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## Methods of educational research and its applications for achieving quality education

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### Abstract

Educational research Refers to the systematic collection and analysis of data related to the field of education. Research may involve a variety of methods. Research may involve various aspects of education including student learning, teaching methods teacher training, and classroom dynamics. Educational researchers generally agree that research should be rigorous and systematic However, there is less agreement about specific standards, criteria and research procedures Educational researchers may draw upon a variety of disciplines. These disciplines include psychology, sociology, anthropology and philosophy Methods may be drawn from a range of disciplines. Conclusions drawn from an individual research study may be limited by the characteristics of the participants who were studied and the conditions under which the study was conducted. This paper explores different senses of the concept of meaning in educational research, presenting 'meaning' as personal and shared offering the various types, challenges, benefits and forms of research in practice-based research in educational technology. Teaching does involve creative thinking and experimentation. Individuals and professional groups need to know what works and why. Whether a teacher's action lead to improved pupil performance, increased motivation, commitment, better behavior or not, but it will surely reflect that research is more formal. However, these all need to be connected, and too often research is conducted in isolation of others.

**Keywords:** Methods of research, challenges, applications, implementation and quality education

### Introduction

The basis for educational research is the scientific method The scientific method uses directed questions and manipulation of variables to systematically find information about the teaching and learning process. In this scenario questions are answered by the analysis of data that is collected specifically for the purpose of answering these questions. Hypotheses are written and subsequently proved or disproved by data which leads to the creation of new hypotheses. The two main types of data that are used under this method are qualitative and quantitative. Quality learning is not only essential for meeting people's basic needs, but is also fundamental in fostering the conditions for global peace and sustainable development. All young people need to learn in active, collaborative and self-directed ways in order to flourish and contribute to their communities. Along with the basics, they need to acquire attitudes, values and skills as well as information. Their teachers, peers, communities, curriculum and learning resources must help prepare them to recognize and respect human rights globally and to value global well-being, as well as equip them with the relevant skills and competencies for 21st century employment opportunities.

"A good quality education is one that provides all learners with capabilities they require to become economically productive, develop sustainable livelihoods, contribute to peaceful and democratic societies and enhance individual well-being. The learning outcomes that are required vary according to context but at the end of the basic education cycle must include threshold levels of literacy and numeracy, basic scientific knowledge and life skills including awareness and prevention of disease. Capacity development to improve the quality of teachers and other education stakeholders is crucial throughout this process."

Everybody is engaged in the critical study of original empirical research to learn about cutting edge methods of data collection and analysis. Philosophical assumptions underlying educational enquiry are to be examined. The Importance of research in higher education say that knowledge is enough to make productive career but nowadays competition is so tough

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that higher education is must to make a mark at higher level. It doesn't really matter that whether we are interested in history or science, computer or management, higher education will provide you that extra bit of ease to pick up much required speed at corporate level in beginning. But main question is how to make your higher education more productive. It does not depend on university or college to be selected or it's a course selection that makes all the difference. The fact is all of those students who are cautious about their study are well enough to make good selection over course and college. Actually that makes difference is research in technical and higher education which holds the level holds its own importance. To conduct research, one need to study and look for references, sources and market research and carefully analyze the topic you are researching, including evidence and theories.

### Characteristics of educational research

- Educational research attempts to solve a problem.
- Research involves gathering new data from primary or first-hand sources or using existing data for a new purpose.
- Research is based upon observable experience or empirical evidence.
- Research demands accurate observation and description.
- Research generally employs carefully designed procedures and rigorous analysis.
- Research emphasizes the development of generalizations, principles or theories that will help in understanding, prediction and/or control.
- Research requires expertise—familiarity with the field; competence in methodology; technical skill in collecting and analyzing the data.
- Research attempts to find an objective, unbiased solution to the problem and takes great pains to validate the procedures employed.
- Research is a deliberate and unhurried activity which is directional but often refines the problem or questions as the research progresses.
- Research is carefully recorded and reported to other persons interested in the problem.

### Methods of Research and their Applications

**Basic approach:** Basic, or academic research focuses on the search for truth or the development of educational theory. Researchers with this background "design studies that can test, refine, modify, or develop theories." Generally, these researchers are affiliated with an academic institution and are performing this research as part of their graduate or doctoral work.

**Applied approach:** The pursuit of information that can be directly applied to practice is aptly known as applied or contractual research. Researchers in this field are trying to find solutions to existing educational problems. The approach is much more utilitarian as it strives to find information that will directly influence practice. Applied researchers are commissioned by a sponsor and are responsible for addressing the needs presented by this employer. The goal of this research is "to determine the applicability of educational theory and principles by testing hypotheses within specific settings".

**Historical research:** Historical method in education has been in use in the past to a greater extent than any other method of research, during the development of educational research. Historical method of research is also called the documentary research as it makes use of historical documents and other records. It relates to the historical technique of research where historical records, documents and relics are made use of in dealing with problems on hand. Recounting some aspects of past life and critical research for truth is made in the light of past events. Historical research may be defined as the study of problems of education making use of historical source and techniques in order to evolve universal generalization and principles. Historical research is the application of scientific method of inquiry to historical problems. It demands standards of careful methodology and spirit comparable to those which characterize other types of research. Although everyone is a historian in that, he remembers what occurred in the past, such history does not meet the criteria of historical research. It is to be a science and it must achieve some standards of excellence as other forms of research. Purpose and values of historical research. 1. The foremost purpose is to gain a clear perspective of the past and the present. The present problems are understandable only on the basis of past. 2. It provides us with a greater appreciation of the culture and of the role which education is to play in the progress of society. 3. This study provides important information concerning the effects of certain past educational practices and may suggest programmes for future action, based upon the evaluation of the past experiences. 4. It helps avoiding making mistakes of the past. 5. Such approach makes it easier to recognise and identify significant factors in the existing complex situation. 6. It enables us to understand the dynamics of educational change. 7. It develops understanding of the deep-rooted causes of the present day educational problems. 8. It develops our ability to locate, analyse and appraise historical evidence and to understand the limitations of this evidence. 9. It helps remove educational prejudice, misconceptions of facts. 10. It is a necessary foundation for any educational reform. 11. It enlightens us as to how the functions and roles of social institutions have shifted from time to time. 12. It inspires respect for sound scholarship and reverence for great teachers. Moreover the history of education seeks to answer three important questions, i.e., the question of evaluation, the question of resemblance and the question of value.

**Experimental method:** Experimental research is the name given to the type of educational research in which the investigator controls the educative factors to which a child or a group of children is subjected during the period of inquiry and observes the resulting achievements. According to John W. Best, experimental research is the description of analysis of what will be or what will occur under carefully controlled conditions. It is the classical methodology of the science laboratory. It is the most exciting of all methods of research. It has the greater utility in laboratory, and it can also be applied with same success in the school classrooms. Experimental research is based on a simple principle. If two situations are alike in every respect and one element is added to or removed from one but not the other, any difference that develops is the result of the operation of element added or removed.

**Descriptive Method:** Of all the research methods, descriptive method is most widely used. It is known by various names, i.e., status studies, survey research and normative-survey type. The descriptive method of educational research may be defined as that method of investigation of educational problem which attempts to describe and interpret the presently existing conditions, practices, beliefs, attitudes, trends, processes and effects of educational phenomena that are typical of the normal conditions. Characteristics. The following are some of the characteristics of descriptive method of research: 1. It involves the gathering of data from a large group. 2. It deals mainly with what exists at present. 3. It is concerned chiefly with the general population rather than with the individuals. 4. It includes description of events or establishing of relationships among events. 5. It covers physical, behavioural and attitudinal aspects of individuals or abilities of pupils. 6. It serves as a kind of exploration of the field of study. 7. A survey may be general or specific. It may be purely utilitarian in nature or may have academic importance aimed at verification of some established theory or any of its corollaries.

**Applications of Research in Education:** Research will help to understand any subject and its principals in much better and easier way which will encounter new questions and search for answers of those questions will lead you to learn new theories of any subject. Research means trying something out of the box. When it is done such things it will separate one from other students which will surely attract attention of your tutors as well which in turn benefit extreme need of help from someone who is more knowledgeable than the other. Research is not always a concept that practitioners, managers and policy makers respect. Too often it is seen as an academic activity conducted by others – to the profession, not with the profession. Research education professionals are always learning, finding out things, analyzing information, adapting their behavior according to information received, looking to improve and adapting to modern demands. Practitioners have to comply with policy. Teachers can adapt it to fit the individual needs of their own pupils. As teachers are accountable, the public must have faith in the profession – and attitudes to education vary across many social groups – so the performance of teachers can be demonstrated through the publication of research findings. Teachers project their own personality upon learning experiences. Sometimes this is intuitive and these decisions can either be successful or fail. Research methodologies give teachers the tools to analyze and make informed decisions about their practice. Research helps teachers to share with colleagues. Too often research looks backwards and there are lessons to learn. However, it would be better to prefer a research in education as invention and innovation so that it should be future oriented and designed to benefit learners rather than the researchers themselves.

**Challenges in Research Education:** The learning and teaching experience be based upon research and evidence, but it runs the risk of being any one of theory, ideology, convenience and prejudice. Education should serve to liberate, and promote democracy and equality of opportunity. Ideology can be dangerous. Teachers have a social responsibility – to develop active citizens. Following an ideological route restricts choice, which is the opposite to

the real purpose of education. What is been taught in an age gone by – new theories and technological advances have taken, and are taking, place. Basing our practice solely on our own learning experiences, without reflection, mean education runs the risk of being outdated and not being forward looking. Any single theory cannot operate in isolation. Learners and learning are complex and success is influenced by a multitude of factors, social backgrounds, family background, personality, age, gender, location etc. Theories needs to be combined, tested and challenged in order to allow us to adapt to suit local and personal environments. Convenience and manageability are important. Teachers can occupy and even control pupils, as well as entertain them. Learning new things and new ways of behaving can be uncomfortable. It is not enough to base teaching and learning around convenience. Research can help teachers to understand what works and why, what the short and long term implications are, provide a justification and rationale for decisions and actions, help to build a repertoire to help deal with the unexpected, identify problems, inform improvement and so forth Based on above challenges only one cannot adhered to the research, but the decisions upon evidence is morally sound.

**Implementation:** The research awareness in educational field can be implemented in the following forms which can lead into the improvement of in terms of progress can be observed. The various forms of research should suit policy makers, planners and implementers of policy. Large scale studies into pupil performance can help to identify trends and enable educational outcomes to be related to social and economic needs. Policy makers want to see the big picture. On the other hand, practitioners want to know why some techniques work and others don't. All professionals need to be able to trust the source of information – and strict research ethics provide that assurance. The profession as a whole needs access to a range of data/evidence types.

**Conclusion:** Education research embraces the full spectrum of rigorous methods appropriate to the questions being asked and also drives the development of new tools and methods. To achieve this, it is not enough to measure what learners learn: it is essential to target the classroom experiences that fundamentally shape student learning, and emphasize the range of skills required for lifelong well-being and societal consistency. Educational research involves attention to teaching and learning in some way. This may include curriculum, leadership, policy as well as pedagogy. Educational research is an 'engaged' social science i.e. making a difference in the world. It is a practice which is close to the practices of pedagogy, policy etc. Education research is the scientific field of study that examines education and learning processes and the human attributes, interactions, organizations, and institutions that shape educational outcomes. The need of performing educational Research will start from effective programs and teaching methods which will help students to learn what they really want to discover relationships between variables in educational settings to plan interventions. It will help them to understand cultural contexts of schools to create schools that embody justice and reduce prejudice and inequality. From the individual researcher's perspective we investigate topics about which we are curious or passionate; as well, we do research because it is an integral part of the

academic role and a central factor in academic promotion. Individually and collectively, educational research is a part of a quest for meaning. Conceptions of knowledge, like linguistic and conceptual meaning, are both personal and contextually based. In recent years some educational researchers have focused on epistemological meaning.

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