-disadvantaged groups. The first objective often seems merely the gaining of nominal access to coveted opportunities previously denied to certain groups; but the second objective, sometimes unduly delayed, is to give substance to the nominal achievement.

The drive toward "inclusiveness" or equality of educational opportunity has accounted for a major share of the changes in the American high school during the past fifty years and more. It led to the attempt to place high schools within an hour's journey by means of transportation available to all; and it was incorporated in the concept of the "comprehensive" school. It led to a proliferation of offerings—vocational and otherwise—in an effort to provide something for those not attuned to academic pursuits; and it entered into such diverse innovations as the elective system, the guidance movement, ability grouping, and life-adjustment programs. It is now manifesting itself in preschool programs and compensatory education to relieve cultural deprivation, job-training projects, and a renewed emphasis on counseling. Many of the attempts were misconceived or abortive; but the quest continues.

A similar case can be made for the influence of another kind of idea; namely, the concept of learning as a process of active inquiry and of the human individual as naturally inclined to seek meaning and to develop his powers in confrontation with the environment. This view of man and of learning was expounded in the classical cultures of both East and West and has had influence in all societies; but, because of the work of Dewey and the Progressive Education and Child Study movements, it has been especially pervasive in the United States. Cremin documents this influence in *The Transformation of the School*;[3] and there can be little doubt that this dual concept of the nature of man and of the learning process underlies the most significant changes in the elementary schools in this century. It broke up the excessive formality and punitive character of primary education and produced an emphasis—sometimes misplaced —on child activity and freedom. It led more or less directly to

3. Lawrence A. Cremin, *The Transformation of the School*, New York: Alfred A. Knopf, 1961.

curriculum reforms, to new types of instructional materials, and, eventually, to such innovations as nongrading. Moreover, the current curriculum reforms incorporate the same concepts and the same emphasis on active inquiry, although the present influence derives more directly from the new breed of natural and behavioral scientists than from the older philosophies.

It may be said, then, that ideas which have entered deeply into a society's stream of consciousness have a power to shape the evolution of education and to bend technologies to their requirements. Even though the working out of the ideas goes forward haltingly and stumblingly, often ignoring or using ineptly potentially useful technologies, it seems to offer some assurance that education will continue to respond to human aspirations rather than to orient itself primarily to the technically feasible. The extent to which ends and values derived from human experience will govern the choice and spur the invention of relevant techniques in education will be determined by many factors, one of which is the way in which the functions of education are conceived.

The Functions of Education Today

Those who try to give direction to education will labor to small effect unless they move steadily toward better understanding of the powerful forces and ideas which are reshaping our environment with a speed which amazes and often dismays thoughtful observers. Among these forces, education plays a dual role as promoter of change and as harmonizer of the other interacting forces. The difficulties involved require us to consider anew the functions of education.

THE ENDS OF EDUCATION RECONSIDERED

Education sometimes seems to become a process designed primarily to increase the effectiveness of behaviors involved in goal achievement, although it has long been held that education serves also to raise the quality of purposes and to increase the likelihood of wise choices among values and goals. The latter function is not easy to discharge under the conditions of contemporary life when traditional values appear to lose relevance and institutional sanctions are weakened. An even more far-reaching concept of the functions

of education is that of enlarging the capacity of individuals to respond with empathy and *elan* to a wide range of phenomena and relationships.

More than three centuries ago, the poet Milton characterized as "a compleat and generous education that which fits a man to perform justly, skilfully, and magnanimously all the offices both private and publick of Peace and War." [4] This definition is magnificently comprehensive; yet its emphasis on *performance* of duties, except for the saving grace of the adverbs, "justly" and "magnanimously" might tend to restrict education to the development of skills required to discharge the responsibilities set by society. Dewey used a different approach in defining education as "reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience." [5] Cremin thinks this was Dewey's "way of saying that the aim of education is not merely to make citizens, or workers, or fathers, or mothers, but ultimately to make human beings who will live life to the fullest." [6] This interpretation is wholly justified in the full context of Dewey's writings.

The definitions cited complement each other and provide cogent ways of thinking about education; yet, they do not seem to me sufficiently explicit regarding the contributions of education to an individual's ability to choose wisely the activities to which he gives his energy, his time, and eventually his life; and they do not deal directly with such accompaniments of learning and living as joy or appreciation. Moreover, although these formulations do not deny, they likewise do not deal with the possibilities for development through education of openness to one's own subliminal impulses and needs or of awareness to the persons, objects, and events

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4. Milton's *Tractate on Education*, p. 8. Edited by Oscar Browning, Cambridge, England: Cambridge University Press, 1905. (First published in pamphlet form in 1644 from an earlier letter proposing an academy for "our noble and our gentle youth.")

5. John Dewey, *Democracy and Education*, pp. 89-90. New York: Macmillan Co., 1916.

6. Cremin, *op. cit.*, pp. 122-23.

in the environment. Yet, in this post-Freudian cyberculture, openness to self, openness to new experience, and autonomy rooted in this dual openness claim a place among the ends of education for reasons of self-fulfilment as well as because they underlie the capacity to make intelligent choices and assume responsibility in situations in which knowledge is incomplete and the consequences of choices are unclear.

There is no intent here to probe all the meanings or to examine all the functions of education; but only to clinch the point that, when education is conceived primarily as a means of conveying the knowledge and developing the skills essential to the tasks society requires, it readily degenerates into a form of more or less sophisticated conditioning or training. It may be that education, thus misconceived, becomes more detrimental to the "good life" or to the good society as it becomes more effective.

Reconsideration of the functions of education, of the ends sought, thus takes on new urgency. In societies attuned to the higher needs as well as to the material wants of man, the individual is esteemed not merely for his works but also for himself. Education in such societies is concerned with the actor as well as the act; it bears upon what happens to the persons who have the purposes and who realize them—or fail to realize them—more or less gracefully as well as upon the extent to which purposes are achieved and useful contributions made to society. Education, then, may be expected to produce effects (*a*) on what individuals are becoming, (*b*) on the kinds of purposes which direct their behavior, (*c*) on the relevance and effectiveness of their purposeful behavior, and (*d*) on the aesthetic and ethical concomitants of their goal-setting and goal-seeking behavior. To restate in slightly different terms, it may be argued that a generous education will contribute to at least four distinctive types of development:

1. *The ability to use relevant processes for selection of goals and activities.* This involves what may be called purpose-establishing behavior. The ultimate aim is to help the individual *choose with care the ends for which life is spent.* It is a function grossly neglected today, largely because we do not feel equipped to help the student deal with the conflict of values. The approaches represented by the great religions, by ethics, and by the newer instrumentalist, analytic,

and existentialist philosophies all hold potential clues to a resolution of the problem.

2. *The ability to select and use means appropriate to learning and other goals.* Here we are dealing with effectiveness of performance, with purpose-achieving behaviors. The aim is *to help the individual find and employ without wastefulness the necessary and proper means to the chosen ends.* This now occupies the major part of schooling. It involves all the skills for learning, for vocation, for problem-solving, and for discovery of new knowledge. Milton's definition "to perform skilfully" is apt for this type of objective.

3. *The capacity and the disposition to identify and apply aesthetic and ethical criteria to the manner in which activities are performed.* This has to do with what might be called, broadly, the style of behavior. It involves considerations of form, sequence, harmony, precision, elegance, and impact on self and others. *The aim is to enable the individual to bring to activities a lively sense of joy, a sense of style, and a consciousness of affects.*

4. *The capacity to respond to an increasing range of phenomena and relationships with understanding, appreciation, and appropriate overt action.* This category has to do primarily with the emerging person and not with performance. As in Dewey's definition, it is developed in the present through reflection on or reconstruction of experience and consists of a power ready for subsequent use. *The aim is a steadily enlarging capacity to respond, with satisfaction to one's self and others, to the phenomena of nature, the perceptive insights of art, the processes of science, technical excellence, or the complexities of human nature and relationships.* It may be cultivated through the visual, performing, and other arts and through the great records of human aspiration and degradation, of achievement and defeat, and of agony and ectasy which are to be found in sacred and secular chronicles and works of imagination. Perhaps the chief outcomes sought are in the form of increasing openness—both to the world (i.e., to new experiences) and to the self, with a continuing dialogue between the patterns of thinking established by earlier experiences and the insights provided by new experiences, so that a reformulation results in a new self, confronting an ever-engaging world. The entire process involves self-other delineations leading to new integrations and mutual enhancement. It is a process through

which the learner comes to know who he is in relation to the world and the measure of control he can hope to exert on the interaction. It is a relationship productive of a rich range of emotions—including joy and sorrow, hope and despair, understanding and bafflement.

The quality referred to as "openness to the world" seems to me to contain perceptual, cognitive, and emotional components. Some kind of awareness has to precede response; therefore, what one responds to is limited by what one can perceive; but perception appears to be limited by the threshold of receptivity or sensitivity. An important part of the educative process, which we understand but poorly, would seem, therefore, to be a gradual sensitizing of individuals to perceptions of relationships, constructs, and sense phenomena. Response, however, is limited not only by what one is able to perceive at a given time, but on how the perception is handled. The processing of the perception would seem to depend not only on the adequacy of cognitive functioning but also on the disposition to take risks and to venture beyond the boundaries of the known in order to test hypotheses concerning perceived relationships. A further phase has to do with the extent to which the individual is willing to manifest or act upon the outcomes of the transaction between the external and the internal. These matters are within the proper sphere of education, but knowledge of how to deal with them so that the individual "grows from more to more" is available to teachers in meager quantity and poorly defined form.

The foregoing represents an attempt to relate the goals of education to aspirations which have their roots in older cultures in many lands and which appear now to be emerging in the new world-wide culture. It is by no means complete; and, it does little to indicate how each of the four types of development gains relevance for today only by drawing upon the total culture available to modern man so that individuals learn to set their goals in the midst of uncertainty and value conflicts, to pursue them with the tools and technologies the modern world provides, to act with verve and consideration for others in spite of complexities, and to go on learning as new knowledge appears and new social structures arise on the ruins of older institutions. The kinds of educational functions and goals which I have presented are difficult to translate into objectives which will govern the selection of content and the choice of instruc-

tional methodologies and techniques. Yet, I believe that additional efforts to find ways of moving toward such outcomes may contribute more to the enhancement of man and the elevation of society than will a reduction of education to that which is neatly definable and specifiable.

IMPLICATIONS OF CULTURAL-SOCIAL MUTATIONS

Under present conditions, the potential contributions of education to the full development of man take on new poignancy. Evidence of discontinuities in the culture and malfunctioning of social institutions has led to an earnest search for ways of making education more relevant to the needs of modern man. New conditions arising from cultural changes have made educational institutions and techniques inadequate, if not obsolete. The rapid increase in the amount of knowledge with which schools must deal and new perceptions of the nature of knowledge generate new demands and render incredibly more difficult the basic function of transmitting the culture. The world-wide intermingling of cultures resulting from revolutionary advances in transportation and communication make all cultures relevant; and developments in warfare and the ideological polarization of the world make any problem in any country, however remote or inconspicuous, a possible trigger for world-wide devastation.

The application of new technologies in business, industry, and government results in the steady replacement of occupations which make small demands on literacy or on the higher mental abilities by jobs requiring precise communication, skill in quantitative thinking, and the exercise of judgment. The fulfilment of the individual through work, consequently, requires a breadth of training beyond that required in previous times. Moreover, the mounting need for personnel with highly developed linguistic, mathematical, scientific, and other specialized abilities in government, industry, and the professions has put pressure on education at all levels to discover and develop unusual talents.

Aspirations toward a better life and expectations for a greater share of the world's goods are being expressed today in every segment of society and in every country in the world. These expectations and aspirations so far outrun the present means of fulfilling

them as to produce tensions which threaten to erupt into violence unless means are found to close the gap. Education is seen by all of the newly articulate peoples (in this country as well as in less affluent societies) as an essential means to their aspirations to higher standards of living, a voice in affairs, and a greater control over their own destinies.

Population increase and a possible lowering of the genetic quality of the human race threaten to cancel out gains resulting from the advance in science and technology and, perhaps, even to endanger the future of the race. Geneticists and demographers agree that all of the elements of a world-wide catastrophe are in the making and disagree only as to the possibility and the means of averting the threatened catastrophe. The best hope lies in increasing the rationality of decisions, both by families with regard to offspring and by nations respecting economic and social policies.

The complexity of the data that enter into modern decisions and the speed with which decisions often must be made render more unlikely than in any previous age the prospect of wise decisions by poorly educated and ill-informed persons. The education now available to a large proportion of our population provides an inadequate basis for participation in decisions on public policy. Crime, poverty, and overcrowding, accompanied by pollution of air and water, traffic paralysis, and other problems in our cities, generate other demands on education. Other problems which schools are asked to cure include unemployment, segregation, and denial of civil rights.

The broad outlines of adaptations required to bring education in line with the needs of our times are becoming clear. The first requirement is that all children shall have a fair start toward an education. This requires the eradication or amelioration, through nursery schools and otherwise, of the cultural deprivation commonly experienced by children from homes in which parents are more or less illiterate, books are lacking, and aspirations toward education absent. It requires integrated facilities, good teaching, and improved materials and techniques of instruction for children of minority groups, children in rural areas, and others who are the victims of environmental blight.

The major function of the primary learning stage is to keep alive the child's natural quest for meaning and to equip him with the es-

sential tools for pursuing learning on his own. Every child in this stage needs the extended influence of teachers who have deep understanding of the needs of young children, a firm grasp on learning as a process of active inquiry, and great skill in planning sequences of experiences through which children can acquire the tools and habits of sustained and systematic study. Groups of varying size and composition for different kinds of learning tasks and a variety of self-instructional devices are required in order for each child to advance at his own rate and to experience genuine achievement.

The secondary stage calls for the acquisition of a considerable body and variety of organized knowledge and the learning of modes of inquiry appropriate to the continuing extension of knowledge in each of the major disciplines. Ingenuous differentiation of approaches and instructional materials are essential to take account of differences in ability, previous experience, values, and other motivations. As self-direction is developed, it may become possible for a major portion of the time in school to be spent in individual learning by means of reading, self-teaching devices of many kinds, and self-directed activity in laboratories and workshops. Contacts with cultivated teachers who are knowledgeable in their respective fields and motivated by a spirit of continuing inquiry are essential. Evaluation of achievement and of progress in the development of powers may become the chief basis, other than the learner's own purposes, for scheduling the activities of individuals.

All students can be introduced to the modes of thinking and the insights into man's achievements and shortcomings that are provided through great literature, history, the arts, and sciences; and all need help in acquiring precision and power in the use of language and of the mathematical tools for quantitative thinking. The content of the curriculum in all fields requires thorough and continuous revision to weed out obsolete or second-rate ideas and the shoddy expression of ideas and to provide a reasonable sampling of man's highest achievements. To accomplish this, the specialized scholars in the several fields must continue to identify the key concepts and formulations from which more specific selection may be made for particular learners at particular stages of development. Psychologists and other students of human behavior can provide guidance for the organization and sequence of learning experiences and the contexts in which

particular kinds of content may be used most effectively for different purposes with different kinds of learners.

The capacity to choose the particular content that will contribute most to the development of particular learners at particular times will remain indispensable to competent teaching. Improvements in the selection, preparation, and use of teachers are, therefore, essential if the schools are to respond with anything approaching adequacy to the new demands on education. Making teaching attractive to young people of intellectual curiosity and scholarly interests is not impossible; and teacher education as an extension of (rather than a replacement for) liberal studies might produce teacher-scholars. However, redefinition of teacher roles to permit better use of specialized talents is long overdue; and the organization and administration of schools can be made more conducive to achievement of educational objectives. Finally, inducements and resources for continuing education through life can be made available to all citizens.

NEW ORIENTATIONS TO A CHANGING WORLD

In chapter vii, Gow, Holzner, and Pendleton offer an intriguing glimpse of a new world-wide view which is developing among intellectuals in all societies and touching all aspects of culture, including art, literature, music, and philosophy as well as the sciences. Among the characteristics are: a willingness to make decisions and to accept responsibility in the face of uncertainty, a new humanistic individualism, and an increasingly reflective, self-analyzing outlook. To the extent that these new orientations permeate society, they offer a demonstration on a broad scale of the kind of reconstruction of experience which Dewey defined as education. It is possible that these positive reactions to our changing world are occurring without much assistance from the schools and are largely the products of direct on-the-scene involvements or of secondary involvement through the vivid reporting of television and other modern media of communication. It may be observed, however, that the new orientation is by no means universal; that it has not been adopted fully even by all college graduates; and that, in fact, it seems to be confined largely to the more imaginative and reflective members of society.

There is great need to speed up the positive adaptations on the

part of all members of society; otherwise there is little hope of rational participation by the majority of citizens in the great decisions of our times; and even less expectation that most will be able to confront the world with zest engendered by feelings of autonomy and adequacy. The schools have not yet learned how to cope with this challenge. For example, instruction and evaluation are still based largely on an assumption that there is a "right" or correct answer, that quantities can be measured exactly, and that there is a "best way" of doing things. Reading is still taught as an exercise in retrieving the author's meaning (or sometimes only his words) from the printed page rather than as an exercise in reflective thought, involving not only a transaction between new data and previous experience but also a hypothetical projection into new situations of the ideas encountered.

The schools have received little help from philosophers, psychologists, or curriculum-makers in combating forces of dehumanization and alienation; consequently their contributions to the new humanistic individualism tend at best to be incidental. What is at stake is nothing less than a successful confrontation of the new culture in its many guises to the end that the output of man's brain may be put to uses which most "become" a man. It is a task which schools cannot hope to perform without extensive help from the universities and other agencies for the discovery, interpretation, and application of knowledge.

Ten years ago a Scottish review of the Society's Fifty-fourth Yearbook remarked that perhaps "the most important difference between contemporary European and American educational thought centres in the concern to understand man's nature and being" [7] which he clearly thought much greater in Europe than in America. It may be that the difference is less striking today. Certainly American thought is now being influenced by existentialist concepts of man as "a maker of decisive choices . . . a unique person with his commitment to make." [8]

7. W. B. Inglis, "The American Accent in Education," *Scottish Educational Journal*, November, 1953, p. 679.

8. *Ibid.*, p. 680.

The problem of values re-emerges as perhaps the most crucial concern of education today; and the problem will not disappear simply because it falls outside the domains of science and technology. Frankena's discussion in chapter x suggests that post-Deweyan philosophers have, up to now, exerted an almost negligible influence on practices in the schools and only slight influence on discourse in the field of education. Yet, he believes that both analytical and existentialist philosophers have important contributions to make to the selection of goals, determination of emphases, and choice of methods.

If I read him correctly, Frankena identifies four kinds of contributions to the normative or ethical premises of education: (a) the family of dispositions stressed by the analytical philosophers and having to do with procedural rigor, clarity of thought and expression; (b) the family of moral dispositions derived from existentialist philosophy which are represented by such terms as authenticity, commitment, courage, and responsibility; (c) the disposition toward consistency embodied in the "Principle of Generalization; and (d) the dispositions toward excellency stressed earlier by Dewey and inhering in scientific regard for empirical fact and experimental verification.

The potential contributions of philosophy to the working out of processes through which individuals can order their own values and goals may eventually assume greater importance than its contributions to normative premises. Unfortunately, insufficient groundwork has been done to enable those preparing to teach to develop such processes for themselves, much less to teach them to others. Nevertheless, it is encouraging that a number of philosophers are beginning to grapple with the problem of developing and teaching processes for resolving value conflicts. Students of education are also giving the matter attention.

Noll, in a recent study at the University of Chicago, undertook to identify meta-terms which represent common pivotal points in the descriptions of ethical developments offered by a number of the major existential philosophers. While he saw enormous possibilities for applying the identified concepts to the problem of values, Noll was unable to fit the implications within the present structure of

education. He thinks "a complete transformation of the school" [9] may be necessary in order to realize the full potential of the existentialist position. The study is an extremely provocative contribution to a problem that lies at the heart of education. Further exploration by philosophers and other thinkers is urgent if schools are to begin to address themselves with any hope of effectiveness to helping young people acquire a valid and reliable process for determining who they are, what to commit themselves to, and how to spend their lives. As Wheelis says: "Values determine goals, and goals define identity. The problem of identity, therefore, is secondary to some basic trouble about value." [10]

In the search for values, Wheelis pins his faith on the instrumental process characterized as an examination of facts and the drawing of relevant conclusions—in which reason rather than belief founded on force becomes the vital element. He recognizes the need also for institutional values but calls for an end to institutional coercions. The issue is joined between those who would subject values and ends as well as means to intelligent scrutiny and inquiry and those who would look to institutional power to propagate and inforce "revealed" values. How one resolves this issue has consequences for education. If on the theory that the unexamined value is not entitled to the allegiance of man, we choose the approach of reason and disciplined inquiry, we are impelled to work out and apply relevant modes of inquiry.

An Appraisal of Developments and Possibilities

CONSIDERATIONS OF RELEVANCE, AMPLITUDE, AND POTENCY

Many of the changes described in the first six chapters of this volume seem to reflect pressures toward technical effectiveness and to bear only incidental relationships to the basic philosophical and social issues which arise from the transformation of culture and so-

9. James William Noll, "An Analysis of Existentialist Concepts as a Basis for the Value Dimension of Contemporary American Education." Unpublished Ph.D. dissertation, Department of Education, University of Chicago, 1965.

10. Allen Wheelis, The Quest for Identity, p. 174. New York: W. W. Norton & Co., 1958.

ciety. Some of the actual or incipient changes, notably the curriculum developments described by Goodlad in chapter ii and the changing role of the teacher as discussed by Lee in chapter i, seem, however, to represent a clear response to needs arising from the metamorphosis of the culture. In spite of the slowness with which modern technologies find their way into the schools, there is reason to believe that there is a major thrust toward technological change in education. Undoubtedly improved technologies applied to school housing, organization, and instruction will enable schools to do better whatever they are trying to do and thus increase the effectiveness of their response to the basic forces and ideas at work in our society. The descriptions in this volume suggest, however, that the new technologies have not been adopted very widely, that they are not well integrated into the operations of the schools, and that their effects to date probably are not very great.

Since science has not yet devised an accepted way of measuring the forces at work in our society or the needs to which education is relevant, it is difficult to make even approximate judgments as to how far changes in education carry us toward meeting the needs. Perhaps it may be useful, however, to scrutinize changes and proposals for change in terms of relevance, amplitude, and potency. Relevance might be defined with reference to specified cultural changes, social goals, the needs of individuals confronted with rapidly changing conditions, or a designated set of educational objectives. The amplitude of the educational response might be defined with reference to the resources required to achieve stated purposes, or the extent to which the essential resources are made available and applied. If agreement could be reached regarding the relevance of proposed changes to stated goals of education, and the kinds and amounts of instructional materials, teaching competencies, and other requirements specified, it might become possible to predict the potency of adaptations and the time required to achieve the postulated effects.

To assess changes taking place in education with regard to their relevance to the human needs arising from the "great transmutation" and their amplitude in relation to desired effects involves great difficulties; yet certain rough judgments may be made. For example, the changes in guidance and counseling, as described by Sprinthall

and Tiedeman (chap. iii), appeared to possess considerable amplitude but seem to have relevance to certain demands relating to college entrance, on the one hand, and to job security, on the other hand, rather than to the developing of individual autonomy. If the last is the aim, a shift in approach is indicated. The changes in school organization as represented by team-teaching, nongrading, and related developments appear to have some relevance to such objectives as better adaptation of instruction to individual differences and better use of available teaching talent; Heathers' analysis in chapter v reveals that the changes to date are not of such amplitude as to produce much in the way of nation-wide effect. In both cases, the present potency of the changes in terms of basic social needs or stated educational aims would seem to be low. In chapter iv, Dale's verdict on present use of instructional resources is that relevance is not always clear and the amplitude is low, so that the potency of what is now being done presumably is also low. Gores, on the other hand, sees the schoolhouse as the key to other changes in education and seems to have no doubt as to the relevance to educational objectives of the newer approaches to school architecture and facilities. If he is right, the only problem would seem to be to increase the amplitude until all children and youth have the benefit of facilities with the flexibility and power which he visualizes.

In curriculum revision, Goodlad's analysis shows high relevance to the stated objectives. There would seem also to be high relevance to the role of science in our culture and society and to the development of attitudes and habits of inquiry. The amplitude is relatively high with respect to materials and techniques, but relatively low with regard to qualified teachers. The effort to develop packages of "teacher-proof" material was accepted by some as obviating the much more difficult solution of developing in teachers-in-training and those already employed the capacity for using the new instructional materials, devices, and techniques to the intended effect. In spite of this serious shortcoming, I am of the opinion that the potency of curriculum revision in mathematics and the sciences, both with regard to stated objectives and to fundamental changes in culture and society, place these changes very high among those current in education. Further differentiation of materials for learners with diverse backgrounds and abilities and relatively low motivation for

intellectual pursuits would give greater amplitude, especially if related to effective programs of teacher education.

With reference to the changes in the role of the teacher identified by Lee, one is justified in asking whether these changes are already generally realized and operative as of 1965; whether they are still not fully realized, but part of a trend that is so strong that early and fairly complete realization may be anticipated; whether they are merely incipient and struggling with counterforces so that the result is still in doubt; or whether they fall into the much-talked-about but little-acted-upon category.

Certainly much of the discourse on education in recent years has centered on the three characteristics identified by Lee; namely, specialization, intellectualization, and continuity. To the extent that we are moving away from the expectation that teachers in elementary schools should be able to teach a broad range of subjects and perform many social and other nonacademic functions and toward the conception of elementary-school teachers as specialists in certain fields or disciplines, this may be interpreted as a relevant response to the specialized nature of modern knowledge. In this connection it is well to recall that departmentalization of subject matter in the elementary school, which took place in the first decade of this century and flourished for a period thereafter, represented an earlier and not notably successful response to the increasing specialization of knowledge. The present emphasis on intellectualization also corresponds to an earlier emphasis which was overwhelmed not so much by the Progressive movement as by the rapid rise of school enrolments, without a corresponding improvement in techniques and materials of instruction. Lee finds this emphasis reasserting itself. He makes a strong case for the relevance of the new emphases on intellectualization, specialization, and continuity to the changes in our culture. He does not show how far these changes have proceeded and, therefore, gives no indications of amplitude and potency. He does derive implications for teacher education and thus points to one way in which the response may be amplified.

All in all, there is considerable doubt that the educational adaptations of recent years, with exception of the curriculum projects, have developed sufficient potency to radically affect the processes used in the schools or the behavior of individuals passing through

them. Yet it is possible that the combined effects of the new drive toward equality and new social science research may alter the picture materially in the next decade.

Tyler portrays in chapter viii a wide range of possibilities for the application of social-science research to education. The promise, however, is largely unrealizable until the generalizations are given further testing and incorporated in sophisticated ways in teacher education.

Glaser's projected technology of instruction so alluringly set forth in chapter ix is an approach to the programing of behaviors in the interest of more effective learning. The same is true of all attempts to specify behavioral objectives and "teach to them" except that, up to now, technologies of instruction have been so loosely constructed that the subjects (i.e., the learners) easily evade the net to pursue their own objectives. Glaser visualizes the successive application of research to the tightening of the instructional sequence through which the performance of the student is modified "in order to get from entering behavior to specified terminal behavior." He, like most other writers on programed instruction, leaves unanswered the questions of how and by whom the terminal behaviors are to be specified. This may be a proper stance for a scientist who does not want to compromise his objectivity by value judgments; but technologies, introduced without reference to social effects or other considered ends, exert a pull toward setting ends which are technically feasible.[11] Glaser himself says in the conclusion to chapter ix that "the setting of instructional goals will be recast more and more in terms of *observable and measurable* (italics mine) student behavior." It is evident that Glaser relies on improvements in observation and measurement to enlarge the range of goals to which instruction can be directed; but in the meantime, it is my hope that philosophers and other educators will wrestle with ways of attaining outcomes of education important to the higher needs of men, even if such out-

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11. For a brilliant and extended elaboration of this point see Jacques Ellul, *The Technological Society*. New York: Alfred A. Knopf, 1964.

comes elude precise measurement and do not immediately manifest themselves in observable behavior.

Some of the misconceptions regarding programing are dealt with in a recent paper by Skinner,[12] whose experiments and writings have imparted much of the current impetus to the designing of improved technologies of instruction. Skinner notes that programed instruction "made its first appearance in the laboratory in the form of programed contingencies of reinforcement"; and he stresses the sometimes overlooked point that in operant conditioning (as opposed to the Pavlovian approach) "a response cannot be reinforced until it occurs." His discussion of four different types of programing shows possibilities for "generating new and complex patterns" of behavior and "maintaining behavior under infrequent reinforcement" as well as for "bringing behavior under control of stimuli" and altering "temporal or intensive properties of behavior." With regard to maintaining behavior without the necessity for frequent reinforcement, Skinner says:

> The effective scheduling of reinforcement is an important element in educational design. Suppose we wish to teach a student to read "good books"—books which, almost by definition, do not reinforce the reader sentence by sentence or even paragraph by paragraph but only when possibly hundreds of pages have prepared him for a convincing or moving denouement. The student must be exposed to a programme of materials which build up a tendency to read in the absence of reinforcement. Such programmes are seldom constructed deliberately and seldom arise by accident, and it is therefore not surprising that few students even in good universities learn to read books of this sort and continue to do so for the rest of their lives. In their pride, schools are likely to arrange just the wrong conditions; they are likely to maintain so-called "standards" under which books are forced upon students before they have had adequate preparation.

> Other objectives in education need similar programming. The dedicated scientist who works for years in spite of repeated failures is often looked upon as a happy accident, but he may well be the product of a happy if accidental history of reinforcement. A programme in which

12. B. F. Skinner, in a lecture delivered November 19, 1964, and submitted for publication in the *Proceedings* of the Royal Society of London. Vol. CLXII-B (July 27, 1965).

exciting results were first common but became less and less frequent could generate the capacity to continue in the absence of reinforcement for long periods of time.[13]

Skinner's paper indicates that "contingencies of reinforcement" can be contrived to develop complex as well as simple behaviors and to encompass "higher" learning outcomes. It also suggests how natural reinforcers may replace contrived reinforcers.

Skinner acknowledges that "an effective technology of teaching" could be unwisely used; and he names some dire possibilities. "On the other hand, it could maximize the genetic endowment of each student, . . . build the greatest diversity of interests . . . lead him to make the greatest possible contribution to the survival and development of his culture."

Both Glaser's chapter in this volume and Skinner's paper seem to me to contain a basis for hope and a solemn warning. The hope lies in advancing understanding of human motivation and learning through the experimental analysis of behavior and in applications of what is learned to the processes of teaching and learning. The warning is that the use made of the effective technologies which will inevitably flow from the scientific study of human behavior will depend on decisions that lie beyond the scope of science.

No one has yet written programs to reinforce psychic risk-taking or openness to new learnings, independence of judgment and willingness to make choices amidst uncertainty, or deferment of immediate gratification for long-range benefits. That all too rare individual, the wise and sensitive teacher, does find ways of reinforcing such behaviors even though the outcomes often are not measurable or even immediately observable. Insufficient imagination and grossly inadequate approaches continue to block the prospect of increasing the number of such teachers.

The schools, aroused by the civil rights movement and prompted by presidential exhortation and congressional grants, are bestirring themselves uncertainly and unevenly to help all children and young people learn whatever is necessary for entrance to and advancement in our highly organized technological society. The uncertainty arises from the meagerness of knowledge regarding both the differential

13. *Ibid.*

effects of various aspects of the environment in early childhood and later and the conditions essential to the efficacy of corrective measures. The unevenness and tardiness of the response are traceable to a host of factors, including in a few cases blindness or indifference to the need and in others a misperception of the schools' responsibilities. Even where the intent is strong and the responsibility fully accepted, most schools still find it difficult to make full use of the relevant knowledge because of a shortage of teachers and suitable materials. Yet, this effort to demonstrate the educability of all children and youth may produce changes of profound significance in schools and other agencies of acculturation and socialization. The challenge has been posed in telling terms by Moshe Smilansky, Chairman of the Department of Education at the University of Tel Aviv:

> In the light of (1) the need of a democratic society for a functioning equality among the people, (2) the need of a technologically developing economy for a speedy expansion of "the pool of ability," and (3) the evidence from research and experience in different countries that not only cultures and societies are in process of evolution and change, but that man's potentialities can be promoted, the task of the educational system and the psychological service should be altered. Instead of serving as "gate-keepers," these agencies should: try to identify, diagnostically, those social and cultural determinants that set constraints on the appearance and activation of human potentialities; and conduct a systematic search, experimentally, for ways to deal with, and promote, their emergence and growth.[14]

Acceptance of this challenge by social scientists and school people may speed up the discovery and application of new knowledge and technologies to produce education with greater power to produce in all members of society the four types of development discussed earlier in this chapter under the heading, "The Ends of Education Reconsidered."

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14. Lecture sponsored by the Graduate School of Education, University of Chicago, July 28, 1965.

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INFORMATION CONCERNING THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

1. PURPOSE. The purpose of the National Society is to promote the investigation and discussion of educational questions. To this end it holds an annual meeting and publishes a series of yearbooks.

2. ELIGIBILITY TO MEMBERSHIP. Any person who is interested in receiving its publications may become a member by sending to the Secretary-Treasurer information concerning name, title, and address, and a check for $8.00 (see Item 5), except that graduate students, on the recommendation of a faculty member, may become members by paying $6.00 for the first year of their membership. Dues for all subsequent years are the same as for other members (see Item 4).

Membership is not transferable; it is limited to individuals, and may not be held by libraries, schools, or other institutions, either directly or indirectly.

3. PERIOD OF MEMBERSHIP. Applicants for membership may not date their entrance back of the current calendar year, and all memberships terminate automatically on December 31, unless the dues for the ensuing year are paid as indicated in Item 6.

4. DUTIES AND PRIVILEGES OF MEMBERS. Members pay dues of $7.00 annually, receive a cloth-bound copy of each publication, are entitled to vote, to participate in discussion, and (under certain conditions) to hold office. The names of members are printed in the yearbooks.

Persons who are sixty years of age or above may become life members on payment of fee based on average life-expectancy of their age group. For information, apply to Secretary-Treasurer.

5. ENTRANCE FEE. New members are required the first year to pay, in addition to the dues, an entrance fee of one dollar.

6. PAYMENT OF DUES. Statements of dues are rendered in October for the following calendar year. Any member so notified whose dues remain unpaid on January 1, thereby loses his membership and can be reinstated only by paying a reinstatement fee of fifty cents.

School warrants and vouchers from institutions must be accompanied by definite information concerning the name and address of the person for whom membership fee is being paid. Statements of dues are rendered on our own form only. The Secretary's office cannot undertake to fill out special invoice forms of any sort or to affix notary's affidavit to statements or receipts.

Cancelled checks serve as receipts. Members desiring an additional receipt must enclose a stamped and addressed envelope therefor.

7. DISTRIBUTION OF YEARBOOKS TO MEMBERS. The yearbooks, ready prior to each February meeting, will be mailed from the office of the distributors, only to members whose dues for that year have been paid. Members who desire yearbooks prior to the current year must purchase them directly from the distributors (see Item 8).

8. COMMERCIAL SALES. The distribution of all yearbooks prior to the current year, and also of those of the current year not regularly mailed to members in exchange for their dues, is in the hands of the distributor, not of the Secretary. For such commercial sales, communicate directly with the University of Chicago Press, Chicago, Illinois 60637, which will gladly send a price list covering all the publications of this Society. This list is also printed in the yearbook.

9. YEARBOOKS. The yearbooks are issued about one month before the February meeting. They comprise from 600 to 800 pages annually. Unusual effort has been made to make them, on the one hand, of immediate practical value, and, on the other hand, representative of sound scholarship and scientific investigation.

10. MEETINGS. The annual meeting, at which the yearbooks are discussed, is held in February at the same time and place as the meeting of the American Association of School Administrators.

Applications for membership will be handled promptly at any time on receipt of name and address, together with check for $8.00 (or $7.50 for reinstatement). Applications entitle the new members to the yearbook slated for discussion during the calendar year the application is made.

5835 Kimbark Ave.   HERMAN G. RICHEY, *Secretary-Treasurer*
Chicago, Illinois 60637

PUBLICATIONS OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION

NOTICE: Many of the early Yearbooks of this series are now out of print. In the following list, those titles to which an asterisk is prefixed are not available for purchase.

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