

IS EDUCATIONAL RESEARCH YIELDING
APPROPRIATE DIVIDENDS?

WALTER S. MONROE, UNIVERSITY OF ILLINOIS

It may perhaps appear suggestive of heresy to announce a title which raises the question of the value of educational research, but the experience of several years devoted largely to this field and my contacts with other investigators have convinced me that this is a question of vital importance. About ten years ago there began to be established in colleges and universities explicit organizations for the avowed purpose of conducting educational research. Several of these research organizations now enjoy liberal appropriations for this work. Somewhat similar research departments have been established in a number of public school systems. At the present time the number of such organizations in existence is probably one hundred. In addition there are a large number of workers who are carrying on educational research as personal projects. The Commonwealth Fund, General Educational Board, and other educational foundations are making generous donations to both individuals and research bureaus. The total annual expenditure for educational research is unknown, but undoubtedly it amounts to several hundred thousands of dollars.

The amount of educational research is also indicated by the large number of published reports. In the advance sheets of the biennial survey of education for 1920-22, a summary of certain phases of educational research for that period includes bibliographies totaling 518 titles. School surveys and mental tests are not included. Furthermore, it is announced that only the principal contributions are given in these bibliographies. Beginning in 1917, the Bureau of Educational Research at the University of Illinois has compiled a list of masters' and doctors' theses in Education. Although the compilations are not complete, as all the institutions have not reported their titles, 410 doctors' and 1896 masters' theses have been listed during a period of six years. All doctoral dissertations are expected to be significant contributions

to our knowledge about education. Many masters' theses make minor contributions.

What are the net results of all this activity? What additions have been made to our knowledge of education? What has been the effect of educational research upon school practice? Are we developing a group of competent and reliable research workers? Is the work being done increasing in quality as well as in amount? What has been the effect of educational research upon the attitude of teachers and of others not engaged in carrying on investigations? It would be presumptuous for me to attempt a final answer to these questions, but a number of facts which have seemed significant and perhaps indicative of a general trend have recently come to my observation. Some of these facts I shall pass on to you with the hope that I may stimulate you to think about some vital questions. In the time at my disposal, I propose to cite illustrations of four sources of waste in educational research.

In a doctoral dissertation recently accepted and published by one of our foremost graduate departments in education, the investigator set for herself the problem of making an inventory of the content of the minds of children of six and seven years of mental age. Obviously the first step in dealing with this problem was to locate a representative group of children whose mental ages fell in the interval from six years and no months to seven years and eleven months. This was done by administering the Stanford Revision of the Binet Test to certain groups of children. Later they were given also the Herring Revision of the Binet Test. The average of the two measures was used as the criterion of mental age, although the results of the second test do not appear to have been used in determining what children should be chosen for the investigation. For reasons which are not made clear in the report, the investigator later administered four group intelligence tests and eleven specialized individual tests, and calculated from the scores thus obtained a number of coefficients of correlation and regression coefficients.

A careful reading of the monograph fails to reveal any use which was made of the additional data secured from these tests or of the derived measures which were calculated from the resulting scores. Two tables of coefficients of correlation are presented with the statement that the relations and inter-relations shown are "food for thought," but the report contains little or no evidence that the investigator made any effort to masticate or digest this "food." In fact, it is difficult for the reader to conceive how these correlations might have contributed to the study of the problem under consideration. One gets the impression that the giving of the tests and the subsequent calculations are for ornamentation rather than for any useful purpose. If one may be permitted to read between the lines, he might say that the investigator or her advisers believed that an acceptable doctoral dissertation must contain some coefficients of correlation and statistical formulae, and that in this case these features were added somewhat as an afterthought in order to meet these requirements. At least the reader cannot escape the conviction that the returns upon a certain portion of the investment in this investigation yielded only very meager returns if any at all.

It is not always possible for an investigator to estimate correctly in advance the value of all data collected, and of the calculations which he may make. There will necessarily be some scrapping of material in pioneer work, but this published report has been described as illustrative of a source of waste in educational research which unfortunately is more prevalent than seems to be justified. A careful definition of the problem and a strict adherence to the limitations of this definition will result in a mental reduction in the amount of useless data collected and tabulated.

The writer of a recent article gave a tabulation of the intelligence quotients derived from a group intelligence test. Several of the I. Q.'s were so low and others were so high as to suggest the presence of errors in the scores from which they were calculated. In the original article no mention had been made of this possibility, but a few months later a criticism was published in which the point

was made that the investigator should have considered these limitations in preparing his report of the study. In a reply the author of the original article criticised his critic. Among other things he said, "Nor can there be any question about the reliability of gathering the data. The tests were given by two experienced examiners and scored by trained scorers under supervision."

This statement expresses what appears to be a prevalent attitude toward the measures yielded by standardized educational tests. If the tests were administered by experienced examiners and if there is reason to believe that no errors were made in marking the test papers, then the scores may be considered accurate measures of the traits or abilities which the tests were designed to measure. If specifically interrogated, most test users would probably admit that our present standardized tests are imperfect, but a large number disregard possible limitations when they are using these instruments of educational research. Variable errors are always present in test scores and constant errors are frequently introduced even when the tests have been carefully administered. Critical studies of standardized tests have demonstrated that the possibility of errors in test scores is sufficiently great to make the investigator assume the responsibility for proving that his data are accurate when there is any reason for suspicion. Failure to do this means that the investigator is building upon a suspicious foundation which may result in the collapse of his conclusions. The conclusions reached by educational research cannot be more dependable than the weakest step in the study.

In view of the frequent failure of investigators to be critical of their data, it is then not inappropriate to raise again the question, "Are we receiving adequate dividends for the time and money which is being invested in educational research in the United States?"

There are literally hundreds of persons putting time and money in educational research, but with few exceptions they are working independently and with little reference to what other workers have already done. If one examines the voluminous literature in the field, he

will find relatively few attempts to summarize and organize previous contributions. As a result there are several sources of waste. Most of the educational research which has been done is fragmentary. The studies have been based upon too few cases, or have included only minor aspects of the problem, or have not been carried on long enough to lead to dependable conclusions. Because it is fragmentary much of this work will naturally be lost unless steps are taken to conserve it.

Cooperation has been urged as a means of coordinating and unifying educational research. Workers within certain areas have formed associations and provided facilities for exchanging information in regard to the problems which they are studying or which they expect to study sometime in the future. In this way they believe that duplication of effort can be avoided, or at least minimized, and that when two or more persons are engaged in studying the same problem or related problems, cooperation is mutually advantageous. Some leaders have taken the initiative in organizing those interested in a particular field into a cooperative group and have claimed that such pooling of abilities and resources will result in superior work.

In certain types of studies, cooperation in the form of assistance is necessary and in other cases it has doubtless been beneficial, but it will not correct certain wasteful tendencies. This can be accomplished only by changes in the attitude and interests of those engaged in educational research. Instead of emphasizing "original" research they must develop an interest in studying, in summarizing and in organizing the published reports of the work of others. In my experience with graduate students, I have found them much more eager to attempt an "original" study than to inquire into what has already been done. Recently I inquired of the departments offering graduate work in education concerning the types of theses which they urged students to undertake, or which they found most satisfactory. "Summaries of other investigations," were reported as being among the least satisfactory types of theses. On the other hand, the types most frequently mentioned as being encouraged,

or considered most satisfactory, included original investigations, surveys of a school system, or causal investigations. The popularity of such studies appears to be due to the ease with which they may be made; and the unpopularity of a summary of the work of others is due in part to the fact that such work is difficult and when well done requires a higher degree of ability. One of my correspondents made this illuminating statement, "According to present-day standards anything with tables and statistics seems to be most satisfactory. It is questionable, however, whether they really mean very much in most cases."

The prevailing attitude is reflected also in the preference for studies involving the use of a questionnaire, or of standardized tests rather than for those based upon data to be found in records or published sources. In far too many cases this preference is indicative of mental laziness. It is easy to ask questions for other people to answer. It is also easy to administer a standardized test. No particular ability or acquaintance with the field of education is required to do either of these things. Frequently I have received a number of questionnaires calling for information which was available in reasonably accessible published sources. These questionnaires have come not merely from graduate students who might have been unacquainted with the field, but in some cases from men who were acknowledged leaders and who have been identified with educational research for many years.

I do not wish to be understood as condemning the questionnaire as an instrument of research. Its use is inevitable for certain types of studies and there will always be occasions when a questionnaire will be appropriate, but I am citing the misuse of it as evidence of an undesirable attitude on the part of what I fear is a large number of persons. They seem to be most interested in doing something that will attract attention because of some special feature or of its newness rather than in making comprehensive and permanent contributions to our knowledge of education. Until there is a changed attitude with reference to the purpose and ideals of education research, and I am convinced that the responsibil-

ity for this change rests with those of us who are college teachers of education, most of our research will be fragmentary with resulting waste. As long as present conditions prevail we should ask ourselves, "Is educational research paying appropriate dividends upon its investment?"

When the proposal was first made that mooted questions relative to school practice could be answered by scientific methods, there were many unbelievers. For years the conservatives far outnumbered the progressives, but gradually the skeptics have been converted to the belief that educational experimentation is possible. Today these same people are among those who are accepting the fragmentary and imperfect findings of educational research as comprehensive and final. It is not at all unusual for a person who avows a belief in educational research to make dogmatic endorsements of the results of studies which meet few if any of the requirements of scientific procedure. For example, a teacher in a certain city school system recently asserted that the teachers of that system had solved the problem of constructing a curriculum in history. It was obvious that this teacher believed the work was finished and, because methods called scientific had been used, nothing more was to be said in the matter. This is not an isolated case, but unfortunately it is typical of the attitude of many toward educational research.

As I talk with superintendents and others, including university professors, who have not had intimate experience with educational research, I am surprised and distressed by their childlike faith in the conclusions based upon very imperfect studies. It appears that in our effort to convert those who hesitated to believe in educational research as a means of answering questions that we have overdone the matter. The possibilities of educational research have been advertised, and like all good advertisers we have extolled the good features and have failed to mention the limitations, or if mentioned we have suggested that they could easily be overcome. The result of our selling campaign begins to be apparent. In gen-

eral, educational research may be said to be sold to the public and to the greater majority of teachers and administrators, but educational research itself is failing to deliver the goods. There is being engendered a dogmatism which will exert a deadening influence upon our efforts to study educational problems scientifically. Again we may appropriately ask ourselves the question, "Is educational research yielding appropriate dividends upon its investment?"

This recital of waste in educational research might be greatly extended, but perhaps enough has been said to demonstrate that the title of my paper represents a very real question. There are those who are watching educational research to see what we make of it. Some day they will say, "What have you given in return for the generous investment which has been made in your work? Exactly what have you discovered about education?" They will expect an answer, not in terms of possibilities but of findings which may be considered as conclusive. They will not be satisfied with results that are merely fragmentary. When that day comes we shall need to be able to show that educational research has yielded and will continue to yield adequate dividends upon the investment. At the present time we may point with pride to certain notable achievements, and there is rapidly accumulating a commanding body of scientific information about education, but a few notable achievements will not be accepted as sufficient evidence that the present confidence and support of educational research should be continued. In closing, I command to your earnest consideration the question with which I started. A thoughtful reading of even a small portion of the published results of educational research will furnish much "food for thought."