

Educational Research

Meaning. Educational research refers to a systematic attempt to gain a better understanding of the educational process, generally with a view in improving its efficiency. It is an application of scientific method to the study of educational problems.

Definitions.

1. **Good.** “Educational research is the study and investigation in the field of education.”
2. **Munroe.** “The final purpose of educational research is to ascertain principles and develop procedures for use in the field of education.”
3. **Mulay.** “Any systematic study designed to promote the development of education as a science can be considered educational research.”
4. **Crawford.** “Educational research is a systematic and refined technique of thinking, using special tools in order to obtain a mere adequate solution of a problem.”
5. **J. W. Best.** “Educational research is that activity which is directed towards development of a science of behaviour in educational situations. The ultimate aim of such a science is to provide knowledge that will permit the educator to achieve his goals by the most effective methods.”
6. **W. M. Traverse.** “Educational research is that activity which is directed towards the development of science of behaviour in educational situations.”

Characteristics.

1. Educational research is directed towards the solution of a problem in the field of education. It may attempt to answer a question or to determine the relation between two or more variables.
2. It emphasizes the development of generalizations, principles or theories that will be helpful in predicting future occurrences.
3. Educational research, usually goes beyond the specific objects, groups or situations investigated and infers characteristics of a target population from the sample observed.
4. Educational research involves getting new data from primary or first hand sources or using existing data for a new purpose.
5. Educational research accepts only what can be verified by observation. Certain interesting questions do not lend themselves to research procedures.
6. Although research activity may at times be somewhat random and unsystematic, it is more often characterized by carefully designed procedures, always applying rigorous analysis. Although trial and error are often involved, research is rarely a blind, shotgun investigation trying something to see what happens.
7. Research strives to be objective and logical, applying every possible test to validate the procedures employed, the data collected and the conclusions reached. The researcher attempts to eliminate personal bias.
8. Research requires expertise. The researcher knows what is already known about the problem and how others have investigated.
9. Educational research involves the quest for answers to unsolved problems. Pushing back the frontiers of ignorance is its goal and originality is frequently the quality of a good research project.
10. Educational research is based on insight and imagination. It needs the service of man who looks beyond the present.
11. Educational research requires interdisciplinary approach. It is related to the study of complex relations about facts.
12. Educational research is not so exact a research as physical science. In the latter we can control the events but in educational research it is not possible.
13. Educational research has a great field. Educational psychology, educational philosophy, methodology, class organization and management, child development and other subjects are the fields of research in education.

Need and importance.

Research in education as in the other fields is essential for providing useful and dependable knowledge through which the process of education can be made more effective. There are various considerations which emphasize need for research in education.

1. Education has strong roots in the field like philosophy, history, economics, psychology and sociology. It is through an intensive process of scientific inquiry about the philosophical, historical, economics, psychological and sociological impact on various aspects of education that sound theories can be established.
 2. Education is considered as much a science as an art. As a science, it has a corpus of knowledge. Since education depends on a corpus of knowledge, there is need to add scientific knowledge to it for enrichment and improvement. As an art, education seeks to impart knowledge effectively. For example, 'How can the teacher play an effective role in the classroom and outside?' is a vital question before educationists. It needs careful research efforts to enhance teacher's effectiveness.
 3. The slogan of democratization of education resulted in the expansion of education. It has given rise to numerous problems like the problem of individual differences, expansion, buildings, discipline and so on. Solutions of such problems by trial and error or by experience from tradition and authority often yielded erroneous result. We need solutions based on research so that the coming generation is not left to the mercy of errors of outright sins of tradition, ignorance and prejudice.
 4. There is a need for educational research because of the changing concept of education. The International Commission on the Development of Education, in its report "Learning To Be" (UNESCO 1972, p. 143) emphasizes:
 'Education from now-on can no longer be defined in relation to a fixed content which has to be assimilated, but must be conceived of as a process in the human beings, who thereby learns to express himself, to communicate and to question the world, through his various experiences and increasingly – all the time – to fulfill himself. It has strong roots, not only in economics and sociology but also in the findings from psychological research which indicate that man is an unfinished being and can only fulfill himself through constant learning. If this is so, then education takes place at all ages of life, in all situations and circumstances of existence. It returns to its true nature, which is to be total and life long, and transcends the limits of institutions, programmes and methods imposed on it down the centuries.'
- In the context of above nature of education, the limits of educational research have to be extended from the formal and conventional modes of education to the non-formal and innovative systems based on ecological and cybernetic models.
5. During the last two decades, great changes have taken place as a result of the rapid scientific and technological developments. Education has to play an important role so that we can accept the change in a smooth way. It can do so by bringing improvements in the existing curriculum, textbooks, methods of teaching and evaluation.

LEVELS OF EDUCATIONAL RESEARCH

Basic or Fundamental Research

According to Travers (1948, p.4), basic research is designed to add to an organized body of scientific knowledge and does not necessarily produce results of immediate practical value.

Basic research is primarily concerned with the formulation of a theory or a contribution to the existing body of knowledge. Its major aim is to obtain and use the empirical data to formulate, expand or evaluate theory. Some have termed this research as pure or fundamental. This research draws its pattern and spirit from the physical sciences. It represents a rigorous and structured type of analysis. It employs careful sampling procedures in order to extend the findings beyond the group or situation and thus develops theories by discovering proved generalizations or principles.

The main aim of basic research is the discovery of knowledge solely for the sake of knowledge. It has little concern for the application of the findings or social usefulness of the findings.

Applied Research.

Applied research is directed towards the solution of immediate, specific and practical problems. It is performed in relation to actual problems and under the conditions in which they are found in

practice. The goal of applied research in terms of adding to scientific knowledge acquires only a secondary position. It places importance on a problem here and now.

The applied research also uses the scientific method of inquiry. It has most of the characteristics of basic research. Its methodology, however, is not as rigorous as that of basic research. Moreover, its findings are to be evaluated in terms of local applicability and not in terms of universal validity. Applied research is mainly intended to improve school practices and add to greater teacher effectiveness in a practical manner. Most of the problems faced by teachers, policy planners, and administrators are solved through applied researchers

Action Research.

Action research is focussed on immediate application, not on the development of theory or on general application. It has placed its emphasis on problem here and now in a local setting. Its findings are to be evaluated in terms of local applicability, not universal validity. Its purpose is to improve school practices and, at the same time, to improve those who try to improve the practices: to combine the research processes, habits of thinking, ability to work harmoniously with others and professional spirit.

If most classroom teachers are to be involved in research activity, it will probably be in the area of action research. Modest studies may be made for the purpose of trying to improve local classroom practices. It is not likely that many teachers will have the time, resources, or technical background to engage in the more formal aspects of research activity. Fundamental research must continue to make its essential contributions to behavioural theory and applied research to the improvement of educational practices. These activities, however will be primarily the function of research specialists, many of them subsidized by universities, private and government agencies, professional associations and philanthropic foundations.

Many observers have deprecated action research as nothing more than the application of common sense or good management. But whether or not it is worthy of the term research, it does apply scientific thinking and methods to real life problems and represents a great improvement over teacher's subjective judgements and decisions based upon folklore and limited personal experiences.

In concluding this discussion, it is important to realize that research may be carried on at various levels of complexity. Respectable research studies may be the simple descriptive fact-finding variety that leads to useful generalizations. Actually, many of the early studies in the behavioural sciences were useful in providing needed generalizations about the behaviour or characteristics of individuals and groups. Subsequent experimental studies of more a complex nature needed this groundwork information to suggest hypothesis for more precise analysis.

STEPS IN EDUCATIONAL RESEARCH

Since the educational research is the application of scientific method to the study of educational problems. The steps in educational research, therefore, are more or less identical to those of scientific method. Following are the steps generally found in educational research.

1. **The research problem.** Educational research starts with the selection of a problem. Following are the fields in which one may look for problems for research:
 - a. The classroom, school, home, community and other agencies are the obvious sources.
 - b. Social developments and technological changes are constantly bringing forth new opportunities for research.
 - c. Records of previous research should also be consulted. This includes encyclopaedia of educational research, dissertations and similar publications.
 - d. Classroom discussions, seminars and exchange of ideas with the faculty members and fellow scholars and students will suggest many stimulating problems to be solved.
 - e. Consultation with an expert, researcher supervisor, researcher guide or a senior scholar will also be helpful.

2. **Formulation of hypothesis.** Educational research should make the use of carefully formulated hypothesis. This may be formally stated or implied.
Hypothesis. Hypothesis is the pre-assumptive statement of a proposition or a reasonable guess based upon the available evidences, which the researcher seeks to prove through his study.
3. **Methods to be used.** The selection of research method to be used is of utmost importance in the research process. It refers to the general strategy followed in collecting and analyzing the data necessary for solving the problem. The research methods are generally classified in 3 categories: (1) Historical, (2) Descriptive, and (3) experimental. The methods used in the study are decided by the nature of the problem and the type of data required for answering the questions relating to the problem.
4. **Data collection.** Whereas the research method describes the overall approach to the problem, this step is concerned with the procedures and techniques to be adopted for data collection. It refers to the nature of the sample to be chosen for study, and selection and development of data gathering devices such as tests, questionnaires, rating scales, interviews, observations, checklists and the like.
5. **Analysis and interpretation of data.** Good research is characterized by the care taken in the analysis and interpretation of data. It includes the selection of appropriate quantitative and quantitative techniques to be used for processing the data collected for the study.
6. **Reporting the results.** This is the last and important step of the research process. It is characterized by carefully formulated inferences, conclusions or generalizations. The researcher must be able report his procedures, findings and conclusions with utmost objectivity to others who may be interested in his study and its results.

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