

Using RESEARCH To Point the Way in Curriculum Change

"Using research to point the way in curriculum change is a cooperative endeavor involving many talents. It is an enterprise which, in itself, should be tested by research methods, for only beginning proposals are stated here."

IN THINKING OF educational research today, one recalls Winston Churchill's wartime tribute to the Royal Air Force, "Never . . . was so much owed by so many to so few." With only meager backing in research resources, many practices in education have been improved in the past fifty years. To quote a much older source than Churchill, "The harvest truly is plenteous but the laborers are few."

That pitiable amounts of energy and money are devoted to educational research, as compared to other research enterprises, scarcely needs to be documented. Last year the United States spent about 2.8 billion dollars on industrial research and other astronomical sums in the research programs of the various branches of the armed services. In comparison, there is no estimate of the total of educational research amounting to more than "a few million dollars." One chemical company alone spent fifty-seven million dollars on research in 1953. One soap company employed 230 full-time

research people, with about twice that number of assistants, in only one of its laboratories. It is doubtful if all the universities, teachers colleges and public school systems in the country could muster a comparable number of full-time research workers on educational problems.

Few can criticize the amounts spent on research by military and industrial groups. One can wish, however, that the positive program for child welfare embodied in the schools would rank at least equally with other kinds of welfare. People are more important than planes and children come before chewing gum and telephones. Our educational systems need research resources comparable to those utilized by other parts of our society.

But the picture is not altogether dark. Even with the miserable research support available to them, school people and school systems have done much to improve instruction, materials and the working environments in schools. One has only to contrast schools of 1900 with those of 1955 to realize that progress has been made. Not all this progress is traceable to research but scientific answers to problems have been one of the potent

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influences in changing schools and schooling.

Influences on the Curriculum

Over the years, various interrelated conditions have influenced the curriculum of the schools. It is only in the recent past that research has become a factor. Such influences include:

Tradition. Tradition seldom makes for change but is a powerful factor in determining the school curriculum. Teachers teach in ways they have been taught. We do certain things because "They have always been done that way in this town." Scientific research results may question such traditions as the one that the difficult subject trains the mind or character, or that reading should be begun by all children in first grade, but the hand of tradition is heavy on many schools.

Philosophies of Education. Closely allied to various traditions, certain philosophies of education have influenced curriculum practice. Many people agree that the most powerful single influence on the American School curriculum was John Dewey. But other school practices, as well as speeches about education, may be traced to the writings of Plato and Aristotle—and others down the centuries to the latest brand of reconstructionism.

Social Aims and Patterns. The aims of people for their children, the social values of a community or a nation, inevitably affect the curriculum. If a community unites to demand more music or more arithmetic or more football, the school responds to this social pressure directly or indirectly. If a state or nation says that high school education shall be available to

all youth without respect to creed, color, mental ability or the state of father's pocketbook, the secondary school must unmistakably respond in its curricular offerings, "blackboard jungles" or not. Pressure groups, state legislation and financial support are outward manifestations of such social demands or aims.

Instructional Materials. In an earlier day many teachers taught from "the book." The textbook in arithmetic or history was *the* curriculum. Today sources are more varied, with concrete and audio-visual materials in most classrooms, but available instructional materials, by their very nature, restrict or expand, narrow or enrich the curriculum. School people and writers need to do more to remove inequalities, not only as between persons, but in terms of available materials in different curricular areas.

The Organization of the School System. The one-year graded system of education, found in most schools, has always imposed severe limits on what a curriculum can do. It has tended to decree certain requirements, standards or goals at various age-levels and it has negated most of the things we know about children's capacities, aptitudes and individual rates of development. Furthermore, the organization of school systems in larger blocks of elementary, secondary, junior college and university levels has produced, in the past, some fixed patterns of regulations, examinations and control through accreditation that may be questioned in terms of educational desirability. Unfortunately, the system tends to perpetuate the system, and educational ladders are no exception.

The Teacher. Teachers are, of course, the most potent, intrinsic influences on school curriculums. It is not new to suggest that the teacher enhances or imposes the traditions, practices a philosophy of education, and translates social aims and patterns of living into classroom practices. The teacher largely determines what use shall be made of instructional materials and how the organization of classes, years, curricular and co-curricular activities, and other internal school conditions impinge on the development and ideas of children and youth.

Some teachers are able to apply research findings in creative classroom procedures. The teacher's perceptions, concepts, interpersonal relations, personality and training in one sense are the curriculum for many children.

This summary of six factors suggests that *research is only one of many factors influencing the curriculum*. No program of curriculum development is complete without a consideration of all possible influences. Many of the influences themselves should be studied by more careful research investigations. It also suggests that *the teacher translates research findings into classroom practices*. The teacher, with the help of other curriculum workers, has to make choices, come to decisions. In the classroom, the teacher usually lacks time to debate the issues, he must carry the burden of many combined influences in expediting the curriculum. Where can he turn for clear guides to practice? How can research help as a basis for his decisions? How can the processes of using research be facilitated?

Teachers' Guide to Research

It is not the purpose of this article to list specific sources of research materials for teachers. Rather it attempts to review the fact that research is only one of the influences affecting the curriculum, to state the types of resources available, and to suggest a few steps for increasing use of research in curriculum choices. In addition to careful investigations, the results of which have been published in research monographs, professional journals, doctoral dissertations, and the like, there have been several successful attempts to make research easily available to teachers.

The older publication of the Michigan State Department of Education *What Does Research Say?* (Superintendent of Public Instruction, Lansing, Michigan, 1937) has been useful and could well be revised and reissued by a national organization. Most teachers are familiar with *The Encyclopedia of Educational Research* (rev. ed. Macmillan, 1950) and with the excellent research summaries appearing regularly in such journals as *The Elementary School Journal* and *The School Review*, the *Journal of Educational Research*, and the *Review of Educational Research*. Glennon and Hunnicutt's monograph on arithmetic, published by ASCD, and the recent twenty-five cent pamphlets on reading, spelling, arithmetic and handwriting issued jointly by the Department of Classroom Teachers and the American Educational Research Association show promise of becoming additional valuable sources of research information. In the days when certain pressures

tend to drive teachers back to old methods in spelling, reading and other learnings, such sources cannot be made too accessible.

In addition to such specific sources, the teacher, the supervisor and other curriculum workers have available a considerable range of research materials. The investigations have often been made on a shoestring but some of the results are challenging and decisive. The findings which may be useful in curriculum development exist in at least six main categories:

Researches on the Learning Process. These studies range from the more theoretical, laboratory studies of learning to practical applications in such specific activities as acquiring spelling skills or science concepts. In addition to the original reports, they are usually summarized in texts in educational psychology, in yearbooks such as those of the National Society for the Study of Education, and in certain books on learning such as Hilgard's *Theories of Learning* and McGeoch's *The Psychology of Human Learning*. Not all textbooks or courses in educational psychology succeed in translating learning theories into sound curricular practice. As the research becomes concerned with practical problems such as the most useful words in English, or hard spots in spelling words, or meanings of words, teachers can turn to such sources as the Thorndike-Lorge *Teachers' Word Book*, or Gates' *Spelling Difficulties in 3,786 Words* or McCarthy's summaries of vocabulary development. Even in these, however, many teachers need help in resolving the scientific report into daily practice and into experimentation with some

of the suggestions in their pupils' word lists and related enterprises.

Studies of Growth and Development. Since about 1915, thousands of studies of child and adolescent development have become available to school people. They constitute one of the most valuable, perhaps the most important, of new guides to teaching practices. Sources such as the child and adolescent psychology texts and the *Manual of Child Psychology* edited by Carmichael contain thousands of fascinating facts about school youngsters. But even here there are difficulties. Many of the researches have been made in university institutes of child study far from the heat and battle of the classroom. Many investigations are of children studied singly instead of in the groups found in all classes. Many studies do not give a longitudinal picture. Some of the results apply to children of a particular group and not to those from homes of all socioeconomic levels.

Once again the teacher and principal need help in translating the facts into day-by-day decisions. What are the implications of the rapid growth characteristic of early adolescence when it comes to a junior high school schedule or to homework? How can we apply what we know about children's problem-solving to their social studies program, or what we know about the psychology of creative thinking to written language? The research findings must be supplemented by discussion and experimentation in the whole school staff.

Inquiries Regarding Functional Curriculums. The American genius has always been a fairly practical one

and schools, too, have reflected concern for "what works." Current problems in high school and college regarding vocational versus general or liberal education illustrate the dilemma which many teachers and curriculum committees face. Although the research is not so complete as we would like, once again a considerable body of material is available to the teacher. We have studies of the activities and experiences of children and young people. We know something about their interests and needs. We know considerable about causes of difficulty in school skills and can teach more "efficiently." We know a little about characteristics required for success in various types of vocations. We are aware that big industries and corporations have become concerned with such problems as "leadership" and "communication" and feel that schools have not done too badly in the interpersonal relationships needed for most modern living. Even here, however, school staffs need help on the problem of making the school curriculum function in the other settings in which youth finds itself.

Investigations of Individual Capacity and Achievement. The usual criticism of most psychology, including educational psychology, is that it is too individual, too concerned with some test results of accumulated single cases rather than groups. While many standardized and teacher-made tests can be criticized, it is still true that they yield data unobtainable in other ways. The teacher always has to study the individual child and the "case method" is being increasingly applied today not only in law but in such areas

as engineering, industry and communications. Consideration of the "case" as a single instance is often valuable for increasing teacher insights into child or adolescent development. It is applicable to current research interests such as studies of gifted children or drop-outs in school.

Explorations in Methods of Working with Groups. Current interest in group procedures and dynamics has resulted so far in little research literature on children-in-groups useful to the teacher. School people can use such books as those of Hartley and his associates on *Understanding Children's Play* and of Cunningham and her co-authors on *Understanding Group Behavior of Boys and Girls*. Some of Lewin's studies and others in social psychology on such topics as leadership, social attitudes and communication have implications for education that have not usually been explicitly stated. Another series of studies more directly concerned with schools is that of teacher-pupil classroom behavior and attitude. Perhaps of the six areas listed this is the one in which school people need most help from experts in relating research findings to daily practices.

Analysis of Instructional Materials. Because textbooks have always been an important part of the curriculum, especially in secondary schools, they have been investigated rather thoroughly from time to time. Factors in physical format are well summarized in such books as Carmichael and Dearborn's *Reading and Visual Fatigue* and current studies of readability by Lorge, Flesch, Dale and others give certain insights into difficulty of printed ma-

terials. Studies of the effectiveness of various audio-visual devices go back to the 1920's. They are included in some books on instruction and are summarized in such places as a chapter in the yearbook of the National Society for the Study of Education entitled *Audio-visual Materials of Instruction*. The literature in this area is not always searching, or concerned with fundamental problems in learning, but it offers teachers practical help of a direct sort.

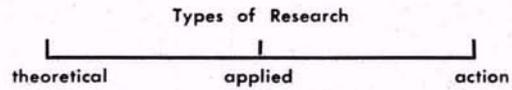
This summary of six areas of research findings available to school people underlines the problem of using what we have in making curriculum choices, of making accessible the better results, and of reducing the lag between the facts and the practices.

Ways of Implementing Research Knowledge

In most facets of modern life there is a gap between knowledge and practice. Einstein's famous equation stating the relationship between energy and mass was relatively unexplored for many years before atomic energy was harnessed, and some twenty-five years elapsed between Fleming's discovery of penicillin and its use in World War II. School people need not feel guilty about a gap between research and practice; instead, we can undertake specific ways of reducing the lag. Here are a few ways of implementing what we know:

1. *Developing with teachers greater insight into different types of research.* One of the most fruitful concepts would seem to be that educational studies are not in hard-and-fast categories but that they differ in degree in their aims and methods. For ex-

ample, one way of looking at studies in the six areas given above is in the form of a continuum:



2. *Sharpening the idea that research studies differ greatly in their usefulness.* Depending on their place in this continuum, studies vary considerably in their applicability to a particular school situation. Teachers may discover that, toward the left of the scale, the studies have sometimes been conducted in artificial, laboratory situations with most experimental factors controlled in a way they never can be in a classroom or school. Toward the right of the scale, the studies involved specific classrooms, schools or communities but these are not necessarily typical of the present situation in another school system. Studies to the left of the scale may give general guides to learning; projects to the right of the scale should probably be repeated in different settings for more immediate applications.

3. *Developing an appreciation of the fact that education is an applied field, drawing from many scientific sources.* School people can find gold in numerous hills. Partly because educational research as such is meager, teachers may be helped to discover findings in the fields of psychology, public health, child development, sociology, architecture and other inter-related disciplines. Once again the harvest is plentiful but the laborers are too few.

4. *Organizing school office staffs and other groups of school people so*

that research gets into "the works" in curricular developments. Many city school staffs, for example, are organized to make research available for guidance in administrative decisions. The chief administrator can say, "Get me what research says about class size for the board meeting next Tuesday," and he will have his data. Similar assistance can be made available for ready reference in many curriculum problems. Staff members involved can be helped in (a) clarifying the curriculum choices which must be made, (b) locating, using and interpreting pertinent research, and (c) applying findings to a particular school or system, including perhaps some further actual experimentation.

5. *Making the above ideas and specific results in the six areas available at every school site.* The research director, principal, supervisor and curriculum co-ordinator have a leadership function in putting results into brief mimeographed reports, news letters and similar materials. In these days when parents raise "then and now" questions about the curriculum and when there are some pressures to return to older methods in reading, spelling, geography and other activities, teachers need the bolstering of research results as opposed to mere opinion. Important as it is, the professional library is not enough. Accessibility at every school is an answer here.

6. *Providing more research information and backing for curriculum committees.* In one large West Coast school system, any new curriculum committee that is appointed now has a subcommittee on research. When curriculum problems arise in regard to

marking or grading policies, exceptional children, phonics, reading readiness, meaningful approaches in arithmetic, homework or any of the hundred topics which may occur, such committees can study and summarize the evidence that exists in research literature and the whole committee uses this evidence as one of its bases for making recommendations.

7. *Encouraging some action research.* When a teacher or curriculum committee can find little or no help in research sources, or when studies reported in the literature seem to require further verification for a particular situation, school people can do something directly about the problem. Articles in this journal, Corey's *Action Research To Improve School Practices* and other sources have provided hints for conducting such studies. Probably no other situation can provide the sharp and direct learning experience that obtains in a cooperative curriculum study. Here is learning about research while doing.

8. *Teachers colleges, university departments of education and other teacher education institutions can expand their in-service obligations in regard to research.* The best interpreters of research are often the producers in the field. The six areas of research knowledge are stated simply above but the facts in them are often obscure and the reports difficult to find. The expert is needed. The daily press of duties does not allow many superintendents, or all coordinators or supervisors, to study research as thoroughly as many of them would like. It is the peculiar function of the institution of learning to offer courses stressing research results, drawn from various

fields, and to provide assistance in experimental study of local problems. Short-time seminars on immediate problems, rather than classes given year after year, are one form of direct response to need. In addition, the institutions mentioned need to do more to develop in their regular students the desire and ability to continue research beyond the student career, as witnessed

by the large number of people who publish a single study in education.

These eight propositions suggest the attack is many-pronged. Using research to point the way in curriculum change is a cooperative endeavor involving many talents. It is an enterprise which, in itself, should be tested and expanded by research methods, for only beginning proposals are stated here.



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ORGANIZING for Effective Instruction

The problem of how best to organize the school or school system for effective instruction is still a central question. This article discusses several basic principles which should govern in setting up an organization to improve instruction.

PROVIDING EFFECTIVE INSTRUCTION is one of the major current problems in education from the kindergarten through the graduate college. Good teaching has always been the principal measure of the success of any school or school system. In recent years the rapid growth in enrollments, the broader demands upon schools, and more critical examination of school programs by the general public have

intensified the quest for better methods of teaching.

Research in many fields has thrown new light upon the teaching-learning process. The child study movement that hit its stride during the 1930's has influenced practice in the better elementary schools. It has been reported that 2700 studies of reading and 1100 studies of arithmetic are now available. How can classroom procedure be brought into line with what is known about child growth and development? What changes in organization and procedure are needed before the findings of research can be used to best advantage?

The nature of groups, group proc-

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